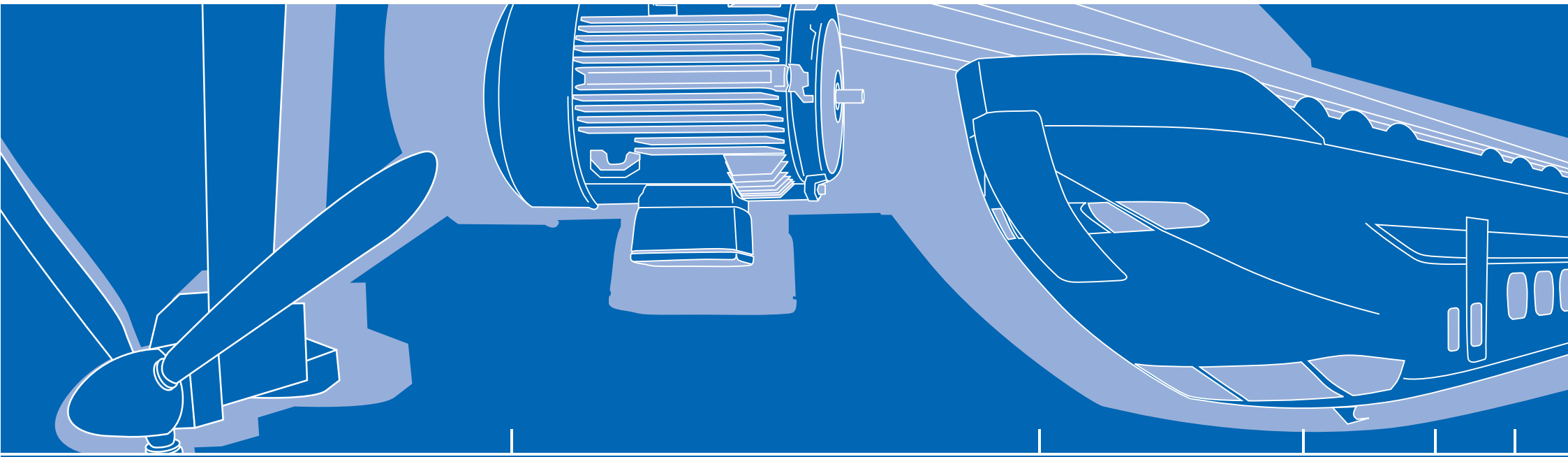
eupec
An Infineon brand

Never stop thinking

infineon



A Wide Range In Short Words.

High Power Semiconductors for Industrial Applications » Short Form Catalog » 2006

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5-2006-3000

Infineon Technolgies AG

Infineon AG Warstein – is situated in Warstein and is one of the world's leading manufacturers of Power Semiconductors in Module- and Disc-design. As former eupec, it was founded in January 1990, when the Power Semiconductor areas of Siemens and AEG merged. Since April, 1999 eupec has been a 100 % subsidiary of Infineon Technologies with production sites in Warstein and Cegléd (Hungary), with sales companies in the USA, Spain and France, and with agencies in all important industrial regions worldwide.

eupec has set worldwide industrial standards by its product innovations. In this connection, eupec all the time focuses its attention on customer benefit and customer satisfaction, two important aspects and company guidelines.

As per October 1st, 2005, eupec GmbH has been fully integrated into Infineon Technologies AG. eupec operates now as Infineon Technologies AG, based in Warstein. The name eupec will remain as a brand next to the Infineon brand name for a transitional period of two years.

Infineon´s power semiconductors are used for applications in the power range of 0,5 kW up to more than 1 giga watt; typical application areas are:
Drives: Rolling mills, presses, machine tools, household appliances of 0,5 kW up to more than 1 MW.
Traction: Railway drives, power supplies, battery vehicles.
Metal processing: Welding, inductive heating, laser applications.
Energy networks: High voltage d.c. transmission systems, high voltage power compensation.
Power supply: Medical equipment, de-centralised power supply units, static power supplies, and UPS.

An important extension of our product portfolio is the family of IGBT-drivers, called *EiceDRIVER*™. The *EiceDRIVER*™ family is divided into two main product categories, ICs (as Coreless Transformer) and Boards. The ICs are defined and produced by Infineon Technologies AG. For more information, please look into www.eicedriver.com.

Based on its strong market position, Infineon is able to invest in research and development to a high extent. Important synergy effects, which are to everybody's benefit, are obtained by the close co-operation with the research and development area of Infineon Technologies and by the collaboration with worldwide leading waferfabs.

More than 1200 motivated, dedicated, and flexible employees are the basis for new ideas which will lead to new products and to further improved solutions for our customers. This is what our slogan "power electronics in motion" wants to say.

Infineon Technolgies AG

Infineon AG Warstein – mit Firmensitz in Warstein gehört zu den weltweit führenden Herstellern für Leistungshalbleiter in Modul- und Scheibenbauform. Im Januar 1990 wurde die ehemalige eupec durch die Zusammenlegung der Leistungshalbleiter-Aktivitäten von Siemens und AEG gegründet. Seit April 1999 ist eupec zu 100 % eine Tochtergesellschaft von Infineon Technologies mit Produktionsstätten in Warstein und Cegléd (Ungarn), Vertriebs-Niederlassungen in den USA, Spanien und Frankreich sowie Vertretungen in den wichtigsten Industrieregionen weltweit.

Seit dem ersten Oktober 2005 ist eupec GmbH vollständig in die Infineon Technologies AG integriert. eupec operiert jetzt als als Infineon Technologies AG mit Sitz in Warstein. Der Name eupec bleibt als Handelsmarke für eine Übergangszeit von zwei Jahren neben der Infineon Handelsmarke bestehen.

Infineon hat mit seinen Produktinnovationen weltweit industrielle Standards gesetzt. Dabei stehen Kundennutzen und Kundenzufriedenheit stets im Focus und sind Bestandteil des Unternehmensleitbildes.

Die Leistungshalbleiter der Infineon werden in leistungselektronischen Anwendungen von etwa 0,5 kW bis über 1 Gigawatt eingesetzt; typischerweise in folgenden Anwendungsgebieten:
Antriebe: Walzwerke, Druckmaschinen, Werkzeugmaschinen, Haushaltsanwendungen von 0,5 kW bis über 1 MW.
Traktion: Bahnantriebe, Bord-Stromversorgungen, Batteriefahrzeuge.
Metallbearbeitung: Schweißtechnik, Induktive Erwärmung, Laseranwendungen.
Energienetze: Hochspannungs-Gleichstrom-Übertragungs-Systeme, Hochspannungs-Leistungs-Kompensation.
Stromversorgung: Medizinische Geräte, dezentrale Energieversorgungssysteme, statische Stromversorgungen und unterbrechungsfreie Stromversorgungen.

Eine wichtige Erweiterung des Produktportfolios, sind IGBT-Treiber, die unter dem Markennamen *EiceDRIVER*™ angeboten werden. *EiceDRIVER*™ ist unterteilt in zwei wesentliche Produktkategorien, ICs (als Coreless Transformer) und Boards. Die ICs werden von Infineon Technologies AG definiert und hergestellt. Weitere Informationen erhalten Sie unter www.eicedriver.com.

Dank der starken Position auf dem Markt ist es Infineon möglich, erheblich in Forschung und Entwicklung zu investieren. Darüber hinaus erbringen die enge Zusammenarbeit mit dem Fachbereich Forschung und Entwicklung von Infineon Technologies und weltweit führenden Fabriken zur Chipherstellung Synergieeffekte, die sich für alle Beteiligten zum Vorteil auswirken.

Risikobereitschaft, Experimentierfreude und unkonventionelles Denken der über 1200 Mitarbeiter sind die Basis für die Ideen zu neuen Produkten und immer besseren Lösungen für unsere Kunden. Das drückt sich auch in unserem Slogan „power electronics in motion" aus.

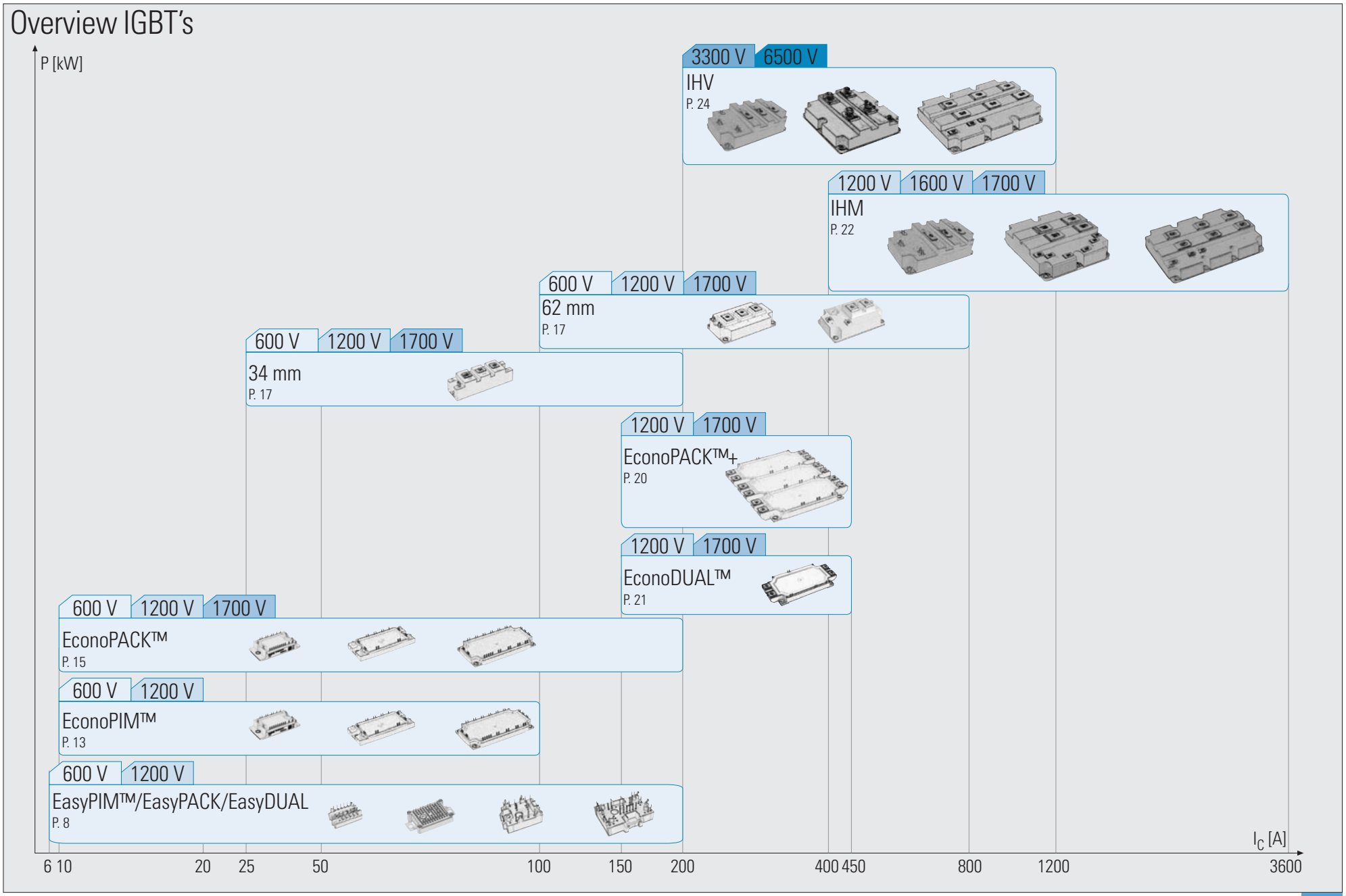
Content Page

Content Page

Further data sheets are available on request:
IGBT-Modules
PIM Modules
Thyristor-/Diode-Modules
Fast Thyristors
Thyristors for Phase Control
Power Rectifier Diodes
Snubber and Freewheeling Diodes

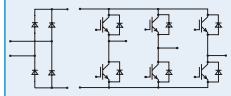
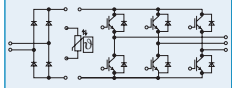
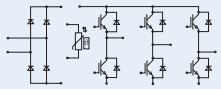
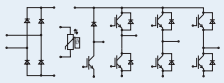
Actual, extensive data can be obtained in PDF-format from our internet address: www.infineon.com

Overview IGBT's



IGBT Low Power Modules
EasyPIM™ Power Integrated Modules

Single Phase 600 V_{CES}

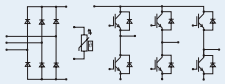
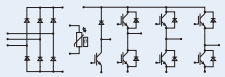
	Type	IGBT Inverter							Rectifier Diodes			Brake Chopper			Outline / page
		V_{CE} V	I_C* A $T_C = 80\,°C$	I_C A $T_C = 25\,°C$	V_{CEsat} V $T_{vj} = 25\,°C$	R_{thJH} K/W typ.	R_{thJC} K/W max.	Eon + Eoff mJ $T_{vj} = 125\,°C$	V_{RRM} V	I_d A	R_{thJC} K/W	V_{CE} V	I_C* A $T_C = 80\,°C$	R_{thJC} K/W max.	
	IGBT[3]														
	FB6R06VE3	600	6	11	1,55	4,90	3,90	0,30	800	10	2,10				L_750a/89
	FB10R06VE3	600	10	16	1,55	4,10	3,10	0,67	800	10	2,10				L_750a/89
	FB15R06VE3	600	15	20	1,55	3,50	2,60	1,05	800	10	2,10				L_750a/89
	IGBT[2]														
	■ FB10R06KL4	600	10	16	1,95	2,20	1,80	0,80	800	10	1,95				L_1a/90
	IGBT[3]														
	FB10R06XE3	600	10	16	1,55	3,40	2,90	0,50	800	10	1,60				L_1a/90
	FB15R06XE3	600	15	22	1,55	2,70	2,10	0,76	800	15	1,60				L_1a/90
	FB20R06XE3	600	20	27	1,55	2,35	1,95	1,00	800	20	1,60				L_1a/90
	IGBT[2]														
	■ FB10R06KL4G	600	10	16	1,95	2,20	1,80	0,80	800	10	1,60				L_2a/91
	■ FB15R06KL4	600	15	19	1,95	2,40	2,00	1,00	800	15	1,00				L_2b/91
	■ FB20R06KL4	600	20	25	1,95	1,80	1,60	1,29	800	20	1,00				L_2b/91
	IGBT[3]														
	FB10R06YE3	600	10	16	1,55	3,40	2,90	0,50	800	20	1,60				L_2a/91
	FB15R06YE3	600	15	22	1,55	2,70	2,10	0,76	800	15	1,20				L_2b/91
	FB20R06YE3	600	20	27	1,55	2,35	1,95	1,00	800	20	1,20				L_2b/91
	◆ FB10R06WE3	600	10	data on request					data on request			data on request			
	◆ FB15R06WE3	600	15	data on request					data on request			data on request			
	◆ FB20R06WE3	600	20	data on request					data on request			data on request			
	◆ FB30R06WE3	600	30	data on request					data on request			data on request			
	IGBT[2]														
	FB10R06KL4G_B1	600	10	15	1,95	2,80	2,20	0,80	800	10	2,40	600	10	2,20	L_2c/91
	FB15R06KL4_B1	600	15	19	1,95	2,40	2,00	1,00	800	15	1,00	600	15	2,00	L_2d/92
	FB20R06KL4_B1	600	20	25	1,95	1,80	1,60	1,30	800	20	1,00	600	20	1,60	L_2d/92
	IGBT[3]														
	FB10R06YE3_B1	600	10	16	1,55	3,40	2,90	0,50	800	20	1,60	600	10	2,90	L_2c/92
	FB15R06YE3_B1	600	15	data on request					800	15	data on request				L_2d/92
	FB20R06YE3_B1	600	20	27	1,55	2,35	1,95	1,00	800	20	1,20	600	20	1,95	L_2d/92

■ Not for new design ◆ New type *as specified in data sheet

Mounting Hardware see page 121.

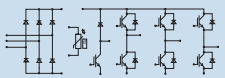
IGBT Low Power Modules
EasyPIM™ Power Integrated Modules

Three Phase 600 V_{CES}

Type	IGBT Inverter							Rectifier Diodes			Brake Chopper			Outline / page
	V_{CE} V	I_C* A $T_C = 80\,°C$	I_C A $T_C = 25\,°C$	V_{CEsat} V $T_{vj} = 25\,°C$	R_{thJH} K/W typ.	R_{thJC} K/W max.	Eon + Eoff mJ $T_{vj} = 125\,°C$	V_{RRM} V	I_d A	R_{thJC} K/W	V_{CE} V	I_C* A $T_C = 80\,°C$	R_{thJC} K/W max.	
 IGBT[2]														
FP10R06KL4_B3	600	10	16	1,95	2,20	1,80	0,80	800	10	1,60				L_2f/92
IGBT[3]														
FP10R06YE3_B3	600	10	16	1,55	3,40	2,90	0,50	800	20	1,60				L_2f/92
 IGBT[2]														
FP10R06KL4	600	10	15	1,95	2,80	2,20	0,80	800	10	2,40	600	10	2,20	L_2e/92
FP15R06KL4	600	15	20	1,95	2,05	1,60	1,00	800	15	1,60	600	15	1,60	L_2e/92
FP20R06KL4	600	20	25	1,95	1,80	1,60	1,30	800	20	2,00	600	20	1,60	L_2e/92
IGBT[3]														
FP10R06YE3	600	10	16	1,55	3,40	2,90	0,50	800	20	1,60	600	10	2,90	L_2e/92
FP15R06YE3	600	15	22	1,55	2,70	2,10	0,76	800	15	1,60	600	15	2,10	L_2e/92
FP20R06YE3	600	20	27	1,55	2,35	1,95	1,00	800	20	1,60	600	20	1,95	L_2e/92
FP30R06YE3	600	30	37	1,55	2,00	1,55	1,60	800	20	1,60	600	30	1,55	L_2e/92
◆ FP10R06WE3	600	10	data on request					data on request			data on request			
◆ FP15R06WE3	600	15	data on request					data on request			data on request			
◆ FP20R06WE3	600	20	data on request					data on request			data on request			
◆ FP30R06WE3	600	30	data on request					data on request			data on request			

* as specified in data sheet ◆ New type IGBT[2] types on request

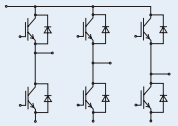
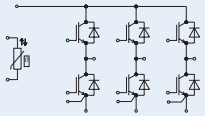
Three Phase 1200 V_{CES}

Type	IGBT Inverter							Rectifier Diodes			Brake Chopper			Outline / page
	V_{CE} V	I_C A $T_C = 80\,°C$	I_C A $T_C = 25\,°C$	V_{CEsat} V $T_{vj} = 25\,°C$	R_{thJH} K/W typ.	R_{thJC} K/W max.	Eon + Eoff mJ $T_{vj} = 125\,°C$	V_{RRM} V	I_d A	R_{thJC} K/W	V_{CE} V	I_C* A $T_C = 80\,°C$	R_{thJC} K/W max.	
 IGBT[3]														
■ FP10R12YT3	1200	10	16	1,90	2,15	1,80	2,40	1600	10	1,5	1200	10	1,80	L_2e/92
FP10R12YT3_B4	1200	10	16	1,90	2,15	1,80	2,40	1600			1200	10	1,80	L_2e/92
FP15R12YT3	1200	15	25	1,70	1,70	1,30	3,50	1600	15	1,40	1200	15	1,30	L_2e/92
◆ FP10R12WT3	1200	10	data on request					data on request			data on request			
◆ FP15R12WT3	1200	15	data on request					data on request			data on request			

■ Not for new design ◆ New type * as specified in data sheet IGBT[3] standard types on request Mounting Hardware see page 121.

IGBT Low Power Modules
EasyPACK

600 V_{CES}

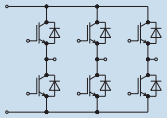
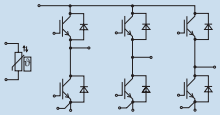
Type		IGBT Inverter							Outline / page
		V_{CE} V	I_C* A T_C = 80 °C	I_C* A T_C = 25 °C	V_{CEsat} V T_{vj} = 25 °C	R_{thJH} K/W typ.	R_{thJC} K/W max.	Eon + Eoff mJ T_{vj} = 125 °C	
	IGBT[3]								
	FS6R06VE3	600	6	11	1,55	4,60	3,70	0,30	L_750b/89
	FS10R06VE3	600	10	16	1,55	3,70	3,00	0,50	L_750b/89
	FS15R06VE3	600	15	22	1,55	3,00	2,30	0,76	L_750b/89
	FS20R06VE3	600	20	25	1,55	2,75	2,00	1,00	L_750b/89
	FS30R06VE3	600	30	34	1,55	2,35	1,70	1,60	L_750b/89
	IGBT[2]								
	■ FS10R06VL4_B2	600	10	16	1,95	2,40	1,80	0,52	L_750c/89
	■ FS15R06VL4_B2	600	15	20	1,95	2,20	1,70	0,71	L_750c/89
	■ FS10R06XL4	600	10	17	1,95	2,20	1,65	0,55	L_1b/90
	■ FS15R06XL4	600	15	20	1,95	1,90	1,55	0,75	L_1b/90
	■ FS20R06XL4	600	20	26	1,95	1,65	1,40	1,10	L_1b/90
	■ FS30R06XL4	600	30	35	1,95	1,35	1,05	1,60	L_1b/90
	■ FS50R06YL4	600	50	55	1,95	0,95	0,62	1,85	L_2h/93
	IGBT[3]								
	FS6R06VE3_B2	600	6	11	1,55	4,60	3,70	0,25	L_750c/89
	FS10R06VE3_B2	600	10	16	1,55	3,70	3,00	0,50	L_750c/89
	FS15R06VE3_B2	600	15	22	1,55	3,00	2,30	0,76	L_750c/89
	FS20R06VE3_B2	600	20	25	1,55	2,75	2,00	1,00	L_750c/89
	FS10R06XE3	600	10	16	1,55	3,40	2,90	0,50	L_1b/90
	FS15R06XE3	600	15	22	1,55	2,70	2,10	0,76	L_1b/90
	FS20R06XE3	600	20	27	1,55	2,45	1,95	1,10	L_1b/90
	FS30R06XE3	600	30	37	1,55	2,00	1,50	1,40	L_1b/90
	FS50R06YE3	600	50	60	1,45	1,35	0,95	1,95	L_2h/93
	◆ FS10R06WE3	600	10	data on request					
	◆ FS15R06WE3	600	15	data on request					
	◆ FS20R06WE3	600	20	data on request					
	◆ FS30R06WE3	600	30	data on request					
	◆ FS50R06WE3	600	50	data on request					

■ Not for new design
◆ New type
* as specified in data sheet

Mounting Hardware see page 121.

IGBT Low Power Modules
EasyPACK

1200 V_{CES}

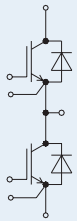
	Type	IGBT Inverter V_{CE} V	I_C* A $T_C = 80\,°C$	I_C* A $T_C = 25\,°C$	V_{CEsat} V $T_{vj} = 25\,°C$	R_{thJH} K/W typ.	R_{thJC} K/W max.	Eon + Eoff mJ $T_{vj} = 125\,°C$	Outline / page
	IGBT[3]								
	FS10R12VT3	1200	10	16	1,90	2,40	1,95	2,35	L_750f/89
	FS15R12VT3	1200	15	24	1,70	1,90	1,45	3,40	L_750f/89
	IGBT[3]								
	FS10R12YT3	1200	10	16	1,90	2,05	1,80	2,30	L_2g/93
	FS15R12YT3	1200	15	25	1,70	1,70	1,30	3,25	L_2g/93
	FS25R12YT3	1200	25	40	1,70	1,15	0,85	5,40	L_2g/93
	FS35R12YT3	1200	35	40	1,70	0,95	0,62	7,50	L_2g/93
	◆ FS10R12WT3	1200	10	data on request					
	◆ FS15R12WT3	1200	15	data on request					
	◆ FS25R12WT3	1200	25	data on request					
	◆ FS35R12WT3	1200	35	data on request					

◆ New type
* as specified in data sheet

Mounting Hardware see page 121.

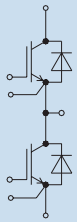
IGBT Low Power Modules EasyDUAL

600 V_{CES}

Type	IGBT Inverter V_{CE} V	IGBT Inverter I_C* A	Outline / page	Remarks
 IGBT³				
FF100R06YE3	600	100	L_2j/93	data on request
FF150R06YE3	600	150	L_2j/93	data on request
FF200R06YE3	600	200	L_2j/93	data on request

* as specified in data sheet

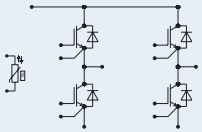
1200 V_{CES}

Type	IGBT Inverter V_{CE} V	IGBT Inverter I_C* A	Outline / page	Remarks
 IGBT³				
FF75R12YT3	1200	75	L_2j/93	data on request
FF100R12YT3	1200	100	L_2j/93	data on request
FF150R12YT3	1200	150	L_2j/93	data on request

* as specified in data sheet

IGBT Low Power Modules EasyFourPACK

600 V_{CES}

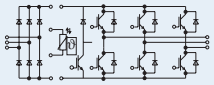
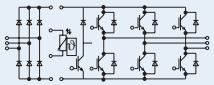
Type	IGBT Inverter V_{CE} V	IGBT Inverter I_C* A	Outline / page	Remarks
 IGBT³				
◆ F4-30R06WE3	600	30	tbd.	data on request
◆ F4-50R06WE3	600	50	tbd.	data on request
◆ F4-75R06WE3	600	75	tbd.	data on request

◆ New type

* as specified in data sheet

IGBT Medium Power Modules
EconoPIM™ Power Integrated Modules

600 V_{CES}

	Type	IGBT Inverter				Rectifier Diodes				Brake Chopper			Outline / page
		V_{CES} V	I_C A	R_{thJC} K/W	V_{CEsat} V T_{vj} = 25°C	V_{RRM} V	I_d A T_C = 80°C	R_{thJC} K/W	V_f V T_{vj} = 150°C	V_{CES} V	$I_{C,IGBT}$ A T_c = 80°C	R_{thJC} K/W	
	IGBT[2]												
	■ BSM10GP60	600	10	1,5	1,95	1600	10	1,00	0,9	600	10	1,5	M_E2a/94
	■ BSM15GP60	600	15	1,3	1,95	1600	15	1,00	0,95	600	10	1,5	M_E2a/94
	■ BSM20GP60	600	20	1,0	1,95	1600	20	1,00	1,0	600	10	1,5	M_E2a/94
	■ BSM30GP60	600	30	0,7	1,95	1600	30	1,00	1,1	600	15	1,3	M_E2a/94
	■ BSM50GP60	600	50	0,5	1,95	1600	50	1,00	1,3	600	25	1,0	M_E2a/94
	■ BSM50GP60G	600	50	0,5	1,95	1600	50	1,00	1,3	600	25	1,0	M_E3a/94
	■ BSM75GP60	600	75	0,4	1,95	1600	75	0,65	1,15	600	37,5	0,7	M_E3a/94
	■ BSM100GP60	600	100	0,3	1,95	1600	100	0,50	1,16	600	50	0,5	M_E3a/94
	◆ FP30R06KE3	600	30	on request	on request	on request	on request	on request	on request	600	on request	on request	M_E2a/94
	◆ FP50R06KE3	600	50	on request	on request	on request	on request	on request	on request	600	on request	on request	M_E2a/94
	◆ FP50R06KE3G	600	50	on request	on request	on request	on request	on request	on request	600	on request	on request	M_E3a/94
	◆ FP75R06KE3	600	75	on request	on request	on request	on request	on request	on request	600	on request	on request	M_E3a/94
	◆ FP100R06KE3	600	100	on request	on request	on request	on request	on request	on request	600	on request	on request	M_E3a/94

■ Not for new design
◆ New type

IGBT Medium Power Modules
EconoPIM™ Power Integrated Modules

1200 V_{CES}

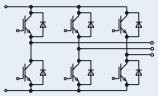
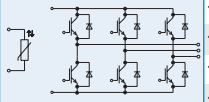
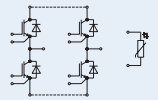
Type	IGBT Inverter				Rectifier Diodes				Brake Chopper			Outline / page
	V_{CES} V	I_C A	R_{thJC} K/W	V_{CEsat} V T_{vj} = 25°C	V_{RRM} V	I_d A T_C = 80°C	R_{thJC} K/W	V_f V T_{vj} = 150°C	V_{CES} V	$I_{C,IGBT}$ A T_c = 80°C	R_{thJC} K/W	
IGBT[2]												
■ BSM10GP120	1200	10	1,20	2,40	1600	10	1,00	0,9	1200	10,0	1,2	M_E2a/94
■ BSM15GP120	1200	15	0,70	2,20	1600	15	1,00	0,95	1200	10,0	1,2	M_E2a/94
■ BSM25GP120	1200	25	0,55	2,10	1600	25	1,00	1,05	1200	12,5	1,2	M_E2a/94
■ BSM35GP120	1200	35	0,55	2,40	1600	35	1,00	1,15	1200	17,5	0,7	M_E2a/94
■ BSM35GP120G	1200	35	0,55	2,40	1600	35	1,00	1,15	1200	17,5	0,7	M_E3a/94
■ BSM50GP120	1200	50	0,35	2,20	1600	50	0,65	1,05	1200	25,0	0,55	M_E3a/94
IGBT[2] Short Tail												
FP15R12KS4C	1200	15	0,70	3,20	1600	15	1,00	0,95	1200	10,0	1,2	M_E2a/94
FP25R12KS4C	1200	25	0,55	3,20	1600	25	1,00	1,05	1200	12,5	1,2	M_E2a/94
FP50R12KS4C	1200	50	0,35	3,20	1600	50	0,65	1,05	1200	25,0	0,55	M_E3a/94
IGBT[3]												
FP15R12KE3G	1200	15	1,20	1,70	1600	15	1,00	0,95	1200	10,0	1,5	M_E2a/94
FP25R12KE3	1200	25	0,80	1,70	1600	25	1,00	1,05	1200	15,0	1,2	M_E2a/94
FP40R12KE3	1200	40	0,60	1,80	1600	40	1,00	1,2	1200	15,0	1,2	M_E2a/94
FP40R12KE3G	1200	40	0,60	1,80	1600	40	1,00	1,2	1200	40,0	0,6	M_E3a/94
FP50R12KE3	1200	50	0,45	1,70	1600	50	0,65	1,0	1200	40,0	0,6	M_E3a/94
FP75R12KE3	1200	75	0,35	1,70	1600	75	0,65	1,15	1200	40,0	0,6	M_E3a/94
Fast IGBT[3]												
FP15R12KT3	1200	15	1,20	1,70	1600	15	1,00	0,9	1200	10,0	1,5	M_E2a/94
FP25R12KT3	1200	25	0,80	1,70	1600	25	1,00	1,05	1200	15,0	1,2	M_E2a/94
FP40R12KT3	1200	40	0,60	1,80	1600	40	1,00	1,2	1200	15,0	1,2	M_E2a/94
FP40R12KT3G	1200	40	0,60	1,80	1600	40	1,00	1,2	1200	40,0	0,60	M_E3a/94
FP50R12KT3	1200	50	0,45	1,70	1600	50	0,65	1,0	1200	40,0	0,60	M_E3a/94
FP75R12KT3	1200	75	0,35	1,70	1600	75	0,65	1,1	1200	40,0	0,60	M_E3a/94
◆ FP10R12NT3	1200	10	1,5	1,9	1600	50	1,0	0,95	1200	10,0	1,5	M_E1a/94
◆ FP15R12NT3	1200	15	1,2	1,7	1600	50	1,0	1,00	1200	15,0	1,2	M_E1a/94

■ Not for new design

◆ New type

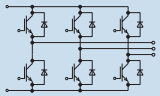
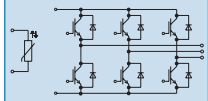
IGBT Medium Power Modules
EconoPACK™

600 V – Type

Type		V_{CES} V	I_C A	V_{CEsat} V T_{vj}=25°C typ.	P_{tot} W	R_{thJC} K/W ≤	Outline / page
	IGBT[2]						
	■ BSM20GD60DLC	600	20	1,95	125	1,0	M_E2d/95
	■ BSM20GD60DLCE3224	600	20	1,95	125	1,0	M_E2c/95
	■ BSM30GD60DLC	600	30	1,95	135	0,9	M_E2d/95
	■ BSM30GD60DLCE3224	600	30	1,95	135	0,9	M_E2c/95
	■ BSM50GD60DLC	600	50	1,95	250	0,5	M_E2c/95
	■ BSM50GD60DLCE3226	600	50	1,95	250	0,5	M_E2d/95
	■ BSM75GD60DLC	600	75	1,95	330	0,37	M_E2c/95
	■ BSM100GD60DLC	600	100	1,95	430	0,29	M_E3c/95
	■ BSM150GD60DLC	600	150	1,95	570	0,22	M_E3c/95
	■ BSM200GD60DLC	600	200	1,95	700	0,18	M_E3c/95
	IGBT[3]						
	◆ FS50R06KE3	600	50	1,45	190	0,8	M_E2b/94
	◆ FS75R06KE3	600	75	1,45	250	0,6	M_E2b/94
	◆ FS100R06KE3	600	100	1,45	335	0,45	M_E3b/94
	◆ FS150R06KE3	600	150	1,45	430	0,35	M_E3b/94
3-Phase-Full-Bridges	◆ FS200R06KE3	600	200	1,45	600	0,25	W_E3b/94
	IGBT[2]						
	F4-100R06KL4	600	100	1,95	430	0,29	M_E2e/95
	F4-150R06KL4	600	150	1,95	570	0,22	M_E2e/95
	F4-200R06KL4	600	200	1,95	700	0,18	M_E3d/95

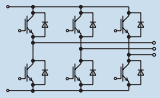
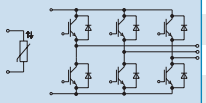
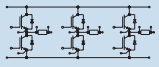
■ Not for new design
◆ New type

1200 V – Type

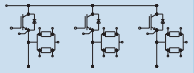
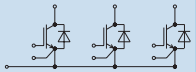
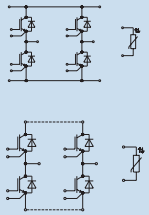
Type		V_{CES} V	I_C A	V_{CEsat} V T_{vj}=25°C typ.	P_{tot} W	R_{thJC} K/W ≤	Outline / page
	IGBT[2]						
	BSM10GD120DN2	1200	10	2,7	80	1,52	M_E2d/95
	BSM10GD120DN2E3224	1200	10	2,7	80	1,52	M_E2c/95
	BSM15GD120DN2	1200	15	2,5	145	0,86	M_E2d/95
	BSM15GD120DN2E3224	1200	15	2,5	145	0,86	M_E2c/95
	BSM25GD120DN2	1200	25	2,5	200	0,6	M_E2d/95
	BSM25GD120DN2E3224	1200	25	2,5	200	0,6	M_E2c/95
	BSM35GD120DN2	1200	35	2,7	280	0,44	M_E2d/95
	BSM35GD120DN2E3224	1200	35	2,7	280	0,44	M_E2c/95
	BSM50GD120DN2	1200	50	2,5	350	0,35	M_E2c/95
	BSM50GD120DN2E3226	1200	50	2,5	350	0,35	M_E2d/95
	BSM50GD120DN2G	1200	50	2,5	400	0,35	M_E3c/95
	BSM75GD120DN2	1200	75	2,5	520	0,235	M_E3c/95
	BSM100GD120DN2	1200	100	2,5	680	0,182	M_E3c/95
	IGBT[2] Low Loss						
	■ BSM15GD120DLCE3224	1200	15	2,1	145	0,86	M_E2c/95
	■ BSM25GD120DLCE3224	1200	25	2,1	200	0,6	M_E2c/95
	■ BSM35GD120DLCE3224	1200	35	2,1	280	0,44	M_E2c/95
	■ BSM50GD120DLC	1200	50	2,1	350	0,35	M_E2c/95
	■ BSM75GD120DLC	1200	75	2,1	500	0,25	M_E3c/95
3-Phase-Full-Bridges	■ BSM100GD120DLC	1200	100	2,1	650	0,19	M_E3c/95
	IGBT[3]						
	FS25R12KE3G	1200	25	1,7	145	0,86	M_E2b/94
	FS35R12KE3G	1200	35	1,7	200	0,60	M_E2b/94
	FS50R12KE3	1200	50	1,7	270	0,45	M_E2b/94
	FS75R12KE3	1200	75	1,7	350	0,35	M_E2b/94
	FS75R12KE3G	1200	75	1,7	350	0,35	M_E3b/94
	FS100R12KE3	1200	100	1,7	480	0,26	M_E3b/94
3-Phase-Full-Bridges	FS150R12KE3	1200	150	1,7	700	0,18	M_E3b/94

IGBT Medium Power Modules
EconoPACK™

1200 V – Type

Type	V_{CES} V	I_C A	V_{CEsat} V T_{vj}=25°C typ.	P_{tot} W	R_{thJC} K/W ≤	Outline / page
 3-Phase-Full-Bridges	IGBT[2]					
	FS75R12KS4	1200	75	3,2	500	0,25	M_E3c/95
	FS100R12KS4	1200	100	3,2	660	0,19	M_E3c/95
 3-Phase-Full-Bridges	Fast IGBT[3]					
	FS25R12NT3	1200	25	on request	on request	on request	M_E1b/94
	FS35R12NT3	1200	35	on request	on request	on request	M_E1b/94
	FS25R12KT3	1200	25	1,7	145	0,86	M_E2b/94
	FS35R12KT3	1200	35	1,7	210	0,60	M_E2b/94
	FS50R12KT3	1200	50	1,7	280	0,45	M_E2b/94
	FS75R12KT3	1200	75	1,7	355	0,35	M_E2b/94
	FS75R12KT3G	1200	75	1,7	355	0,35	M_E3b/94
	FS100R12KT3	1200	100	1,7	480	0,26	M_E3b/94
	FS150R12KT3	1200	150	1,7	700	0,18	M_E3b/94
 Full Bridges with Shunts	IGBT[3]					
	◆ FS75R12KE3_B3	1200	75	1,7	355	0,35	M_E3g/96
	◆ FS100R12KE3_B3	1200	100	1,7	480	0,26	M_E3g/96

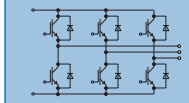
1200 V – Type

Type	V_{CES} V	I_C A	V_{CEsat} V T_{vj}=25°C typ.	P_{tot} W	R_{thJC} K/W ≤	Outline / page
 TriPACK High with Shunts	IGBT[3]					
	◆ FT150R12KE3G_B4	1200	150	1,7	700	0,18	M_E3h/96
 TriPACK Low	◆ FT150R12KE3_B5	1200	150	1,7	700	0,18	M_E2f/96
 FourPACK	Short Tail					
	◆ F4-25R12NS4	1200	25	3,2	210	0,6	M_E1c/95
	◆ F4-35R12NS4	1200	35	3,4	250	0,5	M_E1c/95
	◆ F4-50R12KS4	1200	50	3,2	355	0,35	M_E2e/95
	◆ F4-75R12KS4	1200	75	3,2	500	0,25	M_E2e/95
	◆ F4-100R12KS4	1200	100	3,2	660	0,19	M_E3d/95
	◆ F4-150R12KS4	1200	150	3,2	960	0,13	M_E3d/95

■ Not for new design
◆ New type

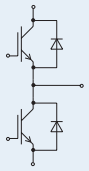
IGBT Medium Power Modules
EconoPACK™

1700 V – Type

	Type	V_{CES} V	I_C A	V_{CEsat} V T_{vj}=25°C typ.	P_{tot} W	R_{thJC} K/W ≤	Outline / page
 3-Phase-Full-Bridges	IGBT[2] Low Loss						
	■ BSM50GD170DL	1700	50	2,7	480	0,26	M_E3c/95
	■ BSM75GD170DL	1700	75	2,7	625	0,20	M_E3c/95
	IGBT[3]						
	◆ FS50R17KE3_B17	1700	50	2,0	345	0,36	M_2g/96
	◆ FS75R17KE3	1700	75	2,0	465	0,27	M_E3b/94
	◆ FS100R17KE3	1700	100	2,0	555	0,225	M_E3b/94

34 mm and 62 mm Modules

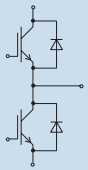
600 V – Type

	Type	V_{CES} V	I_C A	V_{CEsat} V T_{vj}=25°C typ.	P_{tot} W	R_{thJC} K/W ≤ per arm	Outline / page
 Dual Modules	Standard						
	BSM50GB60DLC	600	50	1,95	280	0,44	M_34a/97
	BSM75GB60DLC	600	75	1,95	355	0,35	M_34a/97
	BSM100GB60DLC	600	100	1,95	445	0,28	M_34a/97
	BSM150GB60DLC	600	150	1,95	595	0,21	M_34a/97
	BSM200GB60DLC	600	200	1,95	730	0,17	M_34a/97
	BSM300GB60DLC	600	300	1,95	1250	0,10	M_62a/97
	IGBT3						
	◆ FF200R06KE3	600	200	1,45	680	0,22	M_62a/97
	◆ FF300R06KE3	600	300	1,45	940	0,16	M_62a/97
	◆ FF400R06KE3	600	400	1,45	1250	0,12	M_62a/97

◆ New type
■ Not for new design

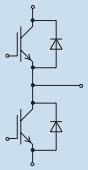
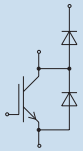
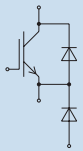
34 mm and 62 mm Modules

1200 V – Type

	Type	V_{CES} V	I_C A	V_{CEsat} V T_{vj}=25°C typ.	P_{tot} W	R_{thJC} K/W ≤ per arm	Outline / page
 Dual Modules	Standard 2. Generation						
	BSM25GB120DN2	1200	25	2,5	200	0,6	M_34a/97
	BSM35GB120DN2	1200	35	2,7	280	0,44	M_34a/97
	BSM50GB120DN2	1200	50	2,5	400	0,3	M_34a/97
	BSM75GB120DN2	1200	75	2,5	625	0,2	M_34a/97
	BSM100GB120DN2K	1200	100	2,5	700	0,18	M_34a/97
	BSM100GB120DN2	1200	100	2,5	800	0,16	M_62a/97
	BSM150GB120DN2	1200	150	2,5	1250	0,1	M_62a/97
	BSM200GB120DN2	1200	200	2,5	1400	0,09	M_62a/97
	Low Loss 2. Generation						
	BSM50GB120DLC	1200	50	2,1	460	0,27	M_34a/97
	BSM75GB120DLC	1200	75	2,1	690	0,18	M_34a/97
	BSM100GB120DLCK	1200	100	2,1	830	0,15	M_34a/97
	BSM100GB120DLC	1200	100	2,1	780	0,16	M_62a/97
	BSM150GB120DLC	1200	150	2,1	1200	0,1	M_62a/97
	BSM200GB120DLC	1200	200	2,1	1300	0,08	M_62a/97
	BSM300GB120DLC	1200	300	2,1	2500	0,05	M_62a/97
	IGBT[3]						
	FF150R12KE3G	1200	150	1,7	780	0,16	M_62a/97
	FF200R12KE3	1200	200	1,7	1040	0,12	M_62a/97
	FF300R12KE3	1200	300	1,7	1450	0,085	M_62a/97
	FF400R12KE3	1200	400	1,7	2000	0,062	M_62a/97
	Fast IGBT[3]						
	◆ FF150R12KT3G	1200	150	1,7	780	0,16	M_62a/97
	◆ FF200R12KT3	1200	200	1,7	1050	0,12	M_62a/97
	◆ FF300R12KT3	1200	300	1,7	1450	0,085	M_62a/97
	◆ FF400R12KT3	1200	400	1,7	2000	0,062	M_62a/97

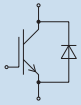
IGBT Medium Power Modules
34 mm and 62 mm Modules

1200 V – Type

	Type	V_{CES} V	I_C A	V_{CEsat} V T_{vj}=25°C typ.	P_{tot} W	R_{thJC} K/W ≤ per arm	Outline / page
 Dual Modules	Short Tail						
	FF100R12KS4	1200	100	3,2	780	0,16	M_62a/97
	FF150R12KS4	1200	150	3,2	1200	0,1	M_62a/97
	FF200R12KS4	1200	200	3,2	1400	0,09	M_62a/97
	FF300R12KS4	1200	300	3,2	1950	0,06	M_62a/97
 GAL Chopper	Standard 2. Generation						
	BSM50GAL120DN2	1200	50	2,5	400	0,3	M_34a/97
	BSM75GAL120DN2	1200	75	2,5	625	0,2	M_34a/97
	BSM100GAL120DN2	1200	100	2,5	800	0,16	M_62a/97
	BSM150GAL120DN2	1200	150	2,5	1250	0,1	M_62a/97
	BSM200GAL120DN2	1200	200	2,5	1400	0,09	M_62a/97
	Low Loss 2. Generation						
	BSM100GAL120DLCK	1200	100	2,1	830	0,15	M_34a/97
	BSM150GAL120DLC	1200	150	2,1	1200	0,1	M_62a/97
	BSM200GAL120DLC	1200	200	2,1	1300	0,09	M_62a/97
	BSM300GAL120DLC	1200	300	2,1	2500	0,05	M_62a/97
	IGBT[3]						
	FD200R12KE3	1200	200	1,7	1040	0,12	M_62a/97
	FD300R12KE3	1200	300	1,7	1450	0,085	M_62a/97
	◆ FD400R12KE3	1200	400	1,7	2000	0,062	M_62a/97
 GAR Chopper	Standard 2. Generation						
	BSM75GAR120DN2	1200	75	2,5	625	0,2	M_34a/97
	BSM100GAR120DN2	1200	100	2,5	800	0,16	M_62a/97
	BSM150GAR120DN2	1200	150	2,5	1250	0,1	M_62a/97
	BSM200GAR120DN2	1200	200	2,5	1400	0,09	M_62a/97
	Low Loss 2. Generation						
	BSM300GAR120DLC	1200	300	2,1	2500	0,05	M_62a/97
	IGBT[3]						
	DF200R12KE3	1200	200	1,7	1040	0,12	M_62a/97
	DF300R12KE3	1200	300	1,7	1450	0,085	M_62a/97
	◆ DF400R12KE3	1200	400	1,7	2000	0,062	M_62a/97

34 mm and 62 mm Modules

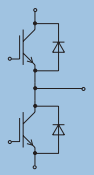
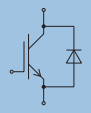
1200 V – Type

	Type	V_{CES} V	I_C A	V_{CEsat} V T_{vj}=25°C typ.	P_{tot} W	R_{thJC} K/W ≤	Outline / page
 Single Switches	Standard 2. Generation						
	BSM200GA120DN2	1200	200	2,5	1550	0,08	M_62b/97
	BSM200GA120DN2F						
	BSM200GA120DN2S	1200	200	2,5	1550	0,08	M_62c/97
	BSM300GA120DN2	1200	300	2,5	2500	0,05	M_62b/97
	BSM300GA120DN2FS						
	BSM300GA120DN2S	1200	300	2,5	2500	0,05	M_62c/97
	BSM400GA120DN2	1200	400	2,5	2700	0,045	M_62b/97
	BSM400GA120DN2F						
	BSM400GA120DN2S	1200	400	2,5	2700	0,045	M_62c/97
	Low Loss 2. Generation						
	BSM200GA120DLC	1200	200	2,1	1470	0,09	M_62b/97
	BSM200GA120DLCS	1200	200	2,1	1470	0,09	M_62c/97
	BSM300GA120DLC	1200	300	2,1	2270	0,055	M_62b/97
	BSM300GA120DLCS	1200	300	2,1	2270	0,055	M_62c/97
	BSM400GA120DLC	1200	400	2,1	2500	0,05	M_62b/97
	BSM400GA120DLCS	1200	400	2,1	2500	0,05	M_62c/97
	BSM600GA120DLC	1200	600	2,1	3900	0,032	M_62b/97
	BSM600GA120DLCS	1200	600	2,1	3900	0,03	M_62c/97
	IGBT[3]						
	FZ300R12KE3G	1200	300	1,7	1450	0,085	M_62b/97
	FZ300R12KE3_B1G	1200	300	1,7	1450	0,085	M_62c/97
	FZ400R12KE3	1200	400	1,7	2250	0,055	M_62b/97
	FZ400R12KE3_B1	1200	400	1,7	2250	0,055	M_62c/97
	FZ600R12KE3	1200	600	1,7	2750	0,045	M_62b/97
	FZ600R12KE3_B1	1200	600	1,7	2750	0,045	M_62c/97
	FZ800R12KE3	1200	800	1,7	3550	0,035	M_62b/97
	Short Tail						
	FZ400R12KS4	1200	400	3,2	2500	0,05	M_62b/97
	FZ600R12KS4	1200	600	3,2	3900	0,03	M_62b/97

◆New type

IGBT Medium Power Modules
34 mm and 62 mm Modules

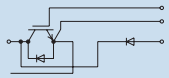
1700 V – Type

	Type	V_{CES} V	I_C A	V_{CEsat} V T_{vj}=25°C typ.	P_{tot} W	R_{thJC} K/W ≤ per arm	Outline / page
 Dual Modules	Standard						
	BSM50GB170DN2	1700	50	3,4	500	0,25	M_34a/97
	BSM75GB170DN2	1700	75	3,4	625	0,20	M_34a/97
	BSM100GB170DN2	1700	100	3,4	1000	0,13	M_62a/97
	BSM150GB170DN2	1700	150	3,4	1250	0,10	M_62a/97
	Low Loss						
	BSM100GB170DLC	1700	100	2,6	960	0,13	M_62a/97
	BSM150GB170DLC	1700	150	2,6	1250	0,10	M_62a/97
	BSM200GB170DLC	1700	200	2,6	1660	0,075	M_62a/97
	IGBT[3]						
	FF200R17KE3	1700	200	2,0	1250	0,100	M_62a/97
	FF300R17KE3	1700	300	2,0	1470	0,085	M_62a/97
 Single Switches	Standard						
	BSM200GA170DN2	1700	200	3,4	1750	0,070	M_62b/97
	BSM200GA170DN2S	1700	200	3,4	1750	0,070	M_62c/97
	BSM300GA170DN2	1700	300	3,4	2500	0,050	M_62b/97
	BSM300GA170DN2S	1700	300	3,4	2500	0,050	M_62c/97
	Low Loss						
	BSM200GA170DLC	1700	200	2,6	1920	0,065	M_62b/97
	BSM300GA170DLC	1700	300	2,6	2500	0,050	M_62b/97
	BSM400GA170DLC	1700	400	2,6	3120	0,040	M_62b/97
	IGBT[3]						
	FZ400R17KE3	1700	400	2,0	2270	0,055	M_62b/97
	FZ600R17KE3	1700	600	2,0	3120	0,040	M_62b/97

Diode Modules

	Type	V_{CES} V	I_F A	V_F V T_{vj}=25°C typ.	Q_R µAs typ	R_{thJC} K/W ≤	Outline / page
 Single Diodes	BYM300A120DN2	1200	300	2,3	40	0,125	M_62d/97
	BYM300A170DN2	1700	250	2,3	70	0,170	M_62d/97
	BYM600A170DN2	1700	400	2,0	100	0,090	M_62d/97
 Dual Diodes	BYM200B170DN2	1700	200	2,2	50	0,150	M_62e/97
	BYM300B170DN2	1700	300	2,2	75	0,120	M_62e/97

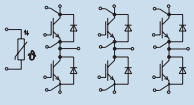
1200 V – Type

	Type	V_{CES} V	I_C A	V_{CEsat} V T_{vj}=25°C typ.	P_{tot} W	R_{thJC} K/W ≤	Outline / page
 Single Switches with Series Diode	◆FD400R12KE3_B5	1200	400	1,7	2000	0,062	M_62a/97
	◆FD300R12KS4_B5	1200	300	3,2	1950	0,064	M_62a/97

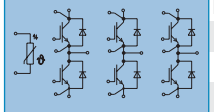
◆New type

IGBT Medium Power Modules
EconoPACK™+

1200 V_{CES}

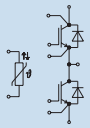
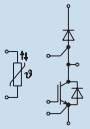
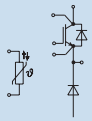
	Type	V_{CES} V	I_C A	V_{CEsat} V T_{vj}=25 °C typ.	E_{on}/E_{off} mWs T_{vj}=125 °C typ.	R_{thJC} K/W	Outline / page
 3-Phase-Full-Bridges	IGBT³						
	FS150R12KE3G	1200	150	1,7	11/24	0,18	M_E+a/98
	FS225R12KE3	1200	225	1,7	15/36	0,11	M_E+a/98
	FS300R12KE3	1200	300	1,7	22/43	0,085	M_E+a/98
	FS450R12KE3	1200	450	1,7	33/65	0,06	M_E+a/98

1700 V_{CES}

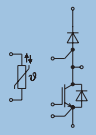
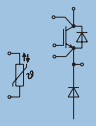
	Type	V_{CES} V	I_C A	V_{CEsat} V T_{vj}=25 °C typ.	E_{on}/E_{off} mWs T_{vj}=125 °C typ.	R_{thJC} K/W	Outline / page
 3-Phase-Full-Bridges	IGBT³						
	FS150R17KE3G	1700	150	2,0	48/47	0,12	M_E+a/98
	FS225R17KE3	1700	225	2,0	71,5/70,5	0,09	M_E+a/98
	FS300R17KE3	1700	300	2,0	95/94	0,075	M_E+a/98
	FS450R17KE3	1700	450	2,0	140/140	0,055	M_E+a/98

IGBT Medium Power Modules
EconoDUAL™

1200 V_{CES}

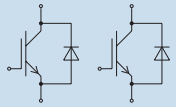
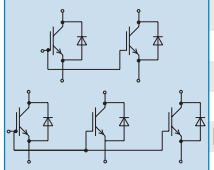
	Type	V_{CES} V	I_C A	V_{CEsat} V T_{vj}=25 °C typ.	E_{on}/E_{off} mWs T_{vj}=125 °C typ.	R_{thJC} K/W	Outline / page
 Dual Modules	IGBT[3]						
	◆ FF150R12ME3G	1200	150	1,7	11/24	0,18	M_ED3/98
	◆ FF225R12ME3	1200	225	1,7	15/36	0,11	M_ED3/98
	◆ FF300R12ME3	1200	300	1,7	22/43	0,085	M_ED3/98
	◆ FF450R12ME3	1200	450	1,7	33/65	0,06	M_ED3/98
	Short Tail						
	◆ FF150R12MS4G	1200	150	3,2	14,5/11	0,1	M_ED3/98
	◆ FF225R12MS4	1200	225	3,2	20/15	0,085	M_ED3/98
	◆ FF300R12MS4	1200	300	3,2	25/15	0,064	M_ED3/98
 FD Chopper	IGBT[3]						
	FD150R12ME3	1200	150	1,7	11/24	0,18	M_ED3/98
	FD225R12ME3	1200	225	1,7	15/36	0,11	M_ED3/98
	FD300R12ME3	1200	300	1,7	22/43	0,085	M_ED3/98
	FD450R12ME3	1200	450	1,7	33/65	0,06	M_ED3/98
	Short Tail						
	FD150R12MS4	1200	150	3,2	14,5/11	0,1	M_ED3/98
	FD225R12MS4	1200	225	3,2	20/15	0,085	M_ED3/98
	FD300R12MS4	1200	300	3,2	25/15	0,06	M_ED3/98
 DF Chopper	IGBT[3]						
	DF150R12ME3	1200	150	1,7	11/24	0,18	M_ED3/98
	DF225R12ME3	1200	225	1,7	15/36	0,11	M_ED3/98
	DF300R12ME3	1200	300	1,7	22/43	0,085	M_ED3/98
	DF450R12ME3	1200	450	1,7	33/65	0,06	M_ED3/98
	Short Tail						
	DF150R12MS4	1200	150	3,2	14,5/11	0,1	M_ED3/98
	DF225R12MS4	1200	225	3,2	20/15	0,085	M_ED3/98
	DF300R12MS4	1200	300	3,2	25/15	0,06	M_ED3/98

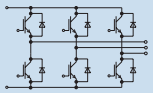
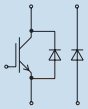
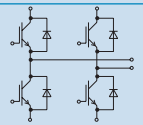
1700 V_{CES}

	Type	V_{CES} V	I_C A	V_{CEsat} V T_{vj}=25 °C typ.	E_{on}/E_{off} mWs T_{vj}=125 °C typ.	R_{thJC} K/W	Outline / page
 Dual Modules	IGBT[3]						
	◆ FF150R17ME3G	1700	150	2,0	48/47	0,12	M_ED3/98
	◆ FF225R17ME3	1700	225	2,0	71,5/70,5	0,09	M_ED3/98
	◆ FF300R17ME3	1700	300	2,0	95/94	0,075	M_ED3/98
	◆ FF450R17ME3	1700	450	2,0	140/140	0,055	M_ED3/98
 FD Chopper	IGBT[3]						
	◆ FD150R17ME3	1700	150	2,0	48/47	0,1 2	M_ED3/98
	◆ FD225R17ME3	1700	225	2,0	71,5/70,5	0,09	M_ED3/98
	◆ FD300R17ME3	1700	300	2,0	95/94	0,075	M_ED3/98
	◆ FD450R17ME3	1700	450	2,0	140/140	0,055	M_ED3/98
 DF Chopper	IGBT[3]						
	◆ DF150R17ME3	1700	150	2,0	48/47	0,12	M_ED3/98
	◆ DF225R17ME3	1700	225	2,0	71,5/70,5	0,09	M_ED3/98
	◆ DF300RE17M3	1700	300	2,0	95/94	0,075	M_ED3/98
	◆ DF450R17ME3	1700	450	2,0	140/140	0,06	M_ED3/98

◆New type

IGBT High Power Modules IHM

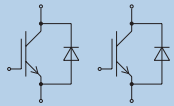
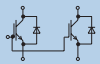
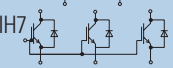
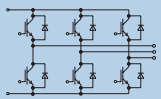
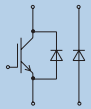
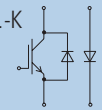
1200 V_{CES}								
	Type *)	V_{CES} V	Ic A	V_{CEsat} V V T_{vj}=25°C typ.	E_{on}/E_{off} mWs T_{vj}=125°C typ.	R_{thJC} °K/W per arm	Outline / page
 Dual modules	Standard 2. Generation						
	FF400R12KF4	1200	400	2,7	70/60	0,046	H_IH2/99
	FF600R12KF4	1200	600	2,7	90/90	0,032	H_IH2/99
	FF800R12KF4	1200	800	2,7	130/120	0,025	H_IH2/99
	Low Loss 2. Generation						
	FF400R12KL4C	1200	400	2,1	72/58	0,044	H_IH2/99
	FF600R12KL4C	1200	600	2,1	100/90	0,032	H_IH2/99
	FF800R12KL4C	1200	800	2,1	120/130	0,025	H_IH2/99
	IGBT[3]						
	FF600R12KE3	1200	600	1,7	100/95	0,044	H_IH2/99
	FF800R12KE3	1200	800	1,7	135/130	0,032	H_IH2/99
	FF1200R12KE3	1200	1200	1,7	200/190	0,025	H_IH2/99
IH1/4  IH7 Single modules	Short Tail						
	FZ800R12KS4_B2	1200	800	3,2	76/58	0,018	H_IH4/99
	Standard 2. Generation						
	FZ800R12KF4	1200	800	2,7	130/120	0,023	H_IH1/99
	FZ1050R12KF4	1200	1050	2,7	150/170	0,018	H_IH1/99
	FZ1200R12KF4	1200	1200	2,7	170/190	0,016	H_IH1/99
	FZ1600R12KF4	1200	1600	2,7	220/290	0,0125	H_IH1/99
	FZ1800R12KF4	1200	1800	2,7	250/330	0,011	H_IH7/100
	FZ2400R12KF4	1200	2400	2,7	310/410	0,0084	H_IH7/100
	Low Loss 2. Generation						
	FZ800R12KL4C	1200	800	2,1	121/127	0,022	H_IH1/99
	FZ1200R12KL4C	1200	1200	2,1	165/195	0,016	H_IH1/99
	FZ1600R12KL4C	1200	1600	2,1	210/260	0,0125	H_IH1/99
	FZ1800R12KL4C	1200	1800	2,1	230/295	0,0110	H_IH7/100
	FZ2400R12KL4C	1200	2400	2,1	320/400	0,0084	H_IH7/100
	IGBT[3]						
	FZ1200R12KE3	1200	1200	1,7	245/190	0,022	H_IH4/99
	FZ1600R12KE3	1200	1600	1,7	325/250	0,016	H_IH4/99
	FZ2400R12KE3	1200	2400	1,7	490/380	0,0125	H_IH4/99
	FZ2400R12KE3_B9	1200	2400	1,7	490/380	0,0011	H_IH7/100
	FZ3600R12KE3	1200	3600	1,7	735/570	0,008	H_IH7/100

