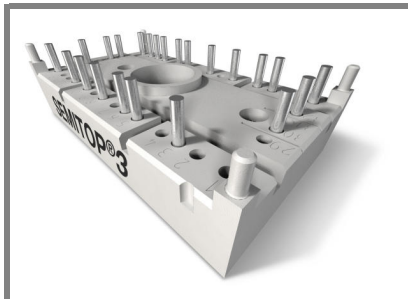


SK50GBB066T



SEMITOP® 3

IGBT Module

SK50GBB066T

Target Data

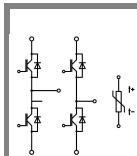
Features

- 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

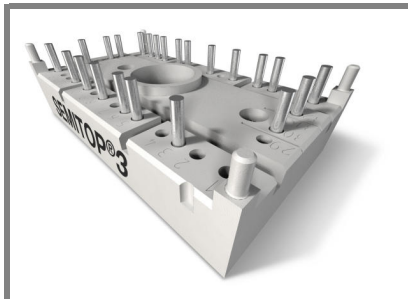


GBB-T

Absolute Maximum Ratings		$T_s = 25^\circ\text{C}$, unless otherwise specified		
Symbol	Conditions	Values		Units
IGBT				
V_{CES}	$T_j = 25^\circ\text{C}$	600		V
I_C	$T_j = 175^\circ\text{C}$	$T_s = 25^\circ\text{C}$	60	A
		$T_s = 70^\circ\text{C}$	50	A
I_{CRM}	$I_{CRM} = 2 \times I_{Cnom}$	100		A
V_{GES}		± 20		V
t_{psc}	$V_{CC} = 360\text{ V}; V_{GE} \leq 20\text{ V}; T_j = 150^\circ\text{C}$ $V_{CES} < 600\text{ V}$	6		μs
Inverse Diode				
I_F	$T_j = 175^\circ\text{C}$	$T_s = 25^\circ\text{C}$	56	A
		$T_s = 70^\circ\text{C}$	44	A
I_{FRM}	$I_{FRM} = 2 \times I_{Fnom}$	60		A
I_{FSM}	$t_p = 10\text{ ms}; \text{half sine wave}$ $T_j = 150^\circ\text{C}$	320		A
Module				
$I_{t(RMS)}$				A
T_{vj}		-40 ... +175		$^\circ\text{C}$
T_{stg}		-40 ... +125		$^\circ\text{C}$
V_{isol}	AC, 1 min.	2500		V

Characteristics		$T_s = 25^\circ\text{C}$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	$V_{GE} = V_{CE}, I_C = 0,8\text{ mA}$	5	5,8	6,5	V
I_{CES}	$V_{GE} = 0\text{ V}, V_{CE} = V_{CES}$	$T_j = 25^\circ\text{C}$			mA
		$T_j = 150^\circ\text{C}$			mA
I_{GES}	$V_{CE} = 0\text{ V}, V_{GE} = 20\text{ V}$	$T_j = 25^\circ\text{C}$			nA
		$T_j = 150^\circ\text{C}$			nA
V_{CE0}		$T_j = 25^\circ\text{C}$	0,9	1,1	V
		$T_j = 150^\circ\text{C}$	0,8	1	V
r_{CE}	$V_{GE} = 15\text{ V}$	$T_j = 25^\circ\text{C}$	11	15	$\text{m}\Omega$
		$T_j = 150^\circ\text{C}$	17	21	$\text{m}\Omega$
$V_{CE(sat)}$	$I_{Cnom} = 50\text{ A}, V_{GE} = 15\text{ V}$	$T_j = 25^\circ\text{C}_{chiplev.}$	1,45	1,85	V
		$T_j = 150^\circ\text{C}_{chiplev.}$	1,65	2,05	V
C_{ies}	$V_{CE} = 25, V_{GE} = 0\text{ V}$ $f = 1\text{ MHz}$	3,1		nF	
C_{oes}		0,2		nF	
C_{res}		0,093		nF	
Q_G	$V_{GE} = -7V...+15V$	250		nC	
$t_{d(on)}$	$R_{Gon} = 16\ \Omega$ $di/dt = 2438\text{ A}/\mu\text{s}$	28		ns	
t_r		32		ns	
E_{on}		$V_{CC} = 300V$ $I_C = 50A$	2,2		mJ
$t_{d(off)}$	$R_{Goff} = 16\ \Omega$ $di/dt = 2438\text{ A}/\mu\text{s}$	301		ns	
t_f		$T_j = 150^\circ\text{C}$ $V_{GE} = -7/+15V$	45		ns
E_{off}		1,73		mJ	
$R_{th(j-s)}$	per IGBT	1,11		K/W	

