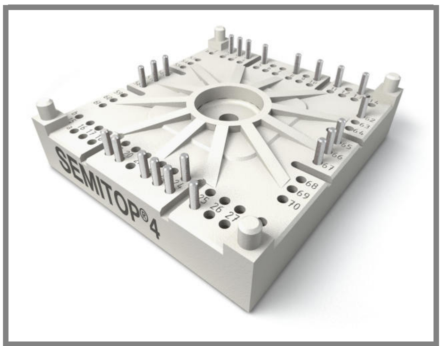
SK200GD066T



SEMITOP® 4

IGBT Module

SK200GD066T

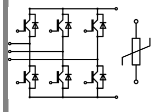
Preliminary Data

Features

- One screw mounting module
- Fully compatible with SEMITOP®1,2,3
- Improved thermal performances by aluminium oxide substrate
- Trench IGBT technology
- CAL technology FWD
- Integrated NTC temperature sensor

Typical Applications*

- Inverter up to 42 kVA
- Typ. motor power 18,5 kW



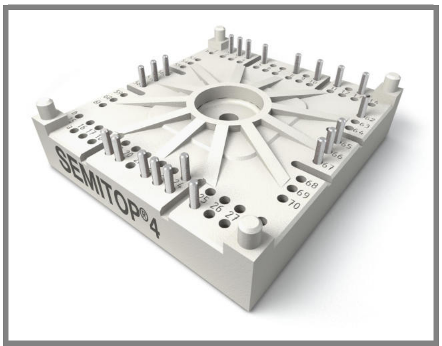
GD-T

Absolute Maximum Ratings T_s = 25 °C, unless otherwise specified

Symbol	Conditions		Values	Units
IGBT				
V_{CES}	T_j = 25 °C		600	V
I_C	T_j = 175 °C	T_s = 25 °C	174	A
		T_s = 70 °C	131	A
I_{CRM}	I_{CRM}= 2 x I_{Cnom}		400	A
V_{GES}			± 20	V
t_{psc}	V_{CC} = 360 V; $V_{GE} \leq$ 20 V; V_{CES} < 600 V	T_j = 125 °C	6	µs
Inverse Diode				
I_F	T_j = 175 °C	T_s = 25 °C	99	A
		T_s = 70 °C	79	A
I_{FRM}	I_{FRM}= 2 x I_{Fnom}		120	A
Module				
$I_{t(RMS)}$				A
T_{vj}			-40 ... +175	°C
T_{stg}			-40 ... +125	°C
V_{isol}	AC, 1 min.		2500	V

Characteristics T_s = 25 °C, unless otherwise specified

Symbol	Conditions		min.	typ.	max.	Units
IGBT						
$V_{GE(th)}$	V_{GE} = V_{CE}, I_C = 3,2 mA		5	5,8	6,5	V
I_{CES}	V_{GE} = 0 V, V_{CE} = V_{CES}	T_j = 25 °C			0,01	mA
		T_j = 125 °C				mA
I_{GES}	V_{CE} = 0 V, V_{GE} = 20 V	T_j = 25 °C			1200	nA
		T_j = 125 °C				nA
V_{CE0}		T_j = 25 °C		0,6	1	V
		T_j = 150 °C		0,7	0,8	V
r_{CE}	V_{GE} = 15 V	T_j = 25°C		2,75	4	mΩ
		T_j = 150°C		4,25	5,5	mΩ
$V_{CE(sat)}$	I_{Cnom} = 200 A, V_{GE} = 15 V	T_j = 25°$C_{chiplev.}$		1,45	1,9	V
		T_j = 150°$C_{chiplev.}$		1,7	2,15	V
C_{ies}	V_{CE} = 25, V_{GE} = 0 V	f = 1 MHz		12,2		nF
C_{oes}				0,76		nF
C_{res}				0,36		nF
$t_{d(on)}$	R_{Gon} = 16 Ω di/dt = 1720 A/µs	V_{CC} = 300V I_C= 200A T_j = 150 °C V_{GE}= -7/+15 V		144		ns
t_r				128		ns
E_{on}				13,9		mJ
$t_{d(off)}$	R_{Goff} = 16 Ω di/dt = 2575 A/µs			1040		ns
t_f				91		ns
E_{off}				12		mJ
$R_{th(j-s)}$	per IGBT			0,45		K/W