1200 V_{CES}							
	Type *)	V_{CES} V	Ic A	V_{CEsat} V V T_{vj}=25°C typ.	E_{on}/E_{off} mWs T_{vj}=125°C typ.	R_{thJC} K/W per arm	Outline / Page
 Sixpack modules	Standard 2. Generation						
	FS300R12KF4	1200	300	2,7	80/45	0,064	H_IH8/100
	FS400R12KF4	1200	400	2,7	100/55	0,048	H_IH8/100
 Chopper modules	Standard 2. Generation						
	FD600R12KF4	1200	600	2,7	90/90	0,032	H_IH2/99
 4-pack modules	Short Tail						
	F4-400R12KS4_B2	1200	400	3,2	38/29	0,042	H_IH5/99

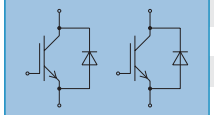
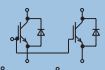
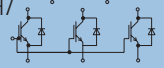
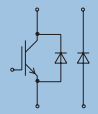
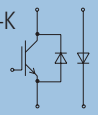
All modules are UL recognized

IGBT High Power Modules IHM

1600 + 1700 V_{CES}

	Type *)	V_{CES} V	Ic A	V_{CEsat} V T_{vj}=25°C typ.	E_{on}/E_{off} mWs T_{vj}=125°C typ.	R_{thJC} K/W per arm	Outline / page
 Dual modules	Standard 2. Generation						
	FF400R16KF4	1600	400	3,3	170/90	0,04	H_IH2/99
	FF600R16KF4	1600	600	3,5	240/140	0,032	H_IH2/99
	IGBT[3]						
	FF600R17KE3	1700	600	2,0	185/210	0,024	H_IH2/99
	FF800R17KE3	1700	800	2,0	240/280	0,028	H_IH2/99
	FF1200R17KE3	1700	1200	2,0	345/430	0,021	H_IH2/99
IH1  IH7  Single modules	Standard 2. Generation						
	FZ800R16KF4	1600	800	3,3	340/180	0,02	H_IH1/99
	FZ1200R16KF4	1600	1200	3,5	490/290	0,016	H_IH1/99
	FZ1800R16KF4	1600	1800	3,5	750/450	0,011	H_IH7/100
	IGBT[3]						
	FZ1200R17KE3	1700	1200	2,0	345/430	0,017	H_IH4/99
	FZ1600R17KE3	1700	1600	2,0	440/585	0,014	H_IH4/99
	FZ2400R17KE3	1700	2400	2,0	590/910	0,010	H_IH4/99
	FZ2400R17KE3_B9	1700	2400	2,0	590/910	0,009	H_IH7/100
	FZ3600R17KE3	1700	3600	2,0	745/1430	0,007	H_IH7/100
 Six pack modules	Standard 2. Generation						
	FS300R16KF4	1600	300	3,5	120/70	0,064	H_IH8/99
FD…  FD…-K  Chopper modules	Standard 2. Generation						
	FD400R16KF4	1600	400	3,3	170/90	0,04	H_IH2/99
	FD600R16KF4	1600	600	3,5	240/140	0,032	H_IH2/99
	IGBT[3]						
	FD1200R17KE3-K	1700	1200	2,4	345/430	0,021	H_IH4/99

1700 V_{CES}

	Type *)	V_{CES} V	Ic A	V_{CEsat} V T_{vj}=25°C typ.	E_{on}/E_{off} mWs T_{vj}=125°C typ.	R_{thJC} K/W per arm	Outline / page
 Dual modules	Low Loss						
	FF400R17KF6C_B2	1700	400	2,7	180/150	0,016	H_IH2/99
	FF401R17KF6C_B2	1700	400	2,7	200/150	0,04	H_IH9/101
	FF600R17KF6C_B2	1700	600	2,7	270/220	0,026	H_IH2/99
	FF800R17KF6C_B2	1700	800	2,7	290/335	0,02	H_IH2/99
	IGBT[3]						
	FF400R17KE3_B2	1700	400	2,0	125/145	0,049	H_IH9/101
	FF600R17KE3_B2	1700	600	2,0	185/220	0,029	H_IH2/99
	FF800R17KE3_B2	1700	800	2,0	240/295	0,024	H_IH2/99
	FF1200R17KE3_B2	1700	1200	2,0	350/454	0,019	H_IH2/99
IH1  IH7  Single modules	Low Loss						
	FZ800R17KF6C_B2	1700	800	2,7	300/325	0,02	H_IH1/99
	FZ1200R17KF6C_B2	1700	1200	2,7	330/480	0,013	H_IH1/99
	FZ1600R17KF6C_B2	1700	1600	2,7	430/670	0,01	H_IH1/99
	FZ1800R17KF6C_B2	1700	1800	2,7	570/725	0,009	H_IH7/100
	FZ2400R17KF6C_B2	1700	2400	2,7	750/1060	0,007	H_IH7/100
	IGBT[3]						
	FZ1200R17KE3_B2	1700	1200	2,0	350/445	0,014	H_IH4/99
	FZ1600R17KE3_B2	1700	1600	2,0	445/600	0,012	H_IH4/99
	FZ1800R17KE3_B2	1700	1800	2,0	490/680	0,010	H_IH7/100
	FZ2400R17KE3_B2	1700	2400	2,0	610/920	0,008	H_IH7/100
FD…  FD…-K  Chopper modules	Low Loss						
	FD401R17KF6C_B2	1700	400	2,7	200/150	0,04	H_IH9/101
	FD600R17KF6C_B2	1700	600	2,7	270/220	0,016	H_IH2/99
	FD800R17KF6C_B2	1700	800	2,7	290/335	0,02	H_IH2/99
	FD1600/1200R17KF6C_B2	1700	1600	2,7	430/670	0,01	H_IH7/100
	IGBT[3]						
	FD600R17KE3_B2	1700	600	2,0	185/220	0,029	H_IH2/99
	FD800R17KE3_B2	1700	800	2,0	240/295	0,024	H_IH2/99
	FD1200R17KE3-K_B2	1700	1200	2,0	350/445	0,019	H_IH4/99

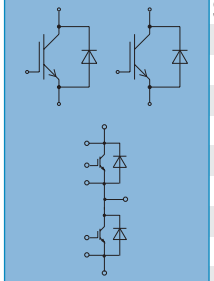
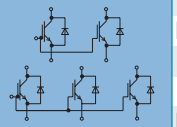
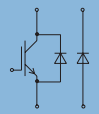
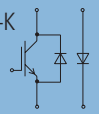
◆ New type

..._B2: Traction Module (AlSiC)

*) valid for all part-no: T_{vj} = 125°C, I_{CRM} = 2xI_C

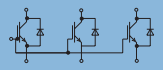
IGBT High Power Modules IHV

3300 V_{CES}

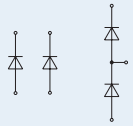
	Type *)	V_{CES} V	Ic A	V_{CEsat} V V T_{vj}=25°C typ.	E_{on}/E_{off} mWs T_{vj}=125°C typ.	R_{thJC} K/W per arm	Outline / page
 Dual modules	Standard						
	FF200R33KF2C	3300	200	3,4	480/255	0,057	H_IH9/101
	FF400R33KF2C	3300	400	3,4	960/510	0,026	H_IH6/100
IH4 IH7  Single modules	Standard						
	FZ800R33KF2C	3300	800	3,4	1920/1020	0,013	H_IH4/99
	FZ1200R33KF2C	3300	1200	3,4	2880/1530	0,0085	H_IH7/100
	High DC-Stability						
	FZ800R33KL2C	3300	800	3,0	2250/1250	0,013	H_IH4/99
	FZ1200R33KL2C	3300	1200	3,0	3150/1900	0,085	H_IH7/100
	High Insulation						
	FZ400R33KL2C_B5	3300	400	3,0	1200/600	0,026	H_IH10/101
	FZ800R33KL2C_B5	3300	800	3,0	2250/1250	0,013	H_IH11/101
	FZ1200R33KL2C_B5	3300	1200	3,0	3150/1900	0,0085	H_IH12/101
FD… 	Standard						
	FD400R33KF2C	3300	400	3,4	730/510	0,026	H_IH4/99
	FD800R33KF2C	3300	800	3,4	1450/1000	0,013	H_IH7/100
FD…-K 	Standard						
	FD400R33K2C-K	3300	400	3,4	730/510	0,026	H_IH4/99
	FD800R33KF2C-K	3300	800	3,4	1450/1000	0,013	H_IH4/99
	High Insulation						
	FD800R33KL2C-K_B5	3300	800	3,4	2250/1250	0,013	H_IH12/101
Chopper modules							

IHM-B

3300 V_{CES}

	Type *)	V_{CES} V	Ic A	V_{CEsat} V V T_{vj}=25°C typ.	E_{on}/E_{off} mWs T_{vj}=125°C typ.	R_{thJC} K/W per arm	Outline / page
IH7B  Single modules	Standard						
	FZ1500R33HL3	3300	1500	2,45	3200/2700	0,0085	H_IH7B/100

Diode Modules

	Type *)	V_{RRM} V	I_F A	Q_r µAs typ.	R_{thJC} K/W per arm	Outline / page
 Diode Modules	DD400S16K4	1600	400	40	0,1	H_IH1/99
	DD600S16K4	1600	600	60	0,08	H_IH1/99
	DD400S17K6C_B2	1700	400	145	0,016	H_IH1/99
	DD600S17K3_B2	1700	600	260	0,051	H_IH4/99
	DD800S17K3_B2	1700	800	345	0,043	H_IH4/99
	DD800S17K6C_B2	1700	800	265	0,034	H_IH1/99
	Standard					
	DD200S33K2C	3300	200	220	0,108	H_IH9/101
	DD400S33K2C	3300	400	440	0,051	H_IH4/99
	DD800S33K2C	3300	800	900	0,025	H_IH4/99
	DD1200S33K2C	3300	1200	1300	0,017	H_IH4/99
	DD400S33KL2C	3300	400	480	0,051	H_IH4/99
	High Insulation					
	DD1200S33KL2C_B5	3300	1200	1450	0,017	H_IH11/101

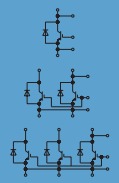
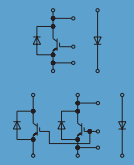
◆ New type

..._B5: 6.5kV housing / 10.2kV insulation

*) valid for all part-no:
T_{vj} = 125°C, I_{CRM} = 2xI_C

IGBT High Power Modules IHV

6500 V_{CES}

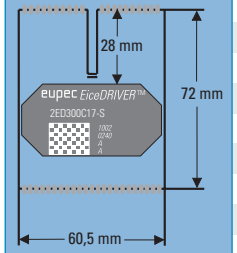
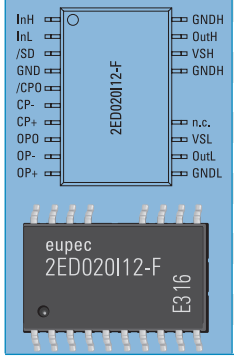
	Type *)	V_{CES} V	Ic A	V_{CEsat} V T_{vj}=25°C typ.	E_{on}/E_{off} mWs T_{vj}=125°C typ.	R_{thJC} K/W per arm	Outline / page
 Single modules	Standard						
	FZ200R65KF1	6500	200	4,3	1900/1200	0,033	H_IH10/101
	FZ400R65KF1	6500	400	4,3	4000/2300	0,017	H_IH11/101
	FZ600R65KF1	6500	600	4,3	5900/3500	0,011	H_IH12/101
 Chopper modules	Standard						
	FD200R65KF1-K	6500	200	4,3	1900/1200	0,033	H_IH11/101
	FD400R65KF1-K	6500	400	4,3	4000/2300	0,017	H_IH12/101

Diode Modules

	Type *)	V_{RRM} V	I_F A	Q_r µAs typ.	R_{thJC} K/W per arm	Outline / page
 Diode Modules	DD200S65K1	6500	200	350	0,063	H_IH11/101
	DD400S65K1	6500	400	700	0,032	H_IH11/101
	DD600S65K1	6500	600	1050	0,021	H_IH11/101

*) valid for all part-no:
T_{vj} = 125°C, I_{CRM} = 2xI_C

EiceDRIVER™ (eupec IGBT controlled efficiency DRIVER)

	Type	Channels	Control Interface	IGBT max. V_{CE} V	V_{ISO} V	I_{GM} A	P_{OUT} W	size mm·mm	mounting by	for modules	Outline / page
	2ED300C17-S	2	E	1700	*	±30	7	60,5 - 72	soldering	EconoPACK™+, 62 mm, IHM	120
	2ED300C17-ST	2	E	1700	*	±30	7	60,5 - 72	soldering	EconoPACK™+, 62 mm, IHM	120
	2ED020I12-F	2	E	1200	*	+1/-2		12,8 - 10,3	soldering	EasyPIM™, EasyPACK, EconoPACK™, EconoPIM™, 34 mm	120 P-DSO-18-1 120

* Datasheets available under **www.eicedriver.com**

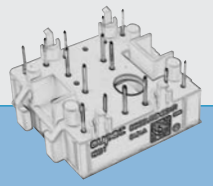
Technical features 2ED300C17-S / 2ED300C17-ST

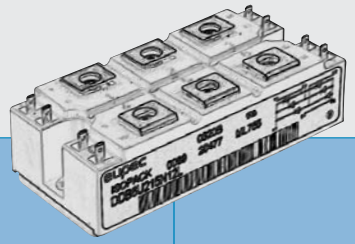
- Failure output
- Half-bridge – or direct mode can be adjusted
- Interlocking against each other and dead time generation in half-bridge mode
- Low-resistance and therefore noise-immune 15 V PWM signal input
- + 15 V signal processing (15 V logic)
- Minimum pulse suppression 400 ns
- Reset input and PWM reset
- Dynamic over-current detection (DOCD) by monitoring the saturation voltage
- "Soft shut down" in case of failure shutdown
- External detected failure analysis (EDFA)
- 15V logic (high noise immunity)
- Additional ± 16 V supply outputs

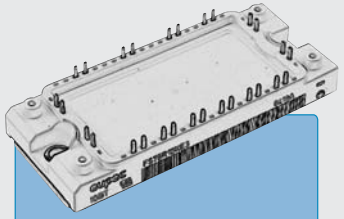
Technical features 2ED020I12-F

- Half-bridge IGBT/MOSFET Driver IC
- Fully operational to ± 1200 V
- High speed transfer rate
- High dv/dt immunity
- Matched propagation delay for both channels
- Under-voltage lock-out for both channels
- Dedicated shutdown input
- 3.3 V and 5 V TTL compatible inputs
- General purpose operational amplifier integrated
- General purpose comparator integrated

Overview Bridge Rectifier, AC-Switches



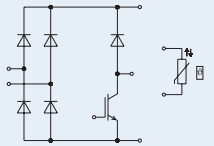
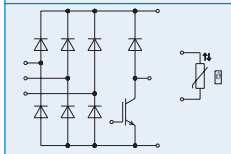
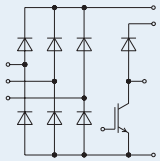




V_{RRM}	25 mm	42/54 mm		45 mm
2000				
1600	**EasyBRIDGE**	**IsoPACK Bridge**	**IsoPACK AC-Switch**	**EconoBRIDGE**
	I_d = 30 - 65 A	I_d = 85 - 205 A	I_d = 75 - 120 A	I_d = 75 - 145 A
	Configuration B2U B6U	Configuration B6 U/HK/C	Configuration W3C W3H	Configuration B6U B6HK

IGBT Low Power Modules
EasyBRIDGE

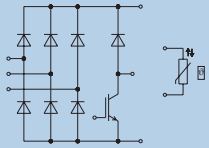
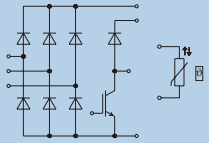
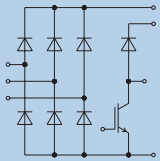
800 V

Type		Rectifier Diodes					Brake Chopper			Outline / page
		V_{RRM} V	I_d A	R_{thJC} K/W max.	V_{t0} V T_{vj} = 150 °C	rt mΩ	V_{CE} V	I_C* A T_C = 80 °C	R_{thJC} K/W max.	
	single phase									
	DDB2U30N08VR	800	48	1,30	0,75	6,95	600	20	1,50	L_750d/102
	three phase									
	DDB6U30N08VR	800	30	1,80	0,85	8,30	600	20	1,50	L_750e/102
	three phase									
	DDB6U50N08XR	800	50	1,20	0,75	6,95	600	30	1,05	L_1c/102

* as specified in data sheet

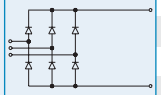
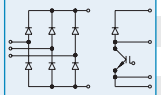
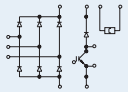
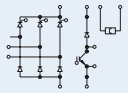
IGBT Low Power Modules
EasyBRIDGE

1600 V

	Type	Rectifier Diodes					Brake Chopper			Outline / page
		V_{RRM} V	I_d A	R_{thJC} K/W max.	V_{t0} V T_{vj} = 150 °C	rt mΩ	V_{CE} V	I_C* A T_C = 80 °C	R_{thJC} K/W max.	
	three phase DDB6U25N16VR	1600	30	1,55	0,76	7,60	1200	15	1,45	L_750e/102
	three phase DDB6U75N16YR	1600	65	0,90	0,83	3,90	1200	50	0,55	L_2i/102
	three phase DDB6U40N16XR	1600	50	0,90	0,80	4,35	1200	25	0,90	L_1c/102

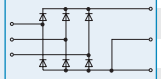
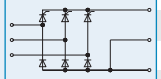
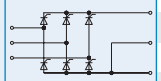
* as specified in data sheet

EconoBRIDGE™ Rectifier

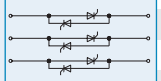
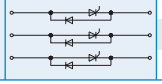
		Type	V_{DRM}, V_{RRM} V $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 100V$	I_{FRMSM} (I_{TRMSM}) A	I_{FSM} (I_{TSM}) A 10 ms, $T_{vj\,max}$	I_d/T_c A/°C	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	R_{thJC} °C/W per arm 120° el. Square wave	$T_{vj\,max}$ °C	Brake IGBT V_{CES} V	Brake IGBT I_C A	Outline / page
3 phase bridge rectifier, uncontrolled		DD B6U 84 N 16 R	1600	60	550	85/100	0,75	5,5	1,45	150			M_E2g/103
		DD B6U 100 N 16 R	1600	60	550	100/100	0,75	5,5	1,15	150			M_E2g/103
		DD B6U 144 N 16 R	1600	100	1000	145/100	0,75	3,1	0,89	150			M_E2g/103
3 phase bridge rectifier, uncontrolled with brake chopper		DD B6U 84 N 16 RR	1600	60	550	85/100	0,75	5,5	1,45	150	1200	50	M_E2h/103
		DD B6U 100 N 16 RR	1600	60	550	100/100	0,75	5,5	1,15	150	1200	50	M_E2h/103
3 phase bridge rectifier, uncontrolled with brake chopper and NTC		DD B6U 104 N 16 RR	1600	60	550	105/100	0,75	5,5	1,08	150	1200	50	M_E2j/103
		DD B6U 134 N 16 RR	1600	80	550	134/100	0,75	6,3	0,70	150	1200	70	M_E2j/103
3 phase bridge rectifier, halfcontrolled with brake chopper and NTC		TD B6HK 74 N 16 RR	1600	45	400	75/85	0,75	9,1	1,10	125	1200	50	M_E2i/103
		TD B6HK 104 N 16 RR	1600	60	550	104/85	0,80	7,0	0,75	125	1200	50	M_E2i/103
		TD B6HK 124 N 16 RR	1600	70	550	125/85	0,75	6,3	0,63	125	1200	70	M_E2i/103

EconoBRIDGE™ Rectifiers are UL recognized

IsoPACK™ Bridge Rectifier

		Type	V_{DRM}, V_{RRM} V $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM}$+ 100V	I_{FRMSM} (I_{TRMSM}) A	I_{FSM} (I_{TSM}) A 10 ms, $T_{vj\,max}$	I_d/T_c A/°C	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	R_{thJC} °C/W per arm 120° el Square wave	$T_{vj\,max}$ °C	Outline / page
3 phase bridge rectifier, uncontrolled		DD B6U 85 N [1]	1600	60	550	85/100	0,75	5,5	1,45	150	M_1Pa/104
		DD B6U 145 N [1]	1600	100	1000	145/100	0,75	3,1	0,89	150	M_1Pa/104
		DD B6U 205 N [1]	1600	120	1375	205/100	0,75	2,2	0,59	150	M_1Pa/104
3 phase bridge rectifier, half controlled		TD B6HK 95 N [2]	1600	75	620	95/85	0,95	5,5	0,82	125	M_1Pb/104
		TD B6HK 135 N [2]	1600	100	870	135/85	0,95	4,3	0,59	125	M_1Pb/104
		TD B6HK 165 N [2]	1600	120	1050	165/85	0,95	3,2	0,49	125	M_1Pb/104
3 phase bridge rectifier, fully controlled		TT B6C 95 N [2]	1600	75	620	95/85	0,95	5,5	0,82	125	M_1Pb/104
		TT B6C 135 N [2]	1600	100	870	135/85	0,95	4,3	0,59	125	M_1Pb/104
		TT B6C 165 N [2]	1600	120	1050	165/85	0,95	3,2	0,49	125	M_1Pb/104

IsoPACK™ AC-Switches

		Type	V_{DRM}, V_{RRM} V $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM}$+ 100V	I_{FRMSM} (I_{TRMSM}) A	I_{FSM} (I_{TSM}) A 10 ms, $T_{vj\,max}$	I_{RMS}/T_c A/°C	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	R_{thJC} °C/W per arm 180° el Sinus	$T_{vj\,max}$ °C	Outline / page
3 phase AC-Switches, fully controlled		TT W3C 85 N [2]	1600	75	620	85/85	0,95	5,5	0,70	125	M_1Pb/104
		TT W3C 115 N [2]	1600	100	870	115/85	0,95	4,3	0,50	125	M_1Pb/104
		TT W3C 145 N [2]	1600	120	1050	145/85	0,95	3,2	0,42	125	M_1Pb/104
3 phase AC-Switches, half controlled		TD W3H 115 N [2]	1600	100	900	115/85	0,95	4,3	0,50	125	M_1Pb/104

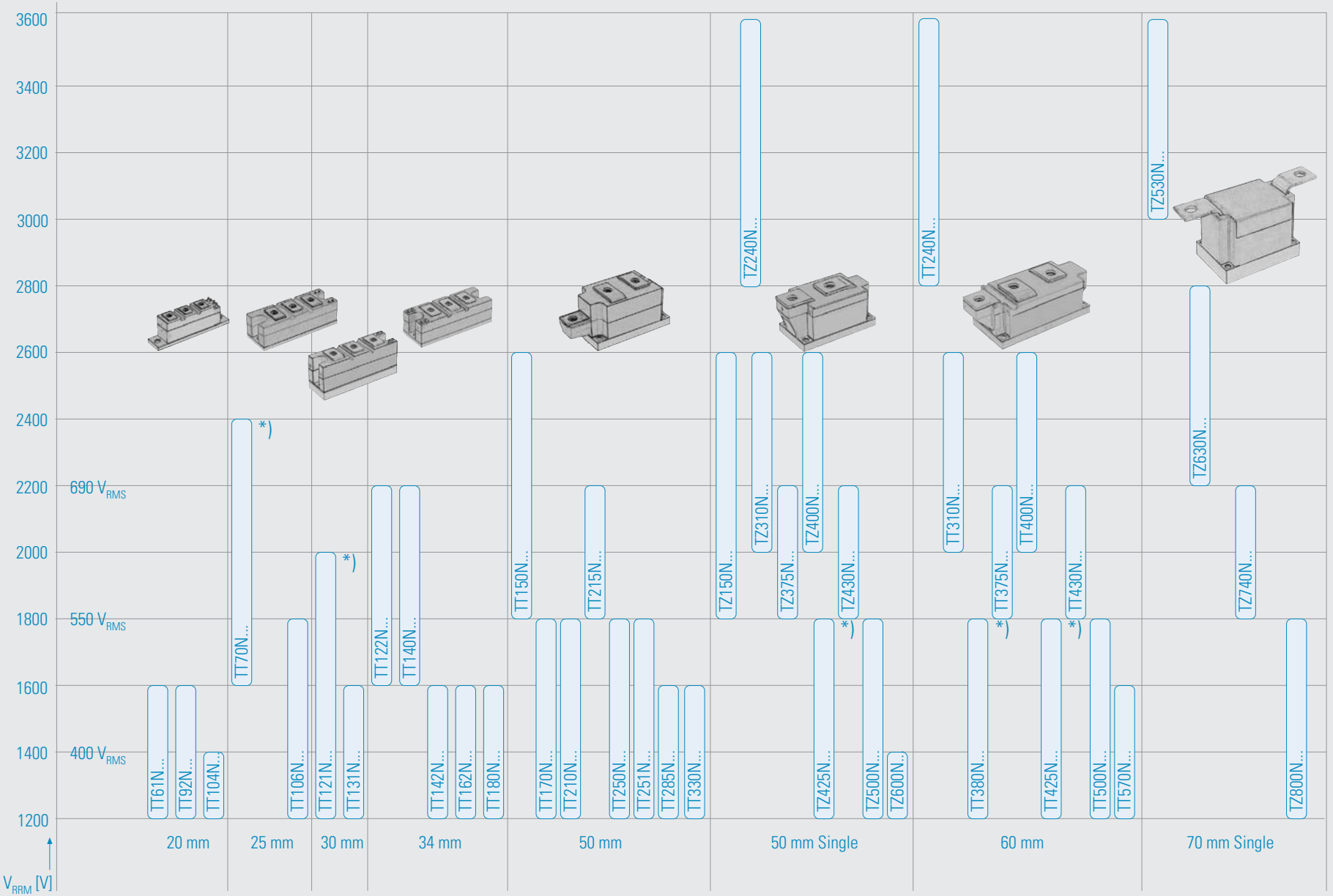
IsoPACK™ modules are UL recognized

Sets of srews will be included at customer's request at no cost. Requests must be made at time of order.

[1] IsoPACK 42: 30 pcs. M 5 x 11 for 5 modules – see page 122

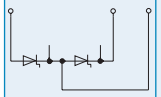
[2] IsoPACK 54: 30 pcs. M 6 x15 for 5 modules – see page 122

Overview PowerBLOCK Thyristor Modules for Phase Control



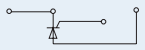
*) highest Voltage on request

PowerBLOCK Thyristor Modules for Phase Control

	Type	V_{DRM} V_{RRM} V $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 100$ V	I_{TRMSM} A	I_{TSM} A 10 ms, $T_{vj\,max}$	$\int i^2dt$ $A^2s \cdot 10^3$ 10 ms, $T_{vj\,max}$	I_{TAVM}/T_c A/°C 180° el sin	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	$(di/dt)_{cr}$ A/µs DIN IEC 747 - 6	t_q µs typ.	$(dv/dt)_{cr}$ V/µs DIN IEC 747 - 6	R_{thJC} °C/W 180° el sin	R_{thCK} °C/W	$T_{vj\,max}$ °C	Outline / page
Baseplate = 20 mm	TT 61 N	1200 … 1600	120	1400	9,8	60/85	0,80	3,40	150	120	F = 1000	0,52	0,16	125	TP20/105
	TT 92 N	1200 … 1600	160	1800	16,2	92/85	0,85	2,15	150	150	F = 1000	0,37	0,10	130	TP20/105
	TT 104 N	1200 … 1400	160	1800	16,2	104/85	0,85	2,15	150	150	F = 1000	0,37	0,10	140	TP20/105
Baseplate = 25 mm	TT 70 N	1600 … 2400*	150	1450	10,5	70/85	1,00	3,80	100	300	F = 1000	0,35	0,08	125	TP25/105
	TT 106 N	1200 … 1800	180	2000	20,0	106/85	0,90	2,60	150	150	F = 1000	0,33	0,08	140	TP25/105
Baseplate = 30 mm	TT 121 N	1200 … 2000*	200	2350	27,6	121/85	0,85	2,00	150	180	F = 1000	0,23	0,06	125	TP30/105
	TT 131 N	1200 … 1600	220	3200	51,2	131/85	0,85	1,50	150	180	F = 1000	0,23	0,06	125	TP30/105
Baseplate = 34 mm	TT 122 N	1600 … 2200	220	2950	43,5	122/85	1,00	2,15	100	300	F = 1000	0,2	0,06	125	TP34/105
	TT 140 N	1600 … 2200	250	3200	51,2	140/85	0,90	1,75	150	300	F = 1000	0,19	0,06	125	TP34/105
	TT 142 N	1200 … 1600	230	4100	84	142/85	0,90	1,10	150	200	F = 1000	0,22	0,06	125	TP34/105
	TT 162 N	1200 … 1600	260	4400	97	162/85	0,85	0,95	150	200	F = 1000	0,20	0,06	125	TP34/105
	TT 180 N	1200 … 1600	285	4100	84	180/85	0,85	0,90	150	200	F = 1000	0,20	0,06	130	TP34/105
Baseplate = 50 mm	TT 150 N	1800 … 2600	350	4000	80	150/85	1,20	2,30	60	300	F = 1000	0,13	0,04	125	TP50/105
	TT 170 N	1200 … 1800	350	4600	106	170/85	0,95	1,00	150	250	F = 1000	0,17	0,04	125	TP50/105
	TT 210 N	1200 … 1800	410	5800	168	210/85	1,00	0,85	150	200	F = 1000	0,13	0,04	125	TP50/105
	TT 215 N	1800 … 2200	410	6300	198	215/85	0,95	0,92	100	300	F = 1000	0,13	0,04	125	TP50/105
	TT 250 N	1200 … 1800	410	7000	245	250/85	0,80	0,70	150	250	F = 1000	0,13	0,04	125	TP50/105
	TT 251 N	1200 … 1800	410	8000	320	250/85	0,80	0,70	250	250	F = 1000	0,13	0,04	125	TP50/105
	TT 285 N	1200 … 1600	450	8000	320	285/92	0,80	0,70	250	250	F = 1000	0,117	0,04	135	TP50/105
	TT 330 N	1200 … 1600	520	8000	320	330/85	0,80	0,60	250	250	F = 1000	0,117	0,04	135	TP50/105
Baseplate = 60 mm	TT 240 N	2800 … 3600	700	5500	151	240/85	1,17	1,70	100	350	F = 1000	0,078	0,02	125	TP60/105
	TT 310 N	2000 … 2600	700	9000	405	310/85	1,00	0,86	120	300	F = 1000	0,078	0,02	125	TP60/105
	TT 380 N	1200 … 1800	800	11000	605	380/85	1,00	0,38	120	250	F = 1000	0,078	0,02	125	TP60/105
	TT 375 N	1800 … 2200	900	10600	561	375/85	0,85	0,56	120	300	F = 1000	0,078	0,02	125	TP60/105
	TT 400 N	2000 … 2600	800	11000	605	400/85	1,00	0,50	150	300	F = 1000	0,065	0,02	125	TP60/105
	TT 425 N	1200 … 1800	800	12500	781	425/85	0,90	0,30	120	250	F = 1000	0,078	0,02	125	TP60/105
	TT 430 N	1800 … 2200	800	12000	720	430/85	0,95	0,45	150	300	F = 1000	0,065	0,02	125	TP60/105
	TT 500 N	1200 … 1800	900	14500	1051	500/85	0,90	0,27	200	250	F = 1000	0,065	0,02	125	TP60/105
	TT 570 N	1200 … 1600	900	14000	980	570/87	0,90	0,27	200	250	F = 1000	0,065	0,02	135	TP60/105

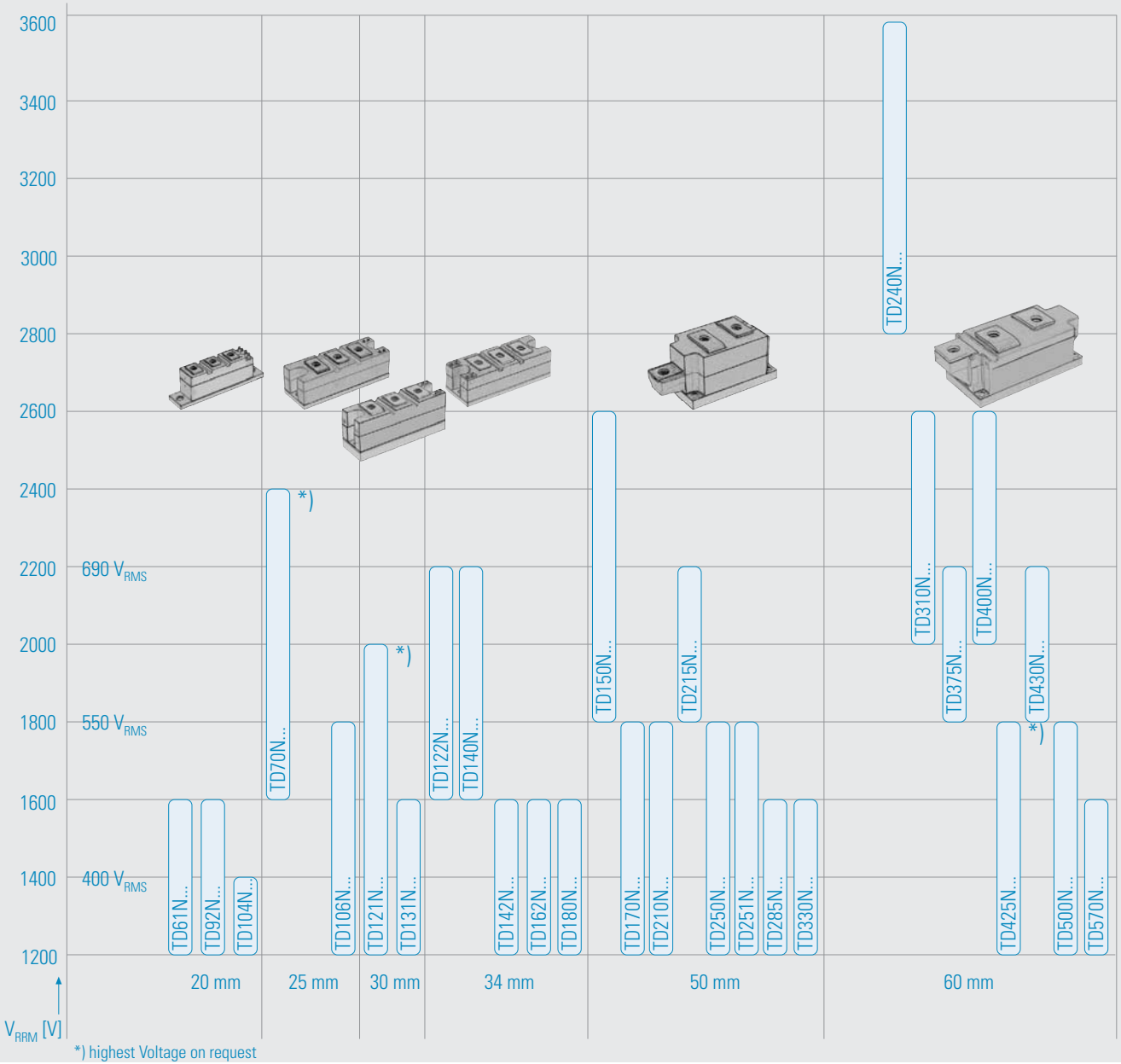
PowerBLOCK modules are UL recognized Common anode or cathode on request * Highest voltage on request

PowerBLOCK Single Thyristor Modules for Phase Control

	Type	V_{DRM} V_{RRM} V $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 100$ V	I_{TRMSM} A	I_{TSM} A 10 ms, $T_{vj\,max}$	$\int i^2dt$ $A^2s \cdot 10^3$ 10 ms, $T_{vj\,max}$	I_{TAVM}/T_c A/°C 180° el sin	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	$(di/dt)_{cr}$ A/µs DIN IEC 747 - 6	t_q µs typ.	$(dv/dt)_{cr}$ V/µs DIN IEC 747 - 6	R_{thJC} °C/W 180° el sin	R_{thCK} °C/W	$T_{vj\,max}$ °C	Outline / page
Baseplate = 50 mm	TZ 150 N	1800 … 2600	350	4000	80	150/85	1,20	2,30	60	300	F = 1000	0,13	0,04	125	TP50.1/105
	TZ 240 N	2800 … 3600	700	5500	151	240/85	1,17	1,70	100	350	F = 1000	0,078	0,02	125	TP50.1/105
	TZ 310 N	2000 … 2600	700	8000	320	310/85	1,00	0,86	120	300	F = 1000	0,078	0,02	125	TP50.1/105
	TZ 375 N	1800 … 2200	1050	10600	561	375/85	0,85	0,56	120	300	F = 1000	0,078	0,02	125	TP50.1/105
	TZ 400 N	2000 … 2600	1050	11000	605	400/85	1,00	0,50	150	300	F = 1000	0,065	0,02	125	TP50.1/105
	TZ 425 N	1200 … 1800	800	12500	781	425/85	0,90	0,30	120	250	F = 1000	0,078	0,02	125	TP50.1/105
	TZ 430 N	1800 … 2200	1050	12000	720	430/85	0,95	0,45	150	300	F = 1000	0,065	0,02	125	TP50.1/105
	TZ 500 N	1200 … 1800	1050	14500	1051	500/85	0,90	0,27	200	250	F = 1000	0,065	0,02	125	TP50.1/105
	TZ 600 N	1200 … 1400	1050	14000	980	600/85	0,90	0,27	200	250	F = 1000	0,065	0,02	135	TP50.1/105
Baseplate = 70 mm	TZ 530 N	3000 … 3600	1500	20000	2000	530/85	1,05	0,49	80	400	F = 1000	0,045	0,01	125	TP70/106
	TZ 630 N	2200 … 2800	1500	23000	2650	630/85	0,95	0,37	150	400	F = 1000	0,042	0,01	125	TP70/106
	TZ 740 N	1800 … 2200	1500	26500	3500	740/85	0,90	0,21	200	350	F = 1000	0,042	0,01	125	TP70/106
	TZ 800 N	1200 … 1800	1500	30000	4500	800/85	0,85	0,17	200	240	F = 1000	0,042	0,01	125	TP70/106

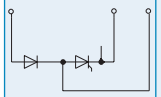
PowerBLOCK modules are UL recognized

Overview PowerBLOCK Thyristor/Diode Modules for Phase Control



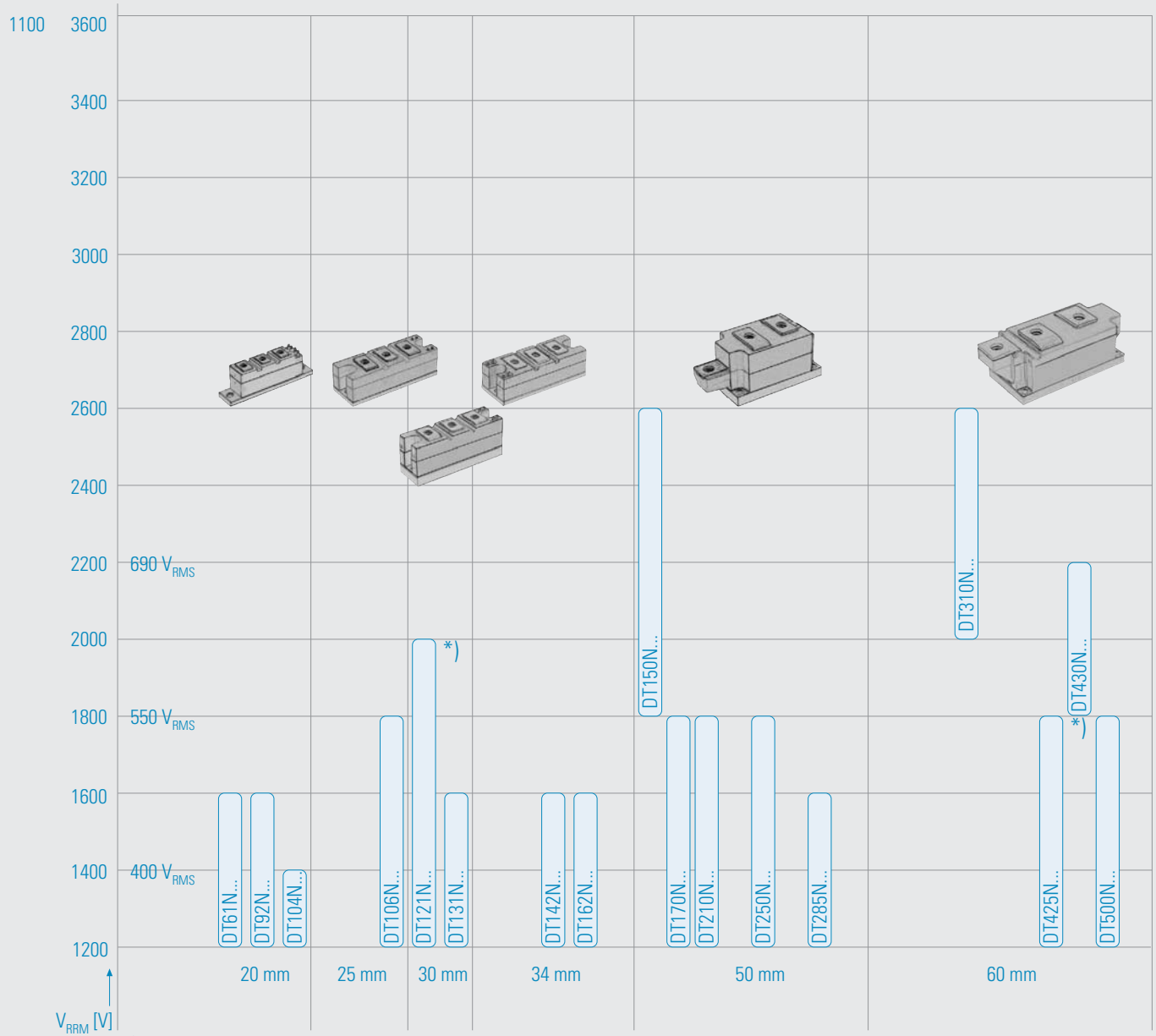
*) highest Voltage on request

PowerBLOCK Thyristor/Diode Modules for Phase Control

	Type	V_{DRM} V_{RRM} V $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 100$ V	I_{TRMSM} A	I_{TSM} A 10 ms, $T_{vj\,max}$	$\int i^2dt$ $A^2s \cdot 10^3$ 10 ms, $T_{vj\,max}$	I_{TAVM}/T_c A/°C 180° el sin	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	$(di/dt)_{cr}$ A/µs DIN IEC 747 - 6	t_q µs typ.	$(dv/dt)_{cr}$ V/µs DIN IEC 747 - 6	R_{thJC} °C/W 180° el sin	R_{thCK} °C/W	$T_{vj\,max}$ °C	Outline / page
Baseplate = 20 mm	TD61N	1200 … 1600	120	1400	9,8	60/85	0,80	3,40	150	120	F = 1000	0,52	0,16	125	TP20/105
	TD92N	1200 … 1600	160	1800	16,2	92/85	0,85	2,15	150	150	F = 1000	0,37	0,10	130	TP20/105
	TD104N	1200 … 1400	160	1800	16,2	104/85	0,85	2,15	150	150	F = 1000	0,37	0,10	140	TP20/105
Baseplate = 25 mm	TD70N	1600 … 2400*	150	1450	10,5	70/85	1,00	3,80	100	300	F = 1000	0,35	0,08	125	TP25/105
	TD106N	1200 … 1800	180	2000	20,0	106/85	0,90	2,60	150	150	F = 1000	0,33	0,08	140	TP25/105
Baseplate = 30 mm	TD121N	1200 … 2000*	200	2350	27,6	121/85	0,85	2,00	150	180	F = 1000	0,23	0,06	125	TP30/105
	TD131N	1200 … 1600	220	3200	51,2	131/85	0,85	1,50	150	180	F = 1000	0,23	0,06	125	TP30/105
Baseplate = 34 mm	TD122N	1600 … 2200	220	2950	43,5	122/85	1,00	2,15	100	300	F = 1000	0,20	0,06	125	TP34/105
	TD140N	1600 … 2200	250	3200	51,2	140/85	0,90	1,75	150	300	F = 1000	0,19	0,06	125	TP34/105
	TD142N	1200 … 1600	230	4100	84	142/85	0,90	1,10	150	200	F = 1000	0,22	0,06	125	TP34/105
	TD162N	1200 … 1600	260	4400	97	162/85	0,85	0,95	150	200	F = 1000	0,20	0,06	125	TP34/105
	TD180N	1200 … 1600	285	4100	84	180/85	0,85	0,90	150	200	F = 1000	0,20	0,06	130	TP34/105
Baseplate = 50 mm	TD150N	1800 … 2600	350	4000	80	150/85	1,20	2,30	60	300	F = 1000	0,13	0,04	125	TP50/105
	TD170N	1200 … 1800	350	4600	106	170/85	0,95	1,00	150	250	F = 1000	0,17	0,04	125	TP50/105
	TD210N	1200 … 1800	410	5800	168	210/85	1,00	0,85	150	200	F = 1000	0,13	0,04	125	TP50/105
	TD215N	1800 … 2200	410	6300	198	215/85	0,95	0,92	100	300	F = 1000	0,13	0,04	125	TP50/105
	TD250N	1200 … 1800	410	7000	245	250/85	0,80	0,70	150	250	F = 1000	0,13	0,04	125	TP50/105
	TD251N	1200 … 1800	410	8000	320	250/85	0,80	0,70	250	250	F = 1000	0,13	0,04	125	TP50/105
	TD285N	1200 … 1600	450	8000	320	285/92	0,80	0,70	250	250	F = 1000	0,117	0,04	135	TP50/105
	TD330N	1200 … 1600	520	8000	320	330/85	0,80	0,60	250	250	F = 1000	0,117	0,04	135	TP50/105
Baseplate = 60 mm	TD240N	2800 … 3600	700	5500	151	240/85	1,17	1,70	100	350	F = 1000	0,078	0,02	125	TP60/105
	TD310N	2000 … 2600	700	9000	405	310/85	1,00	0,86	120	300	F = 1000	0,078	0,02	125	TP60/105
	TD375N	1800 … 2200	908	10600	561	375/85	0,85	0,56	120	300	F = 1000	0,078	0,02	125	TP60/105
	TD400N	2000 … 2600	800	11000	605	400/85	1,00	0,50	150	300	F = 1000	0,065	0,02	125	TP60/105
	TD425N	1200 … 1800	800	12500	781	425/85	0,90	0,30	120	250	F = 1000	0,078	0,02	125	TP60/105
	TD430N	1800 … 2200	800	12000	720	430/85	0,95	0,45	150	300	F = 1000	0,065	0,02	125	TP60/105
	TD500N	1000 … 1800	900	14500	1051	500/85	0,90	0,27	200	250	F = 1000	0,065	0,02	125	TP60/105
	TD570 N	1200 … 1600	900	14000	980	570/87	0,90	0,27	200	250	F = 1000	0,065	0,02	135	TP60/105

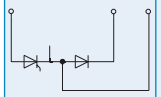
PowerBLOCK modules are UL recognized Common anode or cathode on request * Highest voltage on request Modules for current source inverter with higher blocking Diodes on request

Overview PowerBLOCK Diode/Thyristor Modules for Phase Control



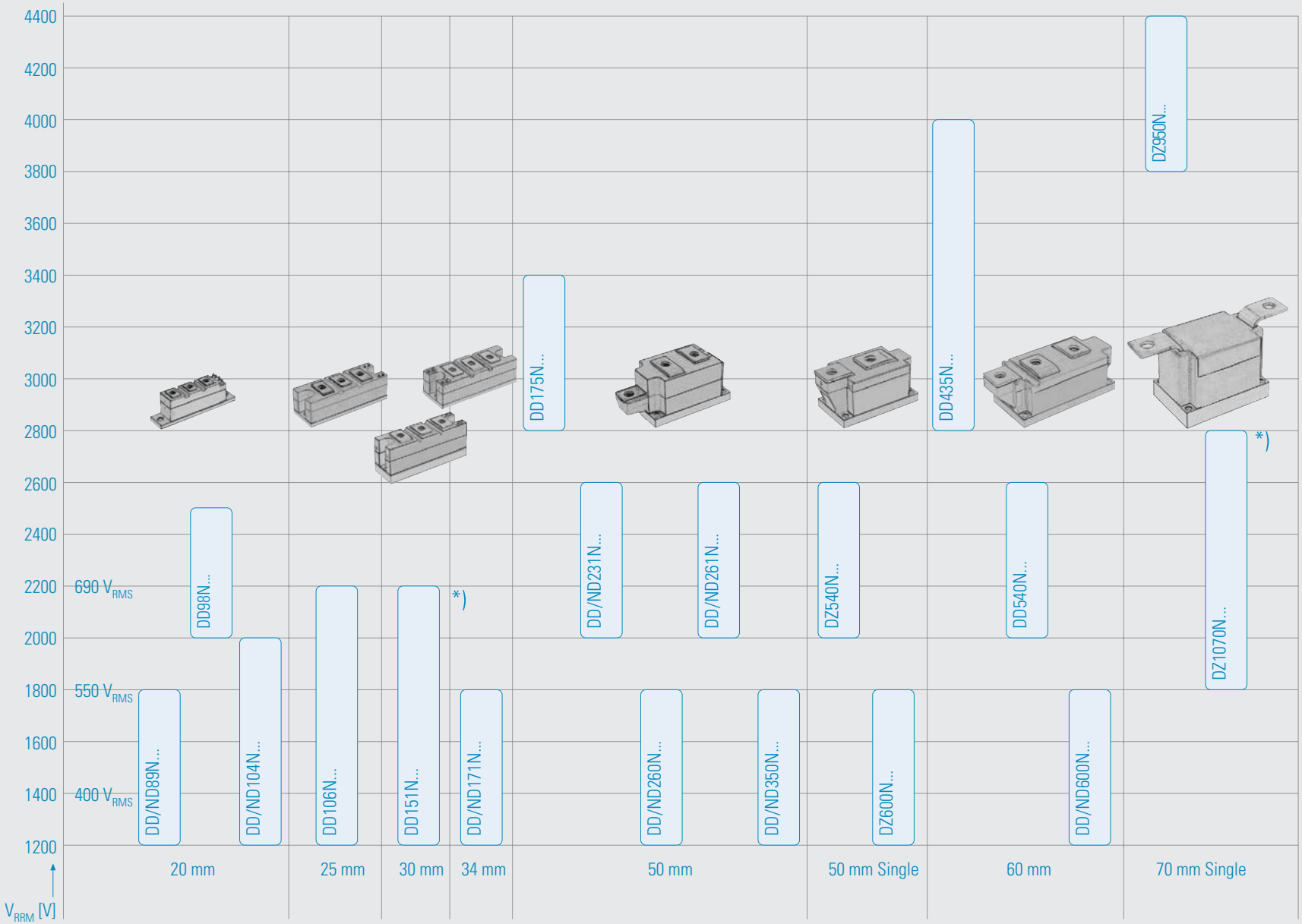
*) highest Voltage on request

PowerBLOCK Diode/Thyristor Modules for Phase Control

	Type	V_{DRM} V_{RRM} V $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 100$ V	I_{TRMSM} A	I_{TSM} A 10 ms, $T_{vj\,max}$	$\int i^2dt$ $A^2s \cdot 10^3$ 10 ms, $T_{vj\,max}$	I_{TAVM}/T_c A/°C 180° el sin	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	$(di/dt)_{cr}$ A/µs DIN IEC 747 - 6	t_q µs typ.	$(dv/dt)_{cr}$ V/µs DIN IEC 747 - 6	R_{thJC} °C/W 180° el sin	R_{thCK} °C/W	$T_{vj\,max}$ °C	Outline / page
Baseplate = 20 mm	DT61N	1200 … 1600	120	1400	9,8	60/85	0,80	3,40	150	120	F = 1000	0,52	0,16	125	TP20/105
	DT92N	1200 … 1600	160	1800	16,2	92/85	0,85	2,15	150	150	F = 1000	0,37	0,10	130	TP20/105
	DT104N	1200 … 1400	160	1800	16,2	104/85	0,85	2,15	150	150	F = 1000	0,37	0,10	140	TP20/105
Baseplate = 25 mm	DT106N	1200 … 1800	180	2000	20,0	106/85	0,90	2,60	150	150	F = 1000	0,33	0,08	140	TP25/105
Baseplate = 30 mm	DT121N	1200 … 2000*	200	2350	27,6	121/85	0,85	2,00	150	180	F = 1000	0,23	0,06	125	TP30/105
	DT131N	1200 … 1600	220	3200	51,2	131/85	0,85	1,50	150	180	F = 1000	0,23	0,06	125	TP30/105
Baseplate = 34 mm	DT142N	1200 … 1600	230	4100	84	142/85	0,90	1,10	150	200	F = 1000	0,22	0,06	125	TP34/105
	DT162N	1200 … 1600	260	4400	97	162/85	0,85	0,95	150	200	F = 1000	0,20	0,06	125	TP34/105
Baseplate = 50 mm	DT150N	1800 … 2600	350	4000	80	150/85	1,20	2,30	60	300	F = 1000	0,13	0,04	125	TP50/105
	DT170N	1200 … 1800	350	4600	106	170/85	0,95	1,00	150	250	F = 1000	0,17	0,04	125	TP50/105
	DT210N	1200 … 1800	410	5800	168	210/85	1,00	0,85	150	200	F = 1000	0,13	0,04	125	TP50/105
	DT250N	1200 … 1800	410	7000	245	250/85	0,80	0,70	150	250	F = 1000	0,13	0,04	125	TP50/105
	DT285N	1200 … 1600	450	8000	320	285/92	0,80	0,70	250	250	F = 1000	0,13	0,04	135	TP50/105
Baseplate = 60 mm	DT310N	2000 … 2600	700	9000	405	310/85	1,00	0,86	120	300	F = 1000	0,078	0,02	125	TP60/105
	DT425N	1200 … 1800	800	12500	781	425/85	0,90	0,30	120	250	F = 1000	0,078	0,02	125	TP60/105
	DT430N	1800 … 2200	800	12000	720	430/85	0,95	0,45	150	300	F = 1000	0,065	0,02	125	TP60/105
	DT500N	1200 … 1800	900	14500	1051	500/85	0,90	0,27	200	250	F = 1000	0,065	0,02	125	TP60/105

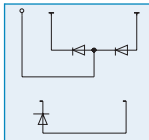
PowerBLOCK modules are UL recognized Common anode or cathode on request * Highest voltage on request Modules for current source inverter with higher blocking Diodes on request

Overview PowerBLOCK Diode Modules for Phase Control



*) highest Voltage on request

PowerBLOCK Rectifier Diode Modules for Phase Control

	Type	V_{RRM} V V_{RSM} = V_{RRM} + 100V	I_{FRMSM} A	I_{FSM} A 10 ms, $T_{vj\,max}$	$\int i^2dt$ $A^2s \cdot 10^3$ 10 ms, $T_{vj\,max}$	I_{FAVM}/T_c A/°C	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	R_{thJC} °C/W 180° el sin	R_{thCK} °C/W	$T_{vj\,max}$ °C	Outline / page
Baseplate = 20 mm	DD 89 N	1200 … 1800	140	2400	28,8	89/100	0,75	2,3	0,45	0,1	150	DP20/106
	ND 89 N	1200 … 1800	140	2400	28,8	89/100	0,75	2,3	0,45	0,1	150	DP20/106
	DD 98 N	2000 … 2500	160	2000	20	98/100	0,82	2	0,39	0,1	150	DP20/106
	DD 104 N	1200 … 1800	160	2500	31,25	104/100	0,70	2,1	0,39	0,1	150	DP20/106
	ND 104 N	1200 … 1800	160	2500	31,25	104/100	0,70	2,1	0,39	0,1	150	DP20/106
Baseplate = 25 mm	DD 106 N	1200 … 2200	180	2600	33,8	106/100	0,70	2	0,39	0,08	150	DP25/106
Baseplate = 30 mm	DD 151 N	1200 … 2200*	240	4600	105,8	151/100	0,75	0,9	0,3	0,06	150	DP30/106
Baseplate = 34 mm	DD 171 N	1200 … 1800	270	5600	157	170/100	0,75	0,8	0,26	0,06	150	DP34/107
	ND 171 N	1200 … 1800	270	5600	157	170/100	0,75	0,8	0,26	0,06	150	DP34/107
Baseplate = 50 mm	DD 175 N	3000 … 3400	350	4000	80	175/100	0,90	1,8	0,17	0,04	150	DP50/107
	DD 231 N	2000 … 2600	410	6400	205	231/100	0,80	0,84	0,17	0,04	150	DP50/107
	ND 231 N	2000 … 2600	410	6400	205	231/100	0,80	0,84	0,17	0,04	150	DP50ND/107
	DD 260 N	1200 … 1800	410	8300	344	260/100	0,70	0,68	0,17	0,04	150	DP50/107
	ND 260 N	1200 … 1800	410	8300	344	260/100	0,70	0,68	0,17	0,04	150	DP50ND/107
	DD 261 N	2000 … 2600	410	8300	344	260/100	0,70	0,68	0,17	0,04	150	DP50/107
	ND 261 N	2000 … 2600	410	8300	344	260/100	0,70	0,68	0,17	0,04	150	DP50ND/107
	DD 285 N	400 … 800[1)]	450	8300	344	285/100	0,75	0,4	0,17	0,04	150	DP50/107
	DD 350 N	1200 … 1800	550	11000	605	350/100	0,75	0,4	0,13	0,04	150	DP50/107
	ND 350 N	1200 … 1800	550	11000	605	350/100	0,75	0,4	0,13	0,04	150	DP50ND/107
	◆ DZ 435 N	2800 … 4000	1100	12000	720	435/100	0,84	0,6	0,078	0,02	150	DP50.1/107
	DZ 540 N	2000 … 2600	1150	14000	980	540/100	0,78	0,31	0,078	0,02	150	DP50.1/107
	DZ 600 N	1200 … 1800	1150	19000	1805	600/100	0,75	0,215	0,078	0,02	150	DP50.1/107
	◆ DZ 700 N	1800 … 2200	1150	21000	2205	700/100	0,78	0,185	0,065	0,02	150	DP60/107
Baseplate = 60 mm	DD 435 N	2800 … 4000	900	12000	720	435/100	0,84	0,6	0,078	0,02	150	DP60/107
	DD 540 N	2000 … 2600	900	14000	980	540/100	0,78	0,31	0,078	0,02	150	DP60/107
	DD 600 N	1200 … 1800	950	19000	1800	600/100	0,75	0,215	0,078	0,02	150	DP60/107
	ND 600 N	1200 … 1800	950	19000	1800	600/100	0,75	0,215	0,078	0,02	150	DP60/107
	◆ DD 700N	1800 … 2200	1100	21000	2205	700/100	0,78	0,185	0,065	0,02	150	DP60/107
Baseplate = 70 mm	DZ 950 N	3600 … 4400	1500	29000	4205	950/100	0,85	0,28	0,042	0,01	150	DP70/107
	DZ 1070 N	1800 … 2800*	1700	35000	6125	1070/100	0,80	0,17	0,045	0,01	160	DP70/107

PowerBLOCK modules are UL recognized

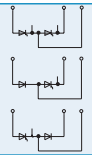
Common anode or cathode on request

* Highest voltage on request

■ Not for new design ◆ New type

[1)] $V_{RSM} = V_{RRM} + 50V$

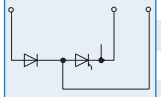
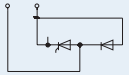
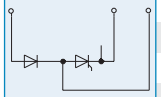
PowerBLOCK Fast Thyristor Modules