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SEMITOP® 3

IGBT Module

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Target Data

Features

- Compact design
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- Trench IGBT technology
- CAL HD technology FWD
- Integrated NTC temperature sensor

Typical Applications*

Remarks

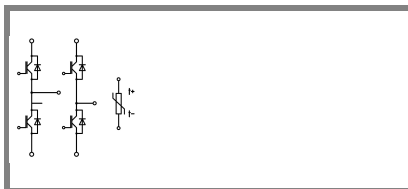
- $V_{isol} = 3000V$ AC, 50Hz, 1s

Characteristics

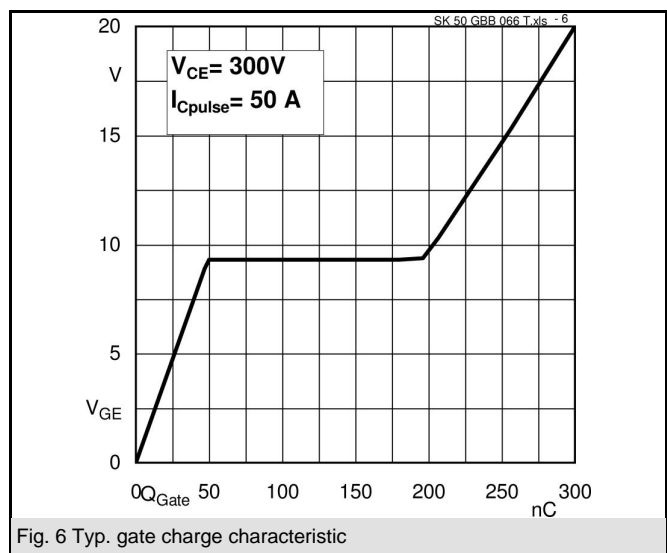
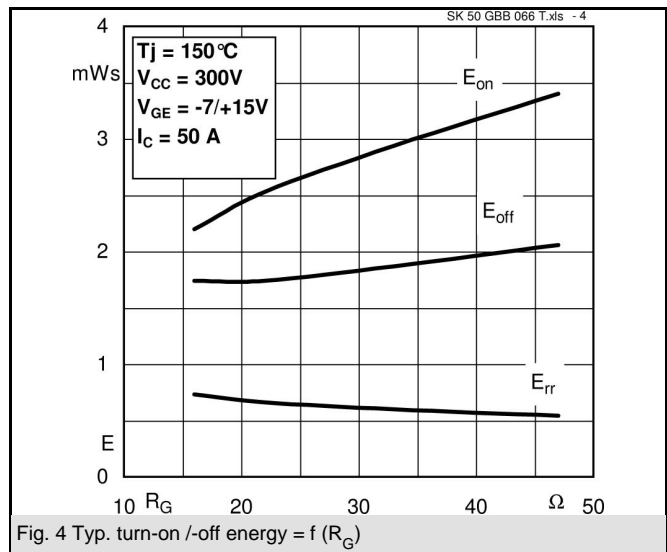
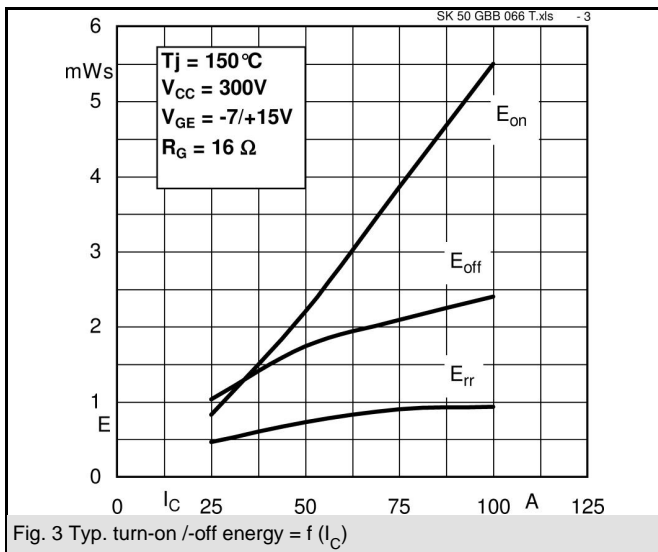
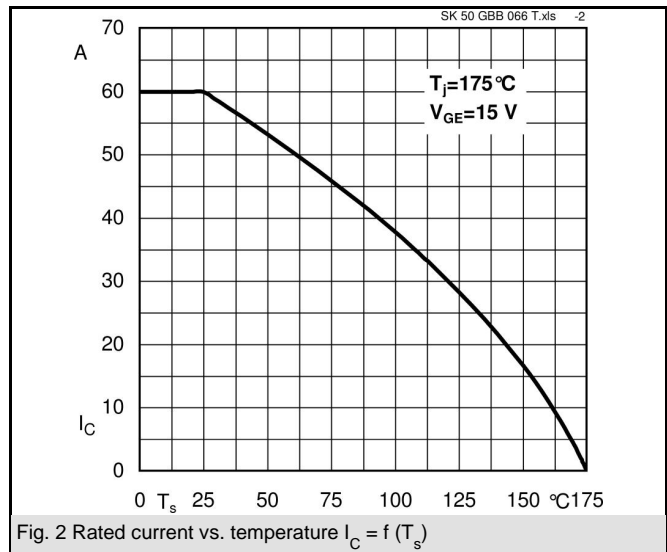
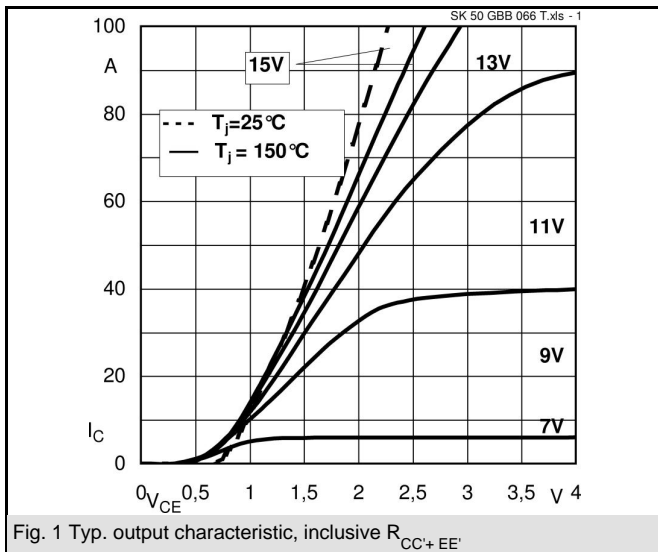
Symbol	Conditions	min.	typ.	max.	Units
Inverse Diode					
$V_F = V_{EC}$	$I_{Fnom} = 50 A; V_{GE} = 0 V$	$T_j = 25\text{ }^\circ\text{C}_{chiplev.}$	1,5		V
		$T_j = 150\text{ }^\circ\text{C}_{chiplev.}$	1,5		V
V_{F0}		$T_j = 25\text{ }^\circ\text{C}$	1	1,1	V
		$T_j = 150\text{ }^\circ\text{C}$	0,9	1	V
r_F		$T_j = 25\text{ }^\circ\text{C}$	10	12	mΩ
		$T_j = 150\text{ }^\circ\text{C}$	12	14	mΩ
I_{RRM}	$I_F = 50 A$	$T_j = 150\text{ }^\circ\text{C}$	44		A
Q_{rr}	$di/dt = 2438 A/\mu s$		4,8		μC
E_{rr}	$V_{CC} = 300V$		0,72		mJ
$R_{th(j-s)D}$	per diode		1,7		K/W
M_s	to heat sink	2,25		2,5	Nm
w			30		g
Temperature sensor					
R_{100}	$T_s = 100\text{ }^\circ\text{C} (R_{25} = 5k\Omega)$		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.