SEMITOP® 4

IGBT Module

SK200GD066T

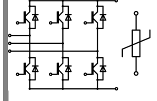
Preliminary Data

Features

- One screw mounting module
- Fully compatible with SEMITOP®1,2,3
- Improved thermal performances by aluminium oxide substrate
- Trench IGBT technology
- CAL technology FWD
- Integrated NTC temperature sensor

Typical Applications*

- Inverter up to 42 kVA
- Typ. motor power 18,5 kW



GD-T

Characteristics						
Symbol	**Conditions**		**min.**	**typ.**	**max.**	**Units**
Inverse Diode						
$V_F = V_{EC}$	I_{Fnom} = 100 A; V_{GE} = 0 V	T_j = 25 °$C_{chiplev.}$		1,3		V
		T_j = 150 °$C_{chiplev.}$		1,3		V
V_{F0}		T_j = 25 °C		0,95		V
		T_j = 150 °C		0,85		V
r_F		T_j = 25 °C		3,5		mΩ
		T_j = 150 °C		4,5		mΩ
I_{RRM}	I_F = 200 A	T_j = 150 °C		120		A
Q_{rr}	di/dt = 1720 A/µs			12		µC
E_{rr}	V_{CC}= 300V			3,4		mJ
$R_{th(j-s)D}$	per diode			0,8		K/W
M_s	to heat sink		2,5		2,75	Nm
w				60		g
Temperature sensor						
R_{100}	T_s =100°C (R_{25}=5kΩ)			493±5%		Ω

This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and written approval by SEMIKRON. We therefore strongly recommend prior consultation of our personal.