	Type	V_{DRM} V_{RRM} V $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 100$ V	I_{TRMSM} A	I_{TSM} A 10 ms, $T_{vj\,max}$	$\int i^2dt$ $A^2s \cdot 10^3$ 10 ms, $T_{vj\,max}$	I_{TAVM}/T_c A/°C 180° el sin	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	$(di/dt)_{cr}$ A/µs DIN IEC 747 - 6	t_q µs typ.	$(dv/dt)_{cr}$ V/µs DIN IEC 747 - 6	R_{thJC} °C/W 180° el sin	R_{thCK} °C/W	$T_{vj\,max}$ °C	Outline / page
Baseplate = 20 mm	TT 46 F	800 … 1200	120	1150	6,60	45/85	1,30	3,4	120	F ≤ 25	C = 500	0,52	0,16	125	TP20/105
	TD 46 F														
	DT 46 F														
Baseplate = 25 mm	TT 60 F	800 … 1300*	150	1300	8,45	60/85	1,30	4	200	F ≤ 25	C = 500	0,35	0,08	125	TP25/105
										E ≤ 20					
Baseplate = 30 mm	TT 71 F	1000 … 1300	180	2100	22,00	71/85	1,30	3,1	160	F ≤ 25	C = 500	0,3	0,06	125	TP30/105
	TD 71 F									E ≤ 20					
	DT 71 F														
	TT 81 F [1]	400 … 800	180	2200	24,20	81/85	1,25	2	160	E ≤ 20	C = 500	0,3	0,06	125	TP30/105
	TD 81 F [1]									F ≤ 25					
	DT 81 F [1]														
	TT 101 F	1000 … 1300	200	2400	28,80	101/85	1,20	2,1	160	F ≤ 25	C = 500	0,23	0,06	125	TP30/105
	TD 101 F														
	DT 101 F														
	TT 111 F [1]	800 … 1000	200	2600	33,80	111/85	1,20	1,4	200	E ≤ 20	C = 500	0,23	0,06	125	TP30/105
	TD 111 F [1]									F ≤ 25					
	DT 111 F [1]														
Baseplate = 50 mm	TT 180 F	1000 … 1300*	350	6000	180,00	180/85	1,30	0,9	200	F ≤ 25	C = 500	0,13	0,04	125	TP50/105
	TD 180 F									E ≤ 20					
	DT 180 F									S ≤ 18					
	TT 200 F	1000 … 1300*	410	6400	205,00	200/85	1,20	0,75	200	F ≤ 25	C = 500	0,13	0,04	125	TP50/105
	TD 200 F									E ≤ 20					
	DT 200 F									S ≤ 18					
	TZ 335 F	1000 … 1200	700	10000	500,00	335/85	1,15	0,42	200	G ≤ 30	C = 500	0,08	0,02	125	TP50.1/105
										F ≤ 25					

PowerBLOCK modules are UL recognized Common anode or cathode on request * Highest voltage on request

[1] $V_{RRM} \leq 1000$ V : $V_{RSM} = V_{RRM} + 50$ V

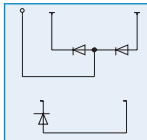
PowerBLOCK Fast Asymmetric Thyristor Modules

	Type	V_{DRM} V_{RRM} V $V_{DSM} = V_{DRM}$	V_{RRM} V_{RRM} [($V_{RRM(C)}$) t_p = 1µs]	I_{TRMSM} A	I_{TSM} A 10 ms, $T_{vj\,max}$	$\int i^2dt$ $A^2s \cdot 10^3$ 10 ms, $T_{vj\,max}$	I_{TAVM}/T_c A/°C 180° el sin	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	$(di/dt)_{cr}$ A/µs DIN IEC 747 - 6	t_q µs typ.	$(dv/dt)_{cr}$ V/µs DIN IEC 747 - 6	R_{thJC} °C/W 180° el sin	R_{thCK} °C/W	$T_{vj\,max}$ °C	Outline / page
Baseplate = 20 mm 	AD 50 F	1000 … 1200*	15 [50]	120	1300	8,45	50/85	1,30	3,75	120	D ≤ 15 C ≤ 12 B ≤ 10	C = 500 F = 1000	0,45	0,16	125	TP20/105
	AD 60 F	1000 … 1200*	15 [50]	150	1450	10,5	60/85	1,20	208	120	D ≤ 15 C ≤ 12 B ≤ 10	C = 500 F = 1000	0,39	0,16	125	TP20/105
Baseplate = 34 mm 	AD 96 S	800 … 1200*	15 [50]	200	2350	27,60	95/85	1,30	2,15	400	D ≤ 15 C ≤ 12 B ≤ 10 A ≤ 8	C = 500 F = 1000	0,23	0,06	125	TP34/105
	AD 116 S	800 … 1200	15 [50]	220	2600	33,80	115/85	1,10	1,45	400	E ≤ 20 D ≤ 15	C = 500 F = 1000	0,23	0,06	125	TP34/105
Baseplate = 50 mm 	AD 180 S	800 … 1300*	15 [50]	350	4800	115,00	180/85	1,30	0,9	500	D ≤ 15 C ≤ 12 B ≤ 10 A ≤ 8	C = 500 F = 1000	0,13	0,04	125	TP50/105
	AD 220 S	800 … 1300*	15 [50]	410	5200	135,00	220/85	1,10	0,6	500	F ≤ 25 E ≤ 20 D ≤ 15	C = 500 F = 1000	0,13	0,04	125	TP50/105

PowerBLOCK modules are UL recognized

* Highest voltage on request

PowerBLOCK Fast Diode Modules

	Type	V_{RRM} V V_{RSM} = V_{RRM} + 100V (50 Hz)	I_{FRMSM} A	I_{FSM} A 10 ms, $T_{vj\ max}$	$\int i^2dt$ $A^2s \cdot 10^3$ 10 ms, $T_{vj\ max}$	I_{FAVM}/T_c A/°C	$V_{(TO)}$ V $T_{vj} = T_{vj\ max}$	r_T mΩ $T_{vj} = T_{vj\ max}$	I_{RM} A $T_{vj} = T_{vj\ max}$ -di/dt = 100 A/µs	R_{thJC} °C/W 180° el sin	R_{thCK} °C/W	$T_{vj\ max}$ °C	Outline / page
Baseplate = 20 mm	DD 46 S	800 … 1200 [1]	100	850	3,60	45/85	0,90	3,9		0,68	0,16	125	DP20/106
	DD 61 S	1000 … 1400 [1]	120	1600	12,80	61/100	1,00	2,2	82	0,62	0,16	150	DP20/106
	DD 62 S	400 … 1000 [1]	120	1600	12,80	61/100	1,00	2,2	62	0,62	0,16	150	DP20/106
	DD 81 S	1000 … 1400	150	1900	18,05	81/100	0,95	1,7	87	0,48	0,16	150	DP20/106
	DD 82 S	400 … 1000 [1]	150	1900	18,05	81/100	0,95	1,7	65	0,48	0,16	150	DP20/106
Baseplate = 30 mm	DD 121 S	1000 … 1400	200	2000	20,00	121/100	0,95	1,7	95	0,28	0,06	150	DP30/106
	DD 122 S	400 … 1000 [1]	200	2000	20,00	121/100	0,95	1,7	70	0,28	0,06	150	DP30/106
Baseplate = 50 mm	DD 230 S	1800 … 2600	410	7500	281,00	230/100	1,00	0,8		0,15	0,04	150	DP50/107
	ND 230 S	1800 … 2600	410	7500	281,00	230/100	1,00	0,8		0,15	0,04	150	DP50ND/107
	DD 241 S	1000 … 1400	410	7500	281,00	240/100	1,10	0,5	135	0,15	0,04	150	DP50/107
	ND 241 S	1000 … 1400	410	7500	281,00	240/100	1,10	0,5	135	0,15	0,04	150	DP50ND/107
	DD 242 S	600 … 1000 [1]	410	7500	281,00	240/100	1,10	0,5	98	0,15	0,04	150	DP50/107
	ND 242 S	600 … 1000 [1]	410	7500	281,00	240/100	1,10	0,5	98	0,15	0,04	150	DP50ND/107

PowerBLOCK modules are UL recognized

Common anode or cathode on request

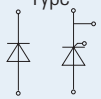
[1] $V_{RRM} \leq 1000$ V : $V_{RSM} = V_{RRM} + 50$ V

Overview Phase Control Thyristors in Disc Housings

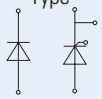
V_{DRM} - Concept

		21 mm	23 mm	25 mm	30 mm	32 mm	38 mm	42 mm	46 mm	51 mm	55/56 mm	58 mm	65 mm	75 mm	80 mm	100 mm	119 mm
8000 V																T1503N T1901N T2251N	T2563N T2871N
7000 V							T201N T281N				T501N T551N T553N T571N			T1081N T1201N	T1851N T1651N		
5200 V														T1551N	T2351N	T3441N	T4003N
5000 V														T1451N	T2161N	T2401N	T4021N
4800 V	1500 V_{RMS}															T2851N	
		Ceramic Disc / Epoxy Disc												Pellet ∅ 88,5 mm Case ∅ 120 mm			
4400 V											T731			T1971N T1401N		T3101N	
4200 V								T379N				T729N					
4000 V													High Power-Discs				
3800 V							T380N										
3600 V	1100 V_{RMS}										T901N			T2001N	T1929N	T3401N	
3400 V											T869N			T1601N		T3801N	
3200 V																T4301N	
2900 V																T4771N	
2600 V					T308N		T459N	T659N	T829N			T1219N	T1589N	T2101N	T2479N		
2400 V																	
2200 V	690 V_{RMS}						T639N	T699N		T1039N		T1329N	T1869N		T2709N		
2000 V																	
1800 V	550 V_{RMS}		T218N	T358N	T508N	T588N		T879N	T1049N	T1189N		T1509N	T1989N		T3159N		
1600 V			T298N	T378N			T719N										
1400 V	400 V_{RMS}					T618N											
1200 V				Epoxy-Discs													
600 V		T348N	T398N	T568N	T828N	T1078N	T1258N					T2509N	T3709N				
400 V																	
Pellet ∅		21 mm	23 mm	25 mm	30 mm	32 mm	38 mm	42 mm	46 mm	51 mm	55/56 mm	58 mm	65 mm	75 mm	80 mm	100 mm	119 mm
Case ∅		41 mm			50 mm		57/60 mm		75 mm				100 mm	120 mm	110 mm	150 mm	170 mm

Pulsed Power Applications

Type 	V_{BO} kV	V_{RRM} kV	V_{TM}/I_{TM} V/kA	I_{TSM} kA	$di/dt_{cr(on)}$ A/µs single pulse	$di/dt_{cr(off)}$ A/µs single pulse	R_{thJC} °C/W	$T_{vj\ max}$ °C	Outline / page
T 4003 NH	5,2	5,4	1,8/5	100	5000		0,0045	120	T172.40L/112
T 1503 NH	7,5	7,7 … 8,2	3,0/4	55	5000		0,006	120	T150.40L/112
T 2563 NH	7,5	7,7 … 8,2	2,95/5	90	5000		0,0045	120	T172.40L/112
D 2601 NH		9	5,5/4	22		7500	0,0075	140	D120.26K/116

Traction Crow Bar

Type 	V_{DRM} kV	V_{RRM} kV	$V_{D\ DC}$ kV	V_{TM}/I_{TM} V/kA	I_{TSM} kA	$di/dt_{cr(on)}$ A/µs single pulse	R_{thJC} °C/W	$T_{vj\ max}$ °C	Outline / page
T 1101 N	3	3	typ 1,5	2,0/4	29	1000	0,012	125	T100.26K/111
D 2201 N		4,5	typ 2,5	1,2/2,5	35		0,01	140	D100.26K/116

Phase Control Thyristors

up to 600 V

Type 	V_{DRM} [2] V_{RRM} V $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM}$ + 50 V	I_{TRMSM} A	$\int i^2dt$ $A^2s \cdot 10^3$ 10 ms, $T_{vj\,max}$	I_{TSM} kA 10 ms, $T_{vj\,max}$	V_T/I_T V/kA $T_{vj\,max}$	I_{TAVM} A/°C 180 ° el sin T_c = 85 °C	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	$(di/dt)_{cr}$ A/µs DIN IEC 747 - 6	t_q µs typ.	$(dv/dt)_{cr}$ V/µs DIN IEC 747 - 6	R_{thJC} °C/W 180 ° el sin	$T_{vj\,max}$ °C	Outline / page
T 210 N	200 … 600	330	151	5,5	1,33/0,6	210	0,80	0,850	200	200	F = 1000	0,1500	140	TSW27/108
T 348 N	200 … 600	600	80	4,0	1,92/1,1	348	1,00	0,700	200	200	F = 1000	0,1000	140	T41.14/109
T 398 N	200 … 600	800	151	5,5	1,63/1,5	398	1,00	0,400	200	200	F = 1000	0,1000	140	T41.14/109
T 568 N	200 … 600	900	225	6,7	1,76/2,0	568	0,80	0,440	200	200	F = 1000	0,0680	140	T41.14/109
T 828 N	200 … 600	1500	720	12,0	1,65/2,5	828	1,00	0,230	300	150	F = 1000	0,0450	140	T50.14/109
T 1078 N	200 … 600	2000	1050	14,5	1,81/3,5	1078	1,02	0,200	200	150	F = 1000	0,0330	140	T50.14/109
T 1258 N	200 … 600	2500	2000	20,0	1,5/4,5	1258	1,00	0,100	120	200	F = 1000	0,0330	140	T60.14/109
T 2509 N	200 … 600*	4900	8820	42,0 [1]	1,22/6	2509	0,75	0,072	200	200	F = 1000	0,0184	140	T75.26/109
T 3709 N	200 … 600*	7000	18000	60,0 [2]	1,50/15	3710	0,75	0,0475	200	200	F = 1000	0,0125	140	T100.26/109

up to 1800 V

Type 	V_{DRM} V_{RRM} V $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM}$ + 100 V	I_{TRMSM} A	$\int i^2dt$ $A^2s \cdot 10^3$ 10 ms, $T_{vj\,max}$	I_{TSM} kA 10 ms, $T_{vj\,max}$	V_T/I_T V/kA $T_{vj\,max}$	I_{TAVM} A 180 ° el sin T_c = 85 °C	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	$(di/dt)_{cr}$ A/µs DIN IEC 747 - 6	t_q µs typ.	$(dv/dt)_{cr}$ V/µs DIN IEC 747 - 6	R_{thJC} °C/W 180 ° el sin	$T_{vj\,max}$ °C	Outline / page
T 86 N	1200 … 1800*	200	20	2,00	1,99/0,4	86	1,00	2,60	150	200	F = 1000	0,3000	125	TSW27/108
T 130 N	1200 … 1800	300	45	3,00	1,96/0,6	130	1,08	1,53	150	180	F = 1000	0,2000	125	TSW27/108
														TFL36/108
T 160 N	1200 … 1800	300	58	3,40	1,96/0,6	160	1,08	1,53	150	200	F = 1000	0,1500	125	TSW27/108
														TFL36/108
T 178 N	1200 … 1800	300	34	2,60	1,9/0,6	178	0,92	1,50	150	180	F = 1000	0,1400	125	T41.14/109
T 218 N	1200 … 1800	400	58	3,40	2,2/0,8	218	0,90	1,35	150	200	F = 1000	0,1100	125	T41.14/109
T 221 N	1200 … 1800	450	163	5,70	1,74/0,8	221	1,10	0,75	150	200	F = 1000	0,1200	125	TSW41/108
														TFL54/108
T 298 N	600 … 1600	600	90,6	4,25	2,0/1,1	298	0,85	0,90	150	200	F = 1000	0,0880	125	T41.14/109
T 345 N	1200 … 1800	550	238	6,90	1,56/1,0	345	0,80	0,70	150	250	F = 1000	0,0800	125	TFL54/108
T 358 N	1200 … 1800	700	106	4,60	2,07/1,2	358	0,85	0,90	150	250	F = 1000	0,0680	125	T41.14/109
T 370 N	1200 … 1800	650	320	8,00	1,65/1,2	370	0,80	0,50	200	250	F = 1000	0,0850	125	TSW41/108
T 378 N	1200 … 1600	800	202	6,35	1,85/1,2	378	0,80	0,75	150	250	F = 1000	0,0680	125	T41.14/109
T 388 N	1200 … 1800	730	205	6,40	2,1/1,5	388	0,90	0,75	120	220	F = 1000	0,0680	125	T50.14/109
T 508 N	1200 … 1800	800	238	6,90	1,92/1,6	510	0,80	0,60	120	250	F = 1000	0,0530	125	T50.14/109
T 509 N	1200 … 1800	800	238	6,90	1,92/1,6	510	0,80	0,60	120	250	F = 1000	0,0530	125	T57.26/109

* Highest voltage on request

[1] Case non-rupture current 32 kA (sinusoidal half wave 50 Hz)

[2] Case non-rupture current 38 kA

Phase Control Thyristors

up to 1800 V

Type 	V_{DRM} V_{RRM} V $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM}$ + 100V	I_{TRMSM} A	$\int i^2dt$ $A^2s \cdot 10^3$ 10 ms $T_{vj\,max}$	I_{TSM} kA 10 ms $T_{vj\,max}$	V_T/I_T V/kA $T_{vj\,max}$	I_{TAVM} A 180 ° el sin T_c = 85 °C	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	$(di/dt)_{cr}$ A/µs DIN IEC 747 - 6	t_q µs typ.	$(dv/dt)_{cr}$ V/µs DIN IEC 747 - 6	R_{thJC} °C/W 180 ° el sin	$T_{vj\,max}$ °C	Outline / page
T 588 N	1200 … 1800	1250	320	8,0	2,15/2,4	588	0,800	0,5000	200	250	F = 1000	0,0450	125	T50.14/109
T 589 N	1200 … 1800	1250	320	8,0	2,15/2,4	588	0,800	0,5000	200	250	F = 1000	0,0450	125	T57.26/109
T 618 N	1200 … 1400	1250	451	9,5	1,75/2,0	618	0,800	0,4200	200	250	F = 1000	0,0450	125	T50.14/109
T 619 N	1200 … 1400	1250	451	9,5	1,75/2,0	618	0,800	0,4200	200	250	F = 1000	0,0450	125	T57.26/109
T 648 N	1200 … 1600	1300	605	11,0	2,1/2,5	649	1,000	0,3800	120	250	F = 1000	0,0380	125	T60.14/109
T 649 N	1200 … 1600	1300	605	11,0	2,1/2,5	649	1,000	0,3800	120	250	F = 1000	0,0380	125	T57.26/109
T 718 N	1200 … 1600	1500	781	12,5	1,94/3,0	718	0,850	0,3500	120	250	F = 1000	0,0380	125	T60.14/109
T 719 N	1200 … 1600	1500	781	12,5	1,94/3,0	718	0,850	0,3500	120	250	F = 1000	0,0380	125	T57.26/109
T 878 N	1200 … 1800	1750	1200	15,5	1,95/3,6	879	0,850	0,2700	200	250	F = 1000	0,0320	125	T60.14/109
T 879 N	1200 … 1800	1750	1200	15,5	1,95/3,6	879	0,850	0,2700	200	250	F = 1000	0,0320	125	T57.26/109
T 1049 N	1200 … 1800	1870	1280	16,0	1,34/1,8	1050	0,850	0,2250	200	250	F = 1000	0,0265	125	T75.26/109
T 1189 N	1200 … 1800	2800	2530	22,5	2,05/5,4	1190	0,900	0,1900	200	240	F = 1000	0,0230	125	T75.26/109
T 1500 N	1200 … 1800	3500	5611	33,5 [1]	2,1/7,0	1500	0,900	0,1500	200	240	F = 1000	0,0184	125	T75.26K/110
T 1509 N	1200 … 1800	3500	5611	33,5 [1]	2,1/7,0	1500	0,900	0,1500	200	240	F = 1000	0,0184	125	T75.26/109
T 1986 N	1200 … 1800	4200	6480	36,0	2,05/8,0	1990	0,900	0,1200	200	250	F = 1000	0,0133	125	T100.35/109
T 1989 N	1200 … 1800	4200	6480	36,0	2,05/8,0	1990	0,900	0,1200	200	250	F = 1000	0,0133	125	T100.26/109
T 3159 N	1200 … 1800	7000	16245	57,0 [2]	1,37/6,0	3160	0,850	0,0820	200	250	F = 1000	0,0085	125	T110.26/110

* Highest voltage on request

[1] Case non-rupture current 32 kA (sinusoidal half wave 50 Hz)

[2] Case non-rupture current 38 kA

Phase Control Thyristors

up to 3000 V

Type 	V_{DRM} V_{RRM} V $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM}$ + 100V	I_{TRMSM} A	$\int i^2dt$ $A^2s \cdot 10^3$ 10 ms $T_{vj\,max}$	I_{TSM} kA 10 ms $T_{vj\,max}$	V_T/I_T V/kA $T_{vj\,max}$	I_{TAVM} A 180 ° el sin T_c = 85 °C	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	$(di/dt)_{cr}$ A/µs DIN IEC 747 - 6	t_q µs typ.	$(dv/dt)_{cr}$ V/µs DIN IEC 747 - 6	R_{thJC} °C/W 180 ° el sin	$T_{vj\,max}$ °C	Outline / page
■ T 271 N	2000 … 2500	650	245	7,0	2.35/1,2	270	1,070	0,870	60	300	C = 500	0,0910	125	TSW41/108
											F = 1000			
T 308 N	2000 … 2600*	550	101	4,5	2,88/1,1	308	1,100	1,600	60	350	C = 500	0,0560	125	T50.14/109
											F = 1000			
T 458 N	2000 … 2600	1000	405	9,0	2,75/2,0	459	1,000	0,840	120	300	C = 500	0,0455	125	T60.14/109
T 459 N											F = 1000			T57.26/109
T 639 N	1800 … 2200	1250	562	10,6	1,88/1,8	640	0,850	0,510	120	400	F = 1000	0,0377	125	T57.26/109
T 658 N	2200 … 2600	1500	660	11,5	2,53/2,85	659	1,000	0,500	150	300	F = 1000	0,0330	125	T60.14/109
T 659 N	2200 … 2600	1500	660	11,5	2,53/2,85	659	1,000	0,500	150	300	F = 1000	0,0330	125	T57.26/109
T 699 N	1800 … 2200	1500	744	12,2	2,32/2,85	699	0,950	0,450	200	300	F = 1000	0,0320	125	T57.26/109
T 708 N	1800 … 2200	1500	744	12,2	2,32/2,85	699	0,950	0,450	200	300	F = 1000	0,0320	125	T60.14/109
T 709 N	2000 … 2600	1500	845	13,0	2,84/3,0	700	1,050	0,530	50	300	C = 500	0,0290	125	T75.26/109
											F = 1000			
T 829 N	2000 … 2600	1800	1201	15,5	1,78/1,8	829	0,950	0,425	50	350	F = 1000	0,0265	125	T75.26/109
T 1039 N	1800 … 2200	2200	1711	18,5	1,53/2	1039	0,90	0,300	200	300	F = 1000	0,0231	125	T75.26/109
T 1218 N	2000 … 2800	2625	2531	22,5	1,52/1,0	1220	1,05	0,33	150	350	F = 1000	0,016	125	T75.14/109
T 1219 N	2000 … 2800	2625	2531	22,5	1,38/1,0	1220	1,000	0,275	150	350	F = 1000	0,0184	125	T75.26/109
T 1329 N	1800 … 2200	2600	2645	23,0	1,13/1,0	1329	0,900	0,234	200	300	F = 1000	0,0184	125	T75.26/109
T 1589 N	2000 … 2800*	3200	3920	28,0	2,45/5,0	1589	1,100	0,237	150	400	C = 500	0,0124	125	T100.26/110
T 1866 N	1800 … 2200	4100	6125	35,0	2,2/8,0	1869	0,900	0,155	200	300	F = 1000	0,0133	125	T100.35/110
T 1869 N	1800 … 2200	4100	6125	35,0	2,2/8,0	1869	0,900	0,155	200	300	F = 1000	0,0133	125	T100.26/110
T 2101 N	2000 … 2600	5050	10100	45,0	1,2/2,0	2340	0,820	0,162	150	250	F = 1000	0,0097	125	T120.35K/111
T 2156 N	2000 … 2800	4600	8000	40,0 [1)]	2,65/8,8	2159	1,050	0,154	150	400	C = 500	0,0099	125	T110.35/110
T 2159 N	2000 … 2800	4600	8000	40,0 [1)]	2,65/8,8	2159	1,050	0,154	150	400	F = 1000	0,0099	125	T110.26/140
T 2160 N	2200 … 2800	4600	8000	40,0	2,65/8,8	2159	1,050	0,154	150		F = 1000	0,0099	125	T120.26K/111
											C = 500			
T 2476 N	2200 … 2800	5100	9460	43,5 [1)]	1,43/3,0	2480	0,950	0,154	200	400	F = 1000	0,0085	125	T110.35/110
T 2479 N	2200 … 2800	5100	9460	43,5 [1)]	1,43/3,0	2480	0,950	0,154	200	400	F = 1000	0,0085	125	T110.26/110
T 2480 N	2200 … 2800	5100	9460	43,5	1,43/3,0	2480	0,950	0,154	200	400	F = 1000	0,0085	125	T120.26K/111
T 2709 N	1600 … 2200	5800	12500	50,0 [1)]	2,35/11	2709	0,900	0,125	200	300	F = 1000	0,0085	125	T110.26/110
T 2710 N	1600 … 2200	5800	12500	50,0	2,35/11	2709	0,900	0,125	200	300	F = 1000	0,0085	125	T120.26K/111
T 4301 N	2200 … 2900	9420	41400	91,0	1,20/4	4300	0,770	0,107	300	250	F = 1000	0,0054	125	T150.35K/111
T 4771 N	2200 … 2900	10110	41400	91,0	1,20/4	4640	0,770	0,107	300	250	F = 1000	0,0048	125	T150.26K/111

■ Not for new design

* Highest voltage on request

[1)] Case non-rupture current 38 kA (sinusoidal half wave 50 Hz)

Phase Control Thyristors

up to 4500 V

Type 	V_{DRM} V_{RRM} V $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM}$ + 100 V	I_{TRMSM} A	$\int i^2dt$ $A^2s \cdot 10^3$ 10 ms $T_{vj\,max}$	I_{TSM} kA 10 ms $T_{vj\,max}$	V_T/I_T V/kA $T_{vj\,max}$	I_{TAVM} A 180 ° el sin T_c = 85 °C	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	$(di/dt)_{cr}$ A/µs DIN IEC 747 - 6	t_q µs typ.	$(dv/dt)_{cr}$ V/µs DIN IEC 747 - 6	R_{thJC} °C/W 180 ° el sin	$T_{vj\,max}$ °C	Outline / page
T 379 N	3600 … 4200	800	205	6,4	3,26/1,2	422	1,20	1,600	100	500	F = 1000	0,033	125	T57.26/109
T 380 N	3200 … 3800	750	211	6,5	2,8/1,2	380	1,20	1,200	100	350	F = 1000	0,045	125	T57.26K/110
T 729 N	3600 … 4200	1840	1250	15,8	3,4/3,5	730	1,20	0,570	80	400	F = 1000	0,0215	120	T75.26/109
T 730 N	3600 … 4200	1840	1250	15,8	3,4/3,5	730	1,20	0,570	80	400	F = 1000	0,0215	120	T75.26K/110
T 731 N	3600 … 4400	2010	1280	16,0	1,86/1,2	910	1,08	0,650	300	500	H = 2000	0,0185	125	T76.26K/110
T 869 N	3000 … 3600	2000	1445	17,0	3,18/3,8	860	1,08	0,500	80	400	F = 1000	0,0210	125	T75.26/109
T 901 N	2800 … 3600	2050	1445	17,0	1,75/1,2	950	1,16	0,494	300	300	F = 1000	0,0185	125	T76.26K/110
T 929 N	3000 … 3600	2200	1530	17,5	2,7/3,6	930	1,00	0,430	80	500	F = 1000	0,0215	125	T75.26/109
T 1401 N	3600 … 4400	3450	6480	36,0	1,95/2,0	1600	1,29	0,330	300	350	H = 2000	0,0097	125	T120.35K/111
T 1971 N	3600 … 4400	3700	6480	36,0	1,95/2,0	1730	1,29	0,330	300	350	H = 2000 F = 1000	0,0086	125	T120.26K/111
T 1601 N	2800 … 3600	4160	8400	41,0	1,5/2,0	1920	1,00	0,250	300	300	F = 1000	0,0097	125	T120.35K/111
T 1929 N	3000 … 3800	4200	6850	37,0	2,9/8,0	1930	1,08	0,200	150	450	F = 1000	0,0099	125	T110.26/110
T 2001 N	2800 … 3600	4460	8400	41,0	1,5/2,0	2060	1,00	0,250	300	300	F = 1000	0,0087	125	T120.26K/111
T 3401 N	3100 … 3600	8350	37850	87,0	1,4/4	3800	0,82	0,145	300	300	F = 1000	0,0054	125	T150.35K/111
T3801 N	3100 … 3600	8950	37850	87,0	1,4/4	4100	0,82	0,145	300	300	F = 1000	0,0048	125	T150.26K/111
T 3101 N	4000 … 4400	6830	34000	83,0	1,75/4	3160	1,01	0,185	300	400	H = 2000	0,0054	125	T150.35K/111

Phase Control Thyristors

up to 5500 V

Type 	V_{DRM} V_{RRM} V $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM}$ + 100 V	I_{TRMSM} A	$\int i^2dt$ $A^2s \cdot 10^3$ 10 ms $T_{vj\,max}$	I_{TSM} kA 10 ms $T_{vj\,max}$	V_T/I_T V/kA $T_{vj\,max}$	I_{TAVM} A 180 ° el sin T_c = 85 °C	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	$(di/dt)_{cr}$ A/µs DIN IEC 747 - 6	t_q µs typ.	$(dv/dt)_{cr}$ V/µs DIN IEC 747 - 6	R_{thJC} °C/W 180 ° el sin	$T_{vj\,max}$ °C	Outline / page
T 1451 N	4800 … 5200	3610	9250	43,0	1,70/2,0	1690	0,92	0,370	300	450	H = 2000	0,0097	125	T120.35K/111
T 1551 N	4800 … 5200	3920	9250	43,0	1,70/2,0	1830	0,92	0,370	300	450	H = 2000	0,0086	125	T120.26K/111
T 2161 N	4800 … 5200	4630	14600	54,0	1,85/3,0	2170	0,81	0,360	300	450	H = 2000	0,0075	125	T120.35K/111
T 2351 N	4800 … 5200	5000	14600	54,0	1,85/3,0	2360	0,81	0,360	300	450	H = 2000	0,0065	125	T120.26K/111
T 2401 N	4800 … 5200	5970	22000	67,0	2,10/4,0	2750	1,09	0,250	300	≤ 350	H = 2000	0,0054	125	T150.35K/111
T 2851 N	4800 … 5200	6230	31000	79,0	1,70/4,0	3000	0,765	0,235	300	600	H = 2000	0,0054	125	T150.35K/111
T 3441N	4800 … 5200	6600	31000	79,0	1,70/4,0	3200	0,765	0,235	300	600	H = 2000	0,0048	125	T150.26K/111
T 4021 N	4800 … 5350	8480	50000	100,0	1,80/6,0	3920	0,92	0,142	300	550	H = 2000	0,00445	125	T172.35K/112

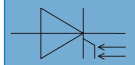
up to 10 000 V

Type 	V_{DRM} V_{RRM} V $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM}$ + 100 V	I_{TRMSM} A	$\int i^2dt$ $A^2s \cdot 10^3$ 10 ms $T_{vj\,max}$	I_{TSM} kA 10 ms $T_{vj\,max}$	V_T/I_T V/kA $T_{vj\,max}$	I_{TAVM} A 180 ° el sin T_c = 85 °C	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	$(di/dt)_{cr}$ A/µs DIN IEC 747 - 6	t_q µs typ.	$(dv/dt)_{cr}$ V/µs DIN IEC 747 - 6	R_{thJC} °C/W 180 ° el sin	$T_{vj\,max}$ °C	Outline / page
T 201 N	6000 … 7000	510	88,2	4,2	3,40/0,5	245	1,29	4,180	300	600	H = 2000	0,0430	125	T58.26K/110
◆ T 281	6000 … 6500	600	115	4,8	2,75/0,5	280	1,35	2,8	150	1000	F = 1000	0,0430	125	T58.26K/ 110
T 501 N	6000 … 7000	1260	845	13,0	2,65/1,0	640	1,30	1,350	300	600	H = 2000	0,0185	125	T76.26K/110
T 551 N	6000 … 7000	1260	845	13,0	2,65/1,0	600	1,30	1,350	300	600	H = 2000	0,0205	125	T76.35K/111
◆ T 571	6000 … 6500	1150	442	9,4	2,75/1,0	540	1,35	1,4	150	1000	F = 1000	0,0230	125	T76.26K/110
T 1081 N	6000 … 7000	2830	5780	34,0	2,7/2,0	1330	1,18	0,759	300	600	H = 2000	0,0086	125	T120.26K/111
T 1201 N	6000 … 7000	2600	5780	34,0	2,7/2,0	1230	1,18	0,759	300	600	H = 2000	0,0097	125	T120.35K/111
T 1651N	6000 … 7000	3610	11500	48,0	2,65/3	1685	1,22	0,490	300	600	H = 2000	0,0075	125	T120.35K/111
T 1851 N	6000 … 7000	3940	11500	48,0	2,65/3	1850	1,22	0,490	300	600	H = 2000	0,0065	125	T120.26K/111
T 1901 N	7000 … 8000	4520	21100	65,0	3,0/4,0	2130	1,24	0,440	300	550	H = 2000	0,0054	125	T150.35K/111
T 2251N	7000 … 8000	4840	21100	65,0	3,0/4,0	2280	1,24	0,440	300	550	H = 2000	0,0048	125	T150.26K/111
T 2871 N	7500 … 8000	6060	40500	90,0	2,95/6,0	2740	1,425	0,310	300	550	H = 2000	0,00445	125	T172.35K/112

◆ New type

Phase Control Thyristors

Light Triggered Thyristors

Type 	V_{BO} V	V_{RRM} V	I_{TRMSM} A	$\int i^2dt$ $A^2s \cdot 10^3$ 10 ms $T_{vj\,max}$	I_{TSM} kA 10 ms $T_{vj\,max}$	V_T/I_T V/kA $T_{vj\,max}$	I_{TAVM} A 180 ° el sin T_c = 85 °C	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	$(di/dt)_{cr}$ A/µs DIN IEC 747 - 6	t_q µs typ.	$(dv/dt)_{cr}$ V/µs DIN IEC 747 - 6	R_{thJC} °C/W 180 ° el sin	$T_{vj\,max}$ °C	Outline / page
T 553 N	6500	7200	1200	684	11,7	2,65/1,0	550	1,30	1,35	300	600	H = 2000	0,0200	120	T76.35L/112
T 1503 N	7500	7700 … 8200	3900	15125	55,0	3,0/4,0	1770	1,24	0,44	300	550	H = 2000	0,0063	120	T150.40L/112
T 2563 N	7500	7700 … 8200	5600	40500	90,0	2,95/5,0	2520	1,28	0,278	300	550	H = 2000	0,0048	120	T172.40L/112
T 4003 N	5200	5400	5600	50000	100,0	1,8/5,0	3480	0,92	0,142	300	500	H = 2000	0,0048	120	T172.40L/112

Fast Thyristors

up to 600 V

Type 	V_{DRM}, V_{RRM} $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM}+50$ V V	I_{TRMSM} A	I_{TSM} kA 10 ms, $T_{vj\,max}$	V_T/I_T V/kA $T_{vj\,max}$	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	$(di/dt)_{cr}$ A/µs DIN IEC 747 - 6	t_q µs typ.	$(dv/dt)_{cr}$ V/µs DIN IEC 747 - 6	V_{GT} V T_{vj} = 25 °C	I_{GT} mA T_{vj} = 25 °C	R_{thJC} °C/W 180 ° el sin	$T_{vj\,max}$ °C	Outline / page
■ T 72 F	400 … 600	200	2,05	2,1/0,4	1,25	1,8	200	S ≤ 18	B = 50	2,0	150	0,350	125	TSW27/108
							D ≤ 15	C = 500						
									L = 500					
									M = 1000					
■ T 102 F	200 … 600	220	2,75	1,95/0,5	1,20	1,4	200	D ≤ 15	B = 50	2,0	150	0,260	125	TSW27/108
									C = 500					
									L = 500					
									M = 1000					
T 178 F	200 … 600	300	1,90	1,85/0,5	1,02	1,55	300	E ≤ 20	B = 50	2,0	200	0,180	140	T41.14/109
								D ≤ 15	C = 500					
T 308 F	200 … 600	600	4,00	1,9/1,0	1	0,7	300	E ≤ 20	C = 500	2,0	200	0,108	140	T41.14/109
								D ≤ 15 [1]	M = 1000					

■ Not for new design

[1] Only in connection with $(dv/dt)_{cr}$ = B or C

Fast Thyristors

up to 600 V

Type 	V_{DRM}, V_{RRM} $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM}+50$ V V	I_{TRMSM} A	I_{TSM} kA 10 ms, $T_{vj\,max}$	V_T/I_T V/kA $T_{vj\,max}$	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	$(di/dt)_{cr}$ A/µs DIN IEC 747 - 6	t_q µs typ.	$(dv/dt)_{cr}$ V/µs DIN IEC 747 - 6	V_{GT} V T_{vj} = 25 °C	I_{GT} mA T_{vj} = 25 °C	R_{thJC} °C/W 180 ° el sin	$T_{vj\,max}$ °C	Outline / page
T 698 F	200 … 600	1100	11,00	1,65/2,0	1,02	0,32	300	E ≤ 20	C = 500	2,0	200	0,0500	140	T50.14/109
								D ≤ 15	M = 1000					
T 1078 F	200 … 400	2000	14,50	1,81/3,5	1,02	0,2	200	S ≤ 18	C = 500	2,0	250	0,0330	140	T50.14/109
								D ≤ 15	M = 1000					

up to 1400 V

Type 	V_{DRM}, V_{RRM} $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM}+50$ V V	I_{TRMSM} A	I_{TSM} kA 10 ms, $T_{vj\,max}$	V_T/I_T V/kA $T_{vj\,max}$	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	$(di/dt)_{cr}$ A/µs DIN IEC 747 - 6	t_q µs typ.	$(dv/dt)_{cr}$ V/µs DIN IEC 747 - 6	V_{GT} V T_{vj} = 25 °C	I_{GT} mA T_{vj} = 25 °C	R_{thJC} °C/W 180 ° el sin	$T_{vj\,max}$ °C	Outline / page
■ T 80 F	1200 … 1300*	200	2,45	2,4/0,4	1,30	2,40	160	F ≤ 25	B = 50	2,0	150	0,280	125	TSW27/108
								E ≤ 20	C = 500					
								S ≤ 18	L = 500					
									M = 1000					
■ T 120 F	1200 … 1300*	240	2,90	2,2/0,5	1,20	1,60	160	F ≤ 25	B = 50	2,0	150	0,200	125	TSW27/108
								E ≤ 20	C = 500					
								S ≤ 18 [1)]	L = 500					
									M = 1000					
T 128 F	1200 … 1300*	300	2,45	2,6/0,6	1,28	2,15	160	F ≤ 25	B = 50	2,0	150	0,163	125	T41.14/109
								E ≤ 20	C = 500					
								S ≤ 18 [1)]	L = 500					
									M = 1000					
T 188 F	1000 … 1300*	400	2,90	2,44/0,8	1,20	1,35	160	F ≤ 25	B = 50	2,0	150	0,117	125	T41.14/109
								E ≤ 20	C = 500					
								S ≤ 18 [1)]	L = 500					
									M = 1000					

■ Not for new design

* Highest voltage on request

[1)] Only in connection with $(dv/dt)_{cr}$ = B or C

Fast Thyristors

up to 1400 V

Type 	V_{DRM}, V_{RRM} $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM}+50$ V V	I_{TRMSM} A	I_{TSM} kA 10 ms, $T_{vj\,max}$	V_T/I_T V/kA $T_{vj\,max}$	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	$(di/dt)_{cr}$ A/µs DIN IEC 747 - 6	t_q µs typ.	$(dv/dt)_{cr}$ V/µs DIN IEC 747 - 6	V_{GT} V T_{vj} = 25 °C	I_{GT} mA T_{vj} = 25 °C	R_{thJC} °C/W 180 ° el sin	$T_{vj\,max}$ °C	Outline / page
■ T 290 F	1000 … 1300	550	6,40	2,1/1,0	1,20	0,75	200	F ≤ 25	C = 500	2,2	250	0,080	125	TFL54/108
								E ≤ 20	M = 1000					
								S ≤ 18 [1]						
T 318 F	1000 … 1200*	700	6,00	2,25/1,2	1,30	0,70	200	F ≤ 25	B = 50	2,2	250	0,068	125	T50.14/109
								E ≤ 20	C = 500					
								S ≤ 18 [1]	L = 500					
									M = 1000					
■ T 320 F	1000 … 1300*	600	9,15	1,95/1,2	1,15	0,42	200	F ≤ 25	B = 50	2,2	250	0,085	125	TSW41/108
								G ≤ 30	C = 500					
									L = 500					
									M = 1000					
T 340 F	1000 … 1400	600	6,40	1,65/1,0	0,90	0,70	200	N ≤ 60	C = 500	2,2	250	0,080	125	TFL54/108
									L = 500					
									M = 1000					
T 408 F	1000 … 1200*	750	6,40	2,20/1,4	1,20	0,63	200	F ≤ 25	C = 500	2,2	250	0,0530	125	T50.14/109
								E ≤ 20	L = 500					
								S ≤ 18 [1]	M = 1000					
■ T 599 F	1200 … 1300*	1500	10,00	1,66/1,0	1,15	0,42	200	G ≤ 30	B = 50	2,2	250	0,0380	125	T57.26/109
								F ≤ 25	C = 500					
■ T 600 F	1200 … 1300*	1500	10,00	1,66/1,0	1,15	0,42	200	E ≤ 20 [1]	L = 500	2,2	250	0,0380	125	T57.26K/110
									M = 1000					
■ T 1052 S	1000 … 1200	2200	20,00	2,70/4,0	1,45	0,3	400	F ≤ 25	B = 50	2,2	300	0,0180	125	T75.26K/110
								E ≤ 20	C = 500					
								D ≤ 15	L = 500					
									M = 1000					

■ Not for new design

* Highest voltage on request

[1] Only in connection with $(dv/dt)_{cr}$ = B or C

Fast Thyristors

up to 2000 V

Type 	V_{DRM}, V_{RRM} $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM}+50$ V V	I_{TRMSM} A	I_{TSM} kA 10 ms, $T_{vj\,max}$	V_T/I_T V/kA $T_{vj\,max}$	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	$(di/dt)_{cr}$ A/µs DIN IEC 747 - 6	t_q µs typ.	$(dv/dt)_{cr}$ V/µs DIN IEC 747 - 6	V_{GT} V T_{vj} = 25 °C	I_{GT} mA T_{vj} = 25 °C	R_{thJC} °C/W 180 ° el sin	$T_{vj\,max}$ °C	Outline / page
T 930 S	1600 … 2000*	2000	18,00	2,70/3,5	1,35	0,33	250	N ≤ 60	B = 50	2,2	250	0,0210	125	T75.26K/110
								M ≤ 50	C = 500					
								L ≤ 45	L = 500					
								K ≤ 40 [1]	M = 1000					

* Highest voltage on request

[1] Only in connection with $(dv/dt)_{cr}$ = B or C

Fast Asymmetric Thyristors

Type 	V_{DRM} V $V_{DSM} = V_{DRM}$	V_{RRM} V $(V_{RRM(C)})$ tp = 1 µs	I_{TRMSM} A	I_{TSM} kA 10 ms $T_{vj\,max}$	V_T/I_T V/kA $T_{vj\,max}$	$V_{(TO)}/r_T$ V/mΩ $T_{vj} = T_{vj\,max}$	$(di/dt)_{cr}$ A/µs DIN IEC 747 - 6	t_q µs typ.	$(dv/dt)_{cr}$ V/µs DIN IEC 747 - 6	V_{GT} V T_{vj} = 25 °C	I_{GT} mA T_{vj} = 25 °C	R_{thJC} °C/W 180 ° el sin	$T_{vj\,max}$ °C	Outline / page
A 158 S	1000 … 1300*	15 (50)	400	2,45	2,60/0,6	1,3/2	400	D ≤ 15	C = 500	2,7	300	0,117	125	T41.14/109
								C ≤ 12	F = 1000					
								B ≤ 10						
								A ≤ 8 [1]						
A 198 S	1000 … 1300*	15 (50)	400	2,70	2,0/0,25	1,1/1,3	400	E ≤ 20	C = 500	2,7	300	0,117	125	T41.14/109
								D ≤ 15	F = 1000					
A 358 S	1000 … 1300*	15 (50)	800	5,00	2,75/1,5	1,3/0,9	500	D ≤ 15	C = 500	2,7	300	0,053	125	T50.14/109
								C ≤ 12	F = 1000					
								B ≤ 10						
								A ≤ 8 [1]						
A 438 S	1000 … 1300*	15 (50)	900	5,50	2,1/1,5	1,1/0,6	500	F ≤ 25	C = 500	2,7	300	0,053	125	T50.14/109
								E ≤ 20	F = 1000					
								D ≤ 15						

* Highest voltage on request

[1] $V_{DRM} \leq 1000$ V

Overview Rectifier in Disc Housings

V_{RRM} – Concept

9000 V				D471N				D2601NH D2601N	
6800 V 5800 V				D711N		D1481N		D3001N D3041N	
5000 V 4800 V 4600 V 4500 V 4400 V 4000 V	1500 V_{RMS}  			D749N D849N	D1069N	D1800N D1809N		D3501N	D6001N
3600 V 3400 V 3200 V	1100 V_{RMS}			D269N			High Power-Discs		
2800 V 2600 V 2400 V 2200 V	690 V_{RMS}	D660N	D748N	D1029N	D1709N	D2209N D2200N D2659N D2650N		D4709N D4201N	
2000 V 1800 V 1600 V 1400 V 1200 V	550 V_{RMS} 400 V_{RMS}	D428N Epoxy-Discs	D798N	D1049N					
600 V 400 V	D448N	D758N		D2228N	D4457N	D5807N / D5809N	D8019N		
Pellet ∅	17 mm	21 mm	30 mm	30 mm	38 mm	46 mm	56 mm	65 mm	75/80 mm	101 mm
Case ∅	41 mm			50 mm	57/60 mm	75 mm		100 mm	120 mm	150 mm

Rectifier Diodes

up to 800 V

Type 	V_{RRM} V $V_{RSM} = V_{RRM} + 50$ V	I_{FRMSM} A	I_{FSM} kA 10 ms, $T_{vj\,max}$	$\int i^2dt$ $A^2s \cdot 10^3$ 10 ms $T_{vj\,max}$	I_{FAVM}/T_c A/°C 180° sinus	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	R_{thJC} °C/W 180 ° el sin	$T_{vj\,max}$ °C	Outline / page
D 255 N	200 … 800*	400	4,6	105,8	255/110	0,65	0,850	0,2300	180	DSW27/113
■ D 255 K	200 … 800*	400	4,0	80,0	255/75	0,65	0,850	0,3450	180	DSW27/113
D 448 N	200 … 800*	710	5,1	130,0	450/122	0,70	0,510	0,1020	180	D41.14/114
D 758 N	400 … 800*	1195	8,8	387,2	760/115	0,70	0,310	0,0670	180	D41.14/114
D 2228 N	200 … 600	4000	28,5	4061,0	2230/110	0,70	0,0975	0,0254	180	D60.14/114
D 2898 N	400 … 600	6100	32,3	5200,0	2894/100	0,66	0,060	0,0254	180	D60.14/114
D 4457 N	400 … 600	7000	52,0	13500,0	4460/111	0,70	0,047	0,0128	180	D60.8/114
D 5807 N	400 … 600	9100	70,0	24500,0	5800/108	0,70	0,040	0,0098	180	D73.8/114
D 5809 N	400 … 600	9100	70,0	24500,0	5800/58	0,70	0,040	0,0166	180	D75.26/114
D 6247 N	400 … 600	9800	52,0	13500,0	6242/68	0,66	0,047	0,0130	180	D60.8/ 114
D 8019 N	200 … 600	13300	95,0	45000,0	8020/56	0,70	0,027	0,0125	180	D100.26/115
D 8407 N	400 … 600	13200	70,0	24500,0	8408/64	0,66	0,036	0,0098	180	D73.8/ 114

up to 1800 V

Type 	V_{RRM} V $V_{RSM} = V_{RRM} + 100$ V	I_{FRMSM} A	I_{FSM} kA 10 ms, $T_{vj\,max}$	$\int i^2dt$ $A^2s \cdot 10^3$ 10 ms $T_{vj\,max}$	I_{FAVM}/T_c A/°C 180° sinus	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	R_{thJC} °C/W 180 ° el sin	$T_{vj\,max}$ °C	Outline / page
D 452 N	1200 … 1800	710	10,8	583,2	450/130	0,77	0,48	0,0855	180	DFL54/113
D 452 K	1200 … 1800	710	10,8	583,2	450/130	0,77	0,48	0,0855	180	DFL54/113
D 798 N	1200 … 1800*	1650	11,8	696,0	800/130	0,81	0,28	0,046	180	D50.14/114
D 1049 N	1200 … 1800	2590	18,5	1710,0	1050/130	0,81	0,17	0,038	180	D57.26/114

■ Not for new design

* Highest voltage on request

Rectifier Diodes

up to 3000 V

Type	V_{RRM} V $V_{RSM} = V_{RRM} + 100$ V	I_{FRMSM} A	I_{FSM} kA 10 ms, $T_{vj\,max}$	$\int i^2dt$ $A^2s \cdot 10^3$ 10 ms $T_{vj\,max}$	I_{FAVM}/T_c A/°C 180° sinus	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	R_{thJC} °C/W 180 ° el sin	$T_{vj\,max}$ °C	Outline / page
D 121 N	1200 … 2000	360	2,60	33,8	120/130	0,72	1,90	0,324	180	DSW27/113
D 121 K	1200 … 2000	330	2,40	28,8	120/130	0,72	1,90	0,434	180	DSW27/113
D 251 N	1200 … 2000	400	5,30	140,5	250/130	0,80	0,85	0,151	180	DSW27/113
										DFL36/113
D 251 K	1200 … 2000	400	4,70	110,5	250/102	0,80	0,85	0,236	180	DSW27/113
										DFL36/ 113
D 400 N	1600 … 2200	710	9,80	480,2	400/130	0,70	0,62	0,095	180	DSW41/113
■ D 400 K	1600 … 2200	710	9,80	480,2	400/130	0,70	0,62	0,095	180	DSW41/113
D 428 N	1200 … 2000	840	6,00	180	430/139	0,81	0,54	0,069	180	D41.14/114
D 660 N	1200 … 2200	1435	10,25	525	660/130	0,70	0,50	0,050	180	D41.14K/115
D 748 N	2000 … 2800	1260	9,00	405	750/100	0,83	0,52	0,045	160	D50.14/114
D 1029 N	1800 … 2600	2040	14,50	1051	1030/100	0,82	0,28	0,038	160	D57.26/114
D 1030 N	1800 … 2600	2040	14,50	1051	1030/100	0,82	0,28	0,038	160	D57.26K/115
D 1709 N	2000 … 2400	2700	18,00	1620	1700/90	0,83	0,20	0,0245	160	D75.26/114
D 2200 N	2000 … 2800	4900	35,00	6125	2200/100	0,83	0,145	0,017	160	D75.26K/115
D 2209 N	2000 … 2800	4900	35,00	6125	2200/100	0,83	0,145	0,017	160	D75.26/114
D 2650 N	2000 … 2400	4710	33,50	5611	2650/100	0,82	0,148	0,0169	180	D75.26K/115
D 2659 N	2000 … 2400	4710	33,50	5611	2650/100	0,82	0,148	0,0169	180	D75.26/114
D 4201 N	1600 … 2200	11200	73,50	27000	4830/100	0,668	0,081	0,0092	160	D120.35K/116
D 4709 N	2000 … 2800	8400	60,00	18000	4700/100	0,83	0,07	0,008	160	D110.26/115

■ Not for new design

Rectifier Diodes

up to 5000 V

Type 	V_{RRM} V $V_{RSM} = V_{RRM} + 100$ V	I_{FRMSM} A	I_{FSM} kA 10 ms, $T_{vj\,max}$	$\int i^2dt$ $A^2s \cdot 10^3$ 10 ms $T_{vj\,max}$	I_{FAVM}/T_c A/°C 180° sinus	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	R_{thJC} °C/W 180 ° el sin	$T_{vj\,max}$ °C	Outline / page
■ D 269 N	3200 … 3600	550	4,0	80	270/100	0,86	1,540	0,098	150	D57.26/114
D 475 N	3200 … 4000	745	10,9	594	475/100	0,765	0,612	0,085	160	DSW41.1/113
■ D 475 K	3200 … 4000	745	10,9	594	475/100	0,765	0,612	0,085	160	DSW41.1/113
D 749 N	3600 … 4800*	1540	11,0	605	750/100	0,85	0,650	0,039	160	D57.26/114
D 849 N	2800 … 4000*	1790	12,8	819	850/100	0,84	0,485	0,038	160	D57.26/114
D 850 N	2800 … 4000*	1790	12,8	819	850/100	0,84	0,485	0,038	160	D57.26K/115
■ D 1069 N	3600 … 4400	2200	15,5	1201	1070/100	0,85	0,460	0,027	160	D75.26/114
D 1809 N	3200 … 4800	3850	27,5	3781	1800/100	0,85	0,253	0,0169	160	D75.26/114
D 1800 N	3200 … 4800	3850	27,5	3781	1800/100	0,85	0,253	0,0169	160	D75.26K/115
D 3501 N	3200 … 4200	8200	56	15680	3690/100	0,734	0,133	0,0092	160	D120.35K/116
◆ D 6001 N	4500 … 5000	13000	110	60500	6070/100	0,80	0,090	0,0046	160	D150.26K/116

up to 10000 V

Type 	V_{RRM} V $V_{RSM} = V_{RRM} + 100$ V	I_{FRMSM} A	I_{FSM} kA 10 ms, $T_{vj\,max}$	$\int i^2dt$ $A^2s \cdot 10^3$ 10 ms $T_{vj\,max}$	I_{FAVM}/T_c A/°C 180° sinus	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	R_{thJC} °C/W 180 ° el sin	$T_{vj\,max}$ °C	Outline / page
D 711 N	5800 … 6800	1670	10,5	550	790/100	0,840	0,870	0,0315	160	D58.26K/115
D 1481 N	5800 … 6800	3610	24,5	3000	1650/100	0,750	0,420	0,0158	160	D76.26K/116
D 3001 N	5800 … 6800	6340	53,0	14040	2900/100	0,840	0,216	0,0092	160	D120.35K/116
D 3041N	5800 … 6800	6620	53,0	14040	2900/100	0,840	0,216	0,00855	160	D120.26K/116
D 471 N	8000 … 9000	1200	10,0	500	565/100	1,040	1,780	0,0315	160	D58.26K/115
D 2601 N	8500 … 9000	4820	50,0	12500	2240/100	0,944	0,412	0,00855	160	D120.26K/116

■ Not for new design ◆ New type * Highest voltage on request

GCT – Freewheeling Diodes

Type 	$V_{(DRM)}$ V	$V_{(D)D}$ *) kV Tc = 25 typ.	$I_{(FSM)}$ kA sin, 10 ms $T_{vj\ max}$	$\int i^2dt$ $A^2s \cdot 10^3$ sin, 10 ms $T_{vj\ max}$	$V_{(F)}/I_{(FM)}$ V/2,5 kA $T_{vj} = T_{vj\ max}$ sin	$I_{(RM)}$ A di/dt = 1000 A/µs $I_{(FM)}$ = 2,5 kA $T_{vj} = T_{vj\ max}$	$Q_{(rr)}$ mAs di/dt = 1000 A/µs $I_{(FM)}$ = 2,5 kA $T_{vj} = T_{vj\ max}$	R_{thJC} °C/W DC	$T_{vj\ max}$ °C	Outline / page
D 911 SH	4500	2,8	17	1445	6,0	1200**)	2,8**)	0,0100	140	D100.26K/116
D 1031 SH	4500	2,8	23	2645	4,2	1500**)	3,5**)	0,0100	140	D100.26K/116
D 1121SH	4500	2,8	17,5	1530	5,6	1200**)	3,5**)	0,0075	140	D120.26K/116
D 1331 SH	4500	2,8	28	3920	4,2	1500**)	3,5**)	0,0075	140	D120.26K/116
D 931 SH	6500	3,2	16	1280	5,6	1300**)	3,5**)	0,0100	140	D100.26K/116
D 1131 SH	6500	3,2	22	2400	5,6	1300**)	3,5**)	0,0075	140	D120.26K/116
D 1951 SH	6500	3,2	44	9680	4,0	1800**)	5,0**)	0,0045	140	D150.26K/116

*) Estimate failure rate λ ~ 100 fit **) Clamp circuit L = 0,25 µH

GTO – Freewheeling Diodes

Type 	$V_{(DRM)}$ V	$V_{(D)D}$ *) kV Tc = 25 typ.	$I_{(FSM)}$ kA sin, 10 ms $T_{vj\ max}$	$\int i^2dt$ $A^2s \cdot 10^3$ sin, 10 ms $T_{vj\ max}$	$V_{(F)}/I_{(FM)}$ V/2,5 kA $T_{vj} = T_{vj\ max}$ sin	$I_{(RM)**)}$ A di/dt = 250 A/µs $I_{(FM)}$ = 1 kA $T_{vj} = T_{vj\ max}$	$Q_{(rr)**)}$ mAs di/dt = 250 A/µs $I_{(FM)}$ = 1 kA $T_{vj} = T_{vj\ max}$	$(-di/dt)_{com}$ a/µs	R_{thJC} °C/W DC	$T_{vj\ max}$ °C	Outline / page
D 1170 S	2000, 2500	1,25	24,0	2880	2,62/6,4	580	1,7		0,0184	120	D75.26K/115
D 721 S	3500 … 4500	2,00	15,0	1130	3,5/2,5	600	1,7	500	0,0180	125	D76.26K/116
D 1461 S	3500 … 4500	2,00	32,0	5120	2,5/2,5	840	2,8	500	0,0125	140	D100.26K/116
D 1251 S	4500	2,5	18,0	1620	2,5/2,5	800	3,0	500	0,0100	140	D76.14K/116
D 921 S	4500	2,5	32,0	5120	2,6/2,5	700	2,8	500	0,0125	140	D100.26K/116
D 1381 S	4500	3,00	32,0	5120	2,6/2,5	700	2,8	500	0,0125	140	D100.26K/116

*) Estimate failure rate λ ~ 100 fit GTO-Snubber **) $V_{(R)} = 0,5\ V_{(RRM)}$, $V_{(RM)} = 0,8\ V_{(RRM)}$

GTO Snubber Diodes and general use

Type 	$V_{(RRM)}$ V	$V_{R(cr)}$ V [1]	$I_{(FSM)}$ kA sin, 10 ms $T_{vj} = T_{vj\,max}$	$V_{(F)}/I_{(FM)}$ V/kA sin, 10 ms $T_{vj} = T_{vj\,max}$	V_{FRM} typ. V di/dt = 1000 A/µs $T_{vj} = T_{vj\,max}$	$R_{(th)JC}$ °C/W DC	$T_{vj\,max}$ °C	Outline / page
D 170 S	2500	1500	3,70	2,3/0,8		0,1800	140	DSW27.1/113
D 170 U	2500	1500	3,15	2,15/0,65		0,2500	140	DSW27.1/113
D 228 S	2500	1500	3,20	2,12/0,5		0,0750	125	D60.14/114
D 56 S	4500	3000	1,35	4,5/0,32	145	0,2450	125	DSW27.2/113
D 56 U	4500	3000	1,20	4,15/0,28	75	0,3250	125	DSW27.2/113
D 291 S	3500 … 4500	3200	4,50	4,15/1,2	145	0,0400	125	D58.26K/115
D 841 S	4500	3200	15,00	3,5/2,5	75	0,0100	125	D76.14K/116
snubberless:								
D 371 S	4500	3200	6,00	3,9/1,2	150	0,0350	125	D58.26K/115
D 801 S	4500	3200	14,00	3,7/2,5	85	0,0100	125	D76.14K/116
D 901 S	3500 … 4500	2500	21,50	3,5/2,5	70	0,0125	125	D100.26K/116

[1] Maximum permissible link voltage, GTO snubber diode

Fast Rectifier Diodes

up to 1000 V

Type 	V_{RRM} V $V_{RSM} = V_{RRM}$ + 100 V	I_{FRMSM} A	I_{FSM} kA 10 ms $T_{vj\,max}$	$\int i^2dt$ $A^2s \cdot 10^3$ 10 ms $T_{vj} = T_{vj\,max}$	I_{FAVM}/T_c A/°C 180° sinus	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	I_{RM} A $T_{vj\,max}$ $i_F = I_{FAVM}$, $di_F/dt = 50$ A/µs	R_{thJC} °C/W 180 ° el sin	$T_{vj\,max}$ °C	Outline / page
D 138 S	900 … 1000	230	1,60	12,80	138/85	1,32	2,20	47 [1]	0,140	125	D41.14/114
■ D 358 S	600 … 1000	730	5,20	135,20	358/100	1,05	0,80	70	0,079	150	D41.14/114
D 648 S	800 … 1000	1400	10,10	510,05	648/100	1,05	0,43	82	0,044	150	D50.14/114
D 649 S	800 … 1000	1400	10,10	510,05	650/96	1,05	0,43	82	0,048	150	D57.26/114