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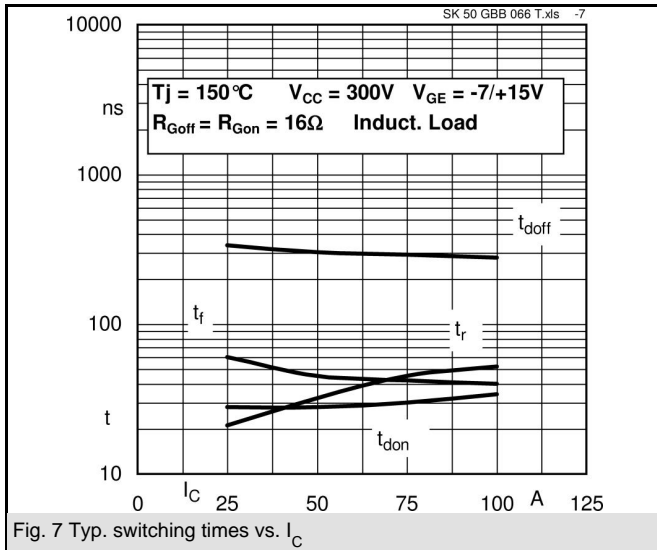


Fig. 7 Typ. switching times vs. I_C

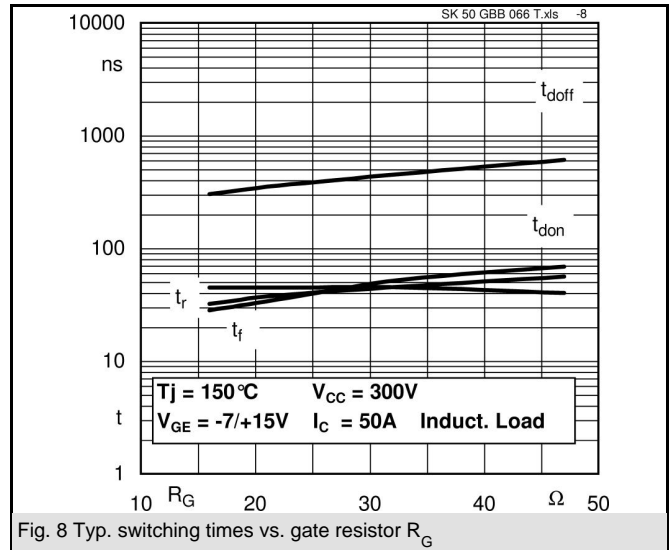


Fig. 8 Typ. switching times vs. gate resistor R_G

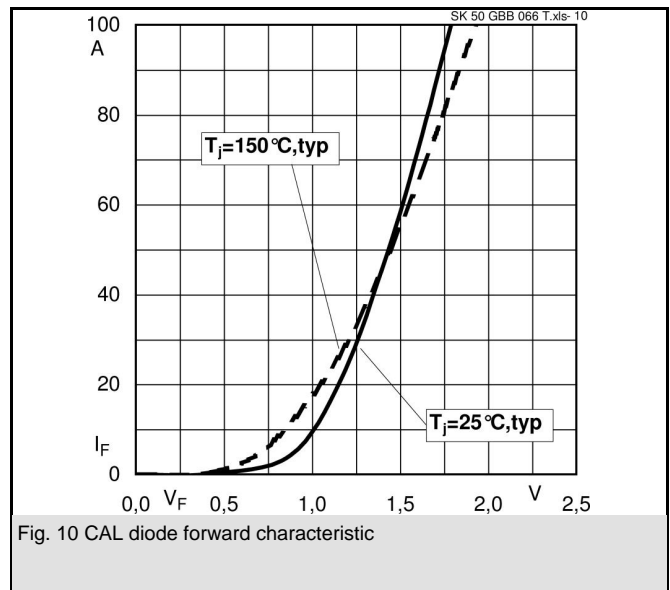