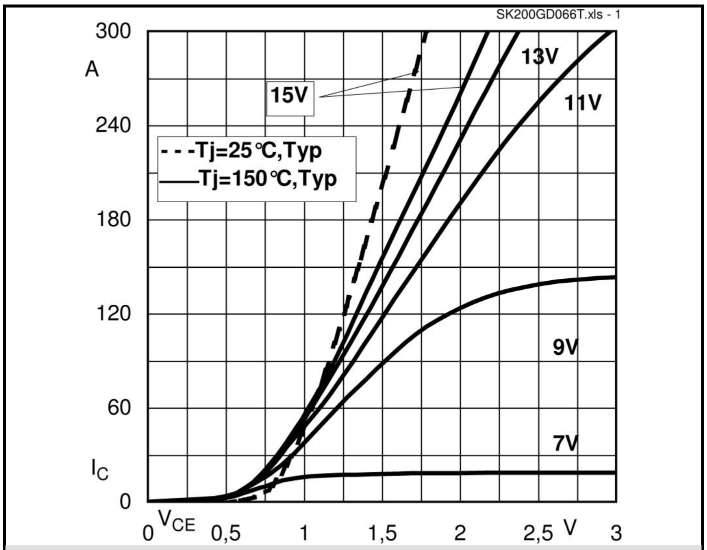


Fig. 1 Typ. output characteristic, inclusive $R_{CC'+EE'}$

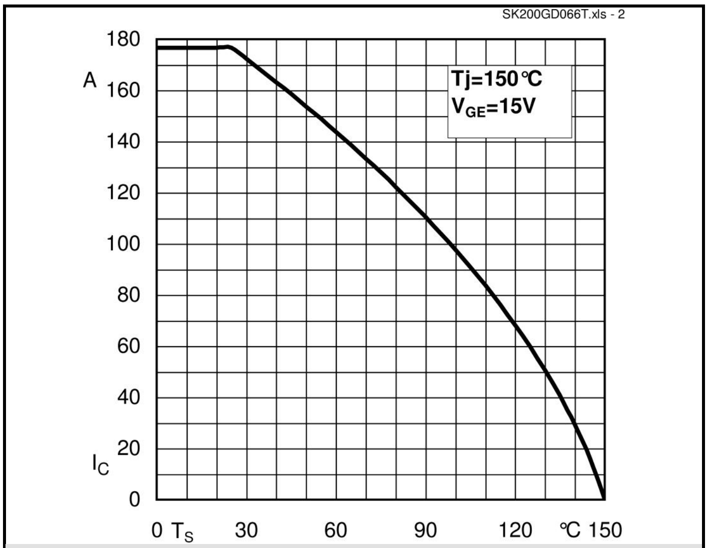


Fig. 2 Rated current vs. temperature $I_C = f(T_S)$

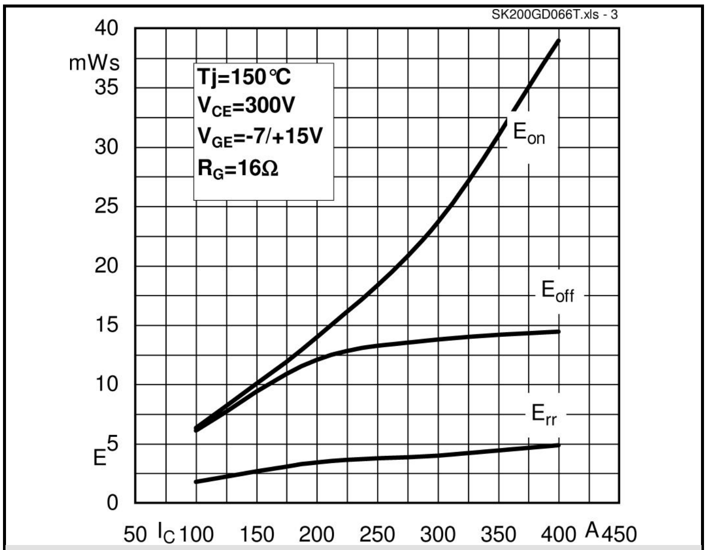


Fig. 3 Typ. turn-on /-off energy = f (I_C)

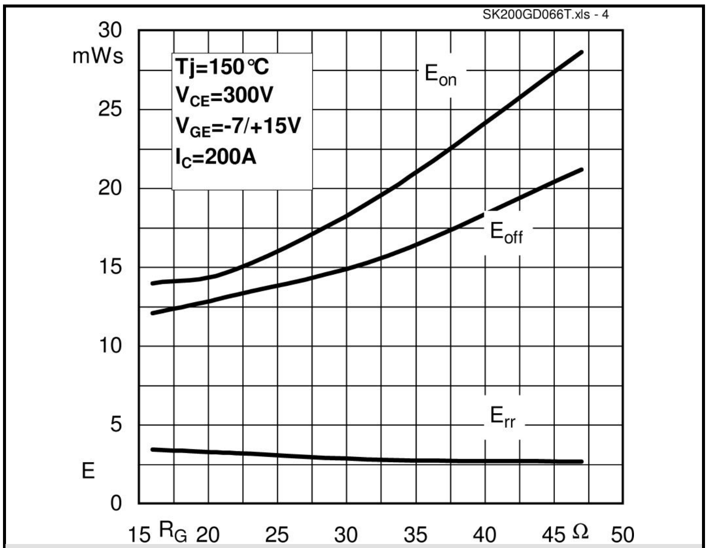


Fig. 4 Typ. turn-on /-off energy = f (R_G)