[1] $i_{FM} = 225$ A, $-di_F/dt = 100$ A/µs

up to 1400 V

Type 	V_{RRM} V $V_{RSM} = V_{RRM}$ + 100 V	I_{FRMSM} A	I_{FSM} kA 10 ms $T_{vj\,max}$	$\int i^2dt$ $A^2s \cdot 10^3$ 10 ms $T_{vj} = T_{vj\,max}$	I_{FAVM}/T_c A/°C 180° sinus	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	I_{RM} A $T_{vj\,max}$ $i_F = I_{FAVM}$, $di_F/dt = 50$ A/µs	R_{thJC} °C/W 180 ° el sin	$T_{vj\,max}$ °C	Outline / page
D 188 S	1000 … 1400	290	1,90	18,05	185/100	1,00	1,80	80	0,150	150	D41.14/114
■ D 211 S	1000 … 1400	400	4,30	92,45	211/100	1,00	1,00	100	0,155	150	DSW27/113
■ D 211 U	1000 … 1400	400	3,90	76,05	150/100	1,00	1,00	100	0,245	150	DSW27/113
D 238 S	1200	455	3,20	51,20	238/85	1,45	1,10	45	0,080	125	D41.14/114
D 368 S	1000 … 1400	730	5,20	135,20	368/100	1,00	0,80	102	0,080	150	D41.14/114
D 658 S	1000 … 1400	1400	10,10	510,05	658/100	1,00	0,45	122	0,044	150	D50.14/114
D 659 S	1000 … 1400	1400	10,10	510,05	660/95	1,00	0,45	122	0,048	150	D57.26/114

■ Not for new design

Fast Rectifier Diodes

up to 2600 V

Type 	V_{RRM} V $V_{RSM} = V_{RRM}$ + 100 V	I_{FRMSM} A	I_{FSM} kA 10 ms $T_{vj\,max}$	$\int i^2dt$ $A^2s \cdot 10^3$ 10 ms $T_{vj} = T_{vj\,max}$	I_{FAVM}/T_c A/°C 180° sinus	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	I_{RM} A $T_{vj\,max}$ $i_F = I_{FAVM}$, $di_F/dt = 50$ A/µs	R_{thJC} °C/W 180 ° el sin	$T_{vj\,max}$ °C	Outline / page
D 170 S	2500	400	3,70	68,45	170/85	1,10	1,400	340 [2]	0,190	140	DSW27.1/113
D 170 U	2500	330	3,15	49,60	170/64	1,10	1,500	340 [2]	0,260	140	DSW27.1/113
D 228 S	2200, 2500	450	3,20	51,20	228/85	1,18	1,800	280	0,080	125	D41.14/114
D 348 S	1600 … 2000	645	4,60	105,80	348/100	1,00	0,900	160	0,080	150	D41.14/114
D 438 S	1600 … 2000	740	5,30	140,50	440/100	1,14	0,725	770 [3]	0,059	150	D41.14/114
D 440 S	1600 … 2000	740	5,30	140,50	440/100	1,14	0,725	770 [3]	0,059	150	D57.26K/115
■ D 509 S	2400 … 2600	1050	7,50	281,25	509/100	1,00	0,800	205	0,049	150	D57.26/114
D 675 S	2000, 2500	1200	8,50	361,00	675/85	1,25	0,500	860 [4]	0,039	140	D57.26K/115
D 689 S	2000 … 2600	1600	11,50	661,25	690/100	1,00	0,500	230	0,039	150	D57.26/114
D 690 S											D57.26K/115
D 1169 S	2000, 2500	3360	24,00	2880,00	1170/85	1,16	0,210	580 [5]	0,0194	125	D75.26/114
D 1170 S	2000, 2500	3360	24,00	2880,00	1170/85	1,16	0,210	580 [5]	0,0194	125	D75.26K/115
D 1408 S	2000, 2500	3360	24,00	2880,00	1410/85	1,16	0,210	580 [5]	0,0150	125	D75.14/114

up to 6000 V

Type 	V_{RRM} V $V_{RSM} = V_{RRM}$ + 100 V	I_{FRMSM} A	I_{FSM} kA 10 ms $T_{vj\,max}$	$\int i^2dt$ $A^2s \cdot 10^3$ 10 ms $T_{vj} = T_{vj\,max}$	I_{FAVM}/T_c A/°C 180° sinus	$V_{(TO)}$ V $T_{vj} = T_{vj\,max}$	r_T mΩ $T_{vj} = T_{vj\,max}$	I_{RM} A $T_{vj\,max}$ $i_F = I_{FAVM}$, $di_F/dt = 50$ A/µs	R_{thJC} °C/W 180 ° el sin	$T_{vj\,max}$ °C	Outline / page
D 56 S	4000, 4500	160	1,35	9,1	56/85	1,64	8,00	230 [1]	0,2600	125	DSW27.2/113
D 56 U	4000, 4500	140	1,20	7,2	56/73	1,64	8,00	230 [1]	0,3400	125	DSW27.2/113

[1] $i_{FM} = 150$ A, $-di_F/dt = 200$ A/µs
[2] $i_{FM} = 500$ A, $-di_F/dt = 200$ A/µs
[3] $i_{FM} = 500$ A, $-di_F/dt = 250$ A/µs
[4] $i_{FM} = 1600$ A, $-di_F/dt = 600$ A/µs
[5] $i_{FM} = 1000$ A, $-di_F/dt = 250$ A/µs
■ Not for new design

Avalanche Rectifier Diodes

Type 	V_{RRM} V $V_{RSM} = V_{RRM}$ + 100 V	I_{FRMSM} A	I_{FSM} kA 10 ms, $T_{vj\ max}$	$\int i^2dt$ $A^2s \cdot 10^3$ 10 ms, $T_{vj} = T_{vj\ max}$	I_{FAVM}/T_c A/°C 180° sinus	$V_{(TO)}$ V $T_{vj} = T_{vj\ max}$	r_T mΩ $T_{vj} = T_{vj\ max}$	$V_{(BR)}$ A min.	R_{thJC} °C/W 180 ° el sin	$T_{vj\ max}$ °C	Outline / page
D 126 A 45	4500	315	2,30	26,45	126/100	0,86	3,2	4800	0,257	160	DSW27.2/113
					200/35						
D 126 B 45	4500	300	2,10	22,00	126/80	0,86	3,2	4800	0,337	160	DSW27.2/113
					190/9						
DD 126 A 45 K-B9*	4500	220	2,30	26,45	128/100	0,86	3,2	4800	0,060	160	DP30.1/107

* Non isolated module

Welding Diodes

up to 600 V

Type 	V_{RRM} V $V_{RSM} = V_{RRM}$ + 50 V	I_{FRMSM} A	I_{FSM} kA 10 ms, $T_{vj\ max}$	$\int i^2dt$ $A^2s \cdot 10^3$ 10 ms $T_{vj\ max}$	I_{FAVM}/T_c A/°C 180° sinus	$V_{(TO)}$ V $T_{vj} = T_{vj\ max}$	r_T mΩ $T_{vj} = T_{vj\ max}$	R_{thJC} °C/W 180 ° el sin	$T_{vj\ max}$ °C	Outline / page
25 DN 06	600	1800	12,75	813	1145/155	0,7	0,188	0,0174	180	25DN06/115
38 DN 06	600	6100	32,30	5200	3885/120	0,66	0,060	0,0124	180	38DN06/115
46 DN 06	600	8000	52,00	13500	5100/118	0,7	0,047	0,00935	180	46DN06/115
46 DN 06 S 01	600	9800	52,00	13500	6240/125	0,66	0,047	0,0064	180	46DN06/115
56 DN 06	600	10050	70,00	24500	6400/116	0,7	0,040	0,0062	180	56DN06/115
56 DN 06 S 01	600	13200	70,00	24500	8400/111	0,66	0,036	0,0058	180	56DN06/115
65 DN 06	600	13300	95,00	45000	8470/98	0,7	0,027	0,0047	180	65DN06/115
65 DN 06 S 01	600	17900	95,00	45000	11400/107	0,66	0,027	0,0047	180	65DN06/115

Insulated Cells

Type	V_M V	V_{RMS} V_{DC}	CTI - Value	Iso-Class	$T_{c\,(max)}$ °C	R_{thCK} °C/W	$R_{thC\text{-}C\,(typ)}$ °C/W	at clamp. force	F_{max} kN	Weight g	Outline / page
ISO 57/26	6400	2520	250	III a	150	0,010	0,088	at 12kN	30	260	I57.26/117
ISO 72/8	2250	700	250	III a	150	0,005	0,028	at 20kN	45	130	I72.8/117
ISO 75/14	3500	1250	250	III a	150	0,005	0,0435	at 20kN	45	245	I75.14/117
ISO 75/26	5900	2250	250	III a	150	0,005	0,048	at 20kN	45	460	I75.26/117
ISO 65/35	10600	4180	250	III a	150	0,010	0,136	at 12kN	30	350	I65.35/117
ISO 120/35	11700	4400	250	III a	150	0,002	0,0275	at 30kN	70	1650	I120.35/117

Insulating material: AlN

Possible Combinations of Disc Devices and Heatsinks

for air cooling
for water cooling

applicable up to V_{RRM}	line voltage up to	BE/KK = Elements per Heatsink										
7000 V	2500 V	1	K0.05.7F	K0.05.7F	K0.05.7F		K0.05.7F		K0.05.7F				
		1							KE01	KE01	KE01	KE01	KE01
		2							KE02	KE02	KE02	KE02	
		2	K0.08.7F	K0.08.7F	K0.08.7F		K0.08.7F		K0.08.7F				
6000 V	2000 V	1	K0.05F	K0.05F	K0.05F		K0.05F		K0.05F	K0.048F	K0.048F		
		2	K0.08F K0.92S	K0.08F K0.92S	K0.08F K0.92S		K0.08F K0.92S		K0.08F K0.92S				
2600 V	1500 V	2, 4, 6							K53 K63	K53 K63	K53 K63	K53 K63	K63
2200 V	690 V	1	KK32	KK32									
		2	KK34	KK34									
		1	K0.12F K0.36S	K0.12F K0.36S			K0.12F K0.36S						
		2	K0.17F K0.22F	K0.17F K0.22F			K0.17F K0.22F						
		2	K0.65S	K0.65S			K0.65S						
		2	K0.024W	K0.024W	K0.024W	K0.024W	K0.024W	K0.024W	K0.024W				
		2, 4, 6	KA20;KC20;KD20	KA20;KC20;KD20	KA20;KC20;KD20	KA20;KC20;KD20	KA20;KC20;KD20						
Outline			D41.14 T41.14	D50.14 T50.14	D57.26 T57.26	D60.8	D60.14 T60.14	D73.8	D75.26 T75.26	D100.26 T100.26	D110.26 T110.26 T110.35	D120.35 T120.35 T120.26	T150.35

according to EN50178 pollution degree 2
pollution degree 3 on request

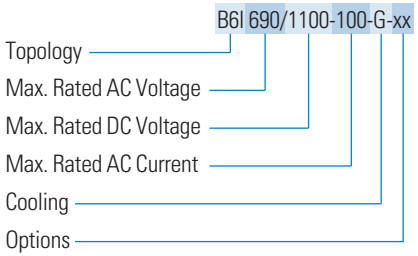
Examples of implemented ModSTACK™

Up to 400 Vac	Irms [A]	at fsw [Hz]	Remarks	Size Outline/Page
B6I 400/600-460-G	460	3000	inverter	MS2/80
B6I 400/600-480-W	480	3000	inverter	MS2/80

Up to 500 Vac	Irms [A]	at fsw [Hz]	Remarks	Size Outline/Page
B6I 500/800-220-F	220	2500	inverter	MS1/79
B6I 500/800-220-G	220	2500	inverter	MS1/79
B6I 500/800-250-W	250	2500	inverter	MS1/79
2B6I 500/800-330-G	2 x 330	3000	2 inverter parallel	MS3/81
2B6I 500/800-350-W	2 x 350	3000	2 inverter parallel	MS3/81
2B6I 500/800-400-G	2 x 400	3000	2 inverter parallel	MS3/81
2B6I 500/800-450-W	2 x 450	3000	2 inverter parallel	MS3/81
2B6I 500/800-600-W	2 x 600	3000	2 inverter parallel	MS4/82

Other topologies and ratings possible. Please refer to page 66.

Mod STACK™ Type Designation System:



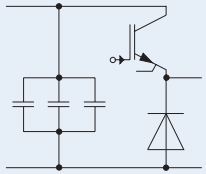
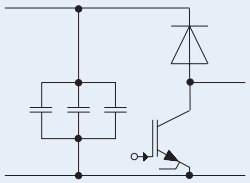
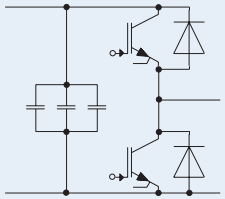
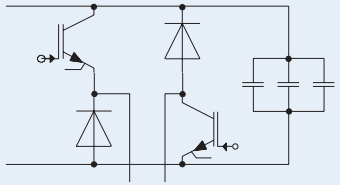
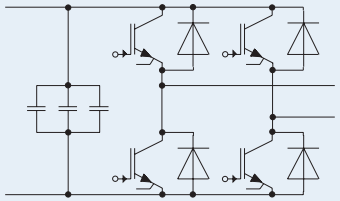
Descriptors
G = forced air cooling
W = water cooling
F = fan included

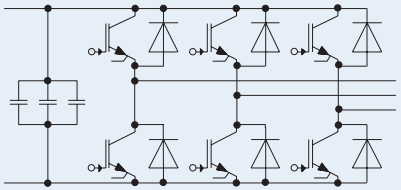
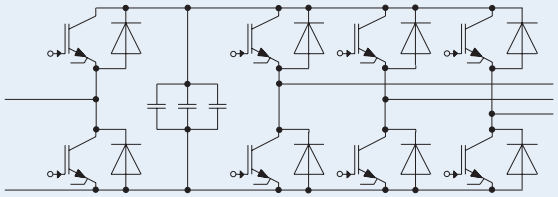
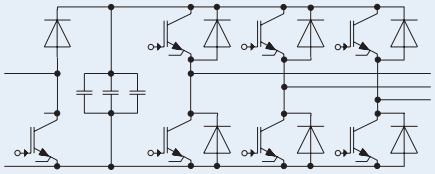
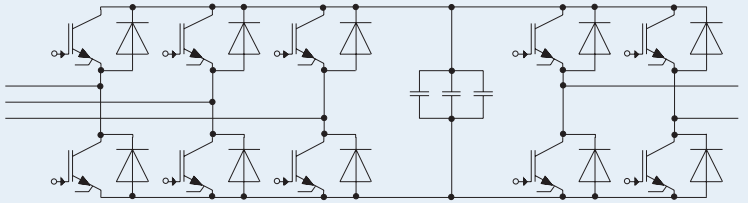
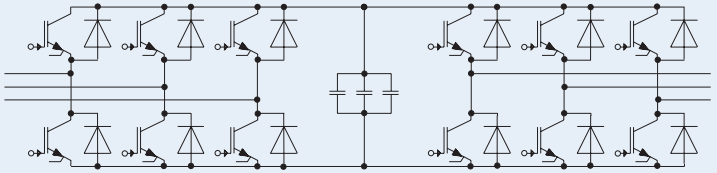
Options
M = Master
S = slave, single use
O = fiber optic interface
X = voltage signal interface

Up to 690 Vac	Irms [A]	at fsw [Hz]	Remarks	Size Outline/Page
B6I 690/1100-100-G	100	2500	inverter	MS1/79
B6I 690/1100-150-G	150	2500	inverter	MS1/79
B6I 690/1100-250-G	250	2250	inverter	MS2/80
B6I 690/1100-375-G	375	1250	inverter	MS2/80
B6I 690/1100-460-W	460	2500	inverter	MS2/80
B6I+B6I 690/1100-300-G	300	2250	AC/AC converter	MS3/81
B6I+B6I 690/1100-330-G	330	2250	AC/AC converter	MS3/81
2B6I 690/1100-330-G	2 x 330	2250	2 inverter parallel	MS3/81
2B6I 690/1100-400-W	2 x 400	2500	2 inverter parallel	MS3/81
B6I+B6I 690/1100-650-G	650	2250	AC/AC converter	MS4/82
2B6I 690/1100-600-G	2 x 600	2250	2 inverter parallel	MS4/82

Other topologies and ratings possible. Please refer to page 66.

General Information:
Nominal AC current is rated for a certain switching frequency and at T_{amb} = 45 °C for air cooled IGBT stacks and 40 °C for water cooled stacks. Starting from nominal current a maximum current of 1,2 xI_{nom} is possible. Higher switching frequencies result in a derating of the nominal output current.

IGBT Stack Topology	Acronym
	1/2B2IHA
	1/2B2IHK
	1/2B2I
	B2IH
	B2I

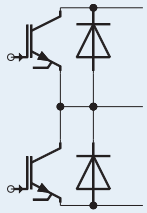
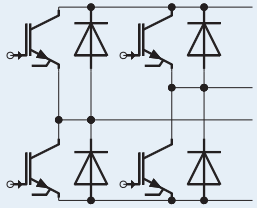
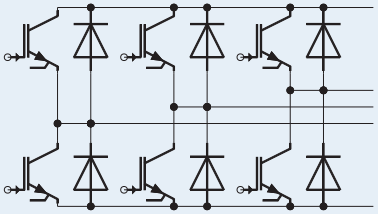
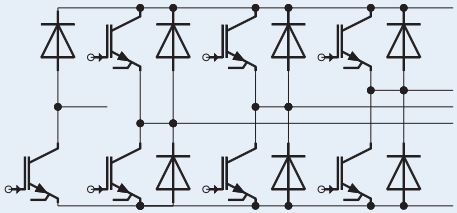
IGBT Stack Topology	Acronym
	B6I
	1/2B2I + B6I
	1/2B2IHK + B6I
	B6I + B2I
	B6I + B6I or 2B6I for parallel operation

PrimeSTACK™

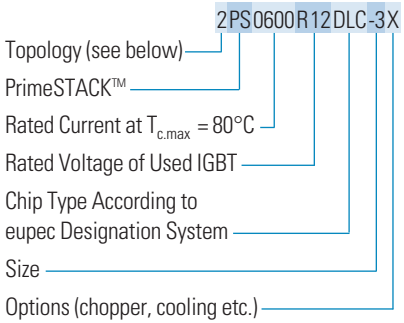
Type	Implemented IGBT Module	Outline	Outline / page
With 600V IGBT Modules			
2PS0600R06DLC-2G	BSM300GB60DLC	C2 air cooling	PS_C2G/83
2PS0900R06DLC-3G	BSM300GB60DLC	C3 air cooling	PS_C3G/85
2PS1200R06DLC-4G	BSM300GB60DLC	C4 air cooling	PS_C4G/87
2PS0800R06DN2-2G	BSM400GB60DN2	C2 air cooling	PS_C2G/83
2PS1200R06DN2-3G	BSM400GB60DN2	C3 air cooling	PS_C3G/85
2PS1600R06DN2-4G	BSM400GB60DN2	C4 air cooling	PS_C4G/87
6PS0300R06DLC-3G	BSM300GB60DLC	C3 air cooling	PS_C3G/85
4PS0300R06DLC-3G	BSM300GB60DLC	C3 air cooling	PS_C3G/85
6PS0400R06DN2-3G	BSM400GB60DN2	C3 air cooling	PS_C3G/85
With 1200V IGBT Modules			
2PS0200R12DLC-2G	BSM100GB120DLC	C2 air cooling	PS_C2G/83
2PS0300R12DLC-2G	BSM150GB120DLC	C2 air cooling	PS_C2G/83
2PS0400R12DLC-2G	BSM200GB120DLC	C2 air cooling	PS_C2G/83
2PS0600R12DLC-2G	BSM300GB120DLC	C2 air cooling	PS_C2G/83
2PS0300R12DLC-3G	BSM100GB120DLC	C3 air cooling	PS_C3G/85
2PS0450R12DLC-3G	BSM150GB120DLC	C3 air cooling	PS_C3G/85
2PS0600R12DLC-3G	BSM200GB120DLC	C3 air cooling	PS_C3G/85
2PS0900R12DLC-3G	BSM300GB120DLC	C3 air cooling	PS_C3G/85
2PS0400R12DLC-4G	BSM100GB120DLC	C4 air cooling	PS_C4G/87
2PS0600R12DLC-4G	BSM150GB120DLC	C4 air cooling	PS_C4G/87
2PS0800R12DLC-4G	BSM200GB120DLC	C4 air cooling	PS_C4G/87
2PS1200R12DLC-4G	BSM300GB120DLC	C4 air cooling	PS_C4G/87
6PS0100R12DLC-3G	BSM100GB120DLC	C3 air cooling	PS_C3G/85
6PS0150R12DLC-3G	BSM150GB120DLC	C3 air cooling	PS_C3G/85
6PS0200R12DLC-3G	BSM200GB120DLC	C3 air cooling	PS_C3G/85
6PS0300R12DLC-3G	BSM300GB120DLC	C3 air cooling	PS_C3G/85
2PS0400R12KE3-2G	FF200R12KE3	C2 air cooling	PS_C2G/83
2PS0600R12KE3-2G	FF300R12KE3	C2 air cooling	PS_C2G/83
2PS0800R12KE3-2G	FF400R12KE3	C2 air cooling	PS_C2G/83
2PS0600R12KE3-3G	FF200R12KE3	C3 air cooling	PS_C3G/85
2PS0900R12KE3-3G	FF300R12KE3	C3 air cooling	PS_C3G/85
2PS1200R12KE3-3G	FF400R12KE3	C3 air cooling	PS_C3G/85
2PS0800R12KE3-4G	FF200R12KE3	C4 air cooling	PS_C4G/87
2PS1200R12KE3-4G	FF300R12KE3	C4 air cooling	PS_C4G/87
2PS1600R12KE3-4G	FF400R12KE3	C4 air cooling	PS_C4G/87
6PS0200R12KE3-3G	FF200R12KE3	C3 air cooling	PS_C3G/85
6PS0300R12KE3-3G	FF300R12KE3	C3 air cooling	PS_C3G/85
6PS0400R12KE3-3G	FF400R12KE3	C3 air cooling	PS_C3G/85
2PS1200R12KE3-3W	FF400R12KE3	C3 water cooling	PS_C3W/86

Other PrimeStacks on request

Type	Implemented IGBT Module	Outline	Outline / page
2PS0800R12KE3-2W	FF400R12KE3	C2 water cooling	PS_C2W/84
2PS0200R12KS4-2G	FF100R12KS4	C2 air cooling	PS_C2G/83
2PS0300R12KS4-2G	FF150R12KS4	C2 air cooling	PS_C2G/83
2PS0400R12KS4-2G	FF200R12KS4	C2 air cooling	PS_C2G/83
2PS0600R12KS4-2G	FF300R12KS4	C2 air cooling	PS_C2G/83
2PS0300R12KS4-3G	FF100R12KS4	C3 air cooling	PS_C3G/85
2PS0450R12KS4-3G	FF150R12KS4	C3 air cooling	PS_C3G/85
2PS0600R12KS4-3G	FF200R12KS4	C3 air cooling	PS_C3G/85
2PS0900R12KS4-3G	FF300R12KS4	C3 air cooling	PS_C3G/85
2PS0400R12KS4-4G	FF100R12KS4	C4 air cooling	PS_C4G/87
2PS0600R12KS4-4G	FF150R12KS4	C4 air cooling	PS_C4G/87
2PS0800R12KS4-4G	FF200R12KS4	C4 air cooling	PS_C4G/87
2PS1200R12KS4-4G	FF300R12KS4	C4 air cooling	PS_C4G/87
6PS0100R12KS4-3G	FF100R12KS4	C3 air cooling	PS_C3G/85
6PS0150R12KS4-3G	FF150R12KS4	C3 air cooling	PS_C3G/85
6PS0200R12KS4-3G	FF200R12KS4	C3 air cooling	PS_C3G/85
6PS0300R12KS4-3G	FF300R12KS4	C3 air cooling	PS_C3G/85
2PS0900R12KS4-3W	FF300R12KS4	C3 water cooling	PS_C3W/86
6PS0300R12KS4-3W	FF300R12KS4	C3 water cooling	PS_C3W/86
With 1700V IGBT Modules			
2PS0200R17DLC-2G	BSM100GB170DLC	C2 air cooling	PS_C2G/83
2PS0300R17DLC-2G	BSM150GB170DLC	C2 air cooling	PS_C2G/83
2PS0400R17DLC-2G	BSM200GB170DLC	C2 air cooling	PS_C2G/83
2PS0300R17DLC-3G	BSM100GB170DLC	C3 air cooling	PS_C3G/85
2PS0450R17DLC-3G	BSM150GB120DLC	C3 air cooling	PS_C3G/85
2PS0600R17DLC-3G	BSM200GB170DLC	C3 air cooling	PS_C3G/85
2PS0400R17DLC-4G	BSM100GB170DLC	C4 air cooling	PS_C4G/87
2PS0600R17DLC-4G	BSM150GB170DLC	C4 air cooling	PS_C4G/87
2PS0800R17DLC-4G	BSM200GB170DLC	C4 air cooling	PS_C4G/87
6PS0100R17DLC-3G	BSM100GB170DLC	C3 air cooling	PS_C3G/85
6PS0150R17DLC-3G	BSM150GB170DLC	C3 air cooling	PS_C3G/85
6PS0200R17DLC-3G	BSM200GB170DLC	C3 air cooling	PS_C3G/85
2PS0400R17KE3-2G	FF200R17KE3	C2 air cooling	PS_C2G/83
2PS0600R17KE3-2G	FF300R17KE3	C2 air cooling	PS_C2G/83
2PS0600R17KE3-3G	FF200R17KE3	C3 air cooling	PS_C3G/85
2PS0900R17KE3-3G	FF300R17KE3	C3 air cooling	PS_C3G/85
2PS0800R17KE3-4G	FF200R17KE3	C4 air cooling	PS_C4G/87
2PS1200R17KE3-4G	FF300R17KE3	C4 air cooling	PS_C4G/87
6PS0200R17KE3-3G	FF200R17KE3	C3 air cooling	PS_C3G/85
6PS0300R17KE3-3G	FF300R17KE3	C3 air cooling	PS_C3G/85

IGBT PrimeSTACK Topology	Acronym
	half bridge, 2pack
	H - bridge, 4pack
	3 phase bridge, 6pack
	3 phase bridge + brake, 6pack + chopper

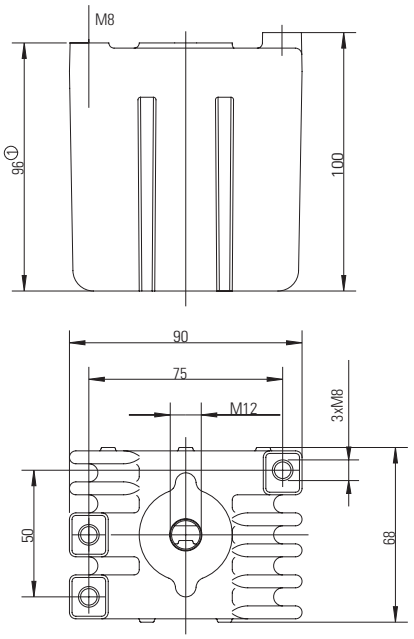
PrimeSTACK™ Type Designation System:



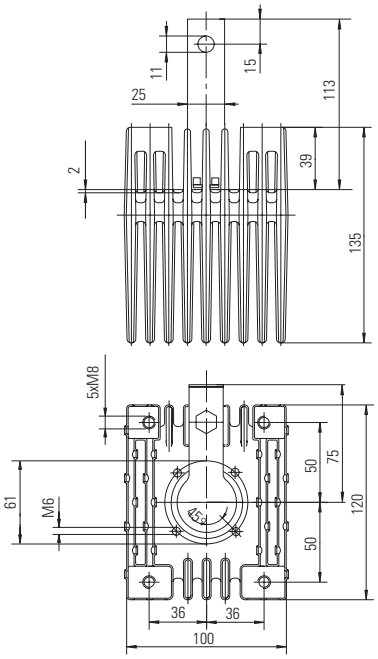
Descriptors
G = forced air cooling
W = water cooling
F = fan included

Options
M = Master
S = slave, single use
O = fiber optic interface
X = voltage signal interface

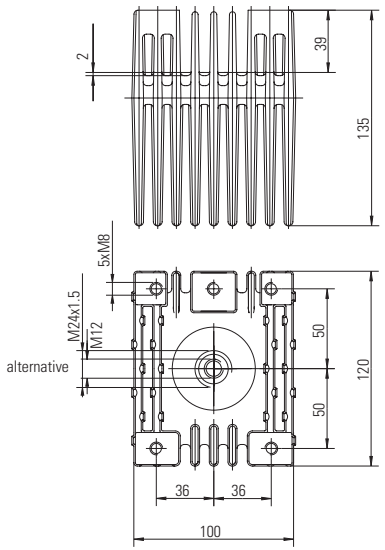
K 1.1 - M 12 — G = 0,635 kg



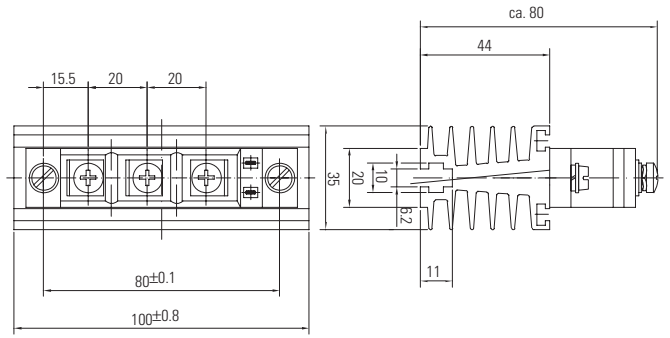
K 0.55 - FB 54 - A — G = 1,760 kg



K0.55 - M 12 — G = 1,760 kg
K0.55 - M 24 x 1,5 — G = 1,760 kg

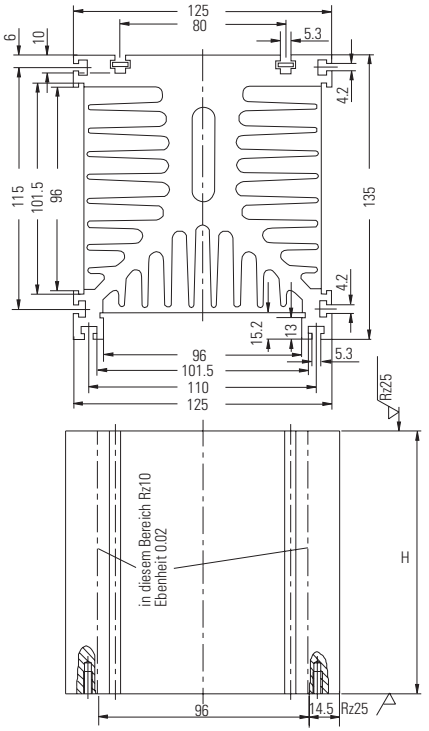


KM 10

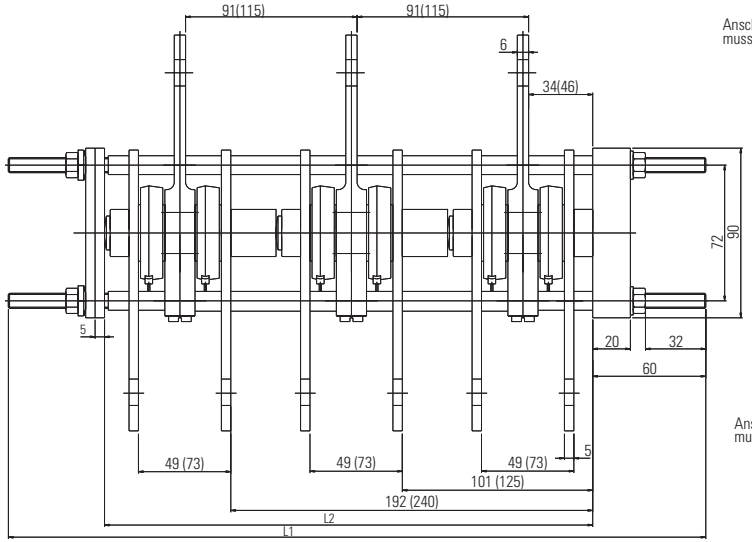


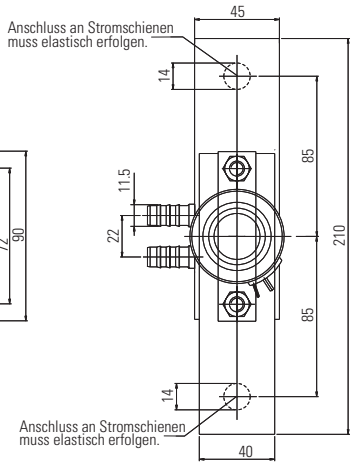
KM 11 G = 2,1 kg
KM 14 G = 3,1 kg
KM 17 G = 5,3 kg
KM 18 G = 8,8 kg

KM 11 H = 120 mm
KM 14 H = 180 mm
KM 17 H = 300 mm
KM 18 H = 500 mm



KA 20.X-V

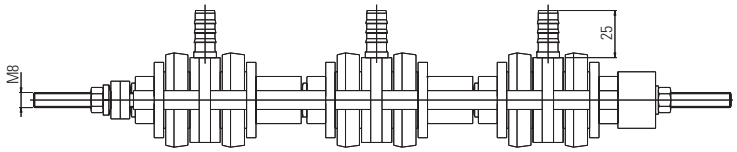




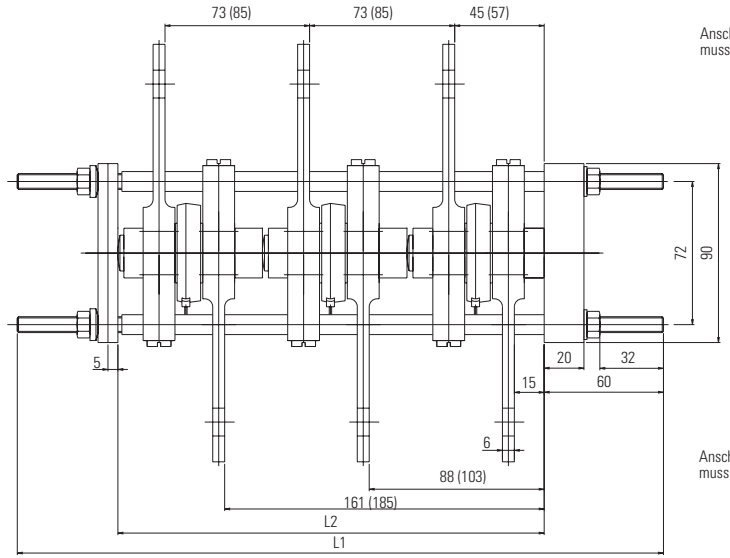
for discs Ø 41, 50, 57, 60 mm
maximum clamping force 10 kN
supply voltage 500 Veff

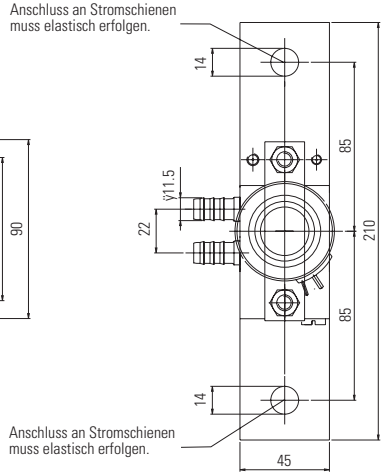
(...) für Bauelemente s=26

Anzahl d. Thy./Di.	Typ	L1	L2
6 (s=14mm)	-KA20.6-..	370	259
4 (s=14mm)	-KA20.4-..	280	168
2 (s=14mm)	-KA20.2-..	190	77
6 (s=26mm)	-KA20.62-..	445	331
4 (s=26mm)	-KA20.42-..	325	216
2 (s=26mm)	-KA20.22-..	210	101



KC 20-XE

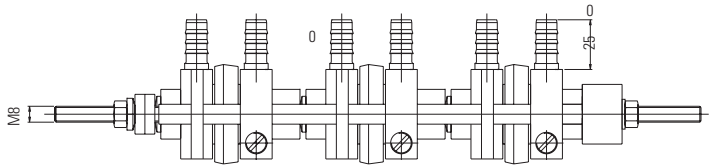




for discs Ø 41, 50, 57, 60 mm
maximum clamping force 10 kN
supply voltage 500 Veff

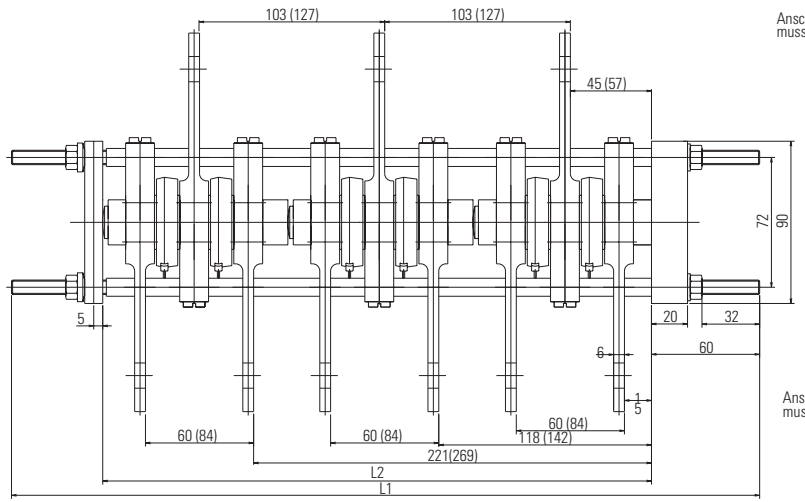
(...) für Bauelemente s=26

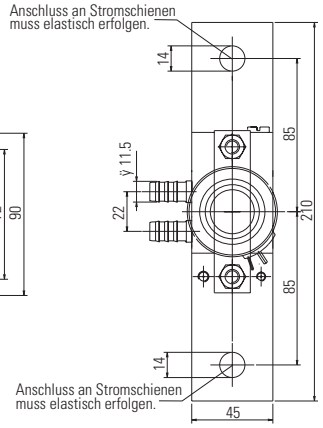
Anzahl d. Thy./Di.	Typ	L1	L2
3 (s=14mm)	-KC20-3E	325	215
2 (s=14mm)	-KC20-2E	250	142
1 (s=14mm)	-KC20-1E	175	69
3 (s=26mm)	-KC20-3E	360	251
2 (s=26mm)	-KC20-2E	275	166
1 (s=26mm)	-KC20-1E	190	81



Zellenlage bei KC20.*-E

KD 20.X-V

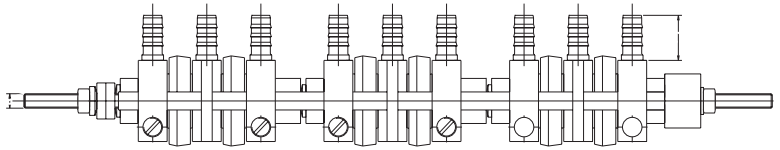




(...) für Bauelemente s=26

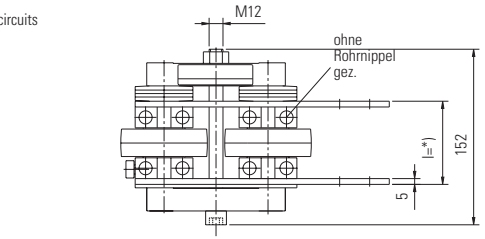
Anzahl d. Thy./Di.	Typ	L1	L2
6 (s=14mm)	-KD20.6-..	415	305
4 (s=14mm)	-KD20.4-..	310	202
2 (s=14mm)	-KD20.2-..	205	99
6 (s=26mm)	-KD20.62-..	490	377
4 (s=26mm)	-KD20.42-..	360	250
2 (s=26mm)	-KD20.22-..	230	123

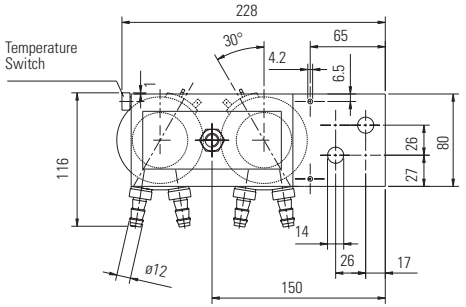
for discs Ø 41, 50, 57, 60mm
maximum clamping force 10kN
supply voltage 500Veff



K 0.024 W — G = 3 kg

for W1C-circuits



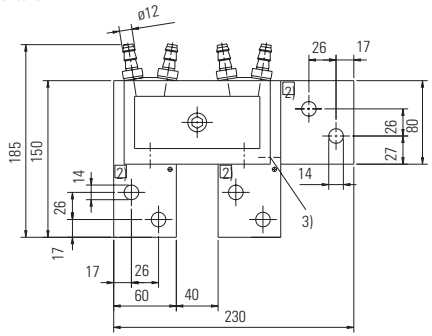


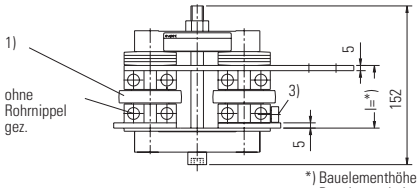
for discs Ø 50, 57, 60, 75mm

*) Bauelementhöhe 14 mm: l=60mm
Bauelementhöhe 26 mm: l=72mm

K 0.024 W — G = 3 kg

for B- and M-circuits



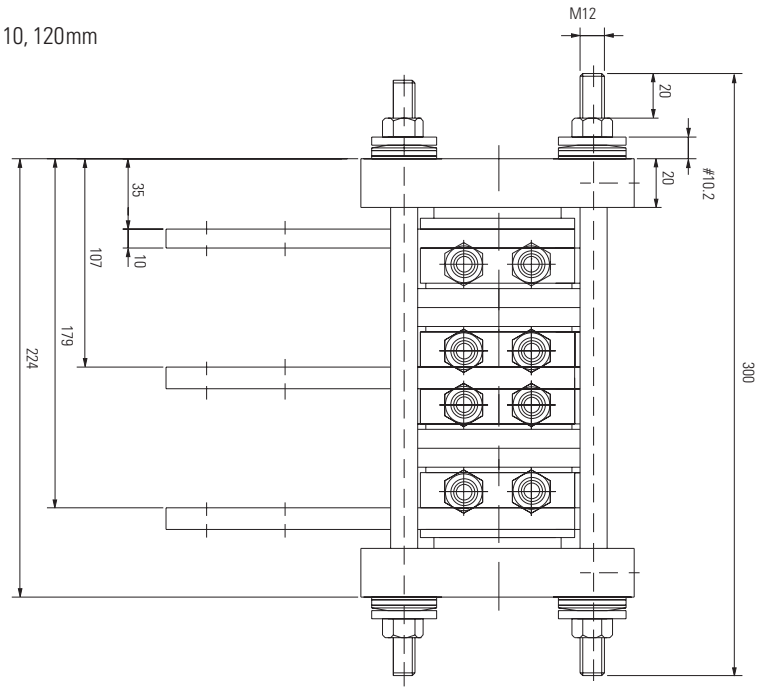


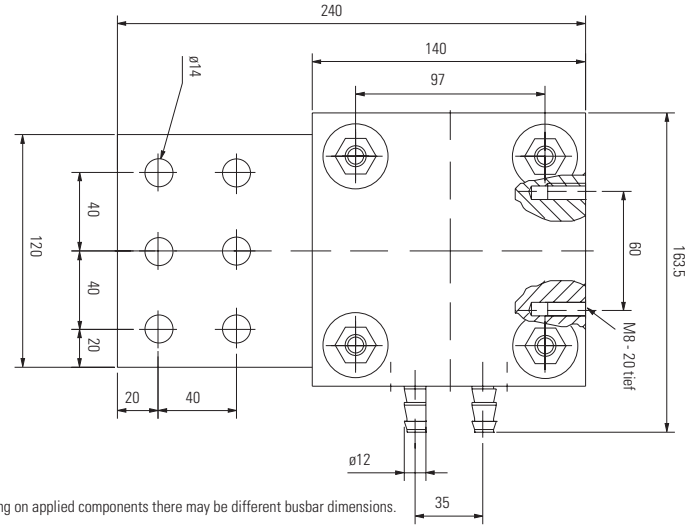
for discs Ø 50, 57, 60, 75mm

*) Bauelementhöhe 14 mm: l=60mm
Bauelementhöhe 26 mm: l=72mm

K 53 V — G = 17 kg

for discs Ø 110, 120mm

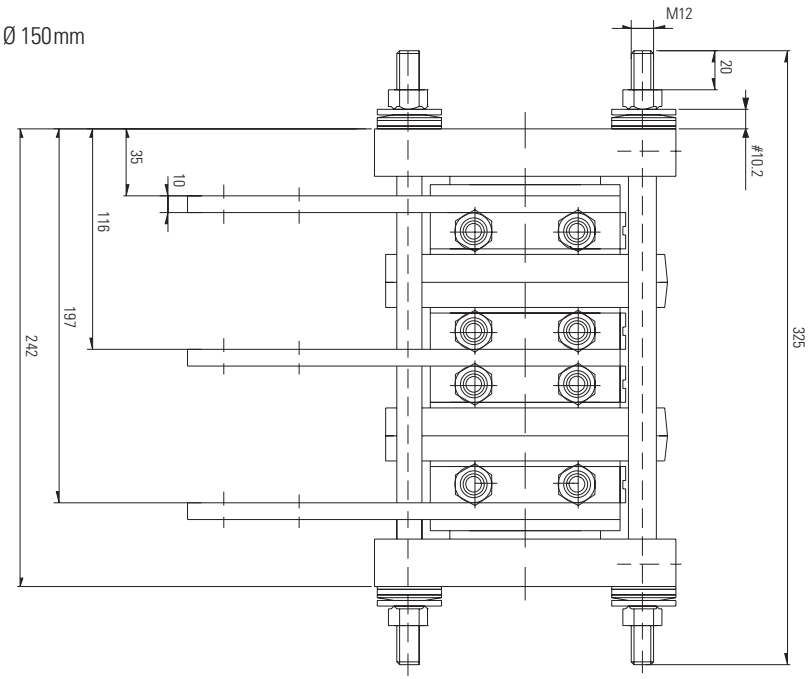


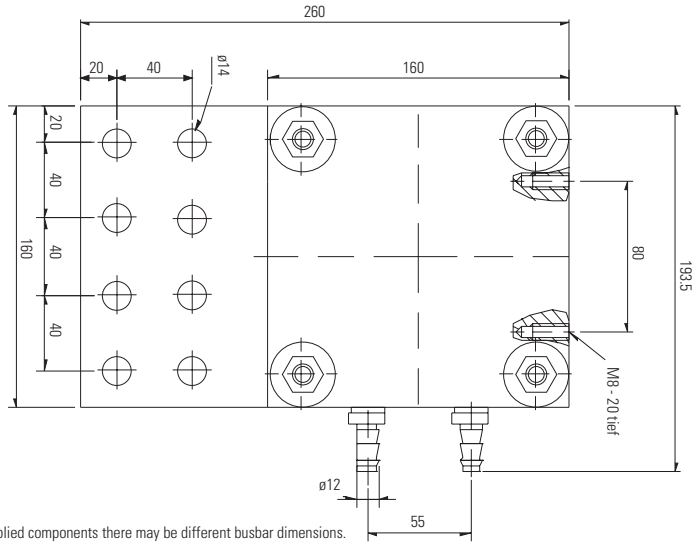


Example: Depending on applied components there may be different busbar dimensions.

K 63 V — G = 30 kg

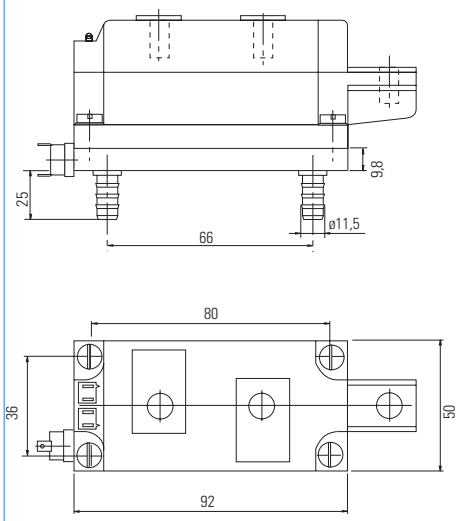
for discs Ø 150mm



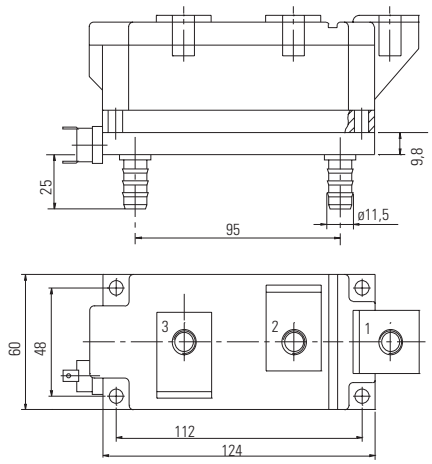


Example: Depending on applied components there may be different busbar dimensions.

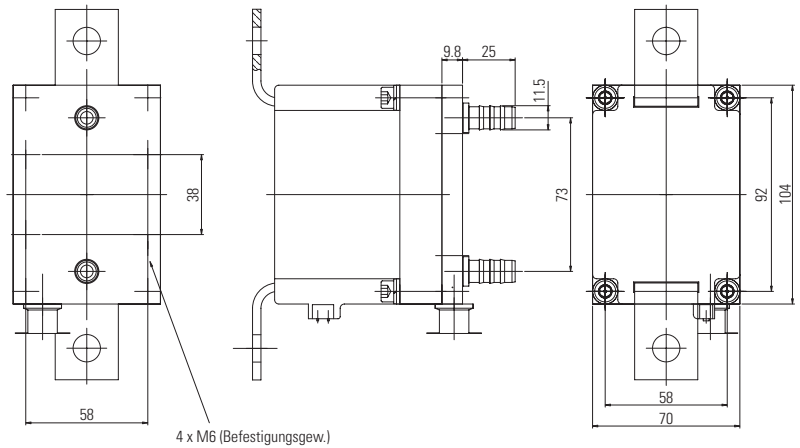
KW 50



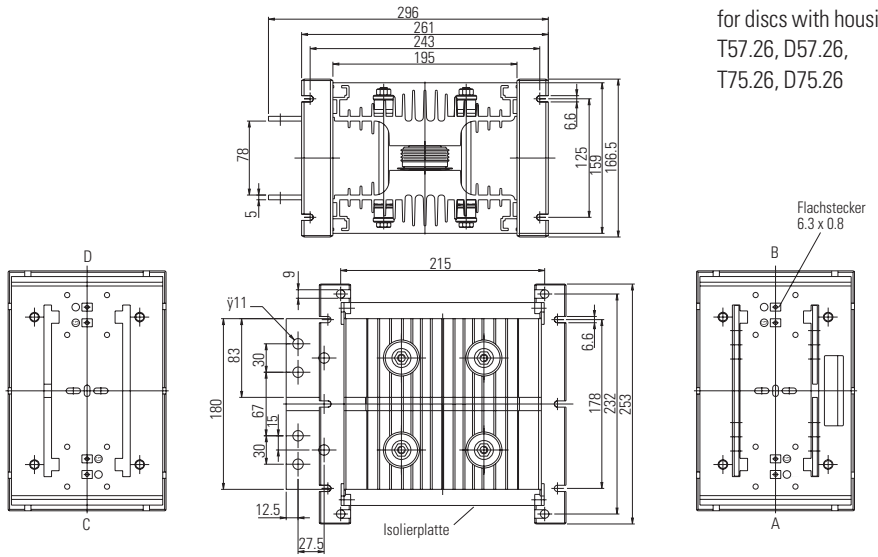
KW 60



KW 70-T



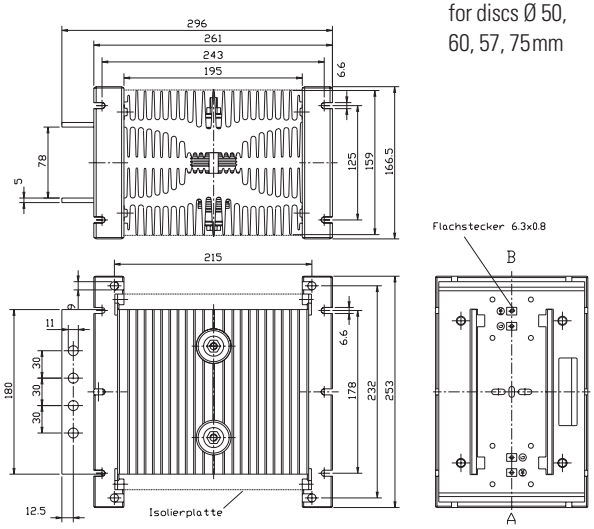
K 0.92S



for discs with housing
T57.26, D57.26,
T75.26, D75.26

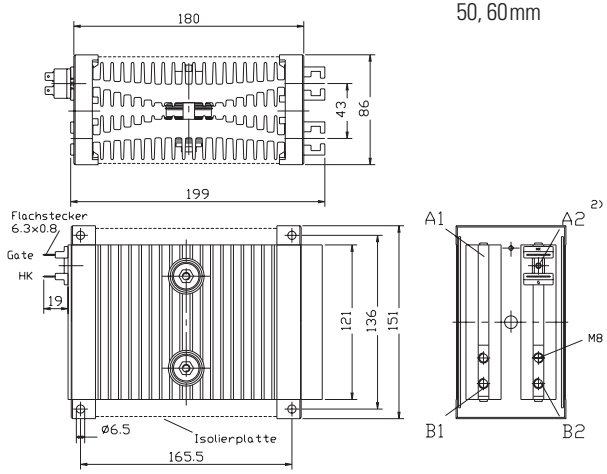
K 0.05 F / K 0.05.7 F — G = 9 kg

for discs Ø 50, 60, 57, 75mm



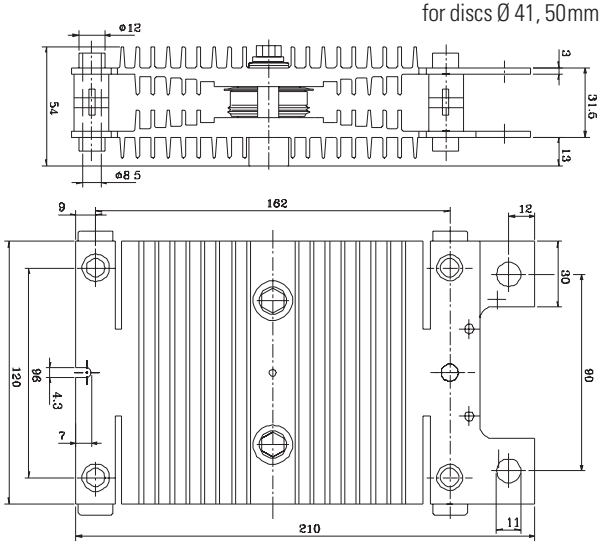
K 0.12 F — G = 2,5 kg

for discs Ø 41, 50, 60mm



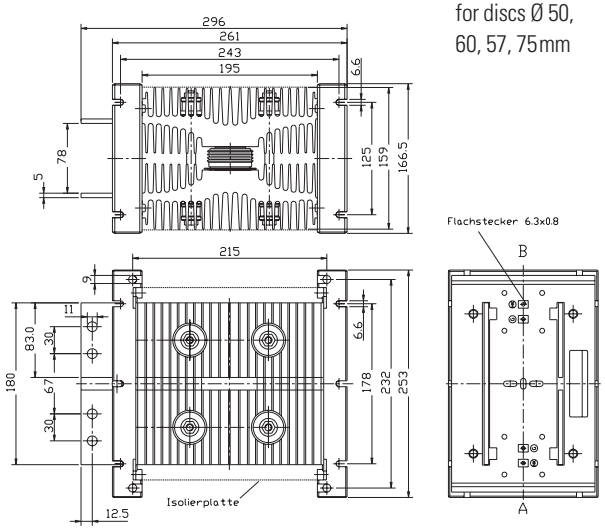
KK 32 — G = 1 kg

for discs Ø 41, 50mm



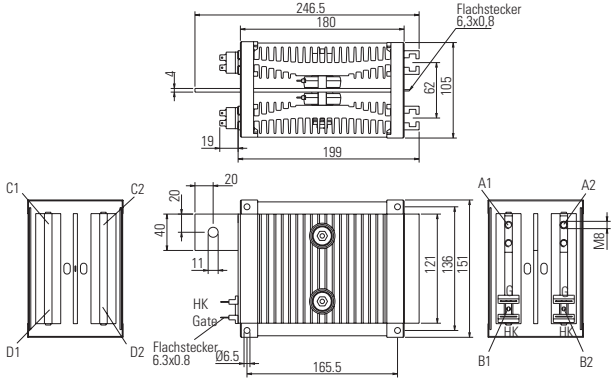
K 0.08 F/K 0.08.7 F/K 0.08.8 F — G = 9 kg