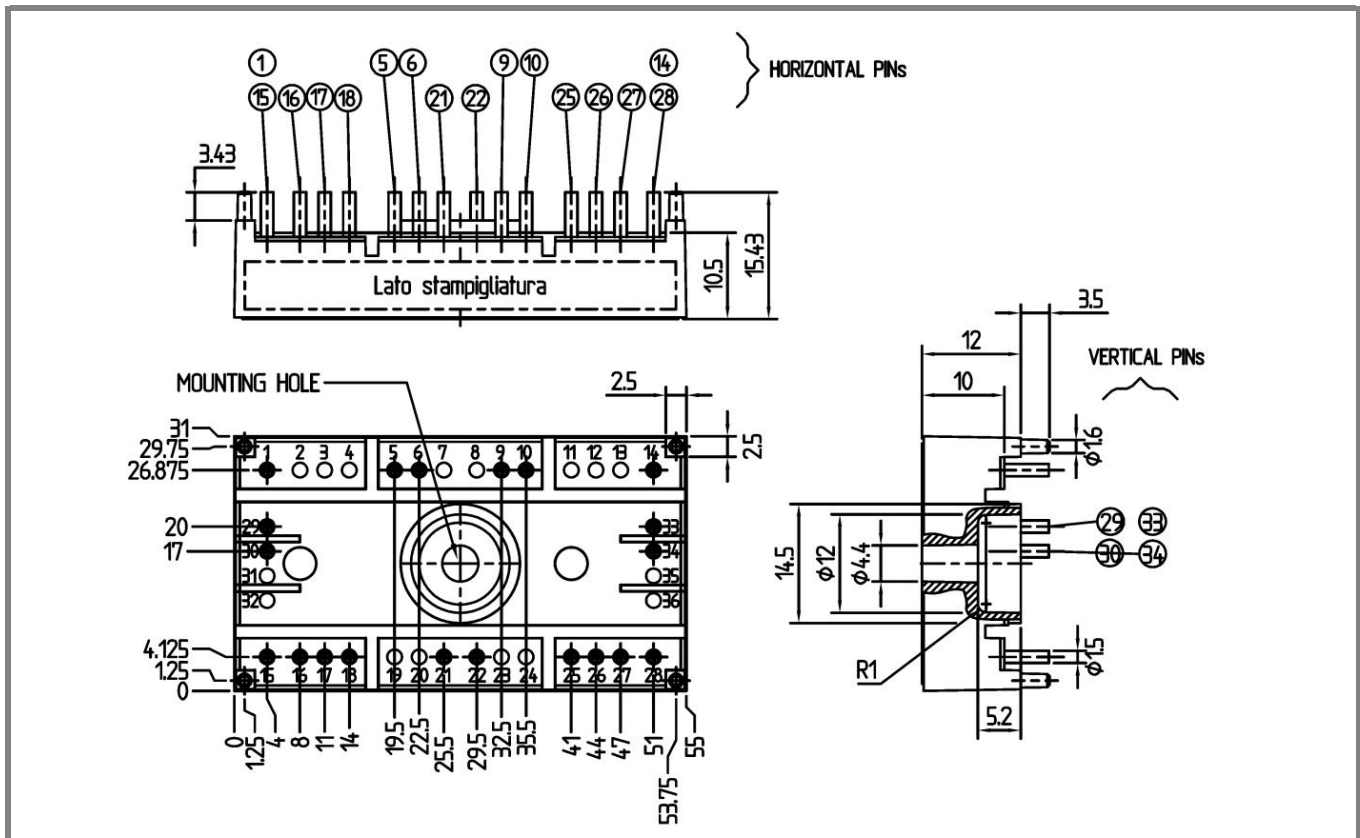
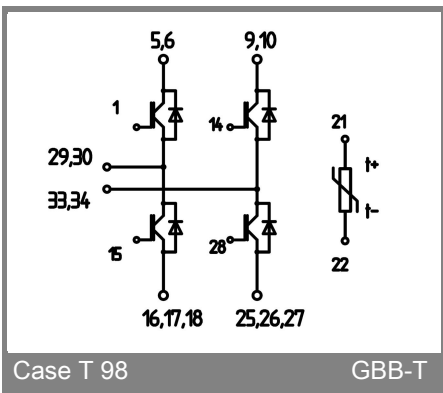


Fig. 10 CAL diode forward characteristic

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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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