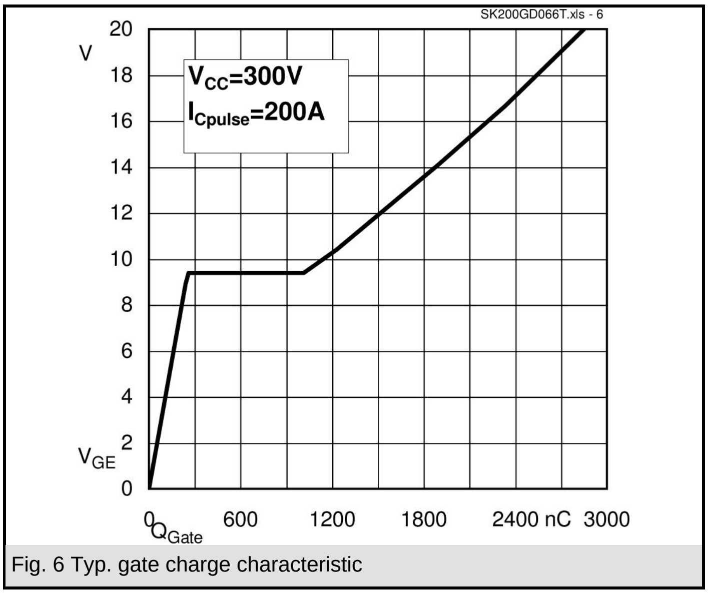


Fig. 6 Typ. gate charge characteristic

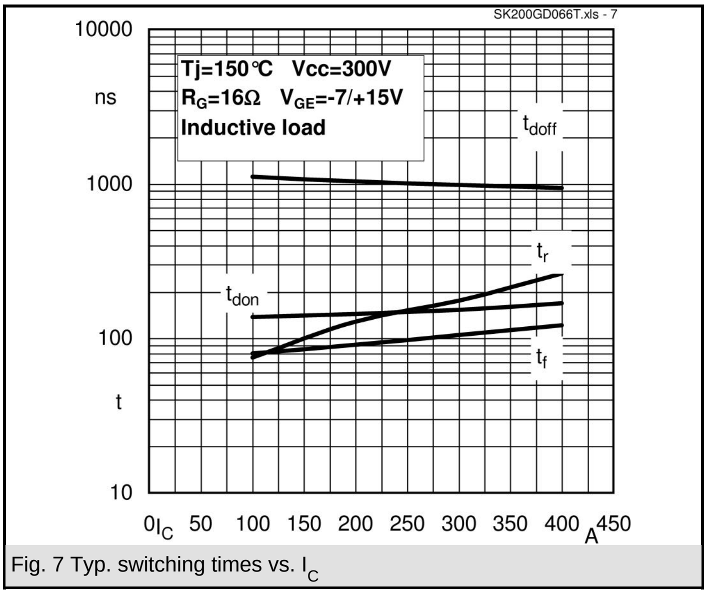


Fig. 7 Typ. switching times vs. I_C

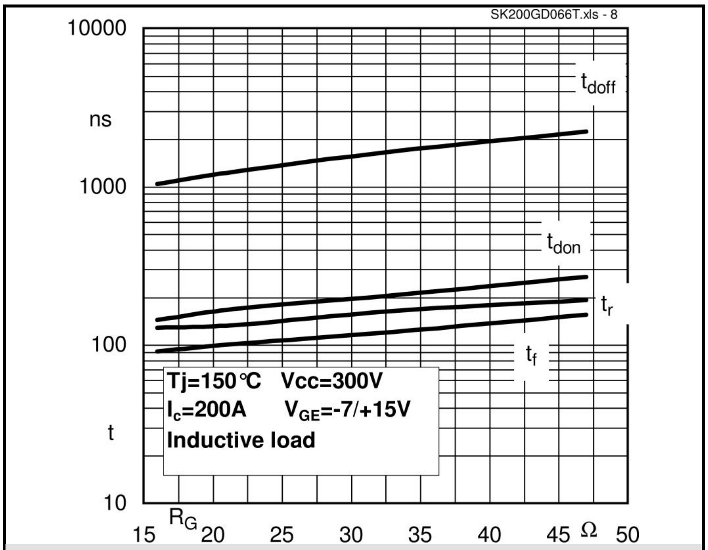


Fig. 8 Typ. switching times vs. gate resistor R_G

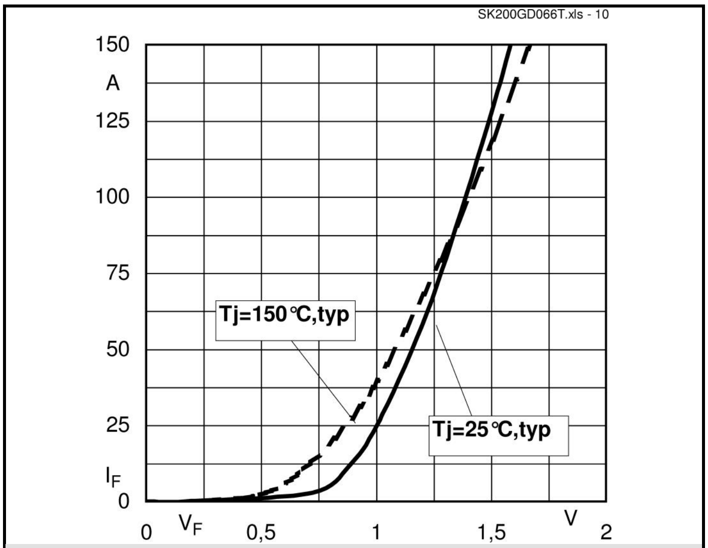