for discs Ø 50, 60, 57, 75mm



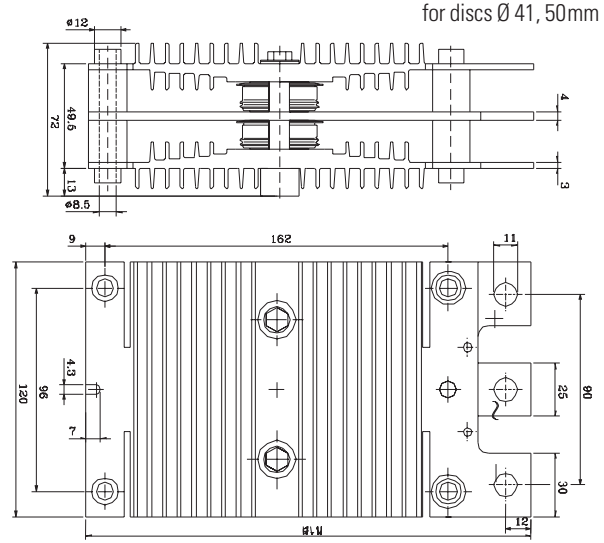
K 0.22 F — G = 3 kg

for discs Ø 41, 50, 60mm



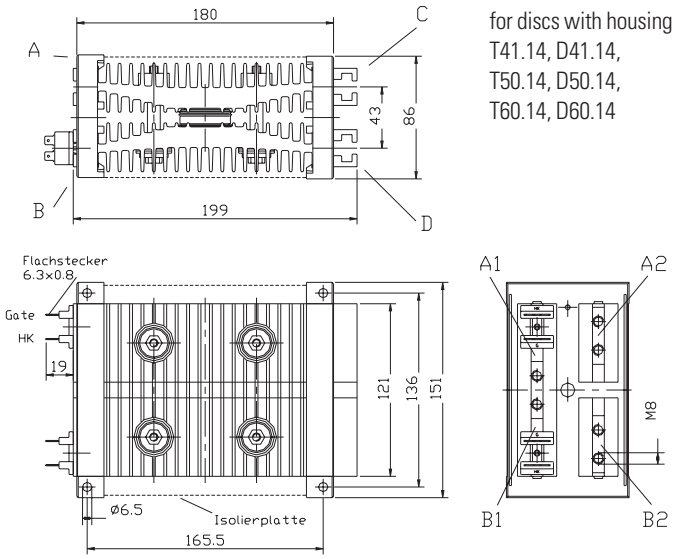
KK 34 — G = 1,3 kg

for discs Ø 41, 50mm



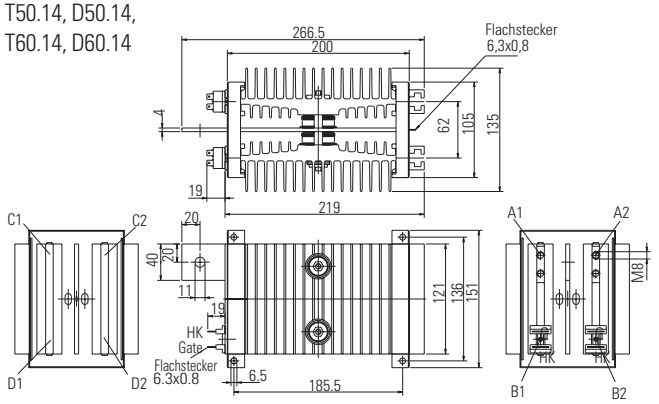
K 0.17 F — G = 2,5 kg

for discs with housing
T41.14, D41.14,
T50.14, D50.14,
T60.14, D60.14



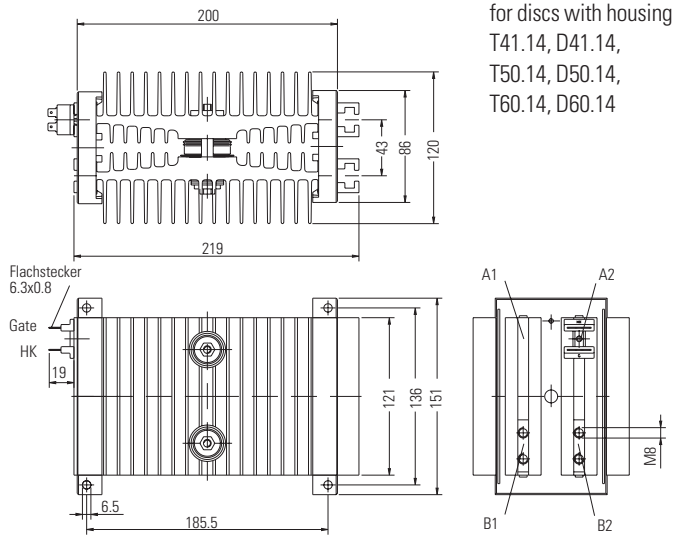
K 0.65 S — G = 3,3 kg

for discs with housing
T41.14, D41.14,
T50.14, D50.14,
T60.14, D60.14



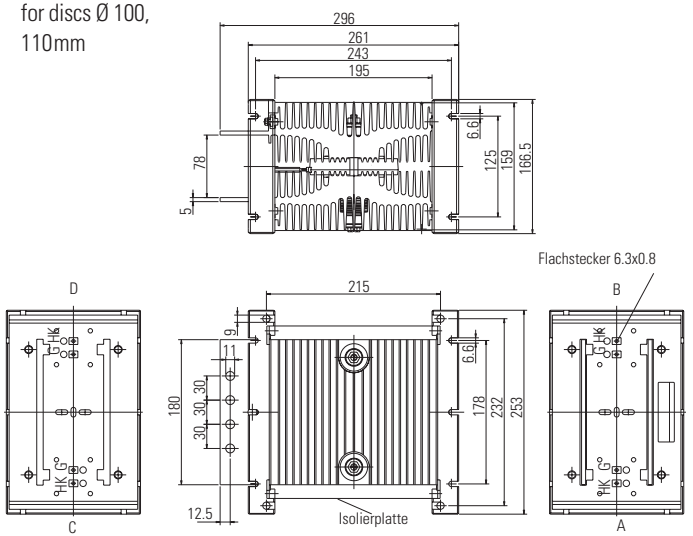
K 0.36 S — G = 2,9 kg

for discs with housing
T41.14, D41.14,
T50.14, D50.14,
T60.14, D60.14



K 0.048 F — G = 9 kg

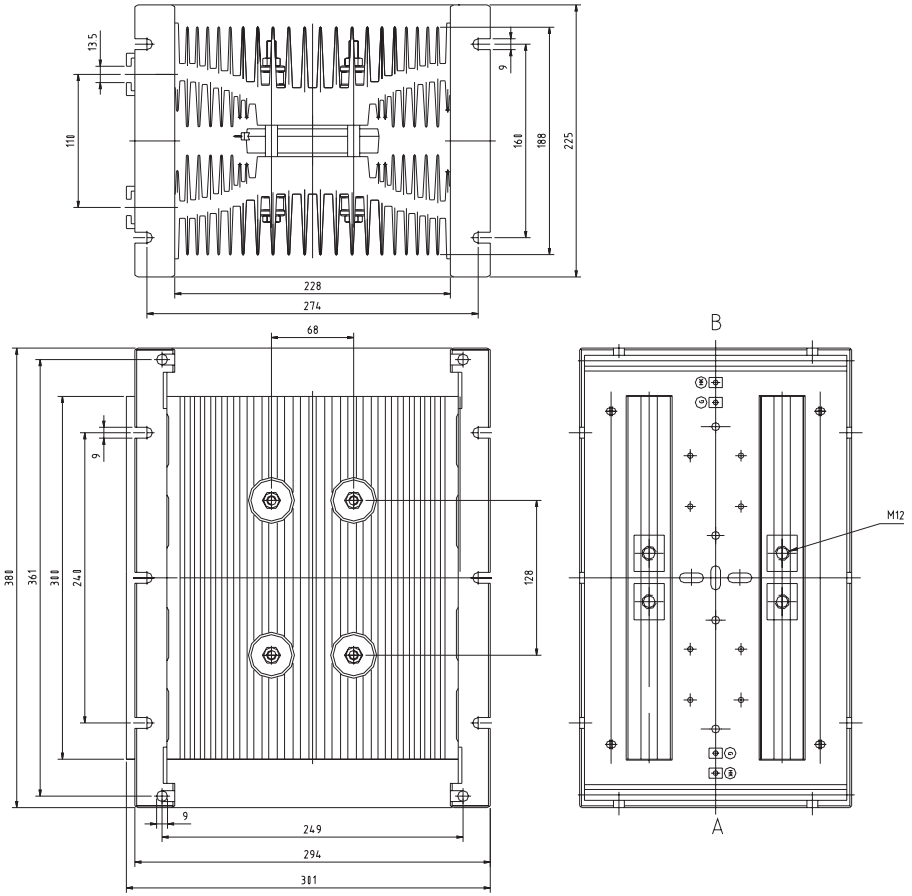
for discs Ø 100,
110mm



KE 01

G = 18,8 kg

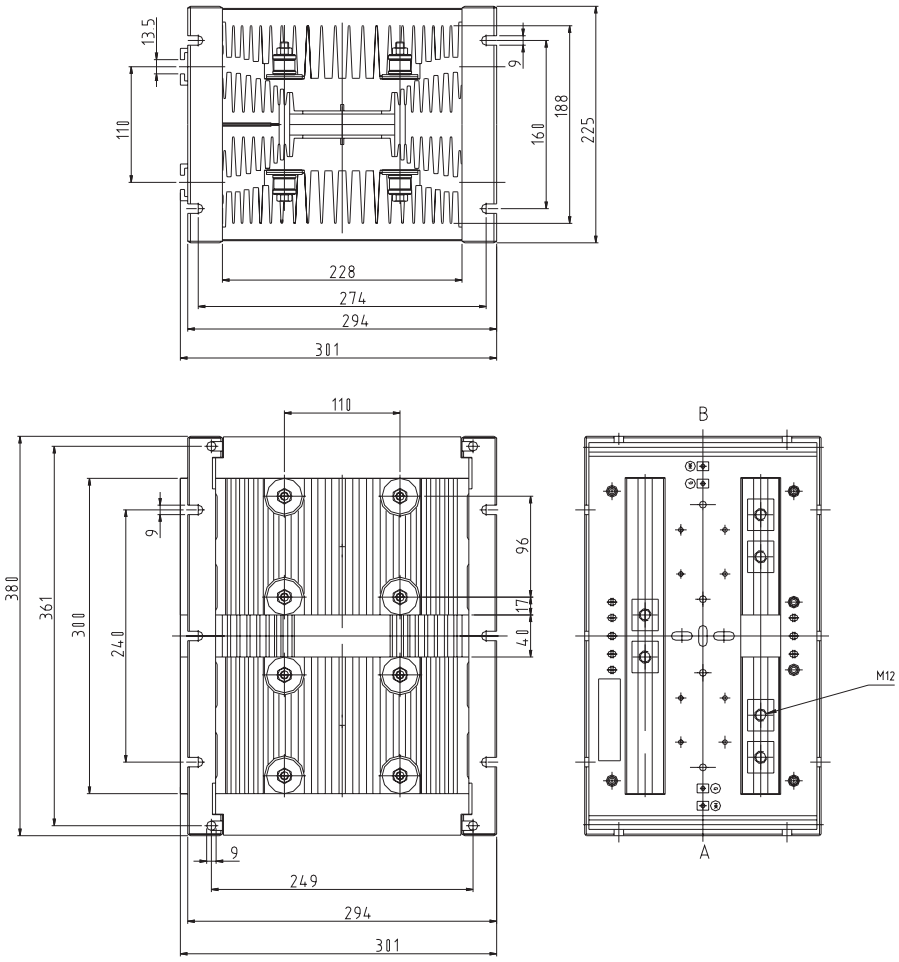
for discs with maximum Ø 150 mm

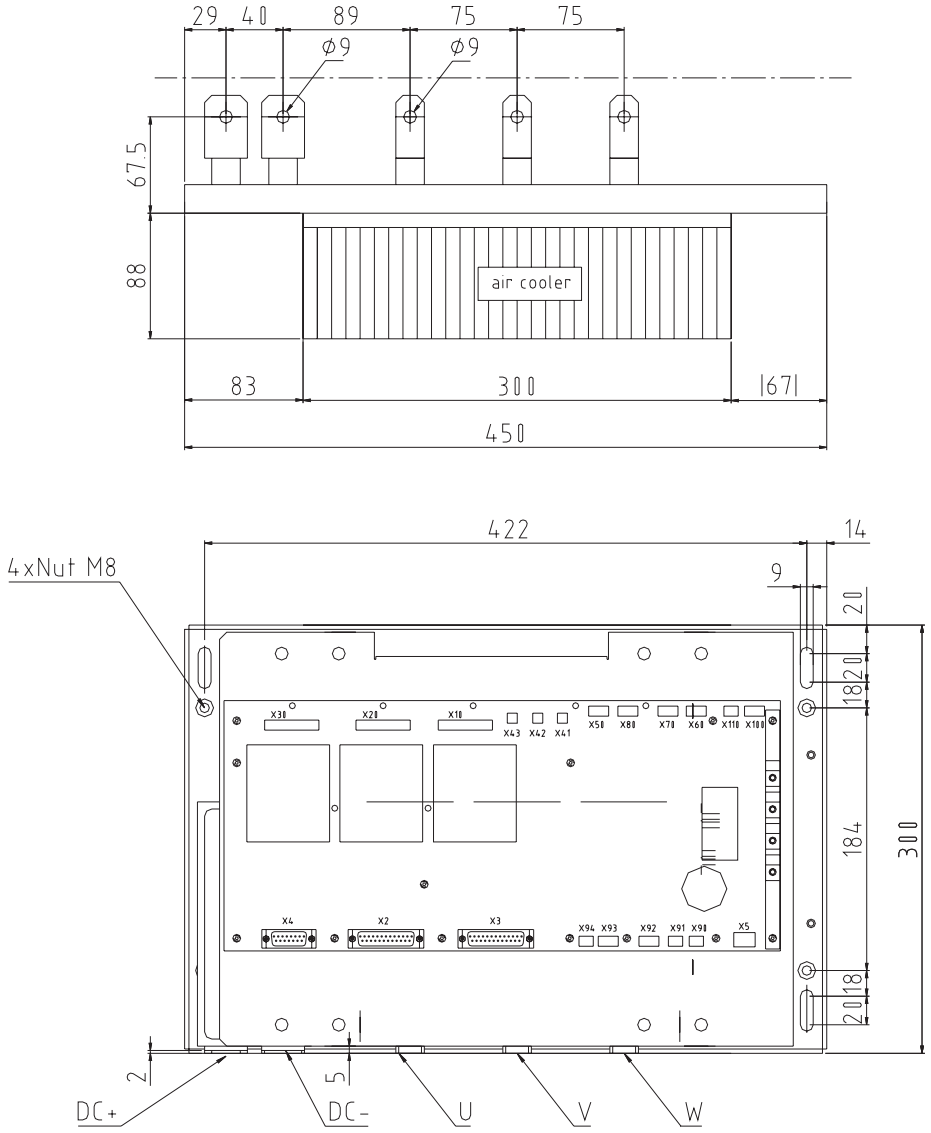


KE 02

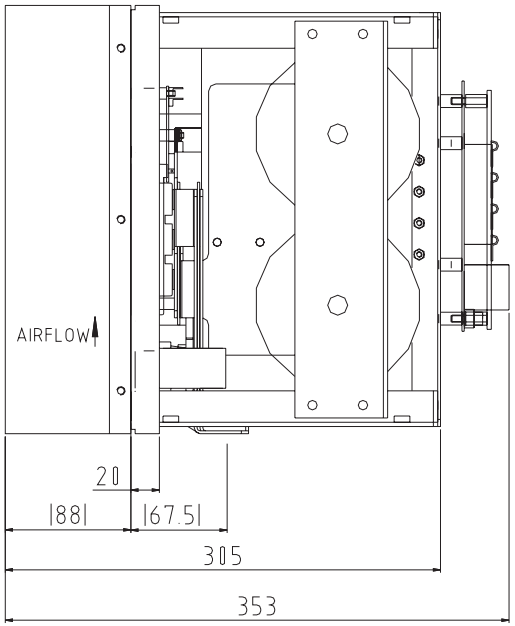
G = 18,5 kg

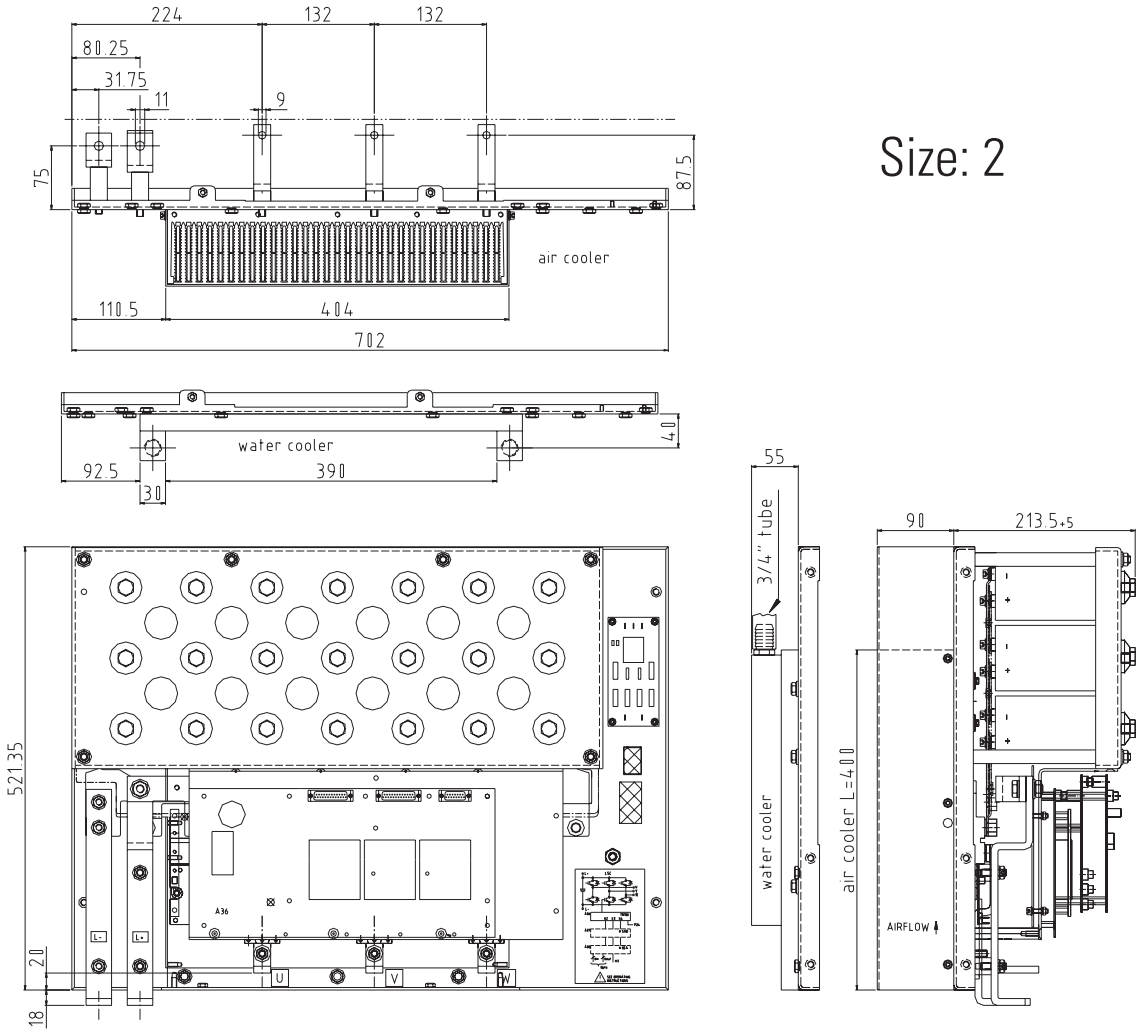
for discs with maximum Ø 120 mm



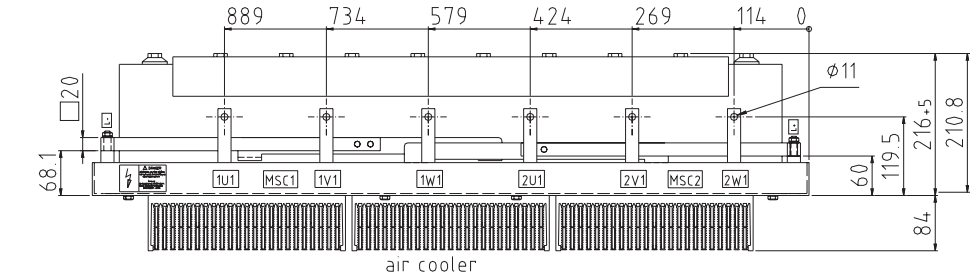

29
40
89
75
75
ø9
ø9
67.5
88
air cooler
83
300
167
450
422
14
9
4xNut M8
20
182
184
300
18
20
2
5
DC+
DC-
U
V
W

Size: 1

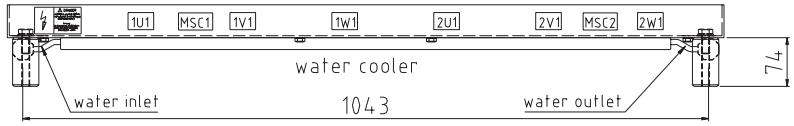

AIRFLOW
20
88
67.5
305
353

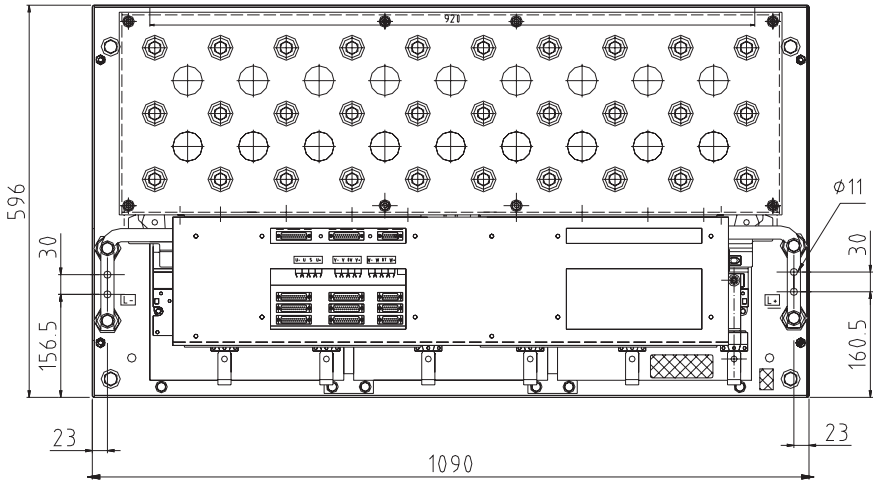

224
132
132
80.25
31.75
11
9
75
87.5
air cooler
110.5
404
702
water cooler
40
92.5
390
30
55
3/4" tube
90
213.5+5
521.35
20
18
water cooler
air cooler L=400
AIRFLOW
A36
U
V
W

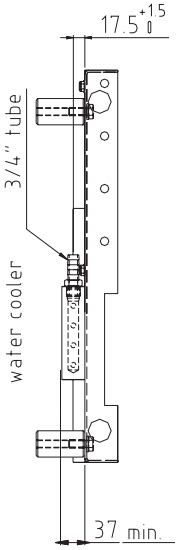
Size: 2

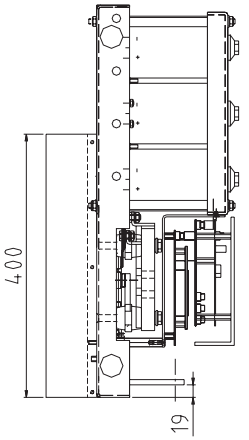

889
734
579
424
269
114
0
⌀11
□20
68.1
216+5
210.8
119.5
60
84
1U1
MSC1
1V1
1W1
2U1
2V1
MSC2
2W1
air cooler

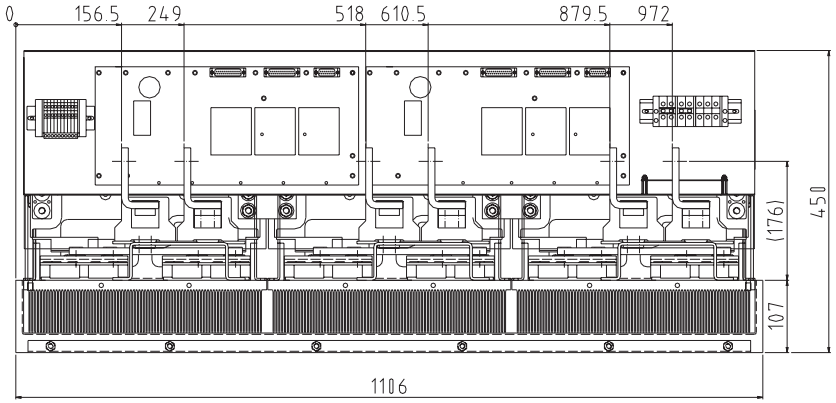
Size: 3


1U1
MSC1
1V1
1W1
2U1
2V1
MSC2
2W1
water cooler
74
water inlet
1043
water outlet

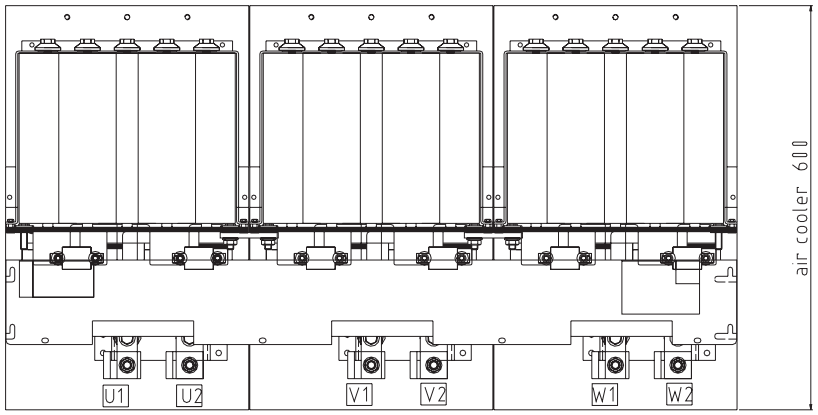

596
30
156.5
⌀11
30
160.5
23
1090
23

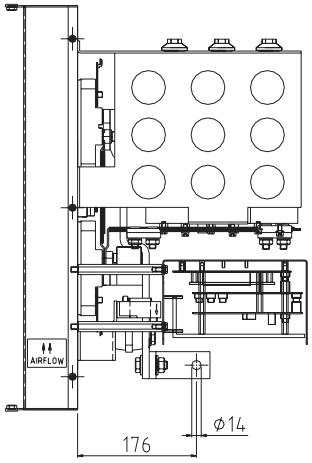

17.5 +1.5 0
3/4" tube
water cooler
37 min.

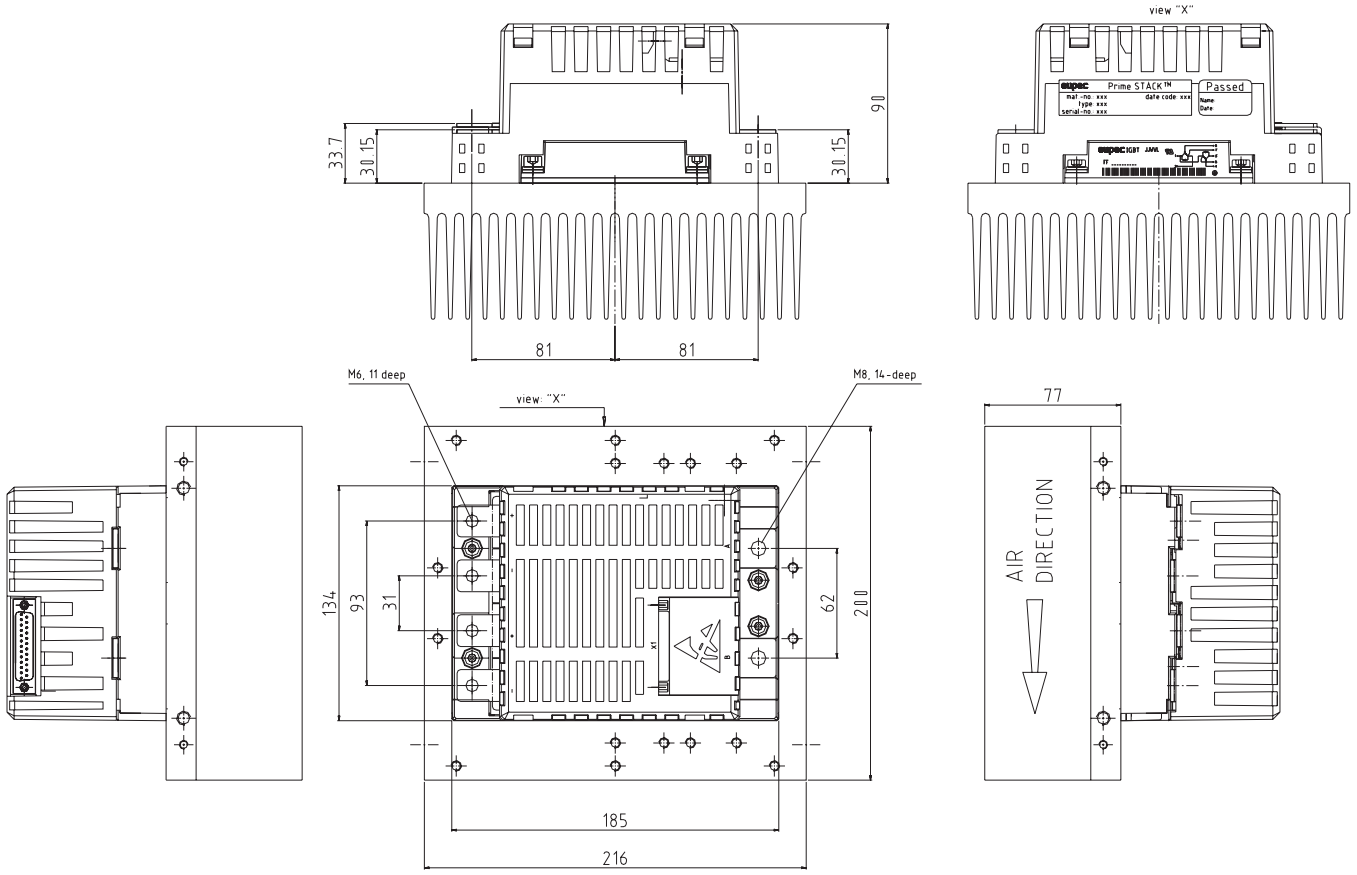

400
19

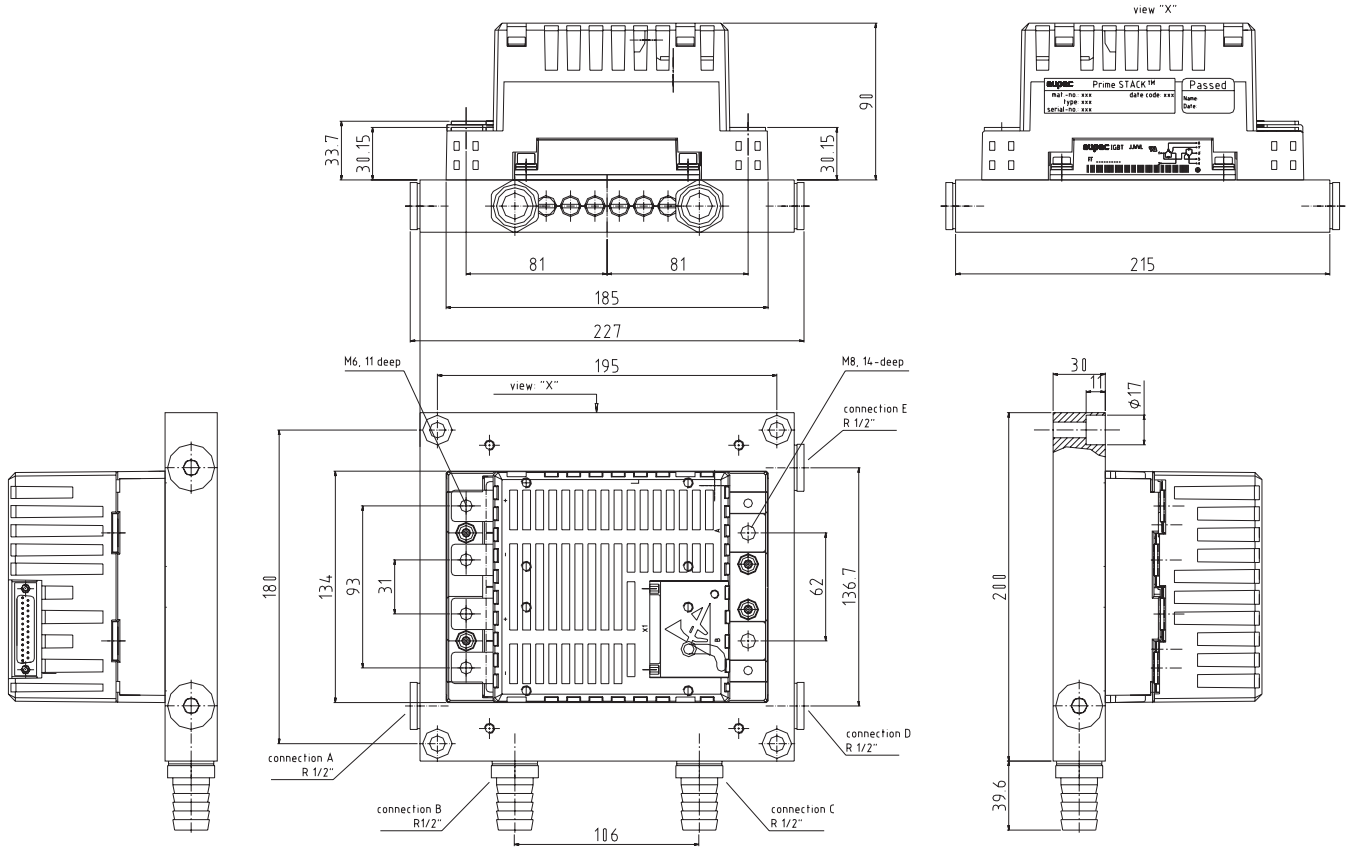

0
156.5
249
518
610.5
879.5
972
450
(176)
107
1106

Size: 4

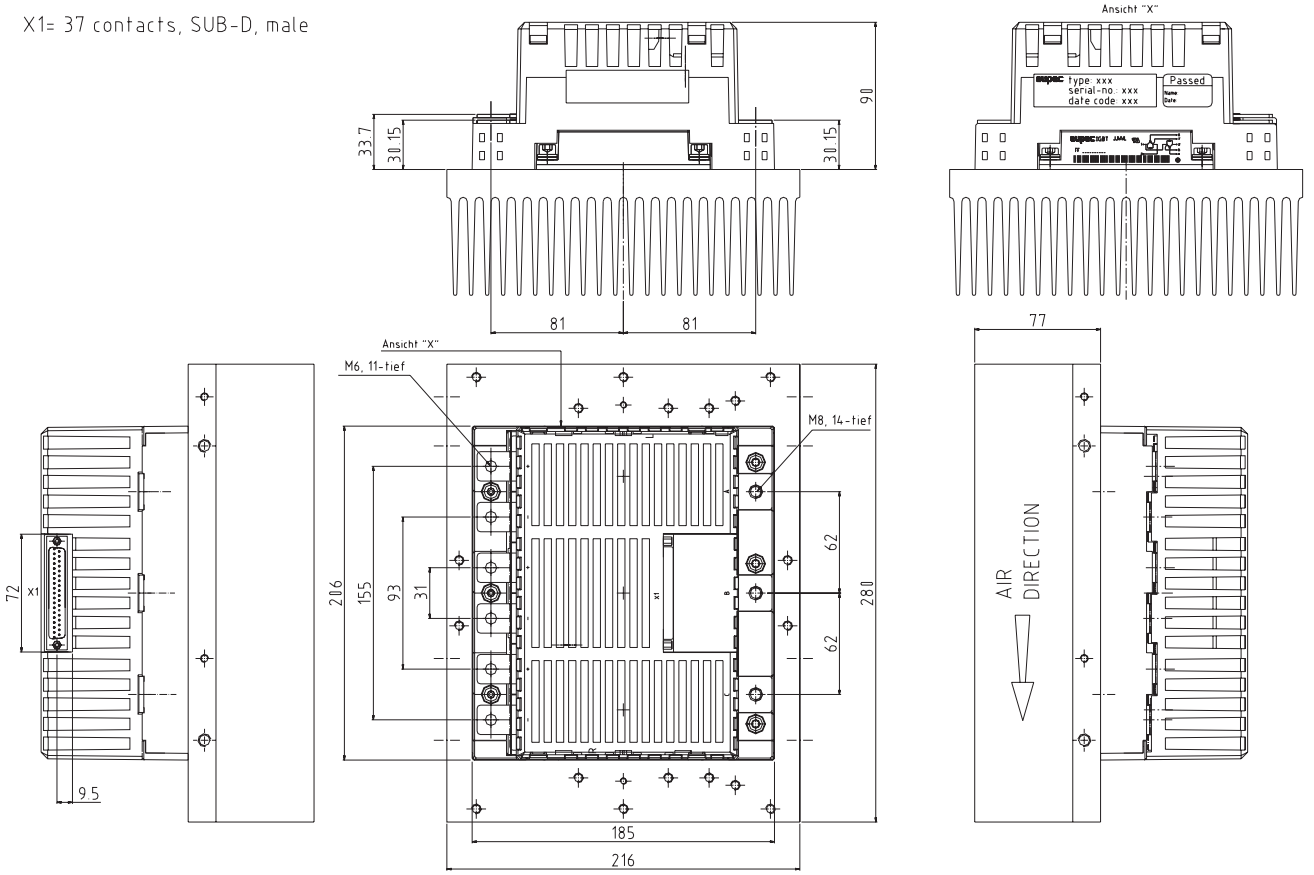

air cooler 600
U1
U2
V1
V2
W1
W2

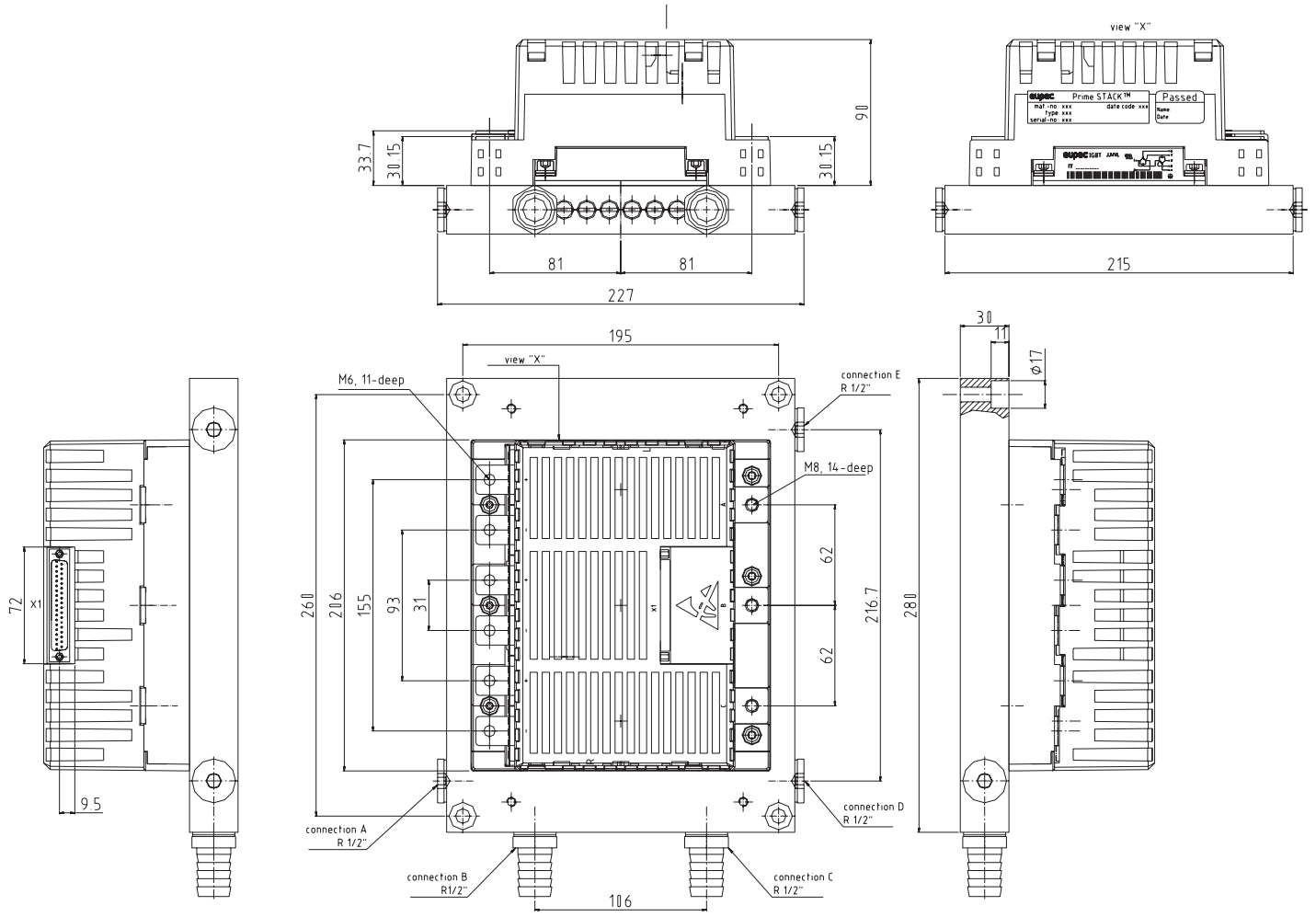

AIRFLOW
ø14
176

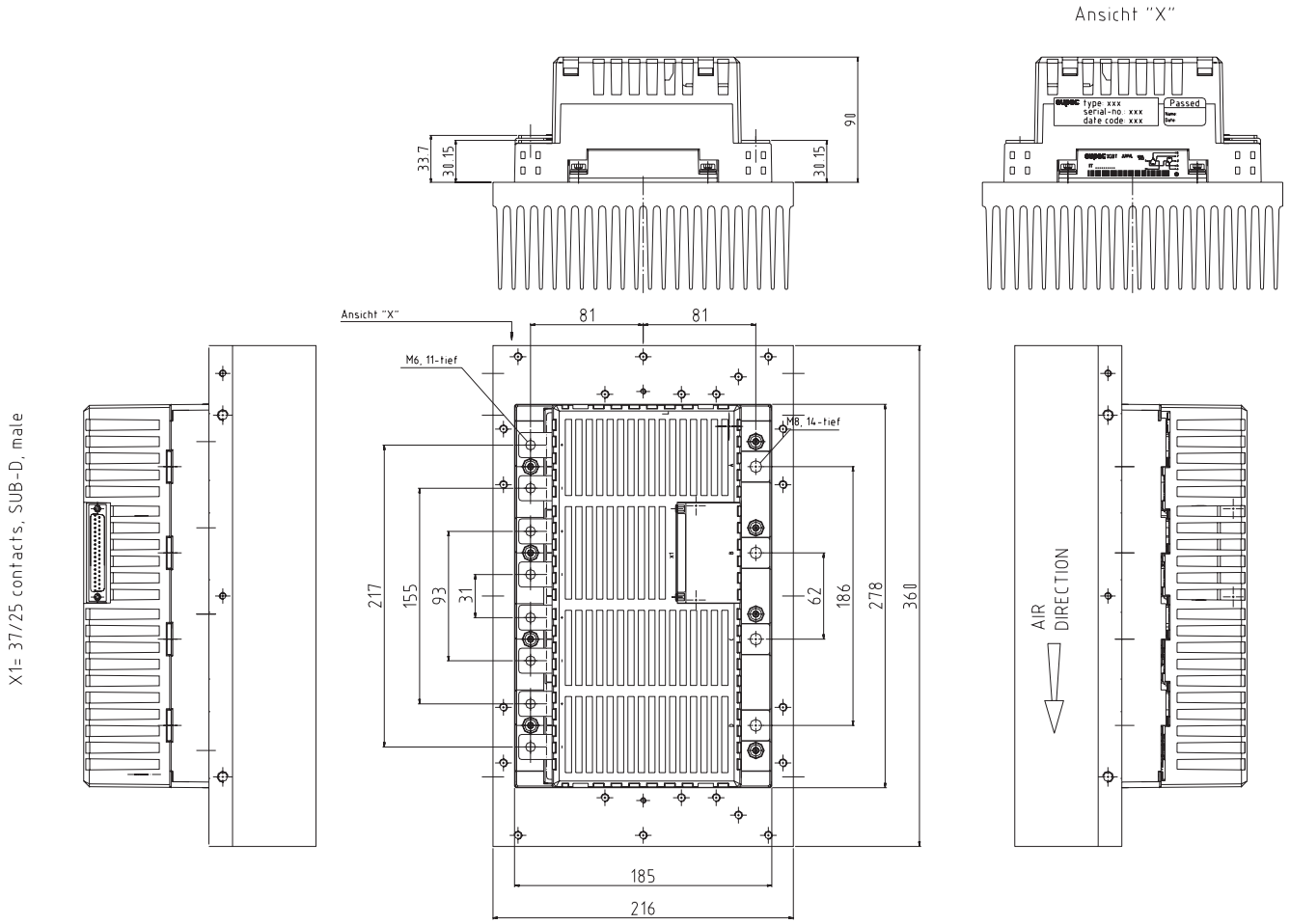

view "X"
Prime STACK™
Passed
33.7
30.15
30.15
90
81
81
M6, 11 deep
M8, 14-deep
view: "X"
134
93
31
62
200
185
216
77
AIR
DIRECTION

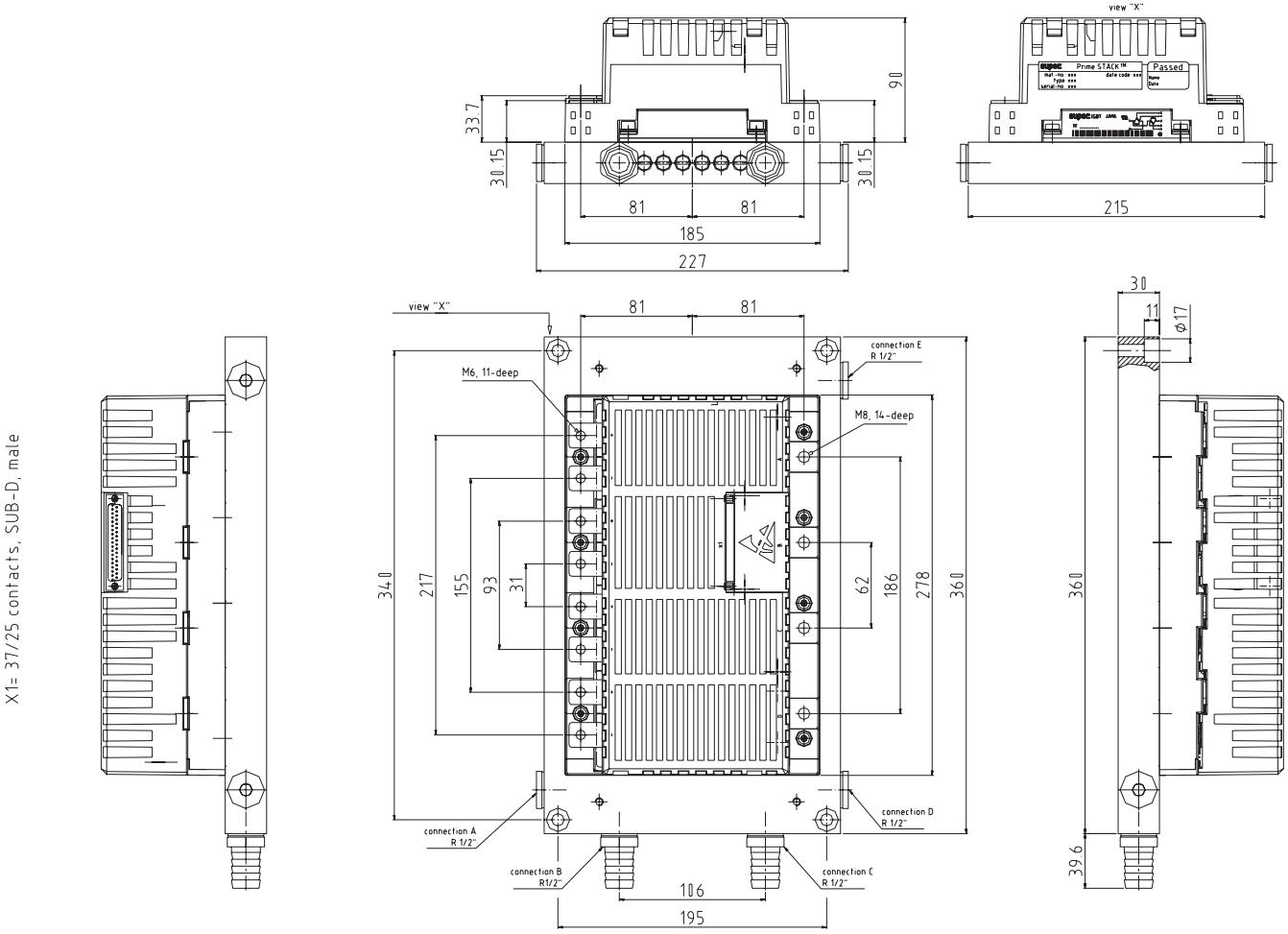

view "X"
Prime STACK™
Passed
90
33.7
30.15
30.15
81
81
185
227
215
M6, 11 deep
M8, 14-deep
195
view "X"
connection E
R 1/2"
180
134
93
31
62
136.7
connection A
R 1/2"
connection D
R 1/2"
connection B
R1/2"
connection C
R 1/2"
106
30
11
Ø17
200
39.6

X1= 37 contacts, SUB-D, male

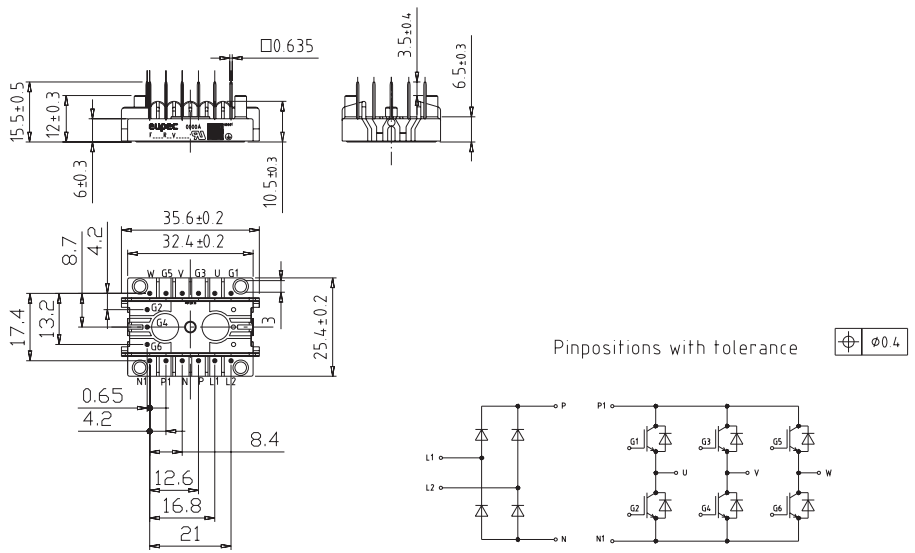



view "X"
Prime STACK™
Passed
33.7
30.15
30.15
9.0
81
81
227
215
195
M6, 11-deep
M8, 14-deep
connection E
R 1/2"
connection A
R 1/2"
connection B
R1/2"
connection C
R 1/2"
connection D
R 1/2"
260
206
155
93
31
62
62
216.7
280
72
X1
95
106
30
11
Ø17

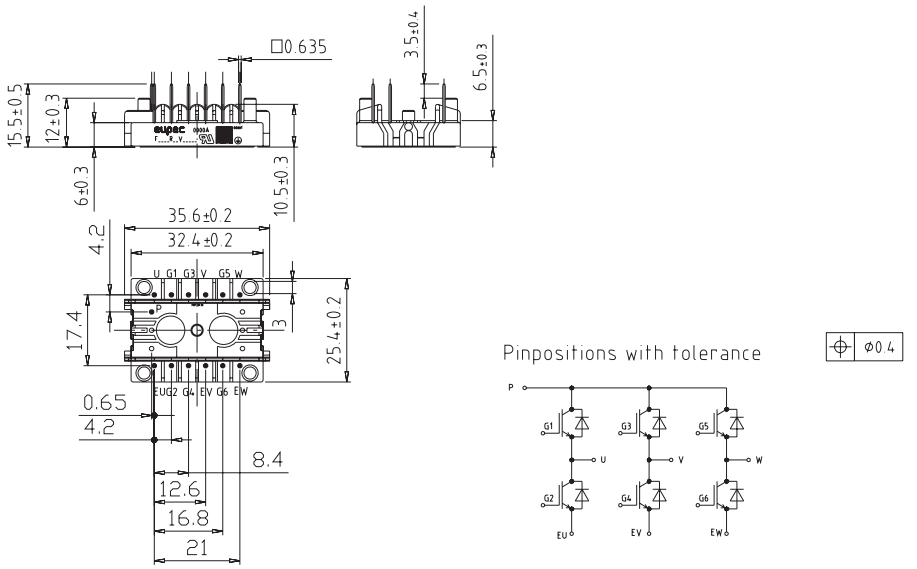

Ansicht "X"
33.7
30.15
30.15
90
Ansicht "X"
81
81
M6, 11-tief
M8, 14-tief
X1= 37/25 contacts, SUB-D, male
217
155
93
31
62
186
278
360
185
216
AIR
DIRECTION


X1= 37/25 contacts, SUB-D, male
view "X"
Prime STACK™
Passed
90
33.7
30.15
30.15
81
81
185
227
215
M6, 11-deep
M8, 14-deep
connection E
R 1/2"
connection A
R 1/2"
connection B
R1/2"
connection C
R 1/2"
connection D
R 1/2"
340
217
155
93
31
62
186
278
360
106
195
30
11
ø17
39.6

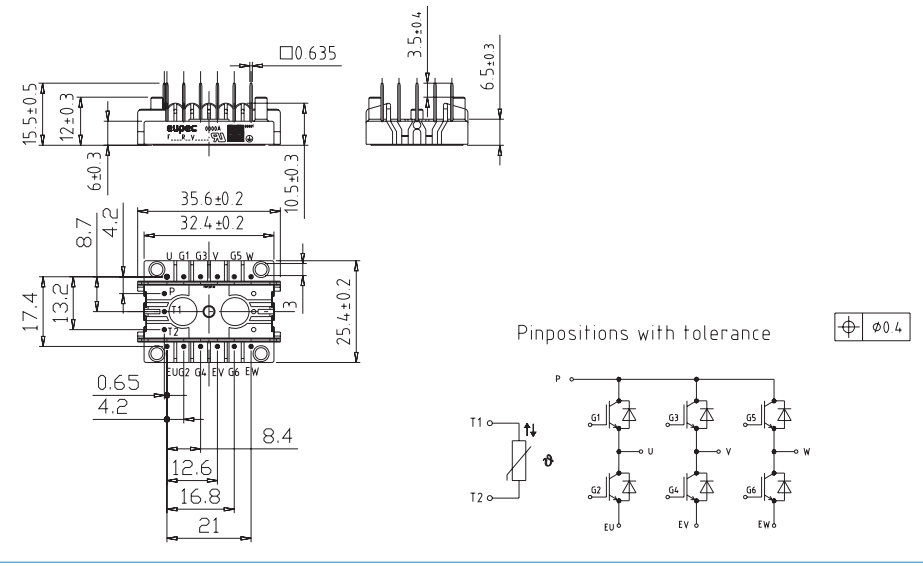
EasyPIM™750 L_750a



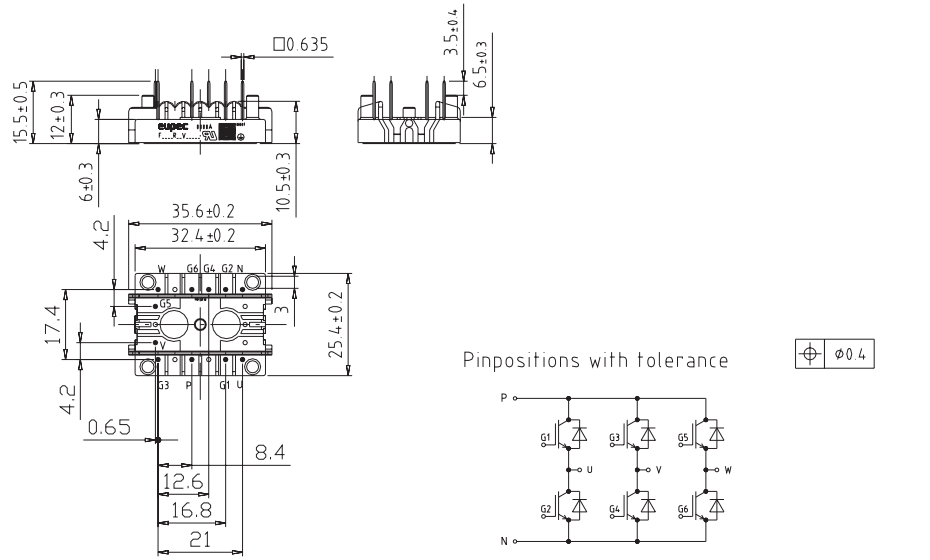
EasyPACK750 L_750b



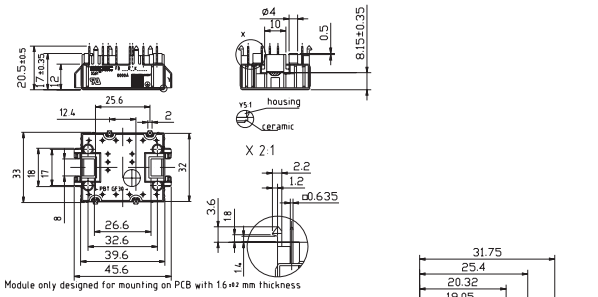
EasyPACK750 L_750c

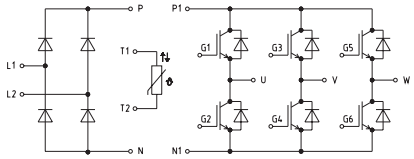


EasyPACK750 L_750f

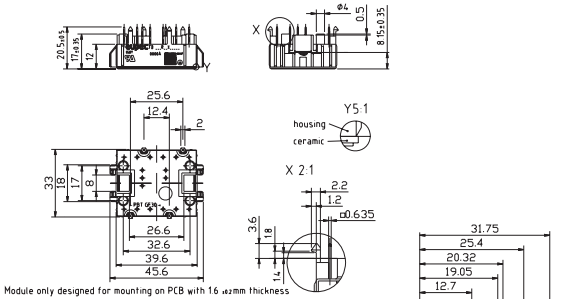


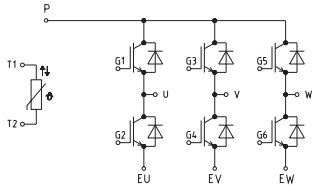
EasyPIM™1 L_1a

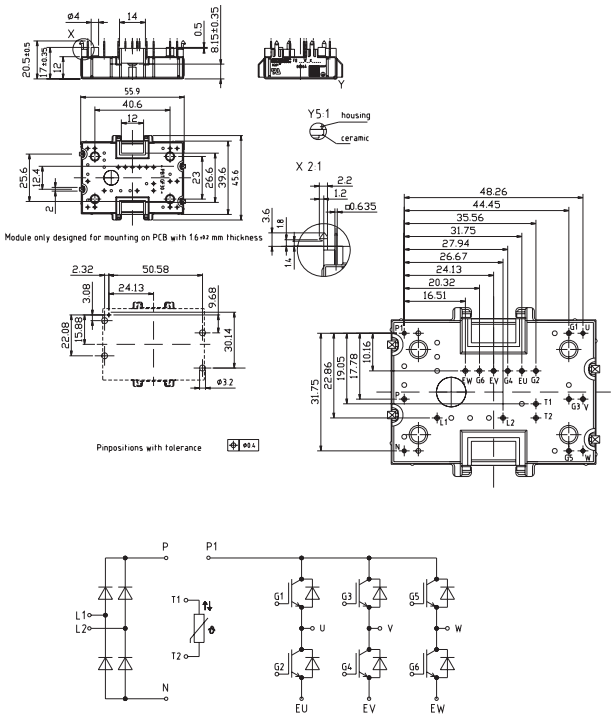




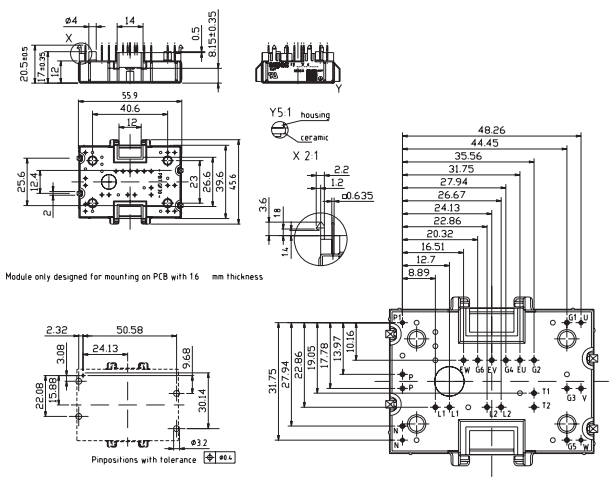
EasyPACK1 L_1b

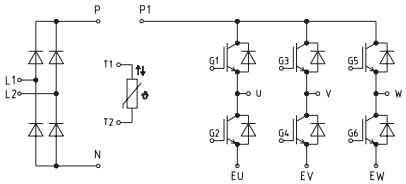


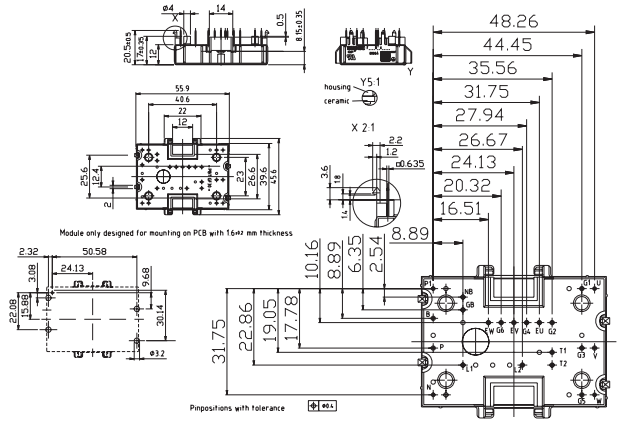


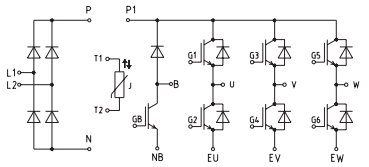

Module only designed for mounting on PCB with 1.6±0.2 mm thickness
Pinpositions with tolerance
housing
ceramic
X 2:1

P
P1
T1
T2
L1
L2
N
G1
G2
G3
G4
G5
G6
U
V
W
EU
EV
EW


Module only designed for mounting on PCB with 1.6 mm thickness
Pinpositions with tolerance
housing
ceramic
X 2:1


P
P1
T1
T2
L1
L2
N
G1
G2
G3
G4
G5
G6
U
V
W
EU
EV
EW


Module only designed for mounting on PCB with 1.6±0.2 mm thickness
Pinpositions with tolerance
housing
ceramic
X 2:1


