

SK30GBB066T



SEMITOP[®] 3

IGBT Module

SK30GBB066T

Target Data

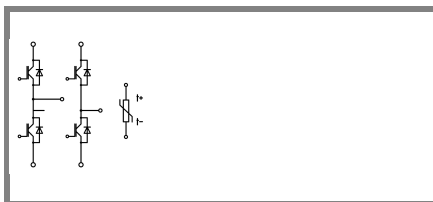
Features

- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DCB)
- Trench IGBT technology
- CAL HD technology FWD
- Integrated NTC temperature sensor

Typical Applications*

Remarks

- $V_{isol} = 3000V$ AC, 50Hz, 1s



GBB-T

Absolute Maximum Ratings		$T_s = 25\text{ °C}$, unless otherwise specified		
Symbol	Conditions	Values		Units
IGBT				
V_{CES}	$T_j = 25\text{ °C}$	600		V
I_C	$T_j = 175\text{ °C}$	$T_s = 25\text{ °C}$	40	A
		$T_s = 70\text{ °C}$	31	A
I_{CRM}	$I_{CRM} = 2 \times I_{Cnom}$	60		A
V_{GES}		± 20		V
t_{psc}	$V_{CC} = 360\text{ V}$; $V_{GE} \leq 20\text{ V}$; $T_j = 150\text{ °C}$ $V_{CES} < 600\text{ V}$	6		µs
Inverse Diode				
I_F	$T_j = 175\text{ °C}$	$T_s = 25\text{ °C}$	36	A
		$T_s = 70\text{ °C}$	28	A
I_{FRM}	$I_{FRM} = 2 \times I_{Fnom}$	60		A
I_{FSM}	$t_p = 10\text{ ms}$; half sine wave $T_j = 150\text{ °C}$	160		A
Module				
$I_{t(RMS)}$				A
T_{vj}		-40 ... +175		°C
T_{stg}		-40 ... +125		°C
V_{isol}	AC, 1 min.	2500		V

Characteristics		$T_s = 25\text{ °C}$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 0,43\text{ mA}$	5	5,8	6,5	V
I_{CES}	$V_{GE} = 0\text{ V}$, $V_{CE} = V_{CES}$	$T_j = 25\text{ °C}$	0,0016		mA
		$T_j = 125\text{ °C}$			mA
I_{GES}	$V_{CE} = 0\text{ V}$, $V_{GE} = 20\text{ V}$	$T_j = 25\text{ °C}$	300		nA
		$T_j = 125\text{ °C}$			nA
V_{CE0}		$T_j = 25\text{ °C}$	0,9	1,1	V
		$T_j = 150\text{ °C}$	0,8	1	V
r_{CE}	$V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}$	18,3	25	mΩ
		$T_j = 150\text{ °C}$	28	35	mΩ
$V_{CE(sat)}$	$I_{Cnom} = 30\text{ A}$, $V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}_{chiplev.}$	1,45	1,85	V
		$T_j = 125\text{ °C}_{chiplev.}$	1,65	2,05	V
C_{ies}	$V_{CE} = 25$, $V_{GE} = 0\text{ V}$	1,63		nF	
C_{oes}		0,11		nF	
C_{res}		0,05		nF	
Q_G	$V_{GE} = -7V...+15V$	275		nC	
$t_{d(on)}$	$R_{Gon} = 25\text{ Ω}$ $di/dt = 2335\text{ A/μs}$	$V_{CC} = 300V$ $I_C = 30A$	24		ns
t_r			27		ns
E_{on}			0,97		mJ
$t_{d(off)}$	$R_{Goff} = 25\text{ Ω}$ $di/dt = 2335\text{ A/μs}$	$T_j = 150\text{ °C}$ $V_{GE} = -7/+15V$	328		ns
t_f			54		ns
E_{off}			1,77		mJ
$R_{th(j-s)}$	per IGBT	1,65		K/W	