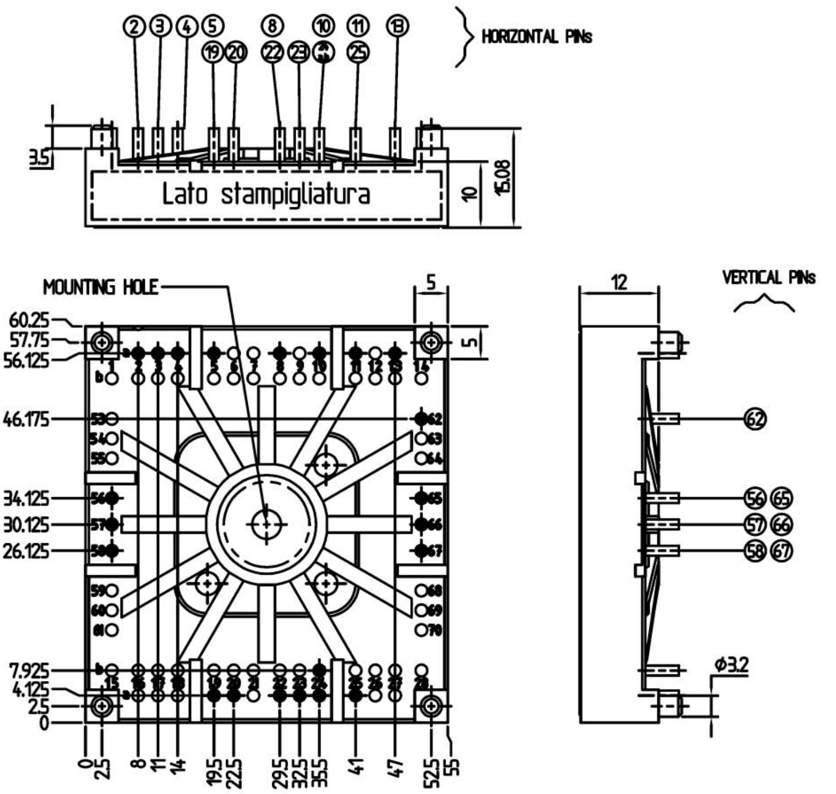
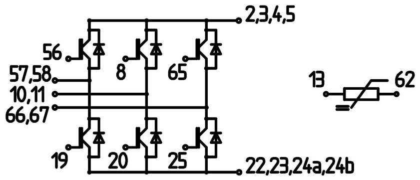


Fig. 10 CAL diode forward characteristic

UL recognized file no E 63 532



Case T74 (Suggested hole diameter for the solder pins in the circuit board: 2mm. Suggested hole diameter for the mounting pins in the circuit board: 3,6mm)



Case T 74 GD-T