P
P1
T1
T2
L1
L2
N
G1
G2
G3
G4
G5
G6
U
V
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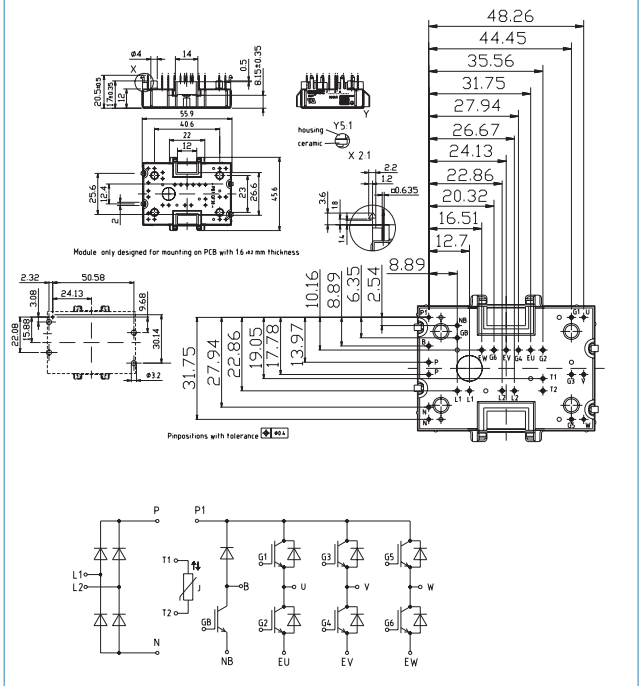
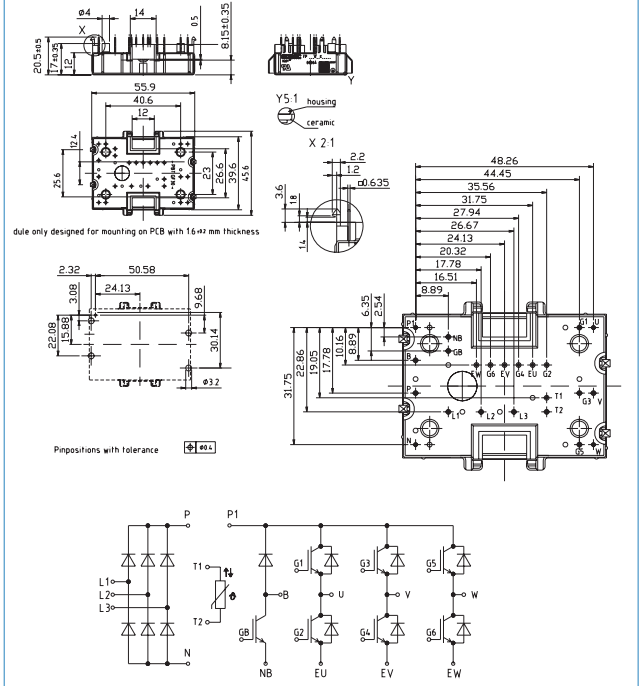
EU
EV
EW