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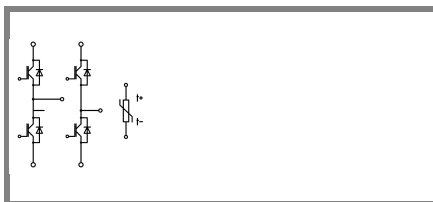
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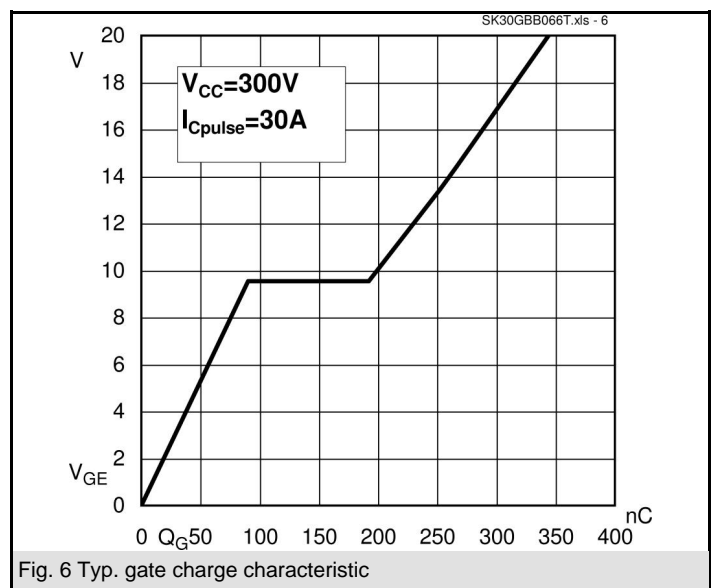
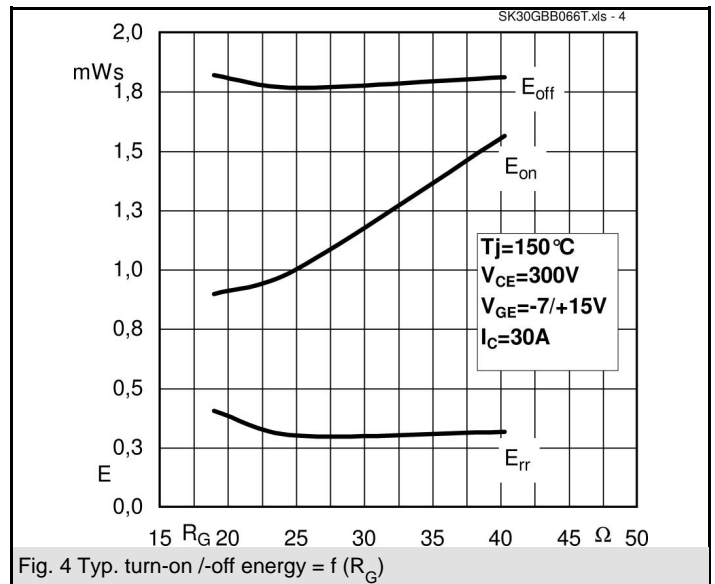
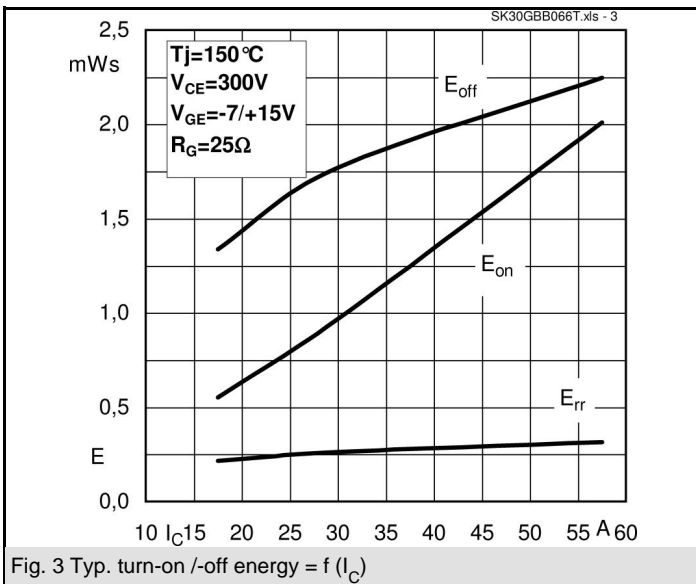
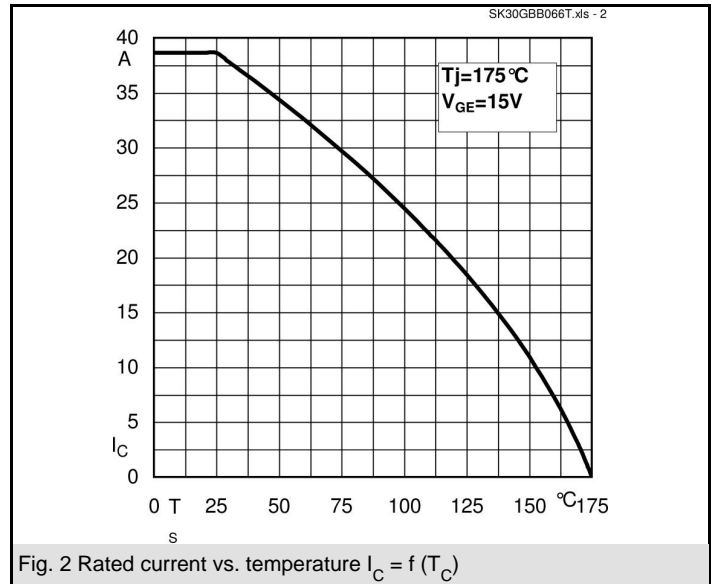
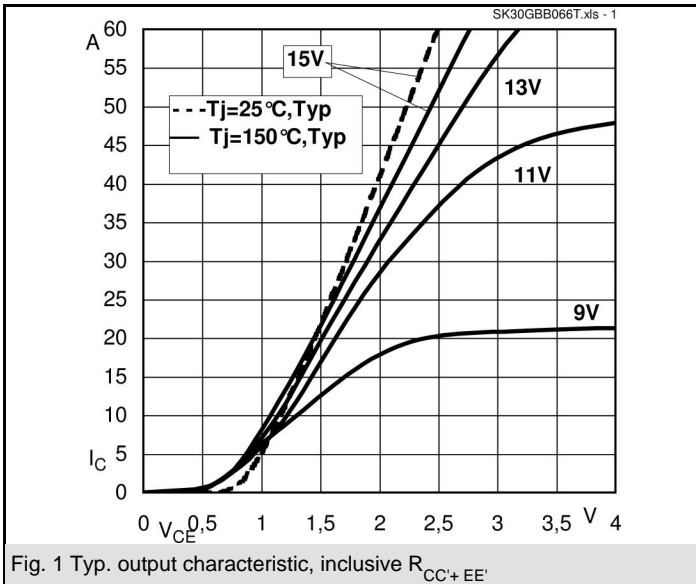
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Characteristics