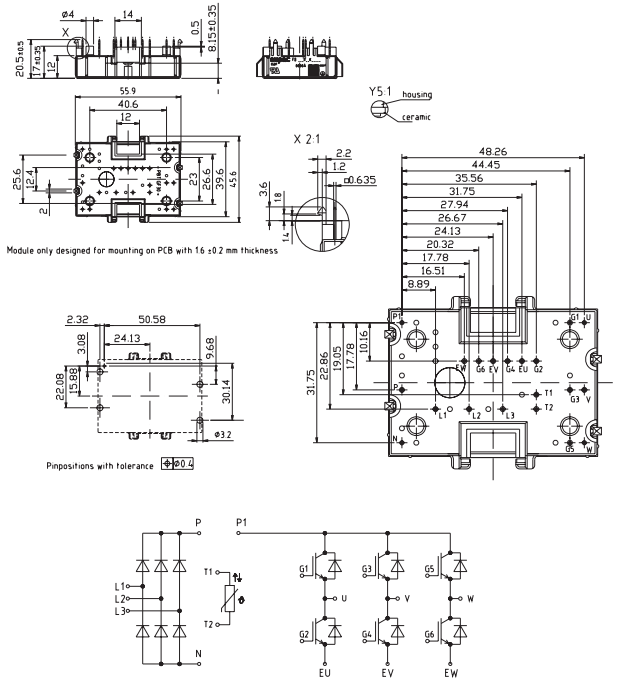
EasyPIM™2 L_2d



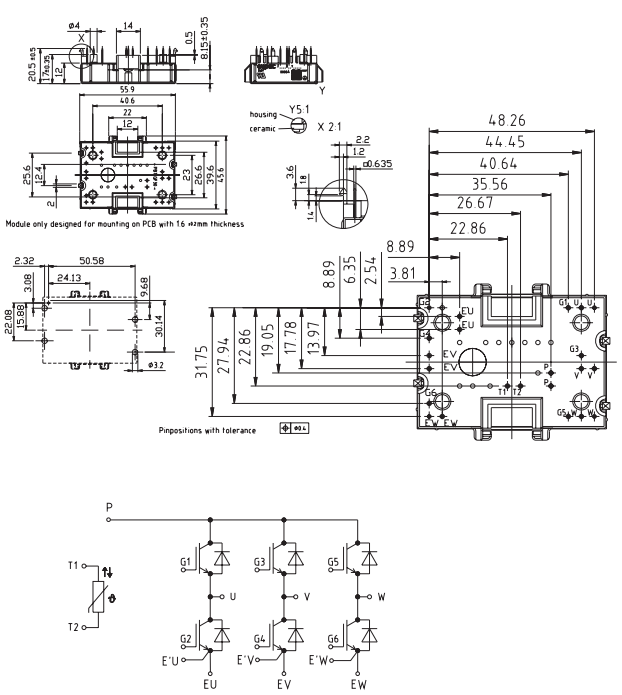
EasyPIM™2 L_2e



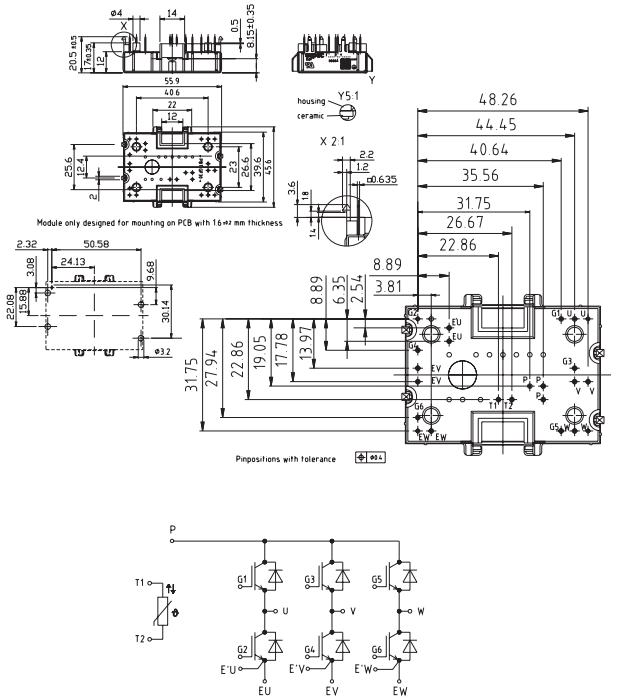
EasyPIM™2 L_2f



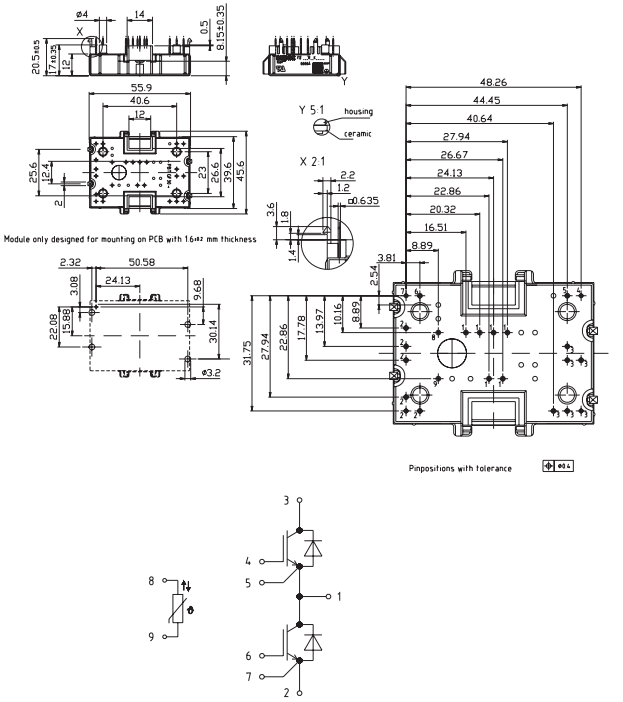
EasyPACK2 L_2g



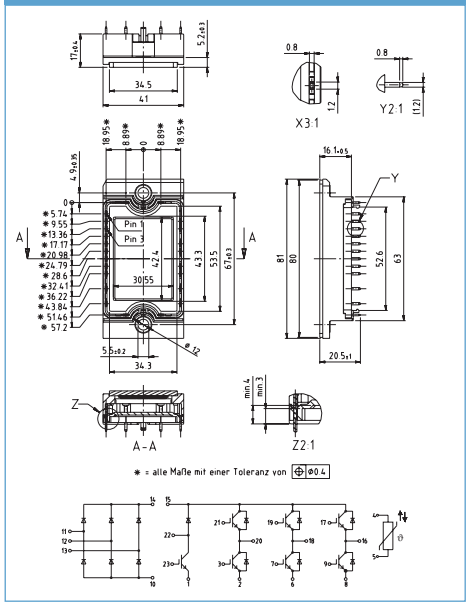
EasyPACK2 L_2h



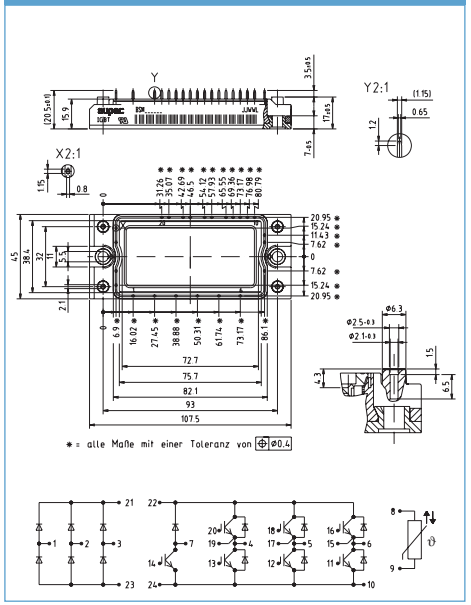
EasyPACK2 L_2j



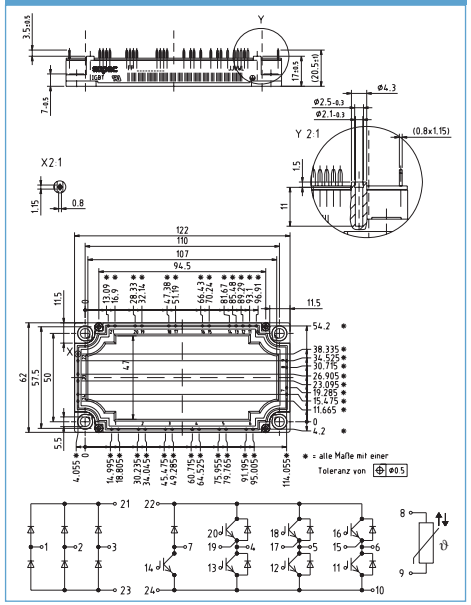
EconoPIM™1 M_E1a



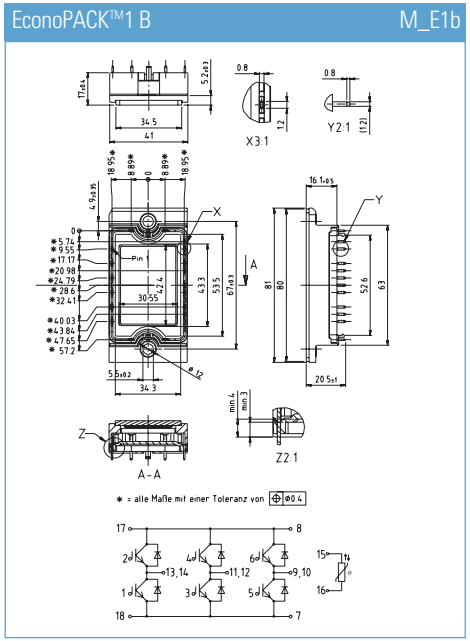
EconoPIM™2 M_E2a



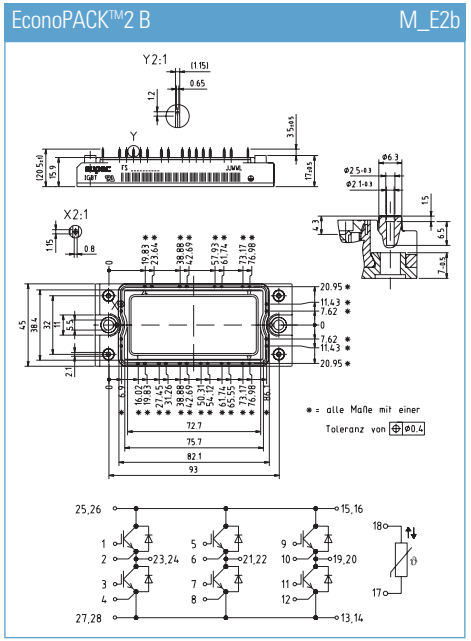
EconoPIM™3 M_E3a



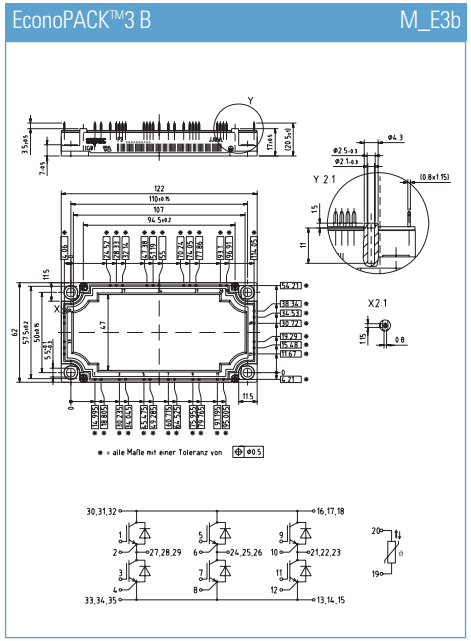
EconoPACK™1 B M_E1b



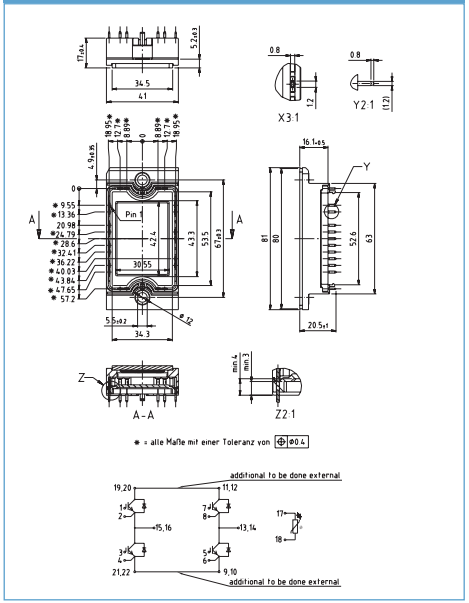
EconoPACK™2 B M_E2b



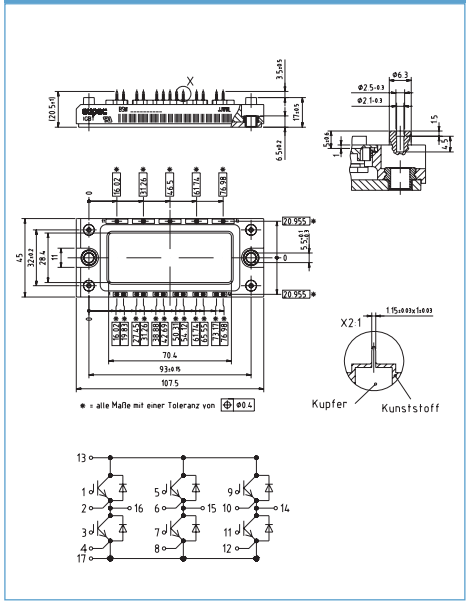
EconoPACK™3 B M_E3b



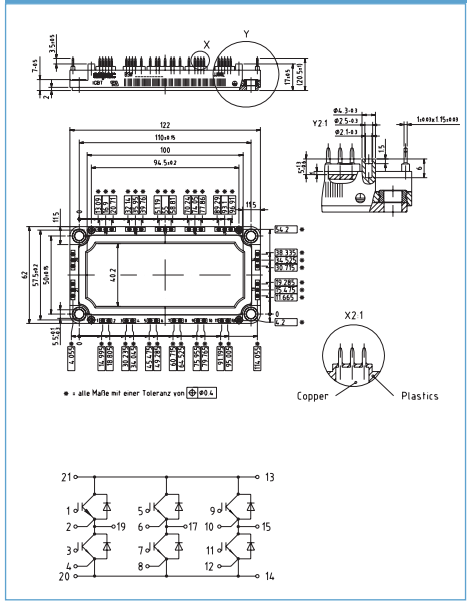
EconoPACK™ 1B FourPACK M_E1c



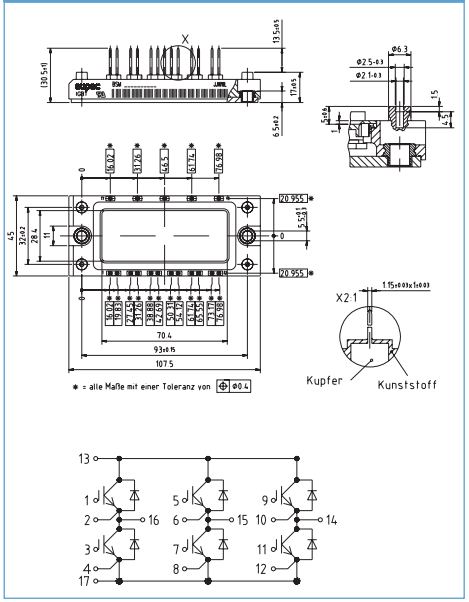
EconoPACK™2 A (shortpin) M_E2c



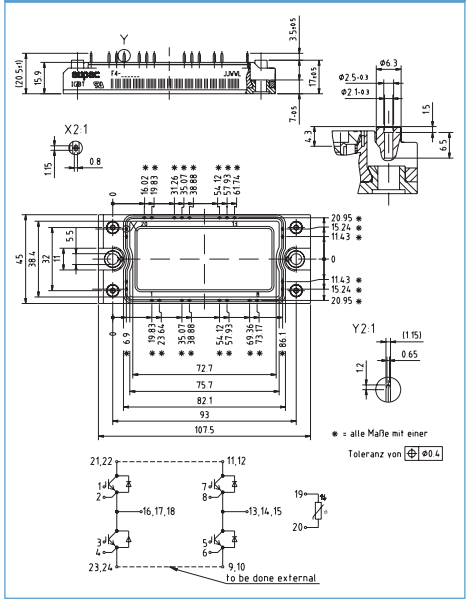
EconoPACK™3 A M_E3c



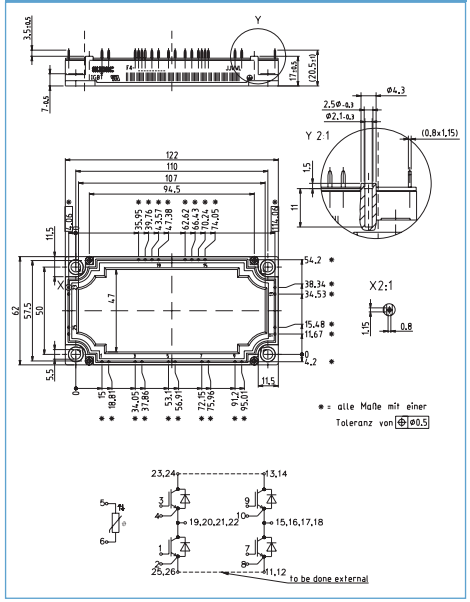
EconoPACK™2 A (longpin) M_E2d



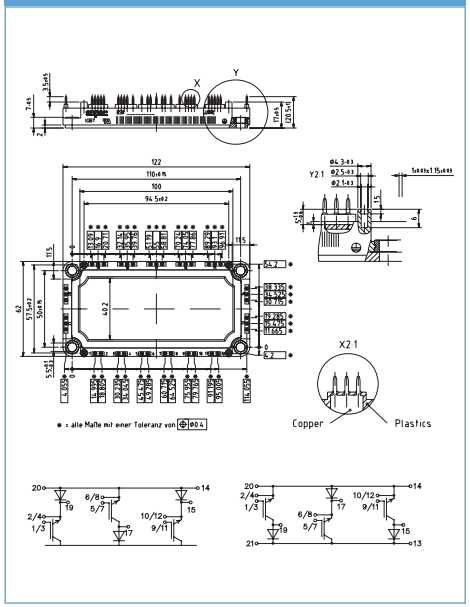
EconoPACK™2 B FourPACK M_E2e



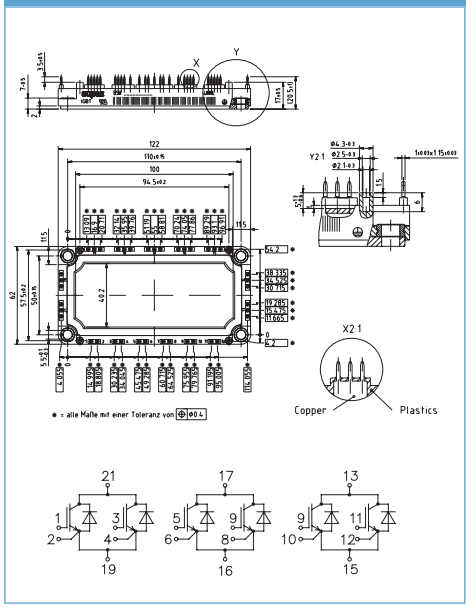
EconoPACK™3 B FourPACK M_E3d



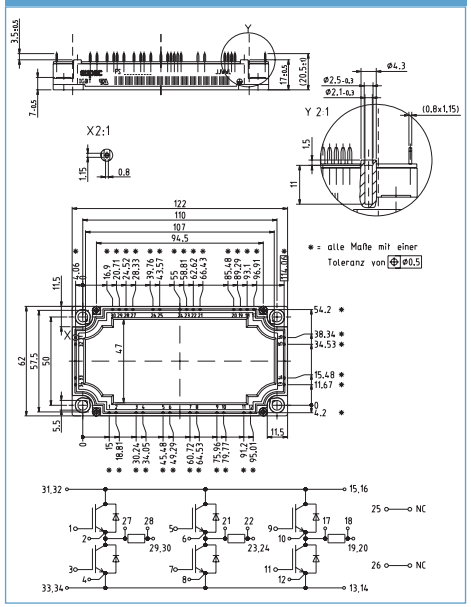
EconoPACK™3 A SR-Drives Modul M_E3e



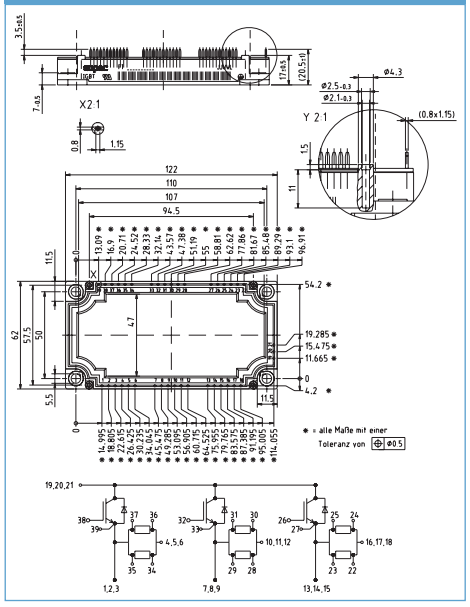
EconoPACK™3 A TriPACK M_E3f



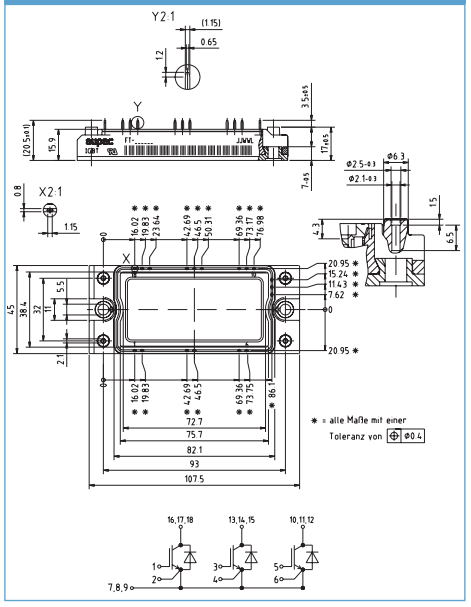
EconoPACK™ Shunt (Full Bridges) M_E3g



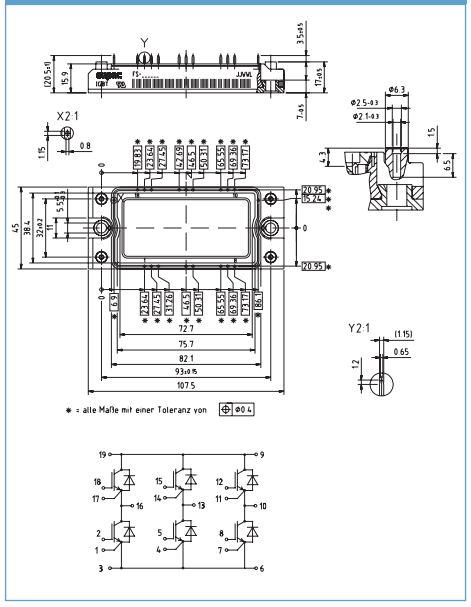
EconoPACK™ Shunt (TriPACK-High) M_E3h



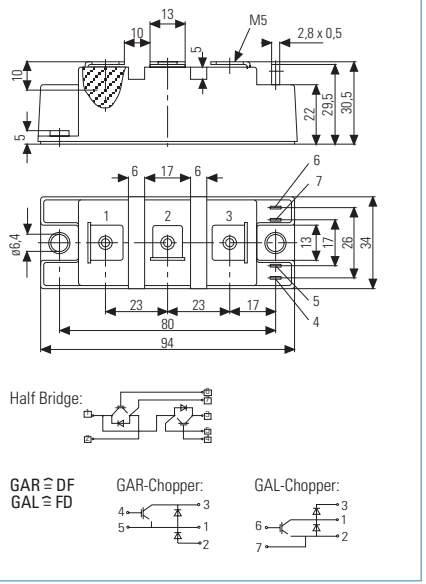
EconoPACK™ Shunt (TriPACK-Low) M_E2f



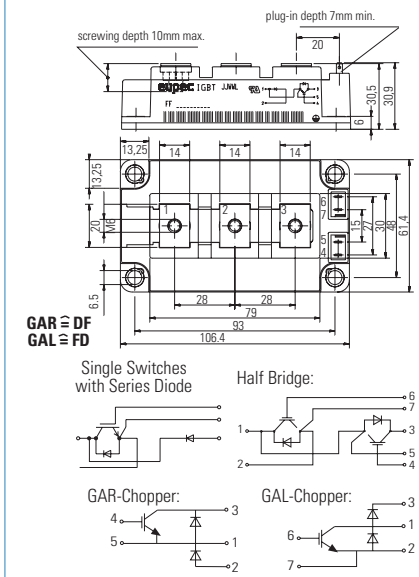
EconoPACK™2 B M_E2g



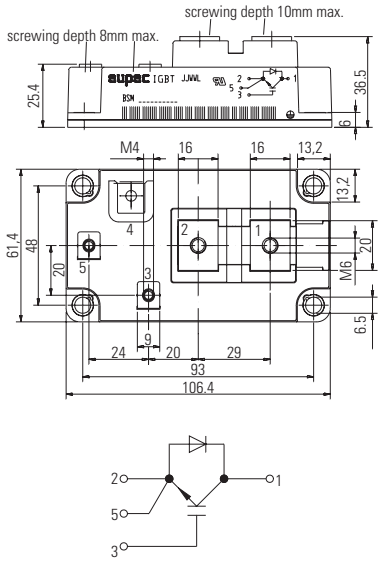
34 mm Module M_34a



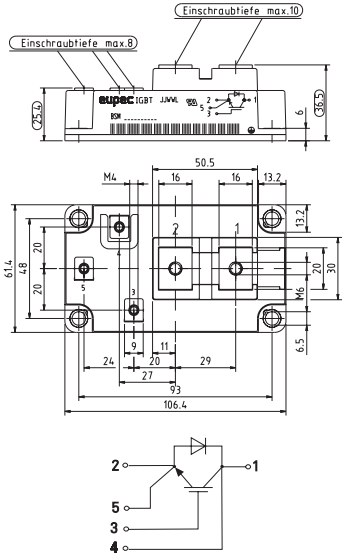
62 mm Module M_62a



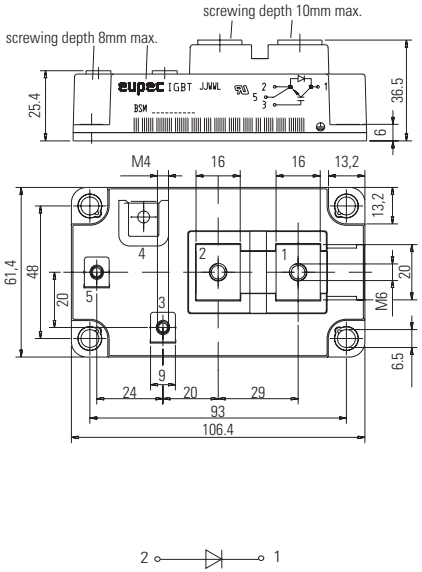
Single Switch 62 M_62b



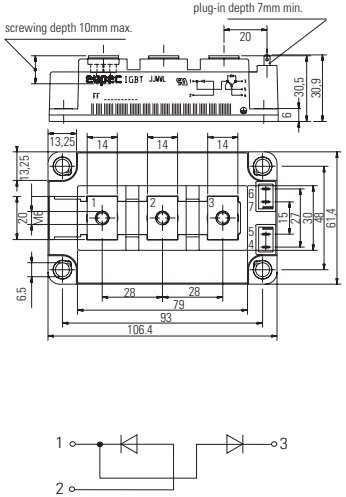
Single Switch 62, collector sense M_62c



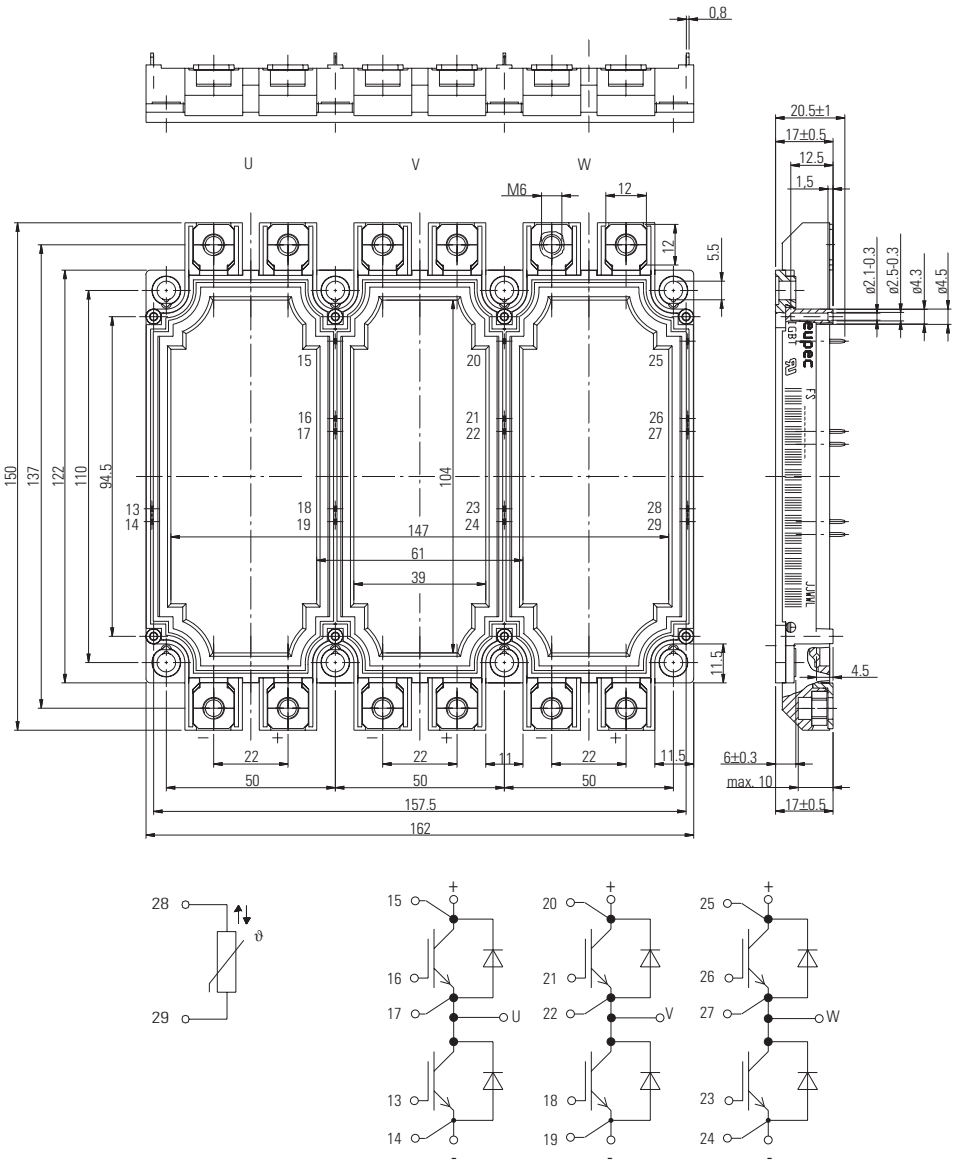
Single Diode 62 M_62d



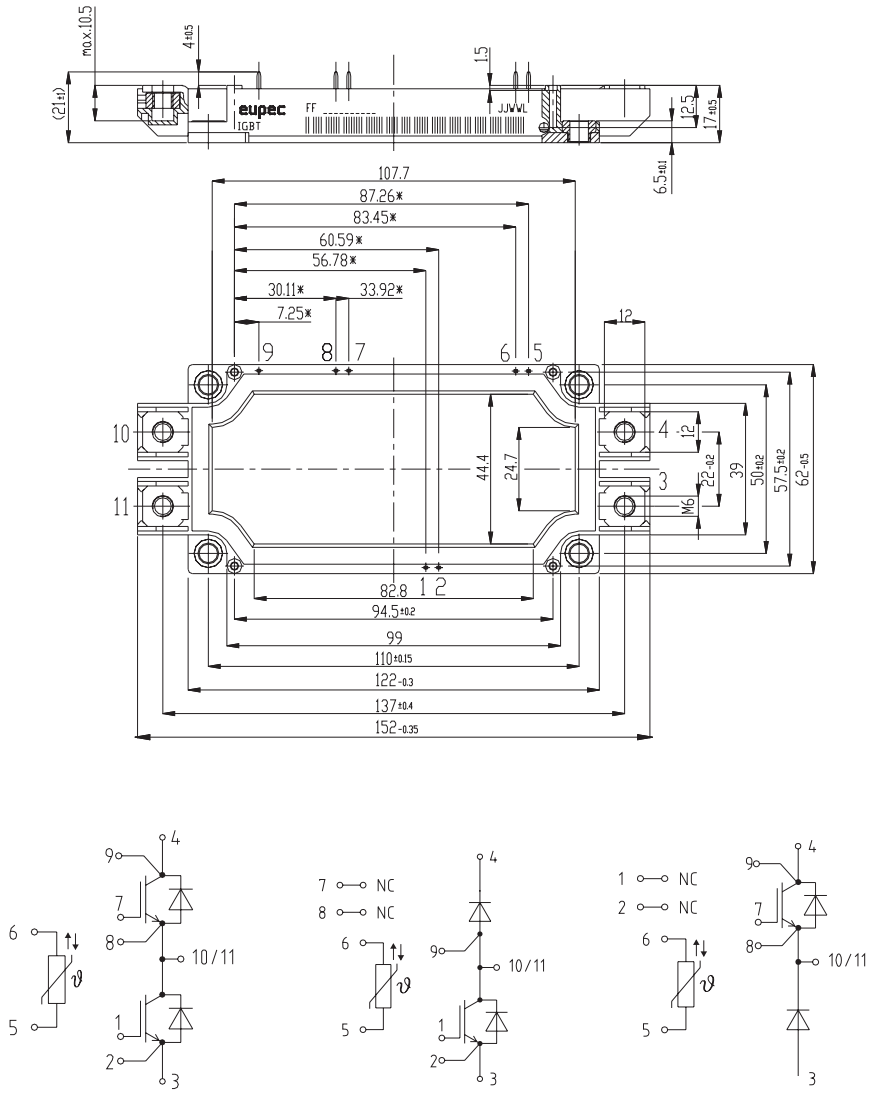
Dual Diode 62 M_62e



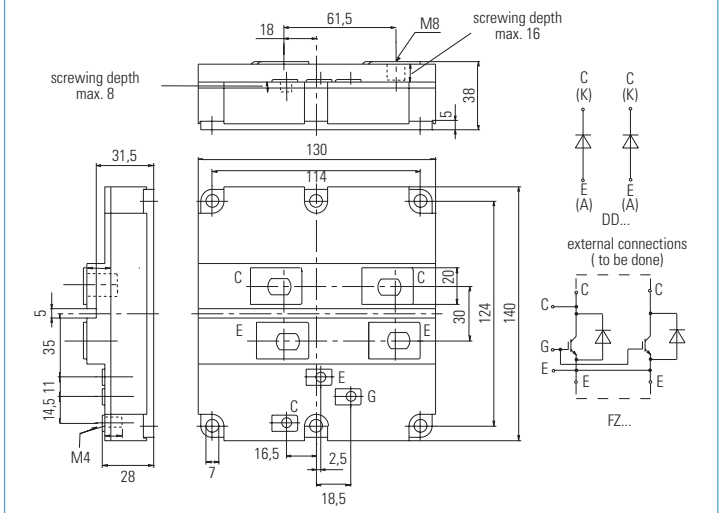
EconoPACK™+ M_E+a



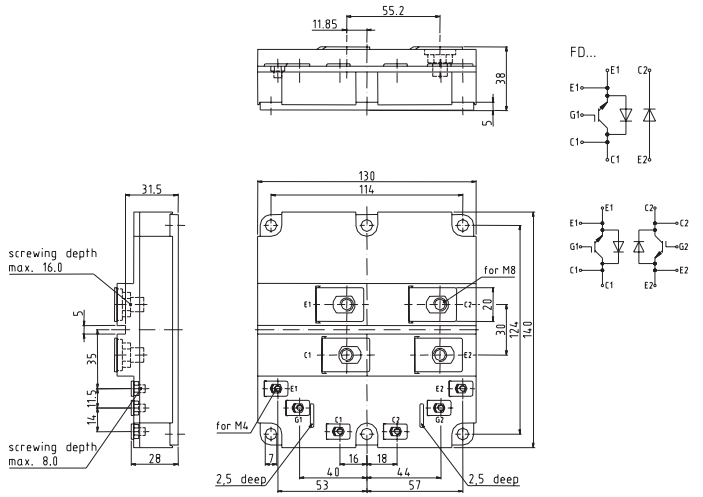
EconoDUAL™+ M_ED



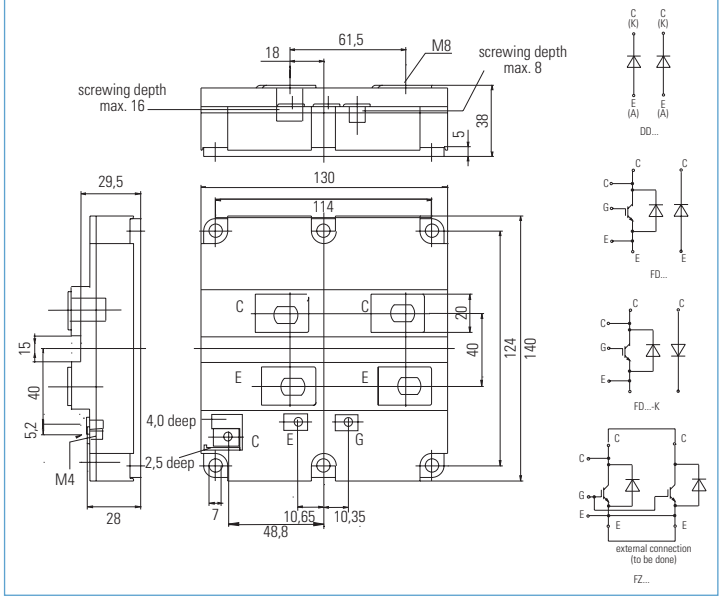
IHM — H_IH1



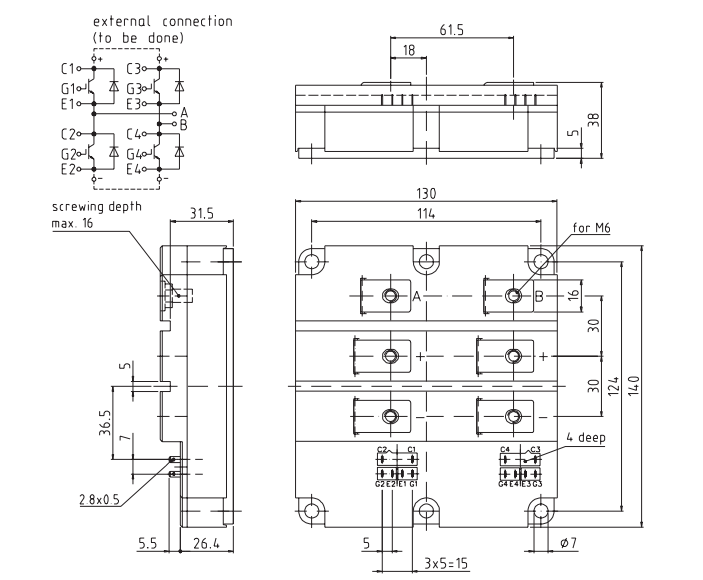
IHM — H_IH2



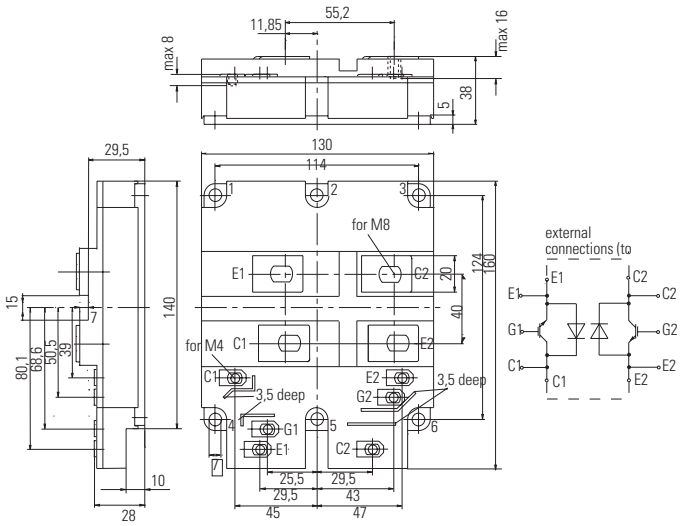
IHM/IHV — H_IH4



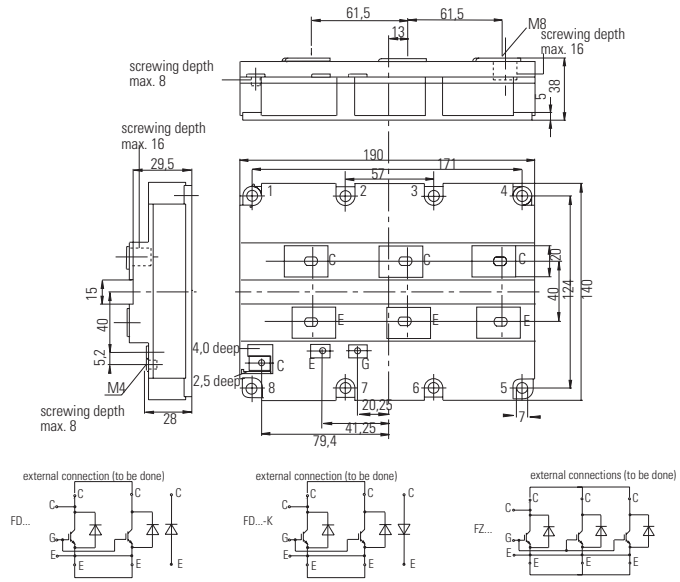
IHM — H_IH5



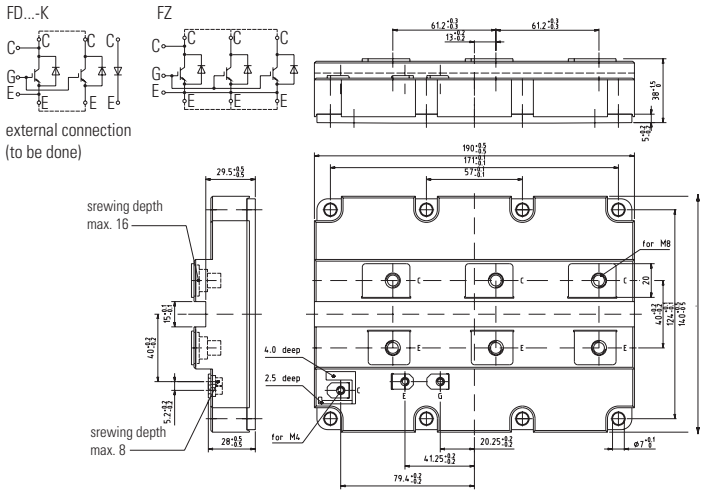
IHV — H_IH6



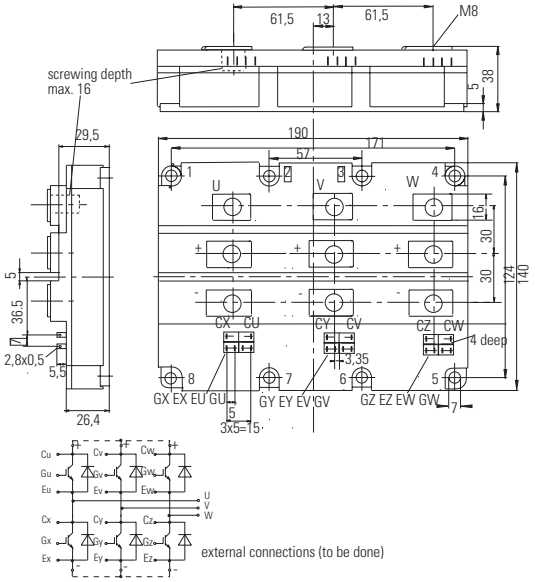
IHM/IHV — H_IH7



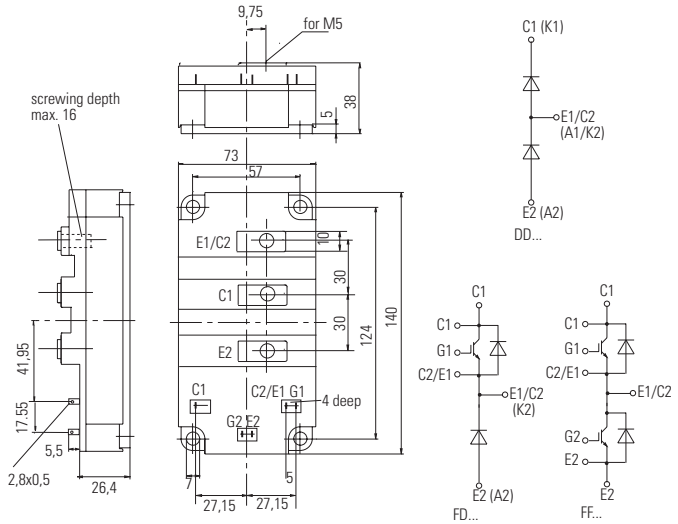
IHM/IHV — H_IH7B



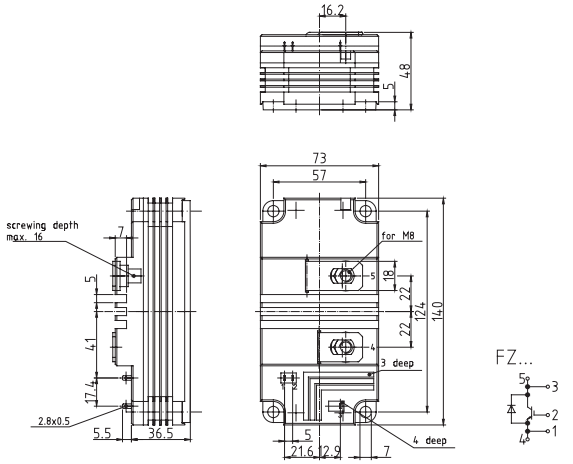
IHM — H_IH8



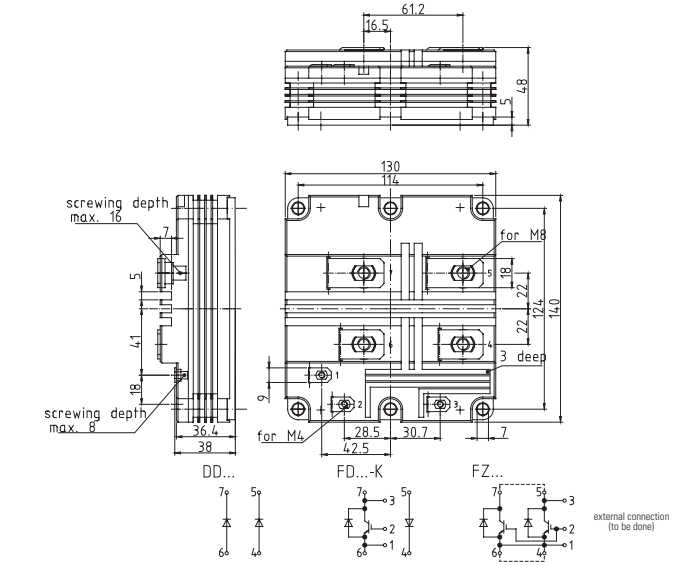
IHM/IHV H_IH9



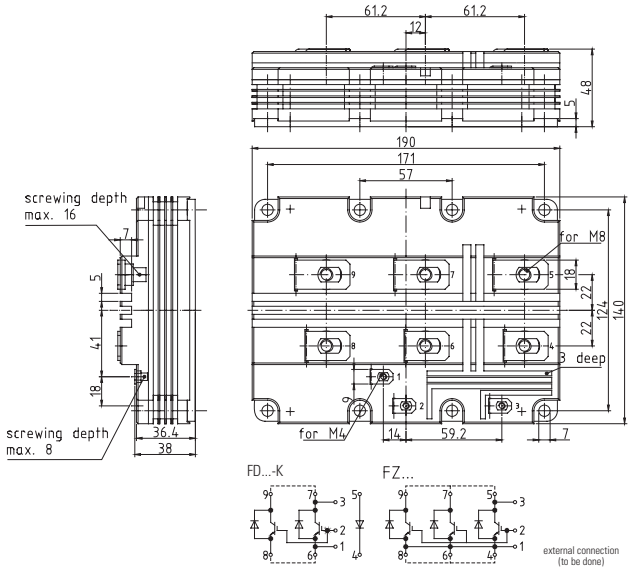
IHV H_IH10



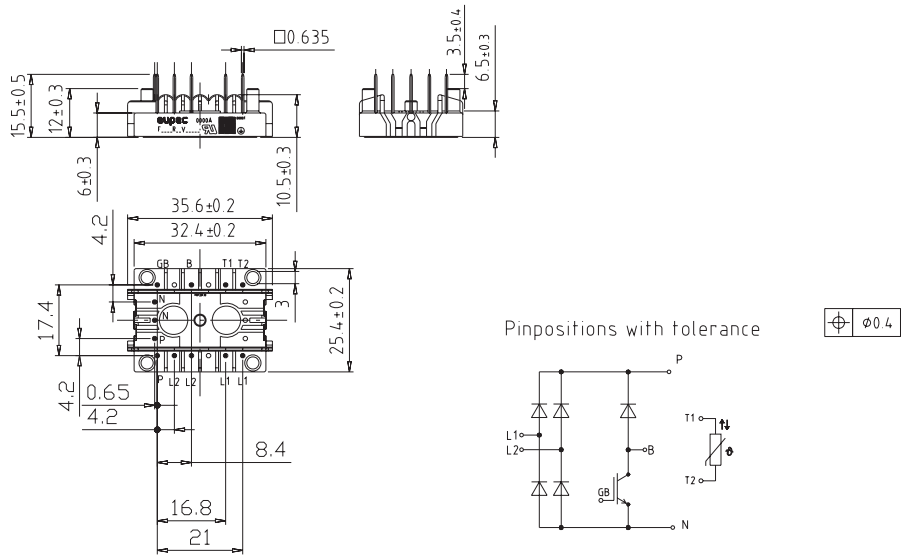
IHV H_IH11



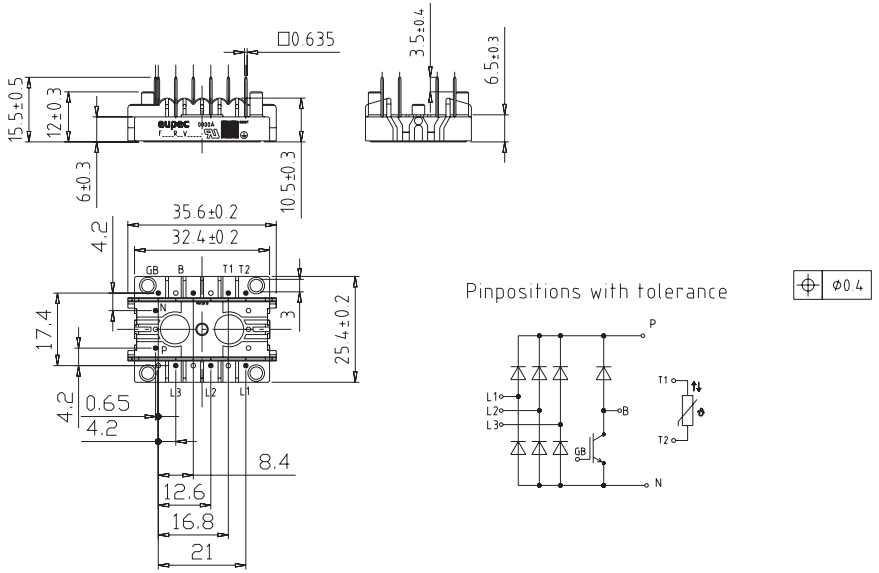
IHV H_IH12



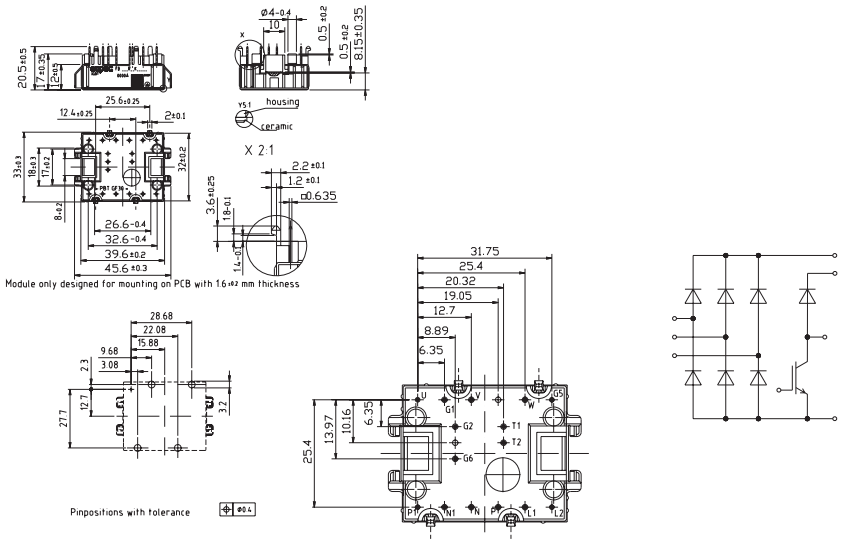
EasyBRIDGE750 L_750d



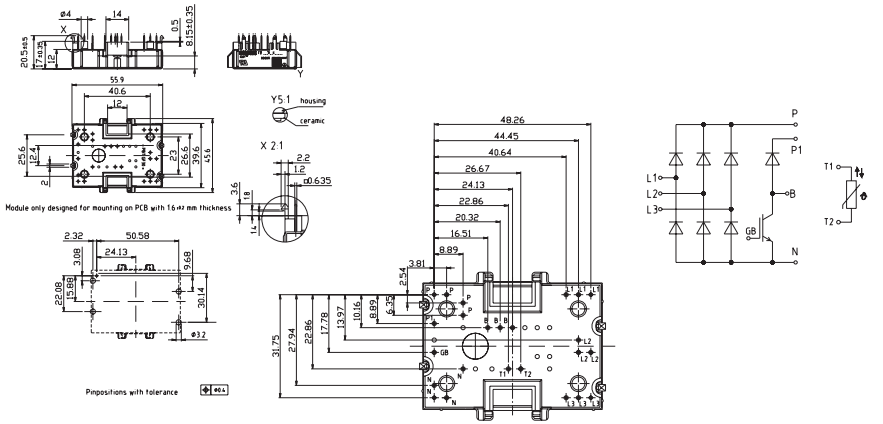
EasyBRIDGE750 L_750e



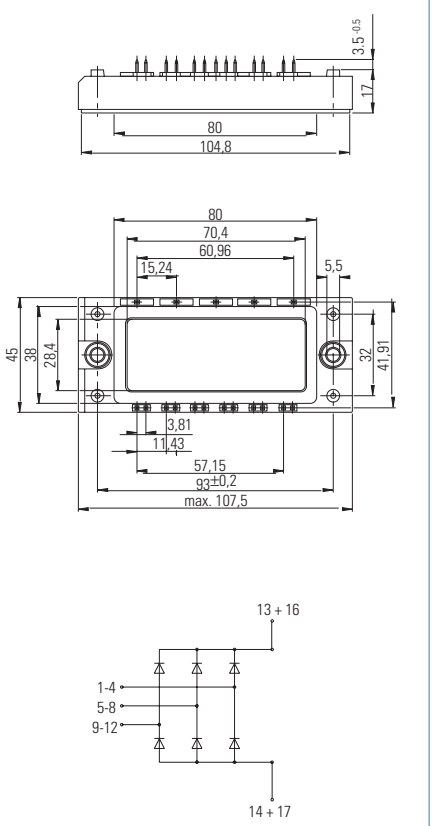
EasyBRIDGE1 L_1c



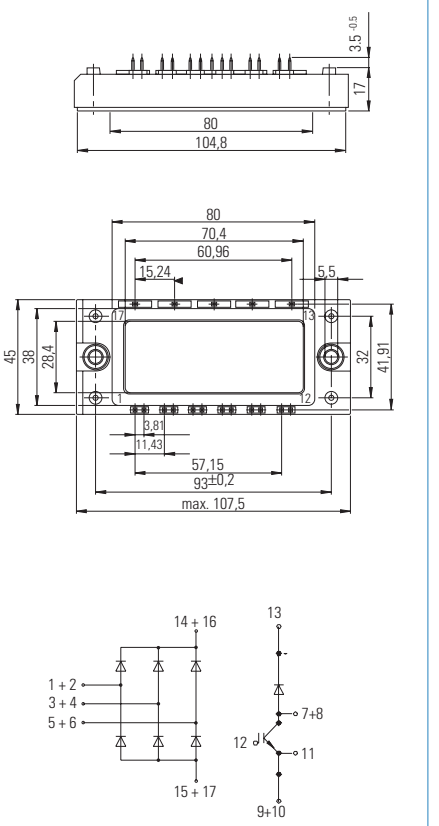
EasyBRIDGE2 L_2i



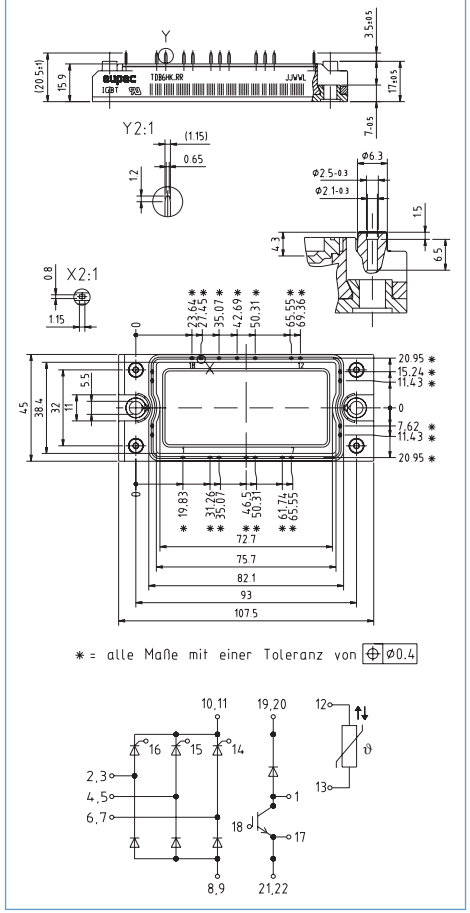
EconoBRIDGE™ Rectifier 2 — M_E2g



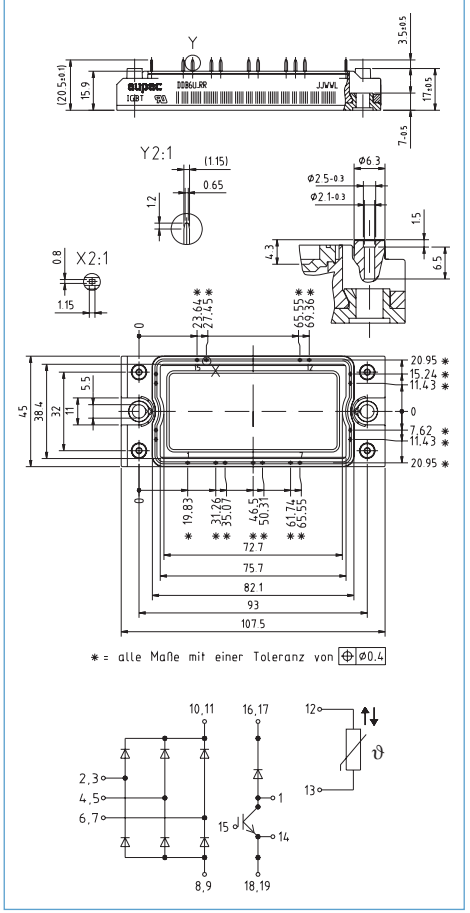
EconoBRIDGE™ Rectifier 2 — M_E2h



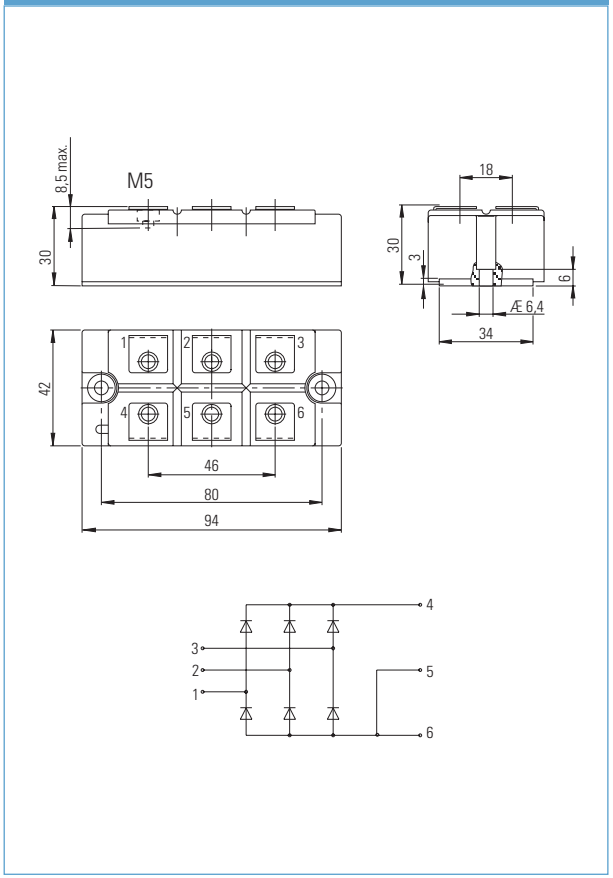
EconoBRIDGE™ Rectifier 2 — M_E2i



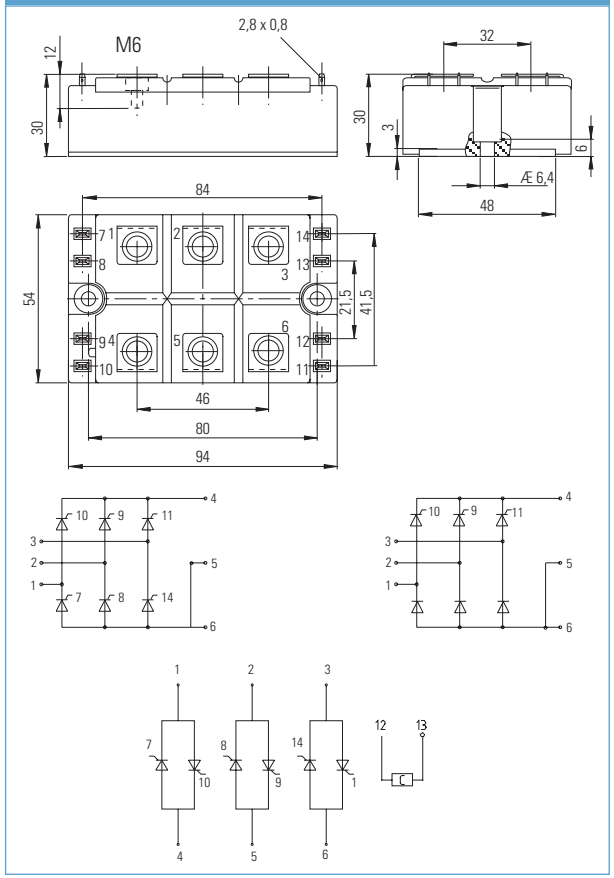
EconoBRIDGE™ Rectifier 2 — M_E2j



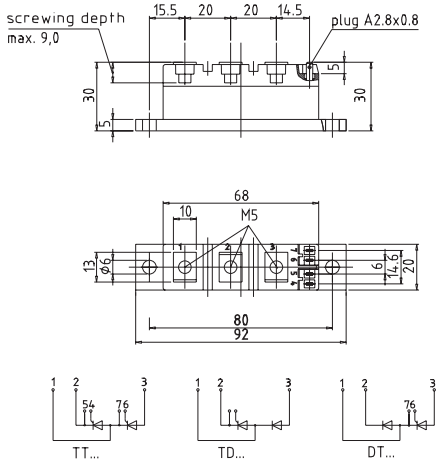
IsoPACK™ 42 M_1Pa



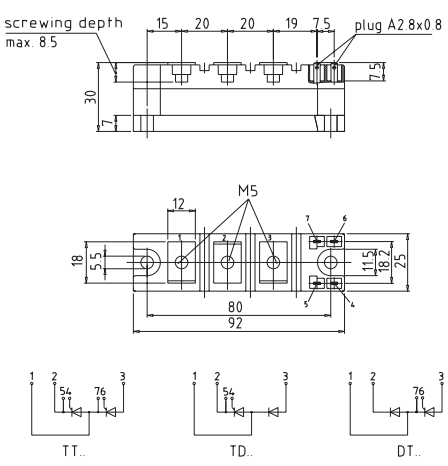
IsoPACK™ 54 M_1Pb



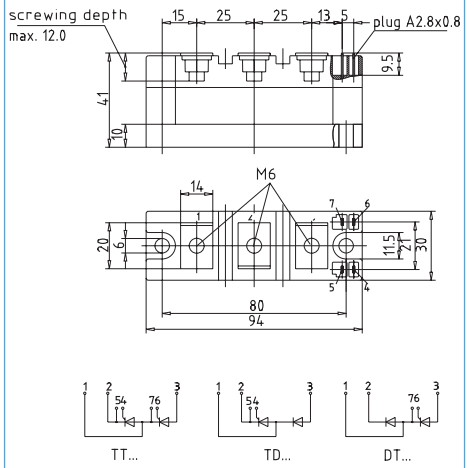
20 mm TP20



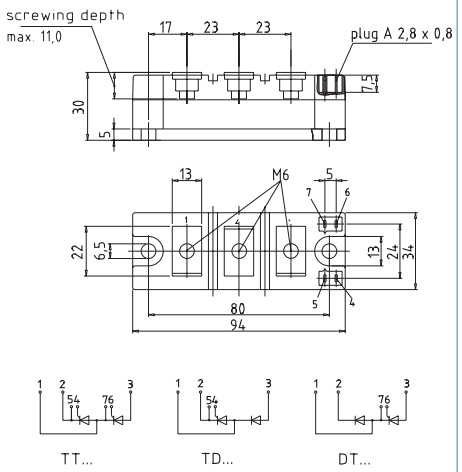
25 mm TP25



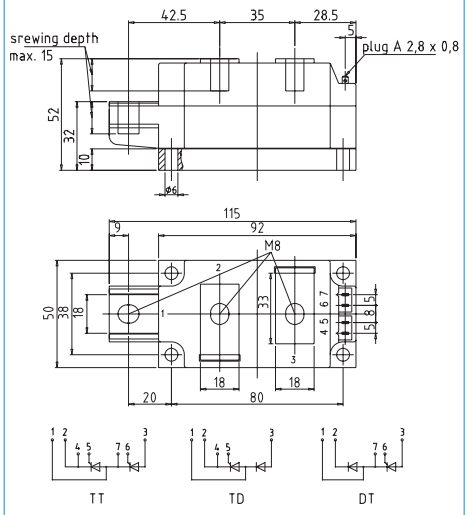
30 mm TP30



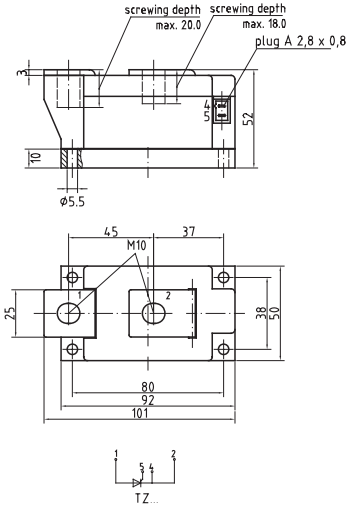
34 mm TP34



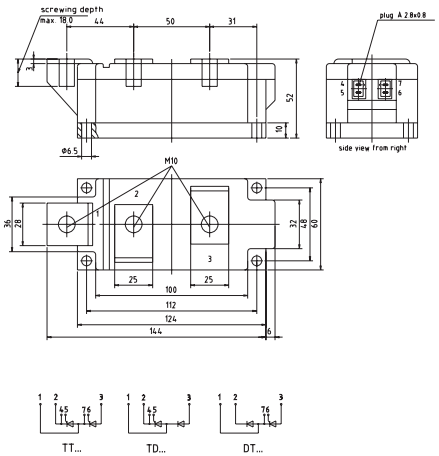
50 mm TP50



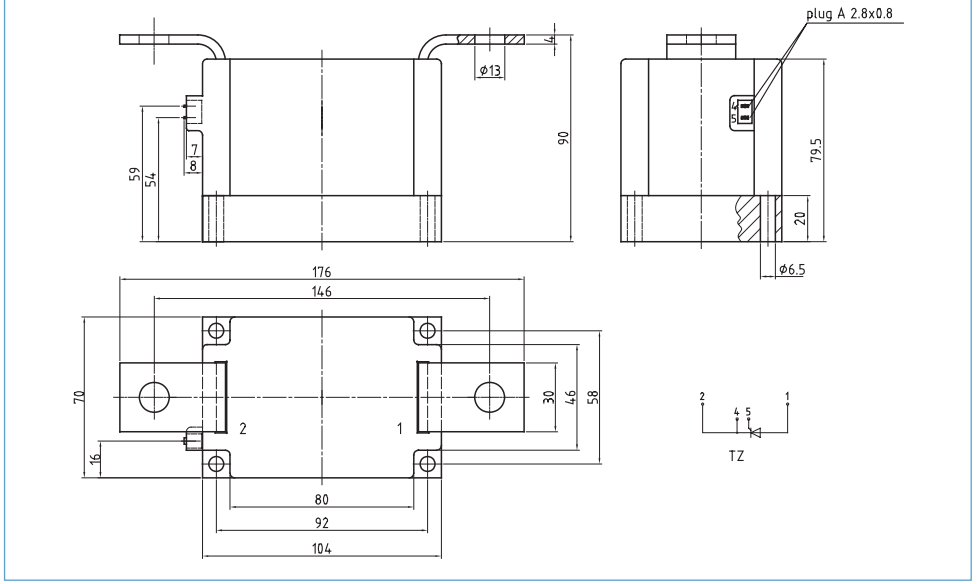
50 mm TP50.1



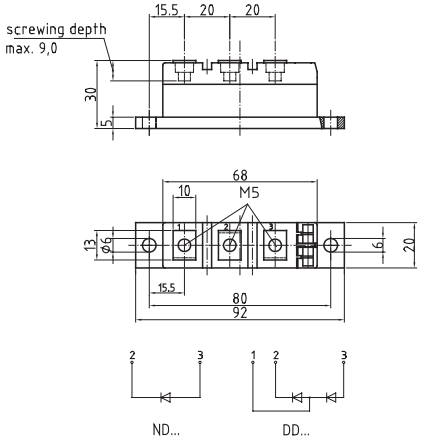
60 mm TP60



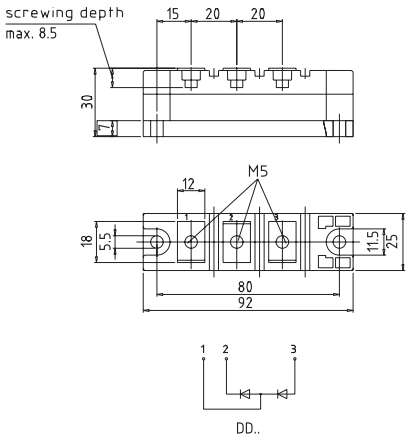
70 mm — TP70



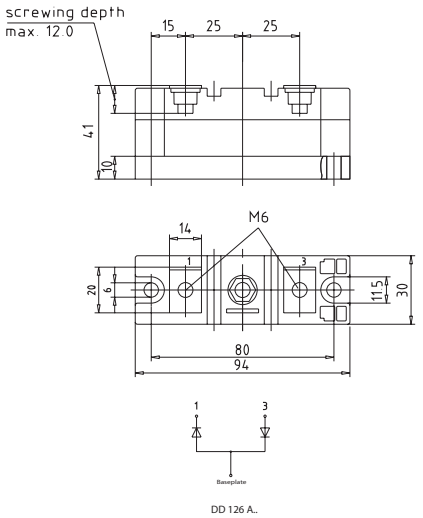
20 mm — DP20



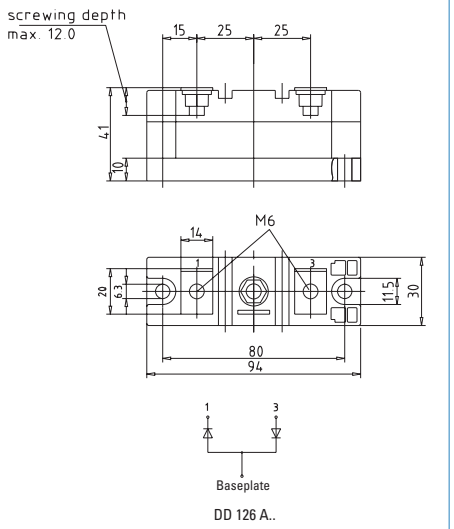
25 mm — DP25



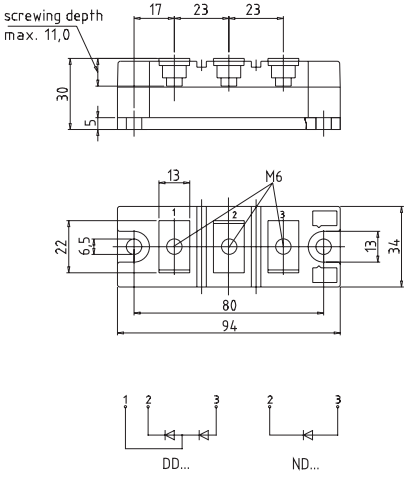
30 mm — DP30



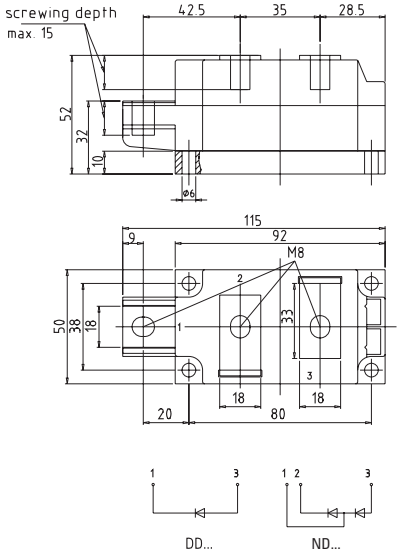
30 mm DP30.1



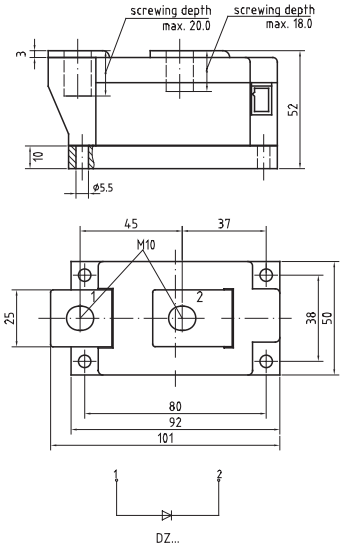
34 mm DP34



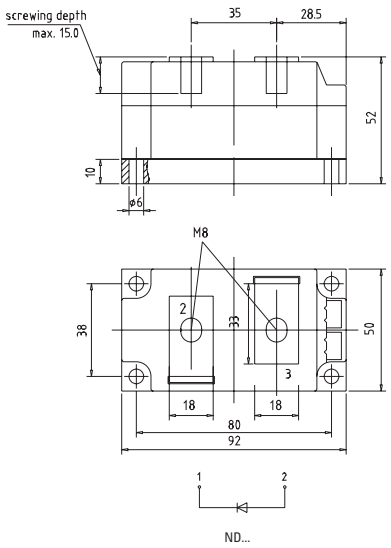
50 mm DP50



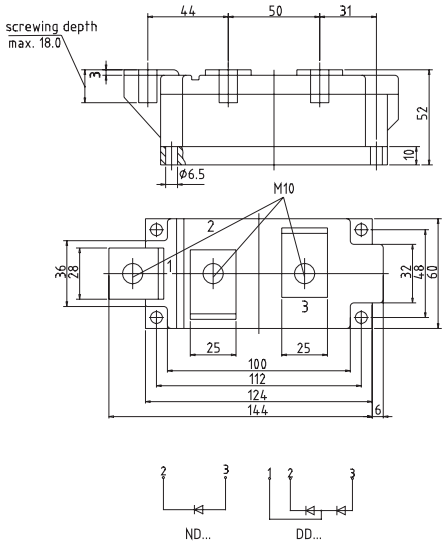
50 mm DP50.1



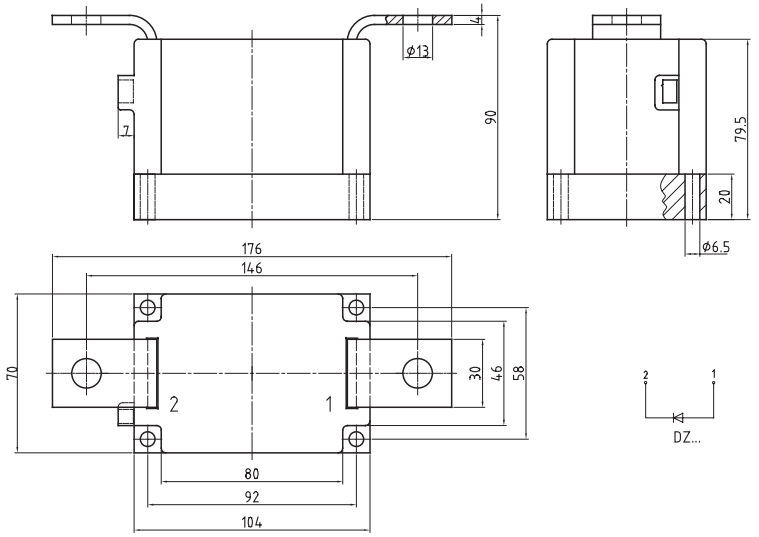
50 mm DP50ND



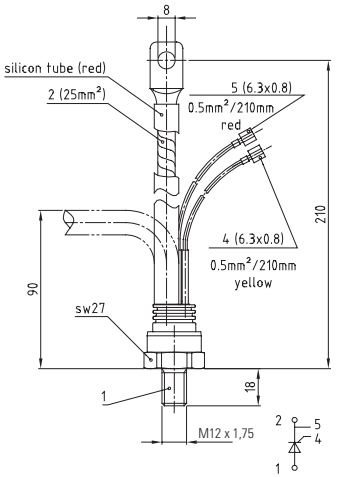
60 mm DP60



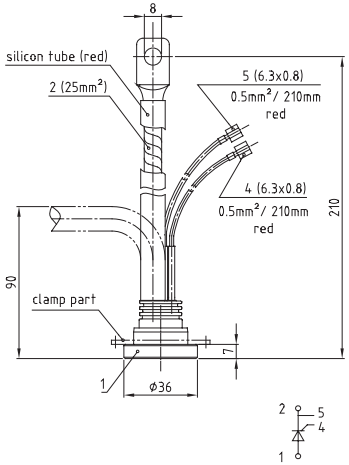
70 mm DP70



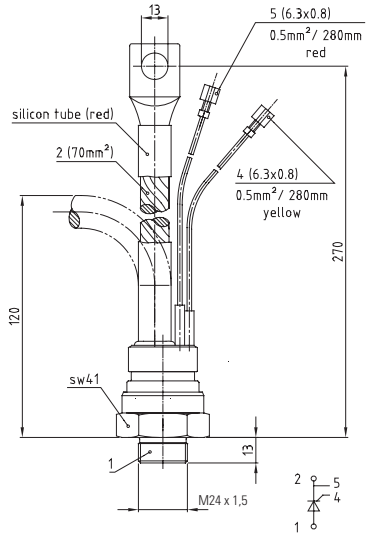
TSW27



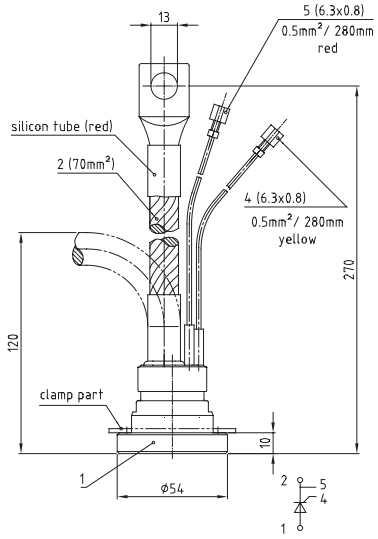
TFL36



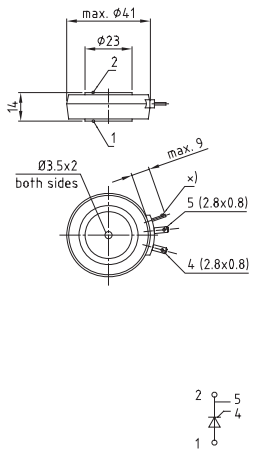
TSW41



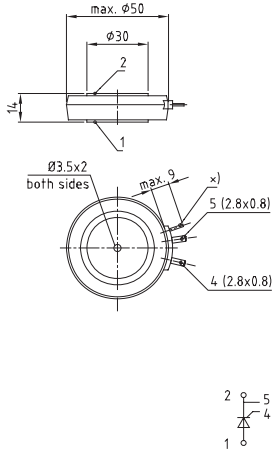
TFL54



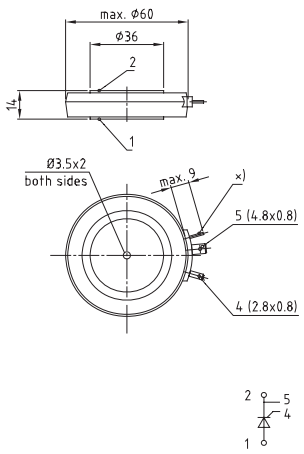
T41.14



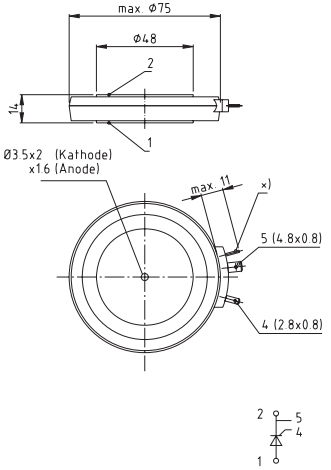
T50.14



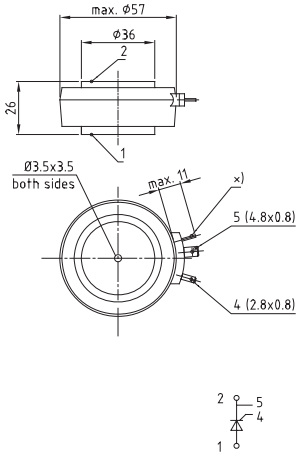
T60.14



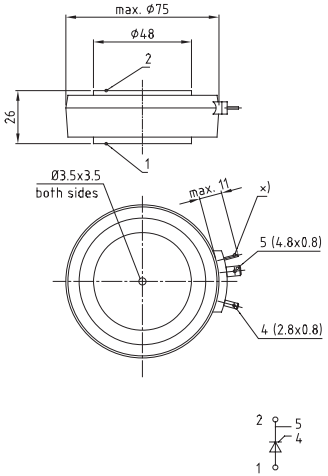
T75.14



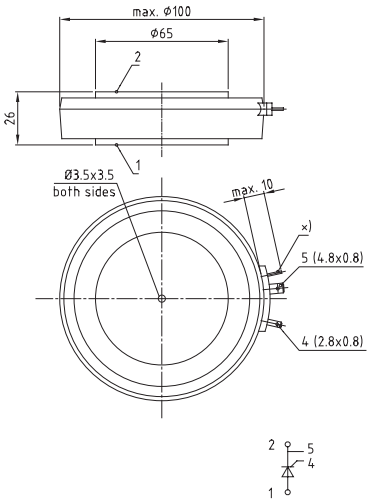
T57.26



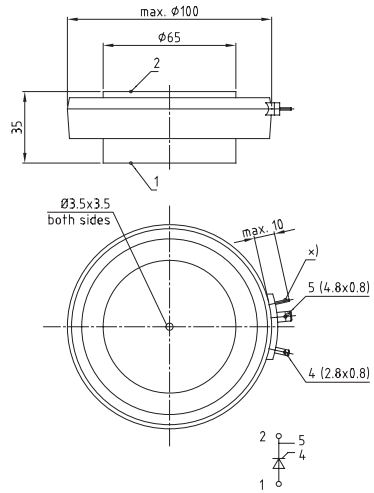
T75.26



T100.26

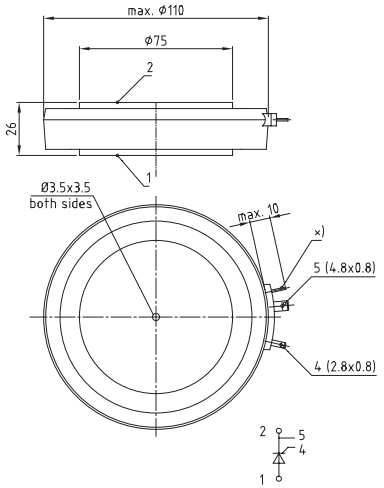


T100.35

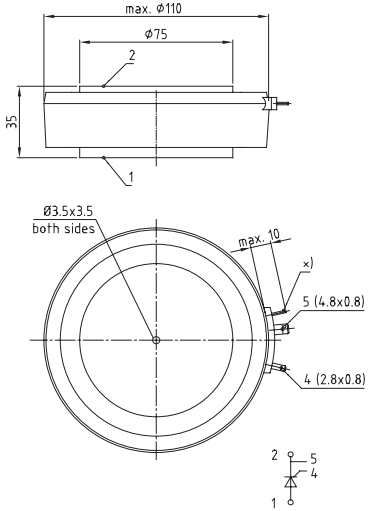


X) = evacuation pipe

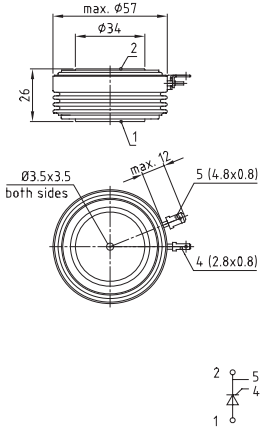
T110.26



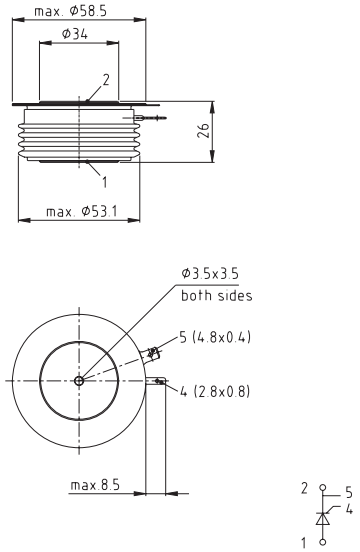
T110.35



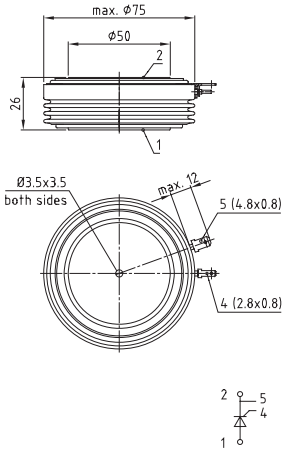
T57.26K



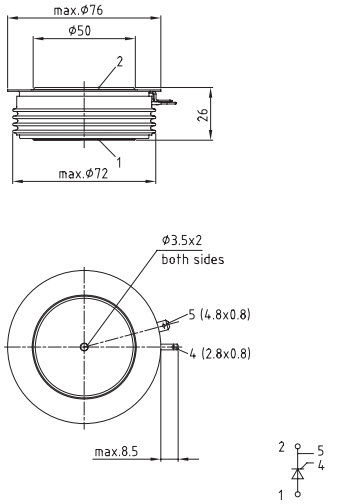
T58.26K



T75.26K

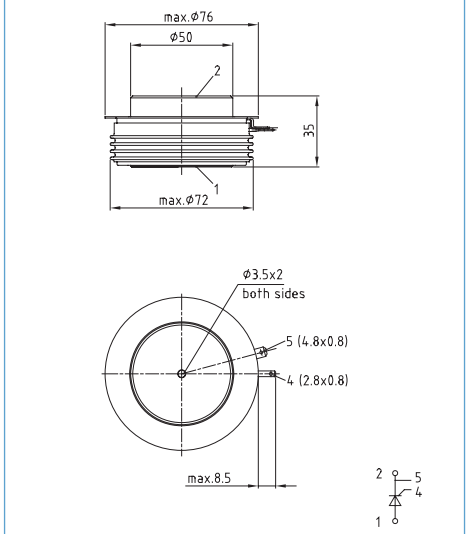


T76.26K

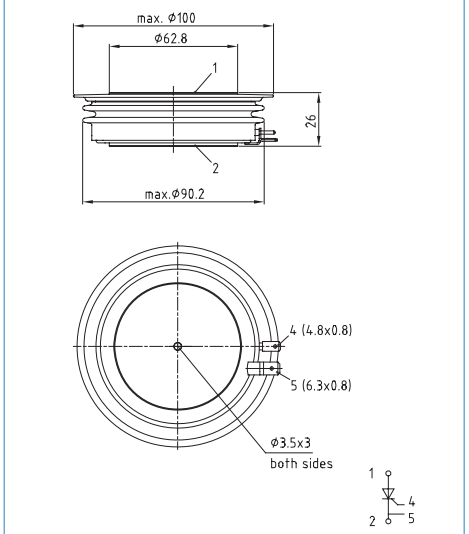


X) = evacuation pipe

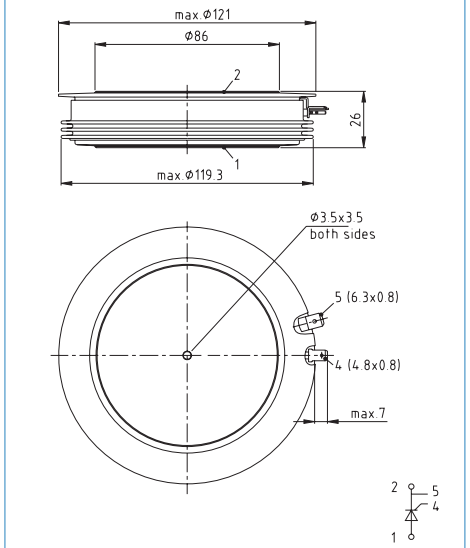
T76.35K



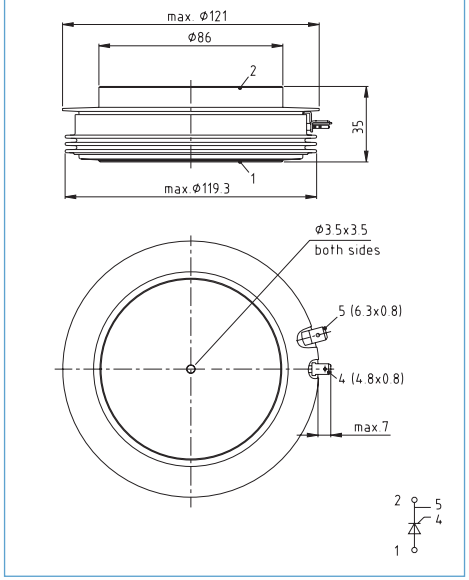
T100.26K



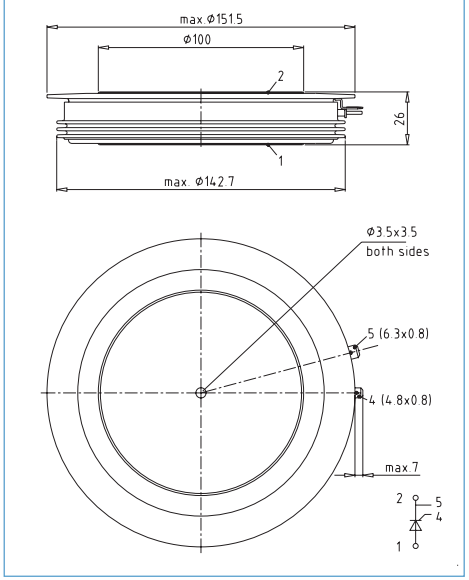
T120.26K



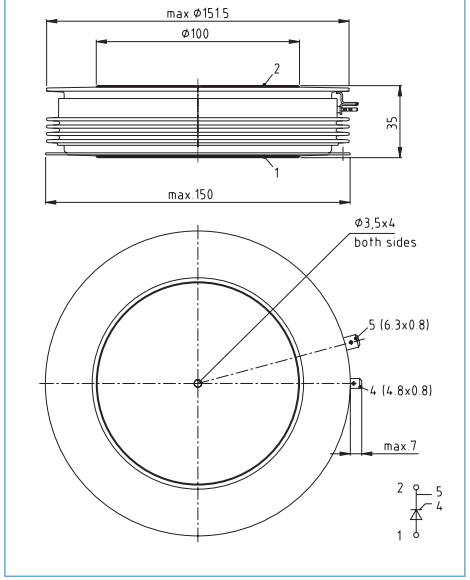
T120.35K



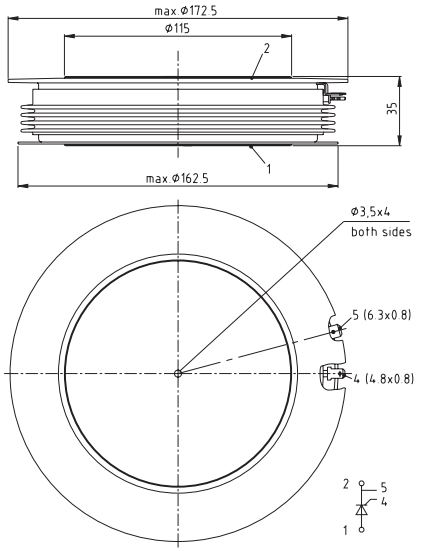
T150.26K



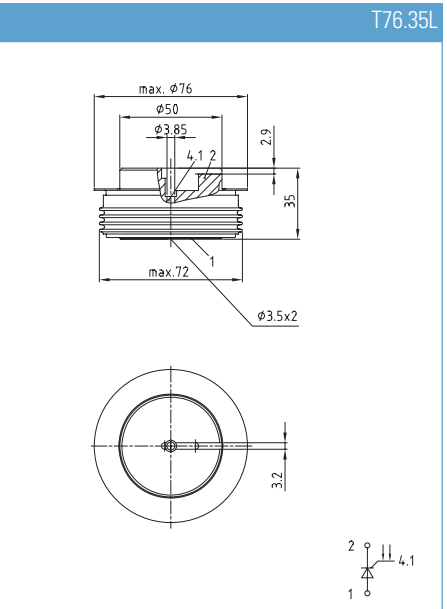
T150.35K



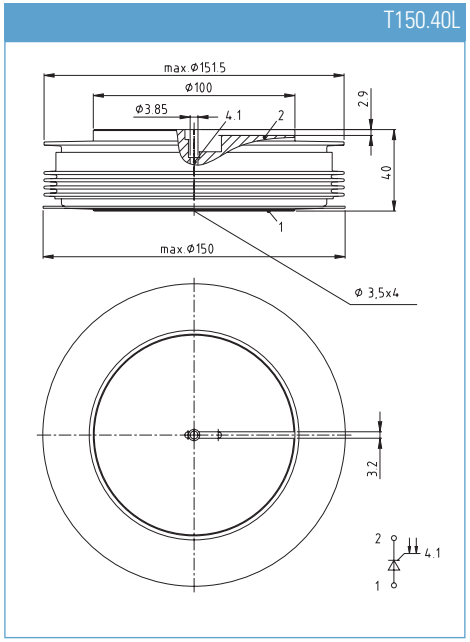
T172.35K



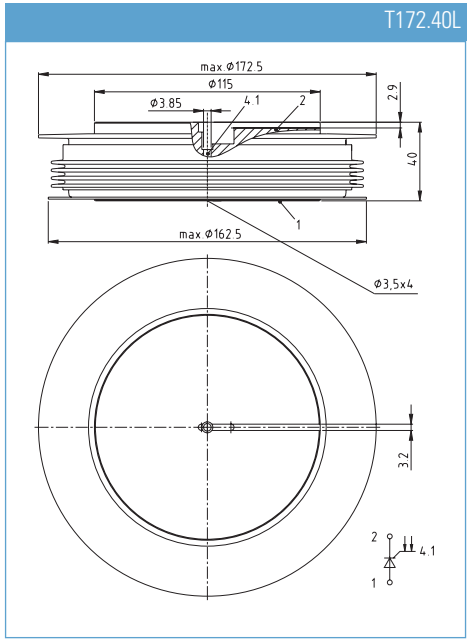
T76.35L



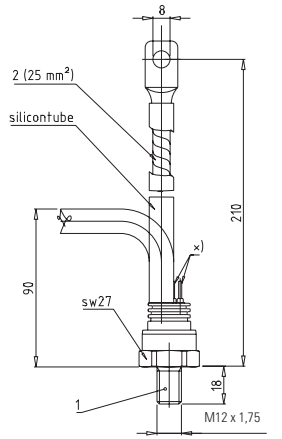
T150.40L



T172.40L

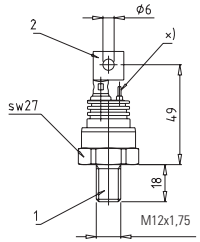


DSW27



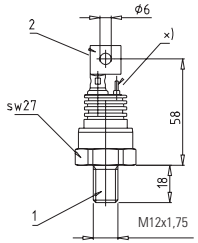
type	symbol	cathode	anode	prot. flex. tubing
N, S		rope (2)	case (1)	red
K, U		case (1)	rope (2)	blue

DSW27.1



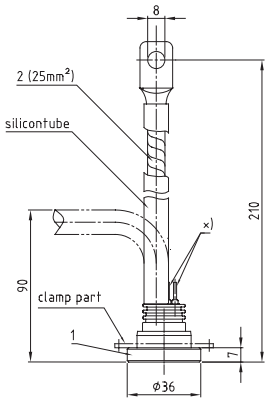
type	symbol	cathode	anode
N, S		conection pin	case (1)
K, U		case (1)	conection pin

DSW27.2



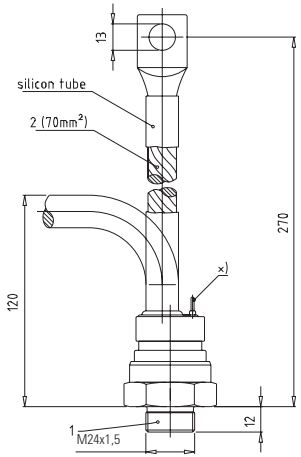
type	symbol	cathode	anode
N, S		conection pin	case (1)
K, U		case (1)	conection pin

DFL36



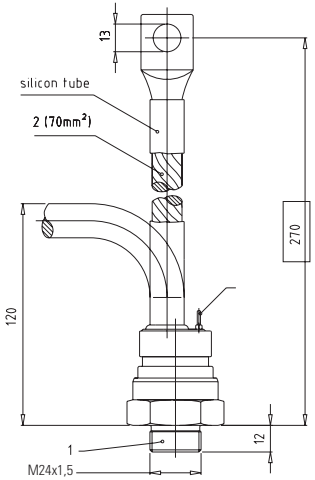
type	symbol	cathode	anode	prot. flex. tubing
N, S		rope (2)	case (1)	red
K, U		case (1)	rope (2)	blue

DSW41



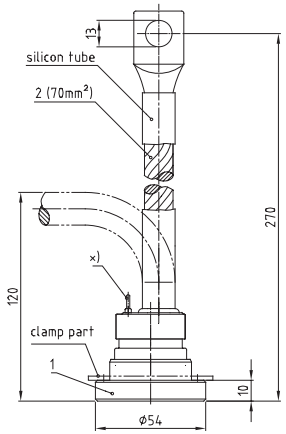
type	symbol	cathode	anode	prot. flex. tubing
N, S		rope (2)	case (1)	red
K, U		case (1)	rope (2)	blue

DSW41.1



type	symbol	cathode	anode	prot. flex. tubing
N, S		rope (2)	case (1)	red
K, U		case (1)	rope (2)	blue

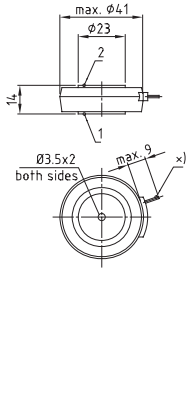
DFL54



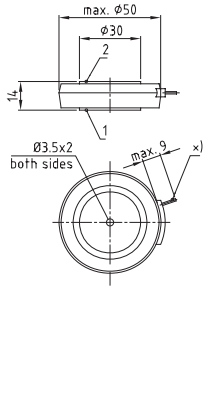
type	symbol	cathode	anode	prot. flex. tubing
N, S		rope (2)	case (1)	red
K, U		case (1)	rope (2)	blue

X) = evacuation pipe

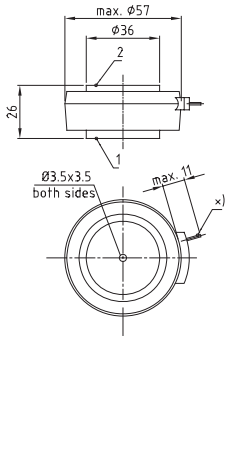
D41.14



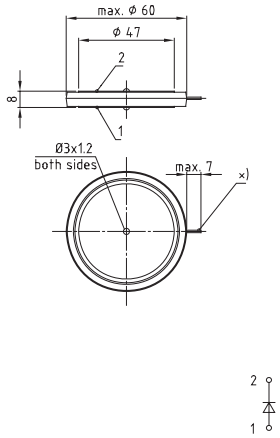
D50.14



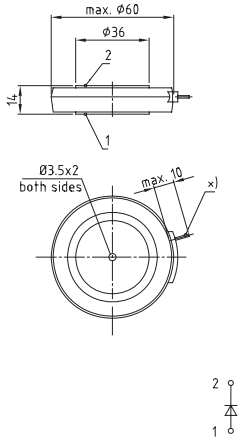
D57.26



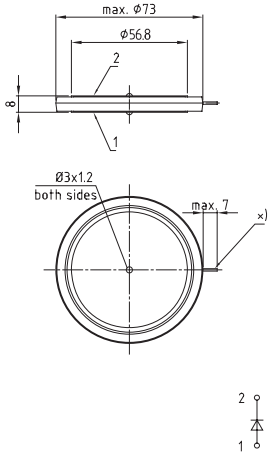
D60.8



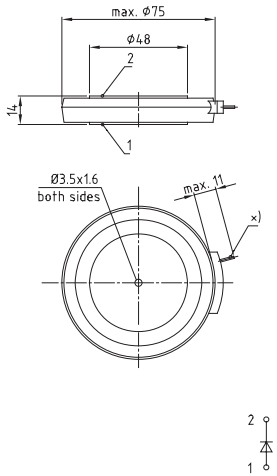
D60.14



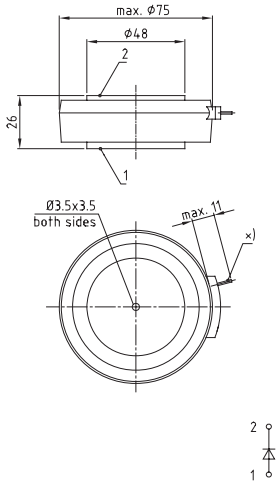
D73.8



D75.14

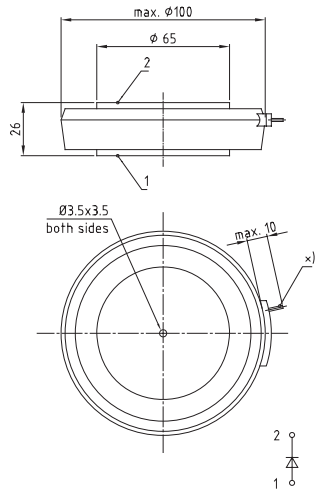


D75.26

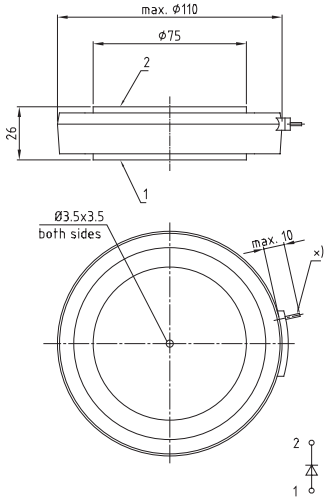


X) = evacuation pipe

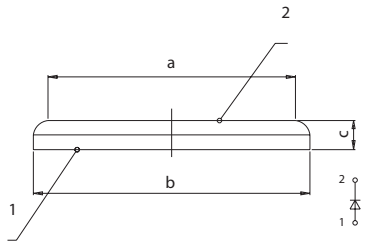
D100.26



D110.26

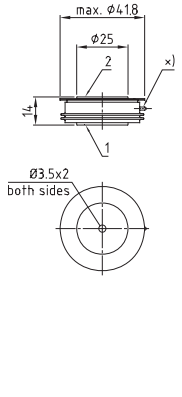


X) = evacuation pipe

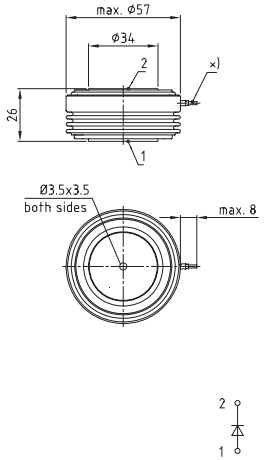


Bezeichnung	a	b	c
25DN06	Ø 22	Ø 25	3,6
38DN06	Ø 34	Ø 38	4,0
46DN06	Ø 43	Ø 46	4,0
56DN06	Ø 50	Ø 56	5,0
65DN06	Ø 58	Ø 65	5,0

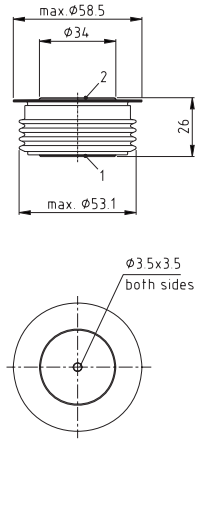
D41.14K



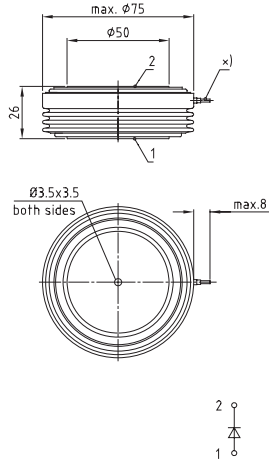
D57.26K



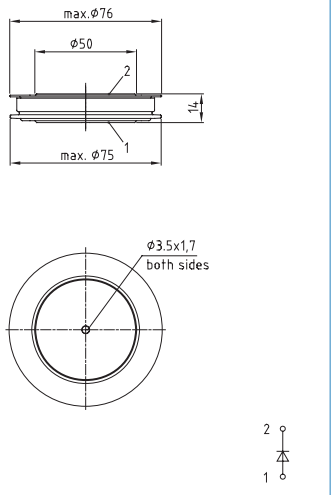
D58.26K



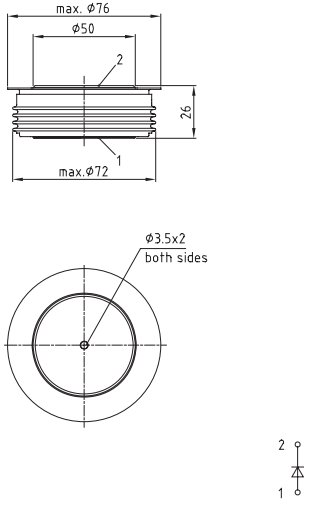
D75.26K



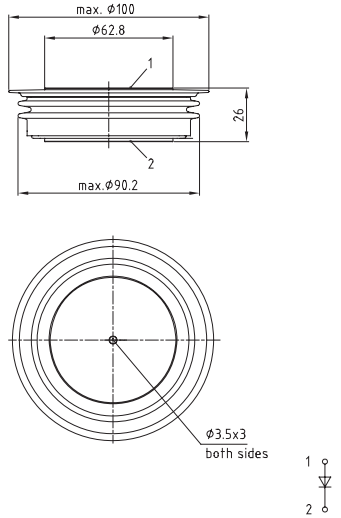
D76.14K



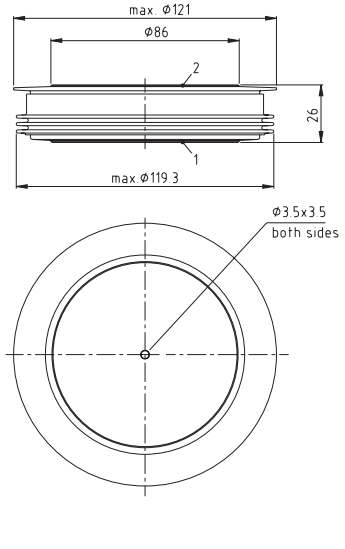
D76.26K



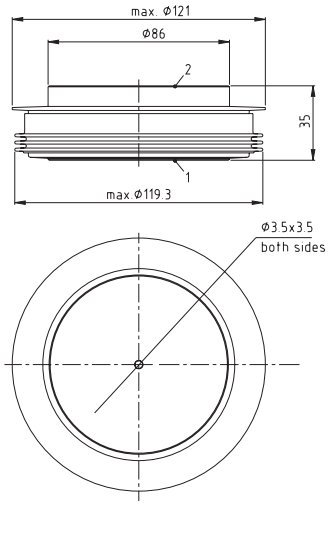
D100.26K



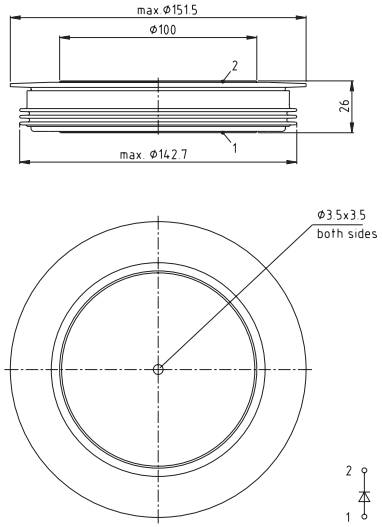
D120.26K



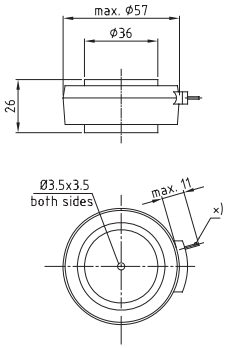
D120.35K



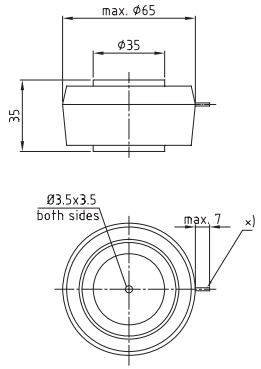
D150.26K



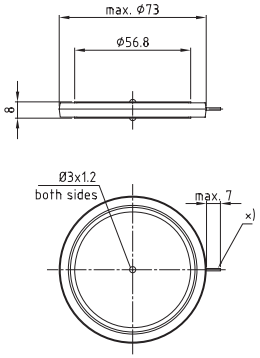
I57.26



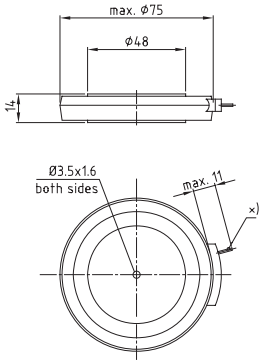
I65.35



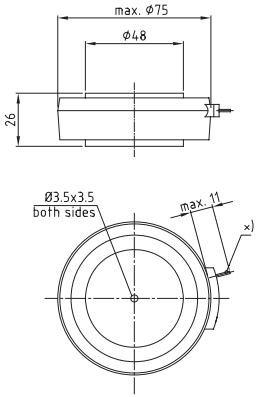
I72.8



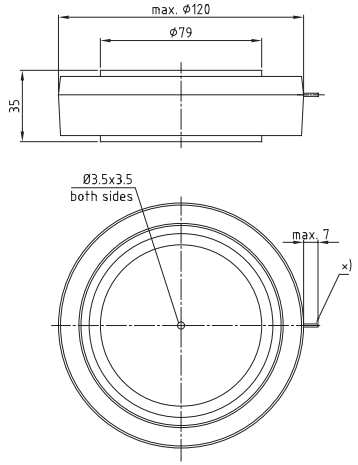
I75.14



I75.26

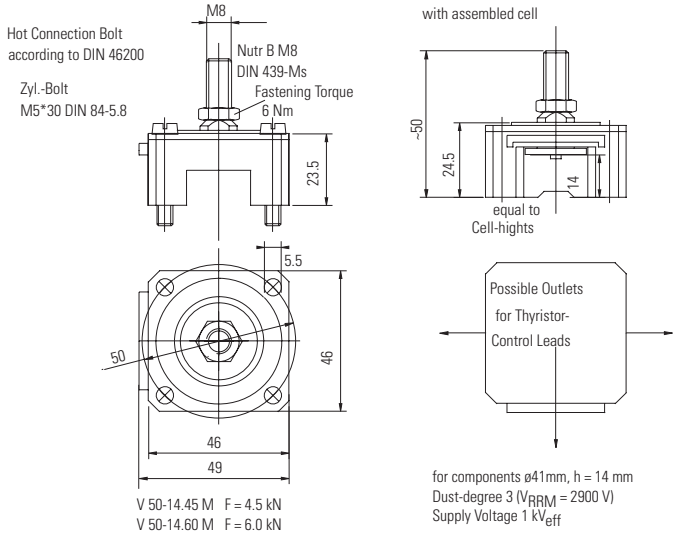


I120.35



X) = evacuation pipe

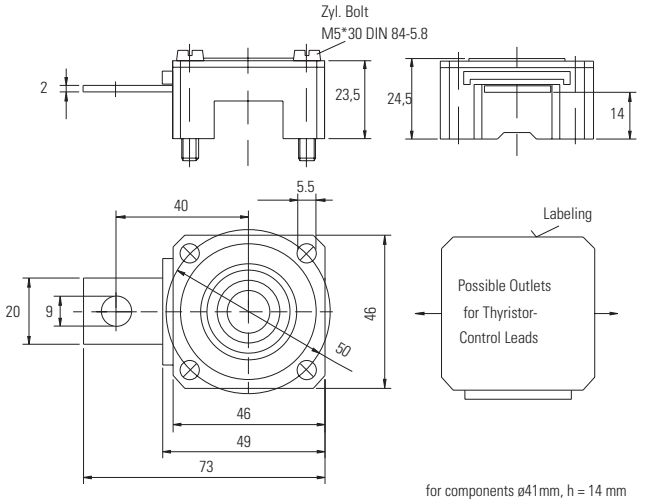
V50..M



V 50-14.45 M F = 4.5 kN
V 50-14.60 M F = 6.0 kN

for components ø41mm, h = 14 mm
Dust-degree 3 (V_{RRM} = 2900 V)
Supply Voltage 1 kV_{eff}

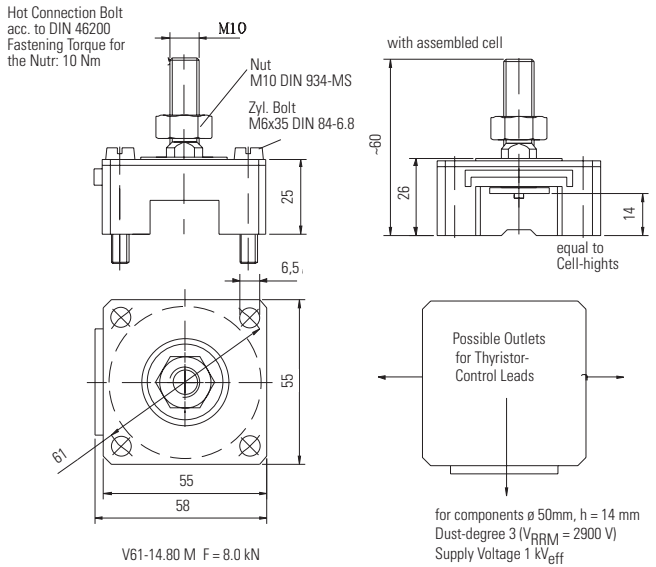
V50..N



V 50-14.45 N F = 4.5 kN
V 50-14.60 N F = 6.0 kN

for components ø41mm, h = 14 mm
Dust-degree 3 (V_{RRM} = 2900 V)
Supply Voltage 1 kV_{eff}

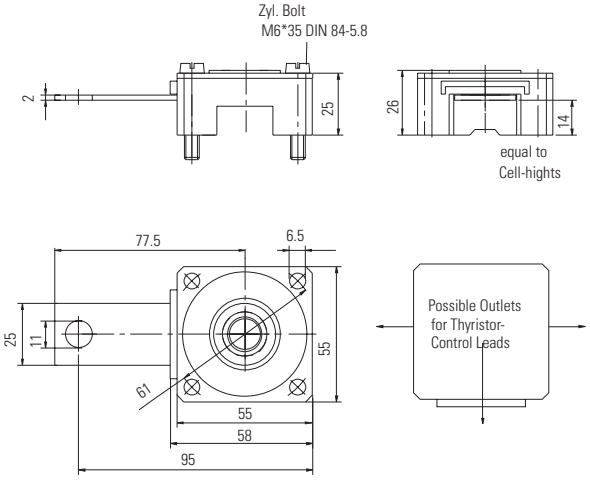
V61..M



V61-14.80 M F = 8.0 kN

for components ø 50mm, h = 14 mm
Dust-degree 3 (V_{RRM} = 2900 V)
Supply Voltage 1 kV_{eff}

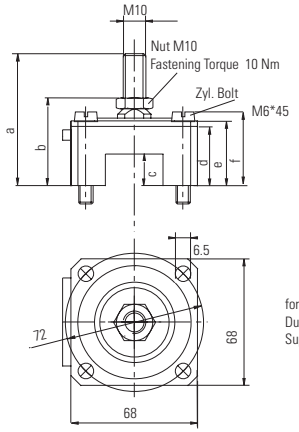
V61..N



V61-14.80 N F = 8 kN
V61-14.100 N F = 10 kN

for components ø 50mm, h = 14 mm
Dust-degree 3 (V_{RRM} = 2900 V)
Supply Voltage 1 kV_{eff}

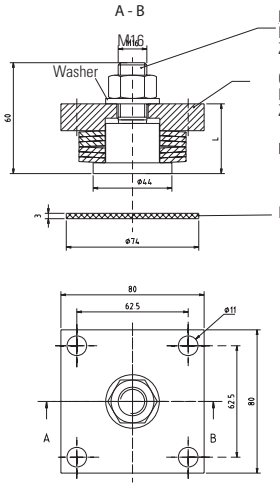
V 72



for components ø60mm, h = 14/26 mm
Dust-degree 3 (V_{RRM} = 4000/5000 V)
Supply Voltage 1,4/1,8 kV_{eff}

Clamping device	c	l	a	b	d	e	f	F	U eff
V72-14.150M	14	45	68	49	32	36	40,5	15 kN	1400V
V72-26.150M	26	60	80	61	44	48	52,5	15 kN	1800V
V72-26.80 M	26	60	80	61	44	48	52,5	8 kN	1800V
V72-26.120M	26	60	80	61	44	48	52,5	12 kN	1800V
V72-26.120MS	26	60	80	61	44	49	53,5	12 kN	2100V

V 89



Bolt
DIN 267
Zn 8 gl c B (A3K)

Clamping plate
DIN 267
Zn 8 gl c B (A3K)

pre-pressed power unit

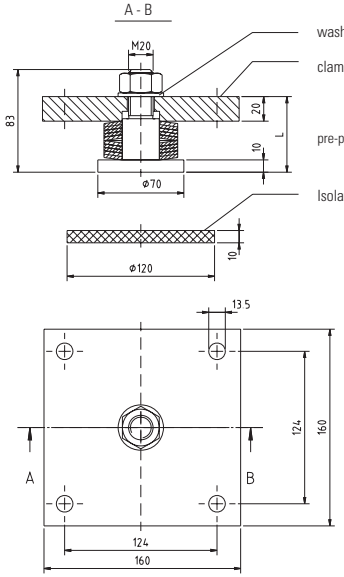
Isolating disc

mounting instructions:
- part are to be centered
- the clamping plate must be fixed
  equally with 4 Bolts M10 - 8.8 (not included)
  until the washer is untight up to a gap of 0.2 mm.
- glue untightened washer to avoid noises

For max. 2 kVeff applications
Dust-degree 3
For higher voltage on request
For components D = 75 mm

Type	Mat.-No.	clamping force	L
V89-26.400N	6921	40KN	38
V89-26.300N	3586	30KN	39
V89-26.170N	12784	17KN	40

V 176



washer

clamping plate

pre-pressed power unit

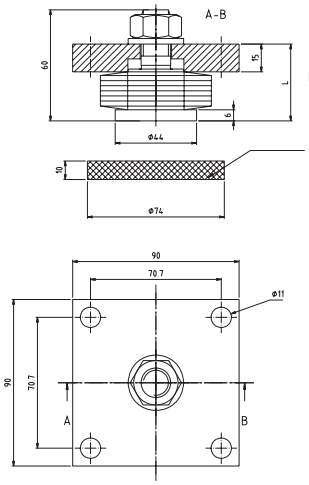
Isolating disc

mounting instructions:
- part are to be centered
- the clamping plate must be fixed
  equally with 4 Bolts M12 - 8.8 (not included)
  until the washer is untight up to a gap of 0.2 mm.
- glue untightened washer to avoid noises

For max. 2,5 kVeff applications
Dust-degree 3
For components D = 150 mm

Type	Mat.-No.	clamping force	L
V176-35.650N	19610	65KN	57.5
V176-35.500N	19611	50KN	58.5
V176-35.400N	19612	40KN	59.5

V 100



pre-pressed power unit

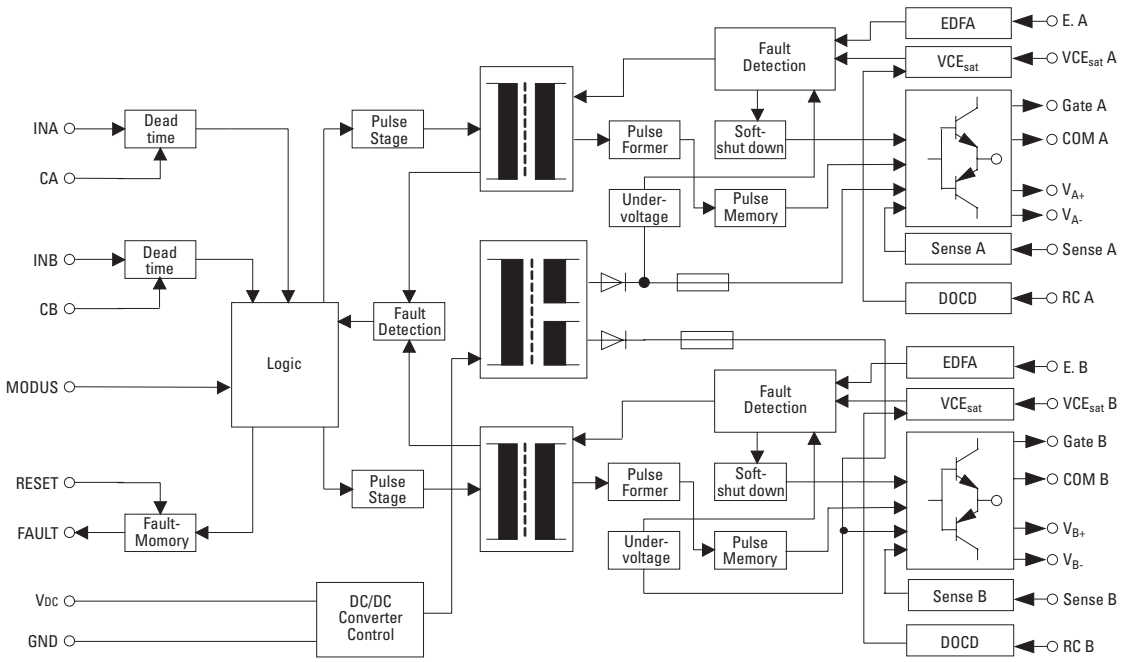
Isolating disc

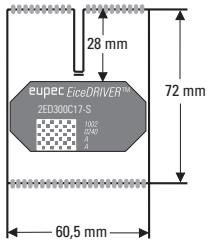
mounting instructions:
- part are to be centered
- the clamping plate must be fixed
  equally with 4 Bolts M12 - 8.8 (not included)
  until the washer is untight up to a gap of 0.2 mm.
- glue untightened washer to avoid noises

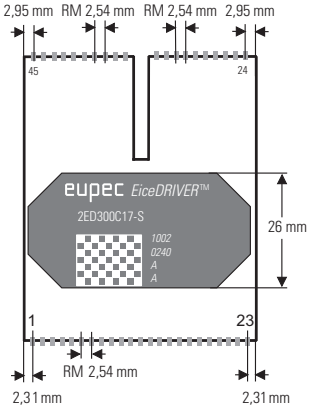
For max. 2,5 kVeff applications
Dust-degree 3
For components D = 75 mm

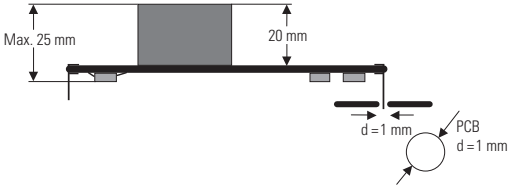
Type	Mat.-No.	clamping force
V100-35.200N	23551	20KN

EiceDRIVER™ 2ED300C17-S / 2ED300C17-ST



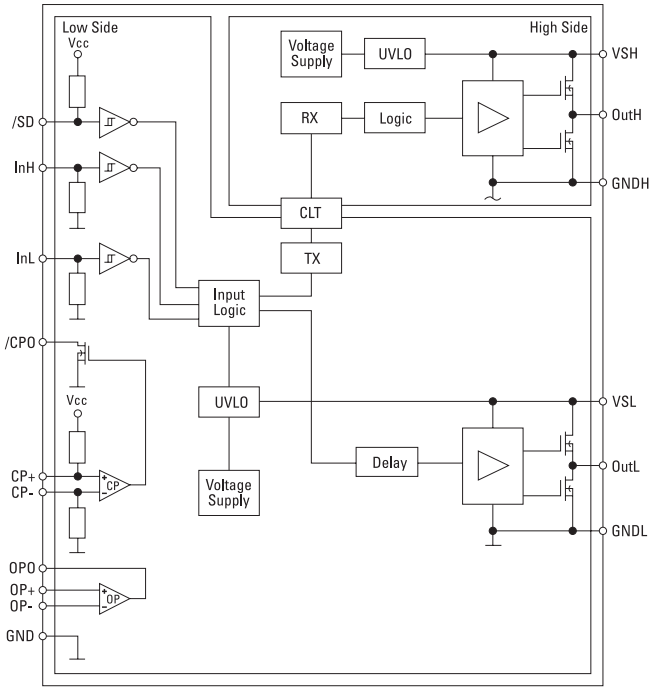


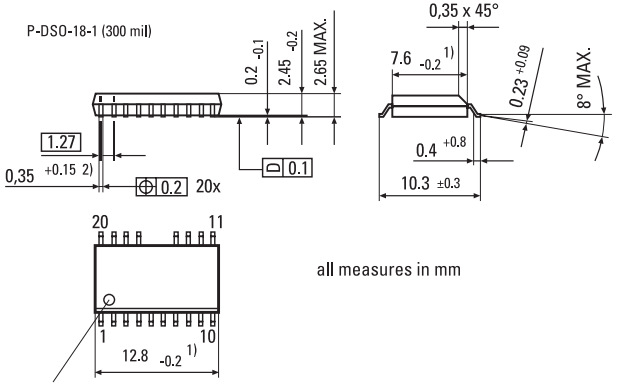




Clearance distance and creep page Primary/Secondary >15 mm
Clearance distance Secondary/Secondary > 6 mm
Creep page Secondary/Secondary > 14 mm

EiceDRIVER™ 2ED020I12-F

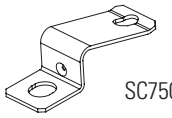
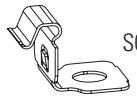




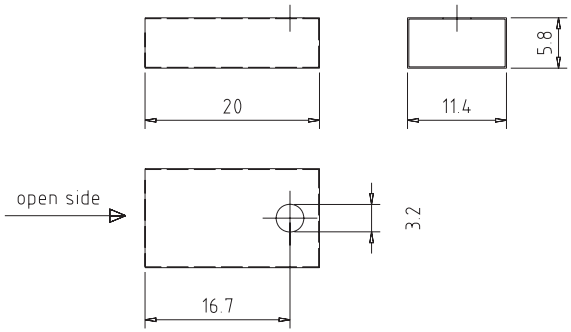
all measures in mm

1) Does not include plastic or metal protrusions of 0.15 max. per side
2) Does not include dambar protrusion of 0.05 max. per side

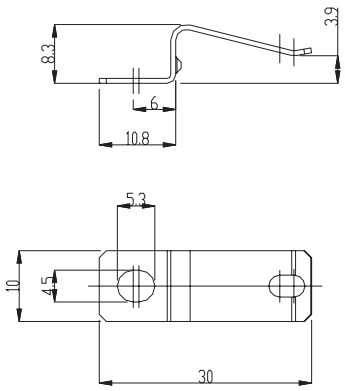
Mounting Hardware for EasyPIM™, EasyPACK, EasyBRIDGE and EasyDUAL Modules

	Suitable for	Type	Outline	Part-No.
 SC750	Easy750 housing	ScrewClamp Easy750	SC750	24126
	Easy750housing	IsolationCap Easy750	IC750	27332
 SC1	Easy1 housing	ScrewClamp Easy1	SC1	23088
 SC2	Easy2 housing	ScrewClamp Easy2	SC2	23089

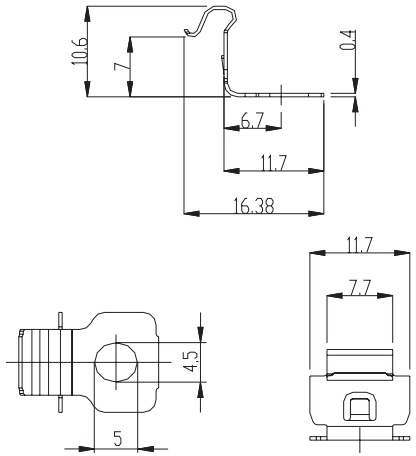
IC750



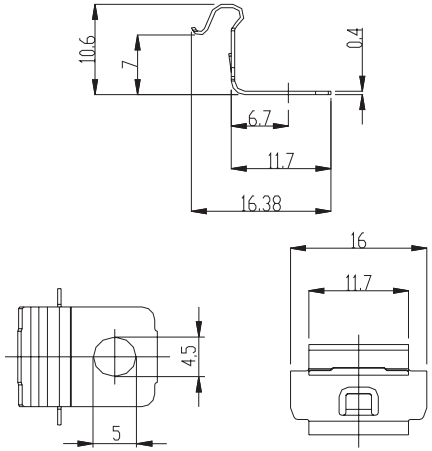
SC750



SC1



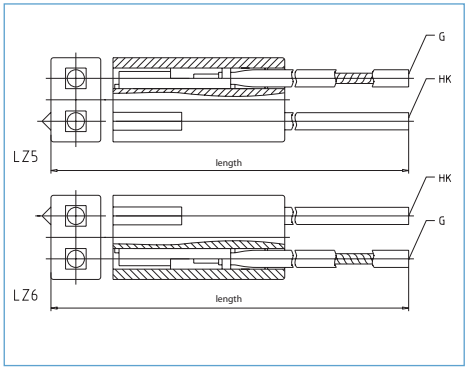
SC2



Gate Leads for PowerBLOCK Thyristor Modules

Gate leads must be ordered separately

Baseplate	connection to	connection to	color	length [mm]	Part.no	Outline
30 mm	5 / 4	G1/HK1	G yellow / HK red	250	28118	LZ 5
	6 / 7	G2/HK2	G yellow / HK red	250	28119	LZ 6
34, 50, 60 mm	5 / 4	G1/K1	G yellow / HK red	250	28128	LZ 5
	6 / 7	G2/K2	G yellow / HK red	250	28129	LZ 6
50 mm Single	5 / 4	G1/K1	G yellow / HK red	250	28128	LZ 5
70 mm	5 / 4	G1/K1	G yellow / HK red	250	28128	LZ 5
34, 50, 60 mm	5 / 4	G1/K1	G yellow / HK red	470	28133	LZ 5
	6 / 7	G2/K2	G yellow / HK red	470	28134	LZ 6
50 mm Single	5 / 4	G1/K1	G yellow / HK red	470	28133	LZ 5
70 mm	5 / 4	G1/K1	G yellow / HK red	470	28133	LZ 5



lead material: silicon cord type SiFF 0,5mm²

Mounting Hardware for Modules

Type	Content	Quantity	Part-No.
IsoPACK™ 42	M5x11	30	4195
IsoPACK™ 54	M6x15	30	4210

Standard Gate Leads for Disc Type Devices

Leads and gate leads must be ordered separately

Disc outline/page	Material	Mat. no.	Connection	Color	Length mm	
T41.14/103	epoxy	2385	HK	red	235	1)
T50.14/103		2386	G	yellow	235	
T60.14/103	epoxy	2387	HK	red	235	1)
T75.14/103		2386	G	yellow	235	
T57.26/103						
T75.26/103						
T100.26/103						
T100.35/103						
T110.26/104						
T110.35/104						
T60.14/103	epoxy	12511	HK	red	600	2)
T75.14/103		12510	G	yellow	600	
T57.26/103						
T75.26/103						
T100.26/103						
T100.35/103						
T110.26/104						
T110.35/104						
T57.26K/104	ceramic	2387	HK	red	235	1)
T58.26K/104		2386	G	yellow	235	
T75.26K/104						
T76.26K/104						
T76.35K/104						
T57.26K/104	ceramic	12511	HK	red	600	2)
T58.26K/104		12510	G	yellow	600	
T75.26K/104						
T76.26K/104						
T76.35K/104						
T120.26K/105	ceramic	14232	HK	red	1000	2)
T120.35K/105		14231	G	white	1000	
T150.26K/105						
T150.35K/105						
T172.35K/105						

1) with plug 6,3 x 1 mm at the free ends – lead material: silicon cord type SiFF 0,5 mm^2

2) without plug at the free ends – lead material: teflon cord type FEP 0,5 mm^2

Clamping Force (kN) and Disc Diameter (mm)

Phase control thyristors			Phase control thyristors			Phase control thyristors			Fast thyristors		
Typ	kN	mm	Typ	kN	mm	Typ	kN	mm	Typ	kN	mm
T 178 N	2,5 - 5	41	T 739 N	15 - 24	75	T 2001 N	36 - 52	120	Fast Thyristors		
T 201 N	7 - 12	58	T 821 N	27 - 40	100	T 2009 N	36 - 52	110			
T 218 N	2,5 - 5	41	T 828 N	5,5 - 8	50	T 2101 N	36 - 52	120	T 128 F	3 - 6	41
T 298 N	3 - 6	41	T 829 N	12 - 29	75	T 2156 N	42 - 95	110	T 178 F	1,5 - 2,5	41
T 308 N	5 - 10	50	T 860 N	20 - 45	74	T 2159 N	42 - 95	110	T 188 F	3 - 6	41
T 348 N	2,5 - 5	41	T 869 N	20 - 45	75	T 2160 N	42 - 95	120	T 308 F	2,5 - 5	41
T 358 N	4 - 8	41	T 878 N	10,5 - 21	60	T 2161 N	45 - 65	120	T 318 F	5,5 - 10	50
T 378 N	4 - 8	41	T 879 N	10,5 -21	57	T 2351 N	45 - 65	120	T 408 F	5 - 10	50
T 379 N	10,5 - 21	57	T 901 N	15 - 24	75	T 2401 N	63 - 91	150	T 599 F	9 - 18	57
T 380 N	7,5 - 17,5	56	T 909 N	15 - 24	75	T 2476 N	42 - 95	110	T 600 F	9 - 18	56
T 388 N	5 - 10	50	T 929 N	20 - 45	75	T 2479 N	42 - 95	110	T 698 F	5,5 - 11	50
T 398 N	3 - 6	41	T 1039 N	16 - 32	75	T 2480 N	42 - 95	120	T 930 S	16 - 32	74
T 399 N	7,5 - 17,5	57	T 1049 N	12 - 24	75	T 2509 N	24 - 56	75	T 1052 S	16 - 32	74
T 458 N	7,5 - 17,5	60	T 1078 N	8 - 16	50	T 2563 N/T 2563 NH	90 - 130	170	T 1078 F	8 - 16	50
T 459 N	7,5 - 17,5	57	T 1081 N	36 - 52	120	T 2709 N	42 - 95	110			
T 501 N	15 - 24	75	T 1101 N	27 - 40	100	T 2710 N	42 - 95	120			
T 508 N	5 - 10	50	T 1189 N	16 - 32	75	T 2851 N/T3441 N	63 - 91	150	Fast Asymmetric Thyristors		
T 509 N	5 - 10	57	T 1201 N	36 - 52	120	T 2871 N	90 - 130	120			
T 551 N	15 - 24	75	T 1218 N	20 - 45	75	T 3101 N	63 - 91	150	A 158 S	2,5 - 4,5	41
T 553 N	15 - 24	75	T 1219 N	20 - 45	75	T 3159 N	42 - 95	110	A 198 S	2,5 - 4,5	41
T 568 N	4 - 8	41	T 1258 N	12 - 24	60	T 3401 N/T 3801 N	63 - 91	150	A 358 S	4,5 - 9	50
T 588 N	6 - 12	50	T 1329 N	20 - 45	75	T 3441 N	63 - 91	150	A 438 S	4,5 - 9	50
T 589 N	6 - 12	57	T 1401 N	36 - 52	120	T 3709 N	30 - 65	100			
T 618 N	6 - 12	50	T 1451 N	36 - 52	120	T 3801 N	63 - 91	150			
T 619 N	6 - 12	57	T 1500 N	24 - 56	74	T 4021 N	90 - 130	170			
T 639 N	9 - 18	57	T 1503 N/T 1503 NH	63 - 91	150	T 4003 N/T 4003 NH	90 - 130	170			
T 648 N	9 - 18	50	T 1509 N	24 - 56	75	T 4301 N	63 - 91	150			
T 649 N	9 - 18	57	T 1551 N	36 - 52	120	T 4771 N	63 - 91	150			
T 658 N	10,5 - 21	60	T 1589 N	30 - 65	100						
T 659 N	10,5 - 21	57	T 1601 N	36 - 52	120						
T 699 N	10,5 - 21	57	T 1851 N/T 1651 N	45 - 65	120						
T 708 N	10,5 - 21	60	T 1866 N	30 - 65	100						
T 709 N	12 - 29	75	T 1869 N	30 - 65	100						
T 718 N	9 - 18	60	T 1901 N/T 2251 N	63 - 91	150						
T 719 N	9 - 18	57	T 1929 N	42 - 95	110						
T 729 N	18 - 43	75	T 1971 N	36 - 52	120						
T 730 N	18 - 43	75	T 1986 N	30 - 65	100						
T 731 N	15 - 24	75	T 1989 N	30 - 65	100						

Clamping Force (kN) and Disc Diameter (mm)

Rectifier diodes			Rectifier diodes			Fast rectifier diodes			Fast rectifier diodes		
Typ	kN	mm	Typ	kN	mm	Typ	kN	mm	Typ	kN	mm
D 269 N	3,2 - 7,6	57	D 5809 N	30 - 60	75	D 138 S	1,7 - 3,4	41	D 1408 S	18 - 50	75
D 428 N	3,2 - 7,6	41	D 6001 N	55 - 91	150	D 178 S	1,7 - 3,4	41	D 1461 S	27 - 45	100
D 448 N	2,6 - 4,6	41	D 6247 N	30 - 45	60	D 188 S	1,7 - 3,4	41	D 1951 SH	55 - 91	150
D 471 N	10 - 16	58	D 8019 N	40 - 80	100	D 228 S	3,2 - 7,6	41			
D 660 N	6,1 - 14,7	41	D 8407 N	40 - 60	73	D 238 S	3,2 - 7,6	41			
D 711 N	10 - 16	58				D 291 S	9 - 13	58			
D 748 N	6,1 - 14,7	50	25 DN 06	4 - 8	25	D 348 S	3,2 - 7,6	41			
D 749 N	10 - 24	57	38 DN 06	20 - 30	38	D 358 S	3,2 - 7,6	41			
D 758 N	3,2 - 7,6	41	46 DN 06	30 - 45	46	D 368 S	3,2 - 7,6	41			
D 798 N	6 - 14,7	50	46 DN 06 S 01	30 - 45	46	D 371 S	10 - 16	58			
D 849 N	10 - 24	57	56 DN 06	40 - 60	56	D 438 S	4,8 - 11,4	41			
D 850 N	10 - 24	56	56 DN 06 S0 1	40 - 60	56	D 440 S	4,8 - 11,4	56			
D 1029 N	10 - 24	57	65 DN 06	55 - 80	65	D 509 S	6 - 14,5	57			
D 1030 N	10 - 24	56	65 DN 06 S 01	55 - 80	65	D 648 S	6 - 14,5	50			
D 1049 N	10 - 24	57				D 649 S	6 - 14,5	57			
D 1069 N	14 - 34	75				D 658 S	6 - 14,5	50			
D 1481 N	15 - 36	75	D 2201 N	27 - 45	100	D 659 S	6 - 14,5	57			
D 1709 N	12 - 24	75				D 675 S	10 - 24	56			
D 1800 N	24 - 60	74				D 689 S	10 - 24	57			
D 1809 N	24 - 60	75				D 690 S	10 - 24	57			
D 2151 N	27 - 45	100				D 721 S	15 - 36	75			
D 2200 N	24 - 60	74				D 801 S	15 - 36	75			
D 2001 N	27 - 45	100				D 841 S	15 - 36	75			
D 2209 N	24 - 60	75				D 901 S	27 - 45	100			
D 2228 N	12 - 24	60				D 911 SH	27 - 45	100			
D 2601 N/D 2601 NH	36 - 52	120				D 921 S	27 - 45	100			
D 2650 N	24 - 60	74				D 931 SH	27 - 45	100			
D 2659 N	24 - 60	75				D 1031 SH	27 - 45	100			
D 2898 N	12 - 24	60				D 1131 SH	36 - 52	120			
D 3001 N/D 3041 N	36 - 52	120				D 1169 S	18 - 50	75			
D 3501 N	36 - 52	120				D 1170 S	8 - 50	74			
D 4201 N	36 - 52	120				D 1251 S	15 - 36	75			
D 4457 N	30 - 45	60				D 1121 SH	36 - 52	120			
D 4709 N	42 - 95	110				D 1331 SH	36 - 52	120			
D 5807 N	40 - 60	72				D 1381 S	27 - 45	100			

Letter Symbols/Kurzzeichen

B	DC current gain	Kollektor-Basis-Gleichstromverhltn.
FBSOA	forward biased safe operating area	Sicherer Vorwärts-Arbeitsbereich
f	frequency	Frequenz
f_o	repetition frequency	Wiederholfrequenz
F	clamping force	Anpresskraft
G	weight	Gewicht
I_C	maximum permissible DC collector current	höchstzulässiger Dauergleichstrom
I_{CAVM}	maximum permiss. average collector current	Kollektor-Dauergrenzstrom
I_{CES}	collector-emitter cut-off current	Kollektor-Emitter-Reststrom
I_{GES}	gate-leakage current	Gate-Emitter Reststrom
I_{EGS}	gate-leakage current	Emitter-Gate Reststrom
i_{CBO}	collector-base cut-off current	Kollektor-Basis-Reststrom
I_{CRM}	permissible repetitive peak collector current	höchstzulässiger periodischer Kollektor-Spitzenstrom
i_{EBO}	emitter-base cut-off current	Emitter-Basis-Reststrom
i_{FB}	forward base current	Vorwärts-Basisstrom
I_{FB}	maximum permissible peak forward current	höchstzul. Vorwärts-Basis-Spitzenstrom
i_{RB}	reverse base current	Rückwärts-Basisstrom
I_{RB}	maximum perm. peak reverse base current	höchstzulässiger Rückwärts-Basis-Spitzenstrom
i_D	forward off-state current	Vorwärts-Sperrstrom
i_G	gate current	Steuerstrom
I_{GD}	gate non trigger current	nicht zündender Steuerstrom
i_{GM}	peak gate current	Spitzensteuerstrom
I_{GT}	gate trigger current	Zündstrom
I_H	holding current	Haltestrom
I_L	latching current	Einraststrom
i_R	reverse current	Rückwärts-Sperrstrom
I_{RMS}	RMS current	Strom-Effektivwert
I_{RM}	peak reverse recovery current	Rückstromspitze
i_T/i_F	on-state current	Durchlassstrom
I_{TAV}/I_{FAV}	on-state current (average value)	Durchlassstrom (Mittelwert)
I_{TAVM}/I_{FAVM}	maximum average on-state current	Dauergrenzstrom
I_{TINT}/I_{FINT}	on-state current at intermittent duty	Durchlassstrom bei Aussetzbetrieb
I_{TM}/I_{FM}	on-state current (peak value)	Durchlassstrom (Spitzenwert)
$I_{T(OV)}/I_{F(OV)}$	on-state current at shorttime duty	Überstrom bei Kurzzeitbetrieb
$I_{T(OV)M}/I_{F(OV)M}$	maximum overload on-state current	Grenzstrom
$I_{T(RC)M}$	repetitive turn-on current (from snubber)	periodischerEinschaltstrom (aus RC)
I_{TRMSM}/I_{FRMSM}	maximum RMS on-state current	Durchlassstrom-Grenzeffektivwert
I_{TSM}/I_{FSM}	surge non repetitive on-state current	Stoßstrom-Grenzwert
$I_{F\,(max)}$	DC forward current	Dauergleichstrom
I_{FRM}	repetitve peak forward current	Periodischer Spitzenstrom
$\int i^2\,dt$	maximum rated value	Grenzlastintegral
di_G/dt	rate of rise of gate current	Steilheit des Steuerstromes
$di_T/dt/di_F/dt$	rate of rise of on-state current	Steilheit des Durchlassstromes
$(di/dt)_{cr}$	critical rate of rise of on-state current	kritische Stromsteilheit
L	inductance	Induktivität
M	tightening torque	Anzugsdrehmoment
P_{ON}	turn-on dissipation	Einschaltverlustleistung
P_{OFF}	turn-off dissipation	Ausschaltverlustleistung
P	power dissipation	Verlustleistung
P_D	forward off-state dissipation	Vorwärts-Sperrverlustleistung
P_G	gate dissipation	Steuerverlustleistung
P_R	reverse power dissipation	Rückwärts-Sperrverlustleistung
P_{RQ}	turn-off dissipation	Ausschaltverlustleistung
$P_{TT} + P_{RQ}$	switching dissipation	Schaltverlustleistung
P_T/P_F	on-state power dissipation	Durchlassverlustleistung
P_{TAV}/P_{FAV}	on-state power dissipation (average value)	Durchlassverlustleistung (arithmetischer Mittelwert)
P_{TT}	turn-on dissipation	Einschaltverlustleistung
P_{tot}	total power dissipation	Gesamtverlustleistung
Q_r	recovered charge	Sperrverzugsladung
Q_s	lag charge	Nachlaufladung
R	resistance	Widerstand
r_T	slope resistance	Ersatzwiderstand
R_{thCA}	thermal resistance, case to coolant	Wärmewiderstand Gehäuse-Kühlmittel
R_{thCK}	thermal resistance, case to heatsink	Übergangs-Wärmewiderstand
R_{thJA}	thermal resistance, junction to coolant	Gesamtwärmewiderstand
R_{thJC}	thermal resistance, junction to case	innerer Wärmewiderstand
RBSOA	reverse biased safe operating area	Sicherer Rückwärts-Arbeitsbereich
t	time	Zeit
T	period	Periodendauer
T_A	coolant temperature	Kühlmitteltemperatur
T_C	case temperature	Gehäusetemperatur

Letter Symbols/Kurzzeichen

T_{cop}	operating temperature	Betriebstemperatur
t_g	trigger pulse duration	Steuerimpulsdauer
t_{gd}	gate controlled delay time	Zündverzug
T_h	heatsink temperature	Kühlkörpertemperatur
t_p	current pulse duration (sinusoidal)	Strompulsdauer (Sinusform)
t_q	circuit commutated turn-off time	Freiwerdezeit
t_{rr}	reverse recovery time	Sperrverzugszeit
T_{vj}	junction temperature	Sperrschichttemperatur
$T_{vj\,max}$	maximum permissible junction temperature	höchstzul. Sperrschichttemperatur
t_w	current pulse duration (trapezoidal)	Stromflusszeit (Trapezform)
t_f	fall time	Fallzeit
$t_{fb\,min}$	minimum duration of forward base current	Mindestdauer des Vorwärtsbasisstroms
t_{off}	turn-off time	Abschaltzeit
t_{on}	turn-on time	Einschaltzeit
t_s	storage time	Speicherzeit
$T_{vj\,op}$	operating temperature	Betriebstemperatur
T_{st}	storage temperature	Lagertemperatur
v_D	forward off-state voltage	Vorwärts-Sperrspannung
v_{DM}	forward off-state voltage (peak value)	Vorwärts-Sperrspanng (Spitzenwert)
V_{DRM}	repetitive peak forward off-state voltage	periodische Vorwärtsspitzenspannung
V_{DSM}	non-repetitive peak forward off-state voltage	Vorwärts-Stoßspitzenspannung
v_G	gate voltage	Steuerspannung
V_{GD}	gate non trigger voltage	nicht zündende Steuerspannung
$V_{GE\,(th)}$	gate threshold voltage	Gate-Schwellenspannung
V_{GT}	gate trigger voltage	Zündspannung
V_{ISOL}	insulation test voltage	Isolat.-Prüfspannung
v_L	no-load voltage of trigger pulse generator	Leerlaufspannung des Steuergenerators
v_R	reverse voltage	Rückwärts-Sperrspannung

V_R	direct reverse voltage	Rückwärts-Gleichsperrspannung
V_{RG}	reverse gate voltage	Rückwärts-Steuerspannung
V_{RGM}	peak reverse gatevoltage	Rückwärts-Spitzensteuerspannung
v_{RM}	reverse voltage (peak value)	Rückwärts-Sperrspannung (Spitzenw.)
V_{RMS} V_{DC}	RMS or DC voltage value	Bemessungsspannung Effektivwert/Gleichspannung
V_{RRM}	repetitive reverse voltage	periodische Rückwärts-Spitzensperrspannung
$V_{RRM(C)}$	repetitive peak reverse voltage after commutation	periodische Spitzensperrspannung nach der Kommutierung
V_{RSM}	non-repetitive peak reverse voltage	Rückwärts-Stoßspitzenspannung
v_T/v_F	on-state voltage	Durchlassspannung
$V_{(TO)}$	threshold voltage	Schleusenspannung
V_M	repetitive peak voltage	periodische Spitzensperrspannung
$V_{CE\,sat}$	collector-emitter saturation emitter voltage	Kollektor-Emitter-Sättigungsspannung
$V_{CES,}$ V_{CE}	maximum permissible collector-voltage	höchstzulässige Kollektor-Emitter-Sperrspannung
dv_D/dt	rate of rise of forward off-state voltage	Steilheit der Vorwärts-Spannung
dv_R/dt	rate of rise of reverse voltage	Steilheit der Rückwärts-Spannung
$(dv/dt)_{cr}$	critical rate of rise of off-state voltage	kritische Spannungssteilheit
V_L	air quantity	Luftmenge
V_W	water quantity	Wassermenge
W	energy	Verlustenergie
W_{tot}	total energy	Gesamtverlustenergie
Z_{thCA}	transient thermal impedance, case to coolant	transienter äußerer Wärmewiderstand
Z_{thJA}	transient thermal impedance, junction to coolant	transienter Gesamtwärmewiderstand
Z_{thJC}	transient thermal impedance, junction to case	transienter innerer Wärmewiderstand
Θ	current conduct. angle	Stromflusswinkel

Type designations

Presspacks

T 930 S 18 T M C	
T	thyristor
D	diode
A	asymmetric thyristor
930	average on state current (A)
0	standard ceramic disc
1	high power ceramic disc
4	epoxy disc 19 mm high
6	epoxy disc 35 mm high
7	epoxy disc 8 mm high
8	epoxy disc 14 mm high
9	epoxy disc 26 mm high
3	light triggered thyristor, ceramic disc
N	phase control device
K	phase control diode with cathode on case (only flatbase or metric)
F	fast thyristor with central gate
S	fast thyristor with distributed gate, fast diode
U	fast diode with cathode on case (only flatbase or metric)
A	avalanche diode
B	avalanche diode with cathode on case (only flatbase or metric)
NH	Diode: soft recovery for high current pulses Thyristor: high turn-on di/dt capability
SH	softrecovery diode
18	repetitive peak off-state and reverse voltage in 10^2V
B	metric thread with cable
C	metric thread with solder pin
E	flat base
T	disc
	turn-off time:
A	8 µs
B	10 µs
C	12 µs
D	15 µs
S	18 µs
E	20 µs
F	25 µs
G	30 µs
K	40 µs
M	50 µs
P	55 µs
N	60 µs
T	80 µs

T 930 S 18 T M C	
U	120 µs
O	no guaranteed turn off time
1	on request
2	on request
	critical rate of off-state voltage
B	50 V/µs
C	500 V/µs
F	1000 V/µs
G	1500 V/µs
H	2000 V/µs
B01...n	contruction variation
S01...n	electrical selection

PowerBLOCK Modules

TT 162 N 16 K O F-K	
TT	with 2 thyristors
DD	with 2 diodes
ND, DZ, TZ	with 1 thyristor or 1 diode
TD, DT	with 1 thyristor and 1 diode
AD	with 1 asymmetric thyristor and 1 diode
162	average on state current (A)
N	phase control device
F	fast thyristor with central gate
S	fast thyristor with gate cathode interdigitated, fast diode
16	repetitive peak off-state and reverse voltage in 10^2V
K	mechanical construction: module
O	turn off time (see disk devices)
F	critical rate of rise of off-state voltage (see disk devices)
-K	design with common cathode
-A	design with common anode
B01...n	construction variation
S01...n	electrical selection

IGBT Modules

FF 400 R 33 KF x	example for a High-Power-Module
FZ	single switch with one IGBT and FWD
FF	half bridge (two IGBTs an FWDs)
FP	Power Integrated Module
FM	Matrix Module
FD/DF	chopper module
FB	Power Integrated Module with B4 rectifier
DD	dual diode module
F4	4-pack
FS	3 phase full bridge (6-pack)
400	max. DC-collector current (A)
R	reverse conducting
S	fast Diode
33	collector-emitter-voltage in 10^2 V
K/V/X/Y	mechanical construction: module
F	fast switching type
L	type with low v_{CEsat}
S	fast short tail IGBT Chip
E	low sat IGBT Chip
T	thin IGBT[3]
1 ... n	internal reference numbers
C	EmCon Diode
D	higher Diode current
-K	design with common cathode
G	module in big housing
I	integrated cooling
B1 ... n	Construction variation
S1 ... n	Electrical selection

BSM 100 GB 120 DL x	example for a standard module
BSM	switch with IGBT and FWD
BYM	diode module
100	max. DC-collector current (A)
GA	single switch with one IGBT and FWD
GB	half bridge (two IGBTs and FWDs)
GD	3 phase full bridge (6-pack)
GT	3 single switches an FWDs (Tripack)

BSM 100 GB 120 DL x	
GP	Power Intergrated Module
	B6/Break/Inverter
GAL	chopper module (diode on collector side)
GAR	chopper module (diode on emitter side)
A	single diode
120	collector-emitter-voltage in 10^1 V
DL	Typ with low v_{CEsat}
DN2	fast switching type
DLC	low loss type with EmCon Diode
S	with collector sense
G	Design Variation
Exxx	special type

Bridge Rectifiers and AC-Switches

TD B6 HK 135 N 16 L OF	
DD	diode module
TT	thyristor module
TD	thyristor/diode
B6	three phase bridge
W3	three phase AC-switch
C	fully controlled
H	half controlled
U	uncontrolled
K	common cathode of thyristors
105	output current (A) (W3C: RMS-current)
N	phase control thyristor/diode
16	repetitive peak off-state voltage in 100 V
L	IsoPACK
R	EconoBRIDGE without integr. brake chopper IGBT
RR	EconoBRIDGE with integr. brake chopper IGBT
O	no guaranteed turn-off time
F	critical rate of rise of off-state voltage

Typenbezeichnungen

Scheibenbauelemente

T 930 S 18 T M C

T	Thyristor
D	Diode
A	asymmetrischer Thyristor
930	Dauergrenzstrom (A)
0	Standardkeramik-Scheibe
1	Hochleistungskeramik-Scheibe
4	Epoxy-Scheibe 19mm hoch
6	Epoxy-Scheibe 35mm hoch
7	Epoxy-Scheibe 8mm hoch
8	Epoxy-Scheibe 14mm hoch
9	Epoxy-Scheibe 26mm hoch
3	lichtgezündeter Thyristor, Keramik-Scheibe
N	Netz-Bauelement
K	Netz-Diode mit Kathode am Gehäuse (nur Flachboden oder Gewindebolzen)
F	schneller Thyristor mit Zentralgate
S	schneller Thyristor mit verzweigtem Gate, schnelle Diode mit Aode am Gehäuse
U	schnelle Diode mit Kathode am Gehäuse (nur Flachboden oder Gewindebolzen)
A	Avalanche Diode mit Kathode am Gehäuse (nur Flachboden oder Gewindebolzen)
B	Avalanche Diode mit Kathode am Gehäuse (nur Flachboden oder Gewindebolzen)
NH	Diode mit softrecovery Verhalten für hohe Strompulse
	Thyristor zum einschalten von hohen Stromanstiegen
SH	Diode mit softrecovery Verhalten
18	periodische Vorwärts- und Rückwärts-Spitzensperrspannung in 10^2V
B	mit metrischem Gewinde u. Seil
C	mit metrischem Gewinde u. Lötöse
E	Flachboden
T	Scheibe
	Freiwerdezeit
A	8µs
B	10µs
C	12µs
D	15µs
S	18µs
E	20µs
F	25µs

T 930 S 18 T M C

G	30µs
K	40µs
M	50µs
P	55µs
N	60µs
T	80µs
U	120µs
0	keine garantierte Freiwerdezeit
1	auf Anfrage
2	auf Anfrage
	kritische Spannungssteilheit:
B	50V/µs
C	500V/µs
F	1000V/µs
G	1500/µs
H	2000V/µs
B01...n	Konstruktionsvariante
S01...n	elektrische Selektion

PowerBLOCK Module

TT 162 N 16 K O F-K

TT	mit 2 Thyristoren
DD	mit 2 Dioden
ND, DZ, TZ	mit 1 Thyristor oder 1 Diode
TD, DT	mit 1 Thyristor und 1 Diode
AD	mit 1 asymmetrischen Thyristor und 1 Diode
162	Dauergrenzstrom (A)
N	Netz-Element
F	schneller Thyristor mit Zentralgate
S	schneller Thyristor mit verzweigtem Gate, schnelle Diode
16	periodische Vorwärts- und Rückwärts-Spitzensperrspannung in 10^2V
K	mech. Ausführung: Modul
O	Freiwerdezeit (siehe Scheibenbauelemente)
F	kritische Spannungssteilheit (siehe Scheibenbauelemente)
-K	Ausführung mit gem. Kathode
-A	Ausführung mit gem. Anode
B01...n	Konstruktionsvariante
S01...n	elektrische Sonderspezifikation

IGBT Module

FF 400 R 33 KF x

FF	Beispiel für ein Hochleistungsmodul
FZ	Einzelschalter mit IGBT und Freilaufdiode
FF	Halbbrücke (zwei IGBT's und Freilaufdioden)
FP	Integriertes Modul mit IGBT, NTC, B6, Chopper
FM	Matrix Module
FD/DF	Choppermodul
FB	Integriertes Modul mit IGBT, NTC, und B4
DD	Doppeldiodenmodul
F4	Halbbrücke
FS	Vollbrücke
400	max. Kollektor-Dauergleichstrom (A)
R	rückwärts leitend
S	schnelle Diode
33	Kollektor-Emitter-Sperrspannung in 10^2 V
K/V/X/Y	mechanische Ausführung: Modul
F	schnell schaltender Typ
L	Typ mit niedriger v_{CEsat}
S	schneller short Tail IGBT Chip
E	sehr kleine Schwellenspannung IGBT
T	thin IGBT[3]
1 ... n	interne Referenznummer
C	EmCon Diode
D	größerer Dioden Strom
-K	Design mit common Kathode
G	Modul im größeren Gehäuse mit integrierter Kühlung
I	
B1 ... n	konstruktive Variationen
S1 ... n	elektrische Selektion

BSM 100 GB 120 DL x

BSM	Beispiel für ein Standardmodul
BYM	Schalter
100	Diodenmodul
GA	max. Kollektor-Dauergleichstrom (A)
GB	Einzelschalter mit IGBT und Freilaufdiode
GD	Halbbrücke (zwei IGBTs und Freilaufdioden)
GT	Vollbrücke
GP	3 Einzelschalter mit IGBT und Freilaufdiode
GAL	Integriertes Modul B6/ Break/WR
GAR	Choppermodul (Diode kollektorseitig)
A	Choppermodul (Diode emitterseitig)
120	Einzeldiode
DL	Kollektor-Emitter-Sperrspannung in 10^1 V
DN2	Typ mit niedriger v_{CEsat}
DLC	schnell schaltender Typ
S	low lost Typ mit EmCon Diode
G	mit Hilfskollektor
Exxx	Design Variation
	Sondertyp

Brückengleichrichter und Drehstromsteller

TD B6 HK 135 N 16 L OF

DD	Dioden-Modul
TT	Thyristor-Modul
TD	Thyristor/Dioden-Modul
B6	Sechspuls-Brücke
W3	Dreiphasen-Wechselweg
C	vollgesteuert
H	halbgesteuert
U	ungesteuert
K	gemeins. Kathode der Thyristoren
135	Ausgangsstrom (A) (W3C: Effektivstrom)
N	Netzthyristor/Diode
16	periodische Spitzensperrspannung in 100 V
L	IsoPACK
R	EconoBRIDGE ohne integr. Bremschopper IGBT
RR	EconoBRIDGE mit integr. Bremschopper IGBT
O	keine garantierte Freiwerdezeit
F	kritische Spannungssteilheit

Package Units
Bipolar Products

Standard Thyristors and Diodes	Housing Diameter	Packing Unit
Standard Epoxy Discs	Diode Housing 100mm	3
	Diode Housing 110mm	2
	Diode Housing 41mm	16
	Diode Housing 50mm	10
	Diode Housing 57mm	3
	Diode Housing 60mm	6
	Diode Housing 72mm	6
	Diode Housing 75mm	2
	Thyristor Housing 50mm	10
	Thyristor Housing 57mm	3
	Thyristor Housing 75mm	2
	Thyristor Housing100mm	3
	Thyristor Housing110mm	2
Standard Ceramic Discs	Diode Housing 41mm	16
	Diode Housing 56mm	3
	Diode Housing 58mm	3
	Diode Housing 74mm	2
	Thyristor Housing 120mm	2
	Thyristor Housing 56mm	3
	Thyristor Housing 74mm	2
Flatbase / Metric Types	Flatbase 36mm	10
	Flatbase 54mm	5
	Metric Wrench Size 27mm	10
	Metric Wrench Size 32mm	10
	Metric Wrench Size 42mm	5

	Housing Diameter	Packing Unit
PowerBLOCK	PB20 20mm	10
	PB25 25mm	8
	PB30 30mm	4
	PB34 34mm	5
	PB50 50mm	6
	PB60 60mm	4
	PB70 70mm	2

High Power Thyristors and Diodes	Housing Diameter	Packing Unit
Ceramic ETT Discs	Thyristor Housing 57mm	3
	Thyristor Housing 75mm	2
	Thyristor Housing 110mm	2
	Thyristor Housing 120mm	2
	Thyristor Housing 150mm	1
	Thyristor Housing 170mm	1
Ceramic LTT Discs	Thyristor Housing 75mm	3
	Thyristor Housing 150mm	1
	Thyristor Housing 170mm	1
Ceramic Diodes	Diode Housing 58mm	3
	Diode Housing 74mm	2
	Diode Housing 100mm	3
	Diode Housing 120mm	2
	Diode Housing 150mm	1

Rectifier Modules	Housing Width	Packing Unit
IsoPACK™ Bridge	42mm	4
	54mm	3
EconoBRIDGE™ Rectifier	45mm	10
EasyBRIDGE	25,4mm	40
	25,4mm	20

Package Units
IGBT Low Power Modules

EasyPIM™ Modules	Housing Size (overall)	Packing Unit
EasyPIM™ 750	25,4mm x 35,6mm	40
EasyPIM™ 1	33mm x 45,6mm	20
EasyPIM™ 1B	33mm x 45,6mm	24
EasyPIM™ 2	45,6mm x 55,9mm	20

EasyPACK Modules	Housing Size (overall)	Packing Unit
EasyPACK™ 750	25,4mm x 35,6mm	40
EasyPACK™ 1	33mm x 45,6mm	20
EasyPACK™ 1B	33mm x 45,6mm	24
EasyPACK™ 2	45,6mm x 55,9mm	20

IGBT Medium Power Modules

EconoPIM™ Modules	Housing Size (overall)	Packing Unit
EconoPIM™ 1	41mm x 80mm	16
EconoPIM™ 2	45mm x 107mm	16
EconoPIM™ 3	62mm x 122mm	16

EconoPACK™ Modules	Housing Size (overall)	Packing Unit
EconoPACK™ 1	41mm x 80mm	16
EconoPACK™ 2	45mm x 107mm	16
EconoPACK™ 3	62mm x 122mm	16

34mm Modules 62mm Modules	Housing Size (overall)	Packing Unit
Standard 34mm	34mm x 94mm	10
Standard 62mm	62mm x 106,4mm	10

EconoPACK™+ EconoDUAL™	Housing Size (overall)	Packing Unit
EconoPACK™+	162mm x 150mm	10
EconoDUAL™	152mm x 62mm	4

IGBT High Power Modules

IHM Modules	Housing Size (overall)	Packing Unit
IHM 73	73mm x 140mm	4
IHM 130	130mm x 140mm	2
IHM B 130	130mm x 140mm	2
IHM190	190mm x 140mm	1
IHM B 190	190mm x 140mm	1

IHV Modules	Housing Size (overall)	Packing Unit
IHV 130	130mm x 140mm	2
IHV 190	190mm x 140mm	1

Business Excellence due to Quality Management

In quality and reliability of our innovative products and services for power electronics we are a worldwide leading company.

We have developed and introduced a quality management which continuously supervises the stability and the performance of our production and business progresses. The qualification of our innovative products and services with the most progressive quality tools contributes effectively and efficiently to a positive business development.

Our quality management is permanently brought in line with the requests and expectations of our customers, partners and employees. The base are the standards DIN EN ISO 9001:2000 and the ISO/TS 16949, which includes the requirements of the automobile industry. In addition to this standards we use the EFQM-Model for Business Excellence to force the continual improvement of our company.

Our competent and qualified employees are motivated to fulfill the requests and wishes of our customers to their highest satisfaction at all times.

Business Excellence due to Environment Management

The use of our products leads to saving of electrical energy. Consequently we feel committed to protect the environment and the natural resources also at the manufacture of our products. Our measures in designing towards an environmental - protective way includes the production sequences of operations as well as the complete product spectrum.

In a responsible pollution control we find a social responsibility and at the same time an essential base for the continuous success of our enterprise. Success is an entrepreneurial aim at the development of new techniques and products, a criterion for the quality of our deliveries and performances and a suitable remedy for the defense of dangers and for the minimization of ambient environment risks.

We pursue our progress in the range of the work safety and the pollution control regularly, judge the achievements and lay down new main emphases and aims. Our ambient environment management system is certified to DIN EN ISO 14001.


DET NORSKE VERITAS
MANAGEMENT SYSTEM CERTIFICATE

Certificate No. CERT-00976-2004-AQ-HOU-IATF Rev. 1
IATF Certificate No. 0027767
Page 1 of 14

This is to certify that the Quality System of

INFINEON TECHNOLOGIES AG

at

St.-Martin-Str. 53, D - 81541 München

Has been found to conform to Technical Specification:
ISO/TS 16949:2002 Second Edition
having been audited in accordance with the:
Rules for the registration scheme for ISO/TS 16949:2002 - First edition.
This Certificate is valid for the following products/service ranges:
DEVELOPMENT, PRODUCTION AND SALES OF SEMICONDUCTOR COMPONENTS

Place and date: Houston, Texas, 25 June 2004
This certificate is valid until: 24 June 2007
Initial Certification Date: 25 June 2004

Doug Sutton
Management Representative
Det Norske Veritas Certification, Inc.

Thomas Ring
Lead Auditor

DET NORSKE VERITAS CERTIFICATION, INC., 16340 Park Ten Place, Suite 100, Houston, TX 77084 USA TEL: (281) 721-6800 FAX: (281) 721-6801


CERTIFICATE

DNV ZERTIFIZIERUNG UND UMWELTGUTACHTER GMBH

certifies that the company

Infineon technologies

Infineon Technologies AG
St.-Martin-Str. 53
D - 81541 München

as well as the sites and remote locations listed on the following page

has established an environmental management system in conformity with:

EN ISO 14001 : 1996

This Certificate is valid for:

Development, production and sales of semiconductor components

This Certificate is valid until: 2006-01-01

Certificate-Registration-No.: CERT-08652-2000-AE-ESN-TGA

Essen, 2003-04-10

TGA-ZM-04-92-00

G. Schmatz
Lead Auditor


CERTIFICATE

DNV ZERTIFIZIERUNG UND UMWELTGUTACHTER GMBH

certifies that the company

Infineon technologies

Infineon Technologies AG
St.-Martin-Str. 53 in D - 81541 München

as well as the sites and remote locations listed on the following ten pages

has established a quality management system in conformity with

EN ISO 9001 : 2000

This Certificate is valid for:

Development, production and sales of semiconductor components

Further clarifications regarding the scope of this certificate and the applicability of ISO 9001 : 2000 requirements may be obtained by consulting the certified company.

This Certificate is valid until: 2006-02-28

Certificate-Registration-No.: CERT-08650-2000-AQ-ESN-TGA

Essen, 2004-05-05

TGA-ZM-004/92-00

Essen, 2004-05-03

T. Beck
Technical Support

This certificate replaces the edition of 2000-06-08.

Qualitätsmanagement

Qualität und Zuverlässigkeit unserer innovativen Produkte und Leistungen für die Leistungselektronik sind weltweit führend.

Wir haben ein Qualitätsmanagement entwickelt und eingeführt, das die Stabilität und die Leistung unserer Fertigungs- und Geschäftsprozesse kontinuierlich überwacht, unsere innovativen Produkte und Leistungen mit den fortschrittlichsten Qualitätswerkzeugen qualifiziert und in seiner effektiven und effizienten Umsetzung seinen Beitrag zu einer positiven Geschäftsentwicklung leistet.

Unser Qualitätsmanagement wird ständig den Anforderungen und Erwartungen unserer Kunden, Partner und Mitarbeiter angepasst und kontinuierlich verbessert. Grundlage dafür bilden die Normen

DIN EN ISO 9001:2000 sowie die ISO/TS 16949, welche die Forderungen der Automobilindustrie beinhalten. Weiterhin nutzen wir das EFQM-Modell für Business Excellence, um die ständige Verbesserung unseres Unternehmens zu unterstützen.

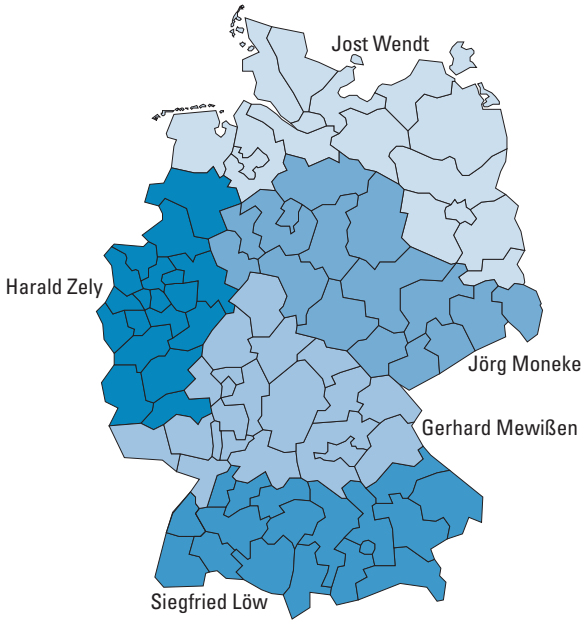
Unsere kompetenten Mitarbeiter sind qualifiziert und motiviert die Anforderungen und Wünsche unserer Kunden immer zur höchsten Zufriedenheit aller zu erfüllen.

Umweltmanagement

Der Einsatz unserer Produkte ermöglicht die Einsparung von elektrischer Energie. Konsequenterweise fühlen wir uns auch bei der Herstellung unserer Produkte zur Schonung der Umwelt und der natürlichen Ressourcen verpflichtet. Unsere Maßnahmen zur umweltgerechten Gestaltung umfassen die Produktionsabläufe sowie die gesamte Produktpalette.

In einem verantwortungsvollen Umweltschutz sehen wir eine gesellschaftliche Verantwortung und zugleich eine wesentliche Basis für den kontinuierlichen Erfolg unseres Unternehmens. Er ist ein unternehmerisches Ziel bei der Entwicklung neuer Techniken und Produkte, ein Kriterium für die Qualität unserer Lieferungen und Leistungen und ein geeignetes Mittel zur Abwehr von Gefahren und zur Minimierung von Umweltrisiken.

Wir verfolgen regelmäßig unsere Fortschritte im Bereich der Arbeitssicherheit und des Umweltschutzes, bewerten das Erreichte und setzen uns neue Schwerpunkte und Ziele. Unser Umwelt - Managementsystem ist zertifiziert nach DIN EN ISO 14001.



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Terms and Conditions of Delivery

All our deliveries and services are exclusively subject to the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry" recommended by the Zentralverband Elektrotechnik- und Elektroindustrie (ZVEI) e.V.– (Version January 2002), hereinafter referred to as "General Conditions of Supply". Conflicting or deviating terms and conditions of our customers are rejected, unless and to the extent we have given our explicit written consent. The General Conditions of Supply shall apply even where we have performed the delivery and service without expressly rejecting conflicting or deviating conditions of our customer.

Minimum Order Value

Orders will only be handled in whole packing units and multiple of these. For order-values below 250 Euro we will charge our customers an additional handling charge of 40 Euro.

Data in this Brochure and Product related Data

Specifically due to technological progress we have to reserve the right to change this brochure and/or product related date at any time.

The product data contained in this brochure is exclusively intended for technically trained customers and their staff. Our customers and their technical departments are required to evaluate the suitability of our products for the intended application and the completeness of the product data with respect to such application.

This brochure like the relevant product data sheet is describing the specifications of our products for which a warranty is granted. Any such warranty is granted exclusively pursuant to the above General Conditions of Supply. There will be no guarantee of any kind for the product, any of its characteristics and/or its specifications.

Customers that require product information in excess of the data given in this brochure or which concerns the specific application of our product, are asked to contact our closest sales office.

(www.infineon.com) For those who are specifically interested we may provide application notes.

Dangerous Substances and Applications

According to technical requirements our products may contain dangerous substances. For information on the types in question please contact our closest sales office. (www.infineon.com)

Should our customer intend to use the product in aviation applications, in health or live endangering or life support applications, he is required to give us notification.

For any such applications we urgently recommend
- to perform joint Risk and Quality Assessments
- the conclusion of Quality Agreements
- to establish joint measures of an ongoing product survey,

and notify to our customers that we may make delivery depended on the realization/establishment of any such measures.

If and to the extent necessary or required by applicable law, our customers are required to forward equivalent notices to your customers.

Lieferbedingungen

Für unsere Lieferungen und Leistungen gelten ausschließlich die „Allgemeinen Lieferbedingungen für Erzeugnisse und Leistungen der Elektroindustrie" des Zentralverbandes Elektrotechnik- und Elektroindustrie (ZVEI) e.V. (Stand: Januar 2002), nachfolgend auch „die Allgemeinen Lieferbedingungen" genannt. Entgegenstehende oder von den Allgemeinen Lieferbedingungen abweichende Bedingungen des Kunden erkennen wir nicht an, es sei denn, wir hätten ausdrücklich schriftlich ihrer Geltung zugestimmt. Die Allgemeinen Lieferbedingungen gelten auch dann, wenn wir in Kenntnis entgegenstehender oder von unseren Allgemeinen Lieferbedingungen abweichender Bedingungen des Kunden die Lieferung an den Kunden vorbehaltlos ausführen.

Mindestbestellwert

Aufträge werden nur in ganzen Verpackungseinheiten und vielfachen davon abgewickelt. Für Aufträge mit einem Bestellwert unter 250 Euro berechnen wir unseren Kunden eine zusätzliche Bearbeitungsgebühr von 40 Euro.

Katalog- und Produktdaten

Inhaltliche Änderungen des Katalogs, insbesondere der darin enthaltenen Produktdaten, bleiben – insbesondere infolge technologischer Fortentwicklungen – vorbehalten.

Die in diesem Katalog enthaltenen Produktdaten sind ausschließlich für technisch versierte Kunden und/oder Anwender bestimmt. Die Beurteilung der Eignung unserer Produkte für die Kundenanwendung sowie die Beurteilung der bereitgestellten Produktdaten für diese Anwendung obliegt dem Kunden bzw. den technischen Abteilungen des Kunden.

In diesem Katalog werden ebenso wie auf den einschlägigen Produktdatenblättern diejenigen Merkmale unserer Produkte beschrieben, für die wir eine liefervertragliche Gewährleistung übernehmen. Eine solche Gewährleistung richtet sich ausschließlich nach Maßgabe der vorgenannten Allgemeinen Lieferbedingungen. Garantien jeglicher Art werden von uns für die in diesem Katalog aufgeführten Produkte und deren Eigenschaften keinesfalls übernommen.

Sollte der Kunde von uns Produktinformationen benötigen, die über den Inhalt dieses Katalogs oder des Produktdatenblatts hinausgehen und insbesondere eine spezifische Verwendung und den Einsatz unseres Produktes betreffen, sollte er sich mit dem für ihn zuständigen Vertriebsbüro (www.infineon.com) in Verbindung setzen. Für Interessenten halten wir auch Application Notes bereit.

Gefahrenstoffe und gefährliche Anwendungen

Aufgrund der technischen Anforderungen könnten unsere Produkte gesundheitsgefährdende Substanzen enthalten. Bei Rückfragen zu den in den Produkten jeweils enthaltenen Substanzen sollte sich der Kunde ebenfalls mit dem für ihn jeweils zuständigen Vertriebsbüro (www.infineon.com) in Verbindung setzen.

Sollte der Kunde beabsichtigen, unsere Produkte in Anwendungen der Luftfahrt, in gesundheits- oder lebensgefährdenden oder lebenserhaltenden Anwendungsbereichen einzusetzen, bitten wir um Mitteilung.

Wir weisen darauf hin, dass wir für diese Fälle
- die gemeinsame Durchführung eines Risiko- und Qualitätsassessments
- den Abschluss von speziellen Qualitätssicherungsvereinbarungen
- die gemeinsame Einführung von Maßnahmen einer laufenden Produktbeobachtung

dringend empfehlen und gegebenenfalls die Belieferung von der Umsetzung solcher Maßnahmen abhängig machen.

Soweit erforderlich und/oder gesetzlich vorgeschrieben, hat der Kunde entsprechende Hinweise an dessen Abnehmer zu geben.