Symbol	Conditions	min.	typ.	max.	Units
Inverse Diode					
$V_F = V_{EC}$	$I_{Fnom} = 30 A; V_{GE} = 0 V$	$T_j = 25 ^\circ C_{chiplev.}$	1,45	1,7	V
		$T_j = 150 ^\circ C_{chiplev.}$	1,45	1,7	V
V_{F0}		$T_j = 25 ^\circ C$	1	1,1	V
		$T_j = 150 ^\circ C$	0,9	1	V
r_F		$T_j = 25 ^\circ C$	15	20	mΩ
		$T_j = 150 ^\circ C$	18	23,3	mΩ
I_{RRM}	$I_F = 30 A$		30		A
Q_{rr}	$di/dt = 2335 A/\mu s$		1,6		μC
E_{rr}	$V_{CC} = 300V$		0,26		mJ
$R_{th(j-s)D}$	per diode		2,1		K/W
M_s	to heat sink	2,25		2,5	Nm
w			30		g
Temperature sensor					
R_{100}	$T_s = 100^\circ C (R_{25} = 5k\Omega)$		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.



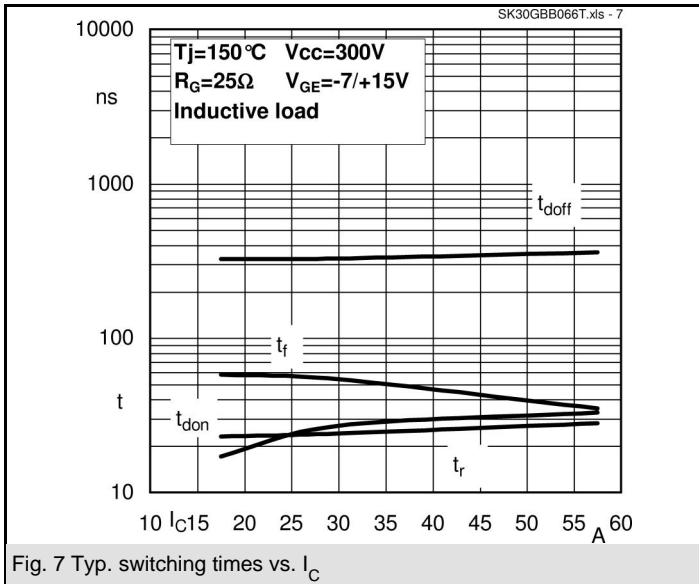


Fig. 7 Typ. switching times vs. I_C

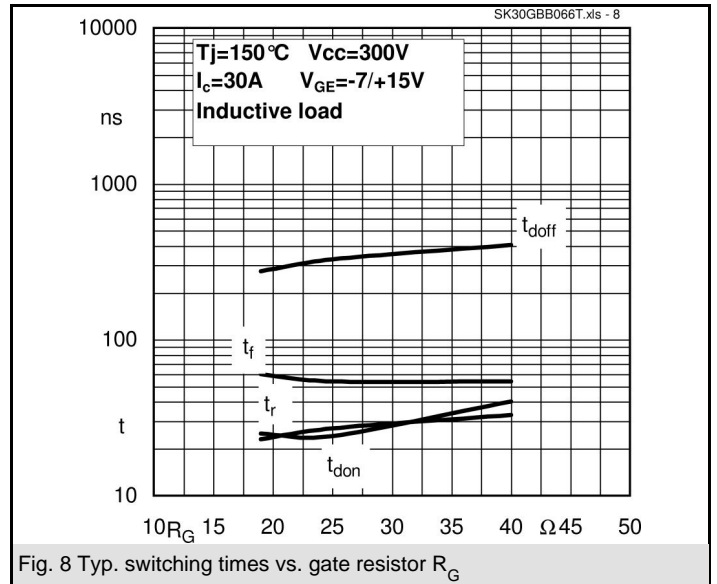


Fig. 8 Typ. switching times vs. gate resistor R_G

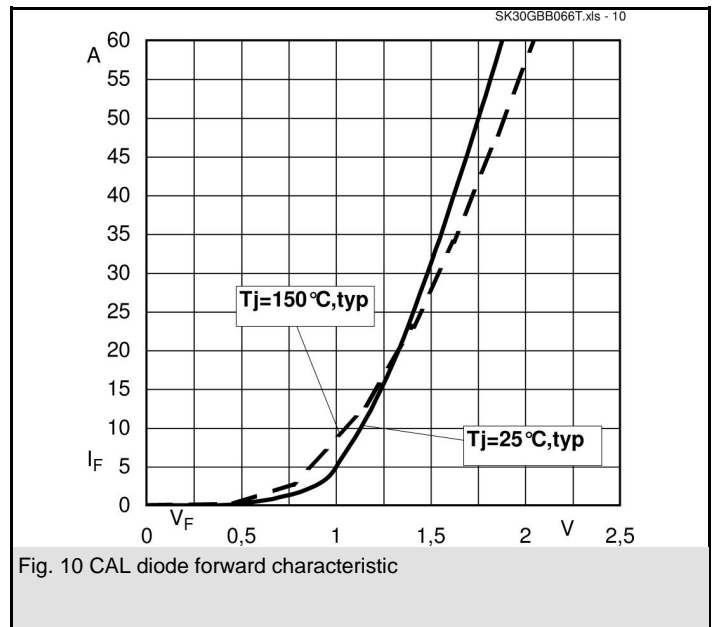
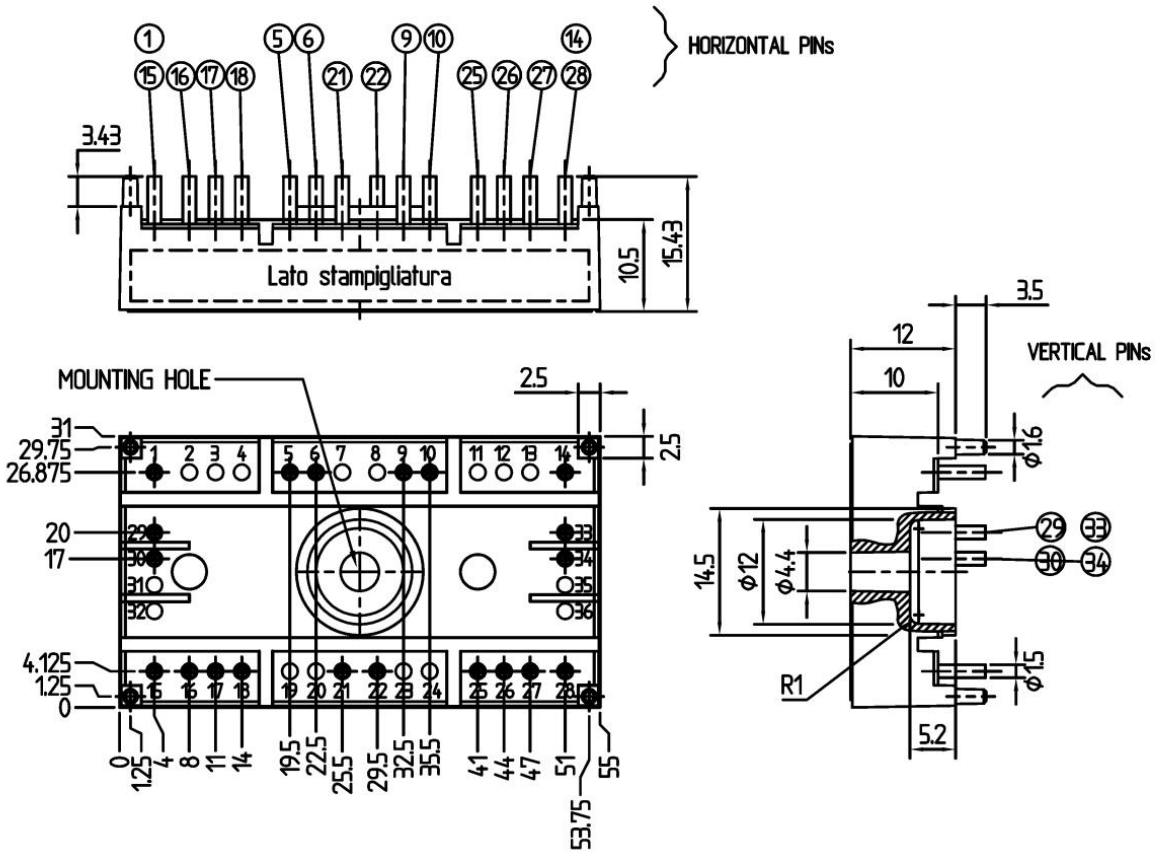
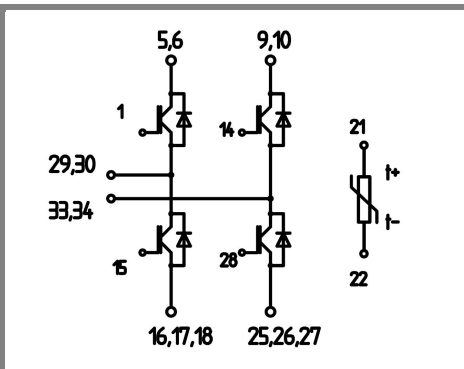


Fig. 10 CAL diode forward characteristic

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Case T98 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)



Case T 98

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