

SEMITOP® 3

IGBT Module

SK50GBB066T

Target Data

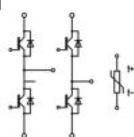
Features

- 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

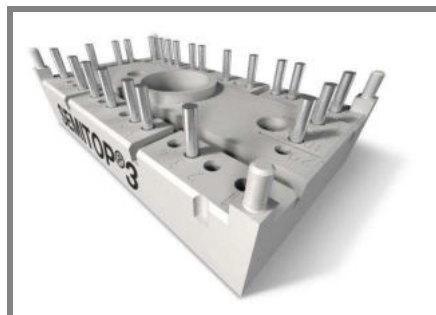
- Visol = 3000V AC, 50Hz, 1s



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 °C, unless otherwise specified				
Symbol	Conditions		min.	typ.	max.	Units	
IGBT							
V _{GE(th)}	V _{GE} = V _{CE} , I _C = 0,8 mA		5	5,8	6,5	V	
I _{CES}	V _{GE} = 0 V, V _{CE} = V _{CES}	T _J = 25 °C				mA	
		T _J = 150 °C				mA	
I _{GES}	V _{CE} = 0 V, V _{GE} = 20 V	T _J = 25 °C	600			nA	
		T _J = 150 °C				nA	
V _{CE0}		T _J = 25 °C	0,9			1,1	
		T _J = 150 °C				0,8	1
r _{CE}	V _{GE} = 15 V	T _J = 25°C	11			15	
		T _J = 150°C				17	21
V _{CE(sat)}	I _{Cnom} = 50 A, V _{GE} = 15 V	T _J = 25°C _{chiplev.}	1,45			1,85	
		T _J = 150°C _{chiplev.}				1,65	2,05
C _{ies}	V _{CE} = 25, V _{GE} = 0 V	f = 1 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 Ω di/dt = 2438 A/μs	V _{CC} = 300V I _C = 50A T _J = 150 °C V _{GE} = -7/+15V	28			ns	
t _r						32	ns
E _{on}						2,2	mJ
t _{d(off)}	R _{Goff} = 16 Ω di/dt = 2438 A/μs		T _J = 150 °C	301			ns
t _f			45				ns
E _{off}			1,73				mJ
R _{th(j-s)}	per IGBT		1,11			K/W	



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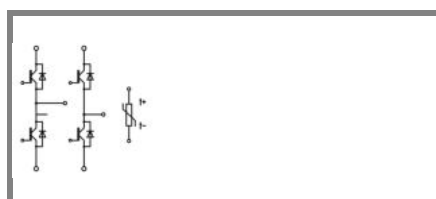
Remarks

- Visol = 3000V AC, 50Hz, 1s

Characteristics				
Symbol	Conditions	min.	typ.	max. Units
Inverse Diode				
$V_F = V_{EC}$	$I_{Fnom} = 50 \text{ A}; V_{GE} = 0 \text{ V}$			
	$T_j = 25 \text{ }^{\circ}\text{C}_{chiplev.}$		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}	$I_F = 50 \text{ A}$		44	A
Q_{rr}	$di/dt = 2438 \text{ A}/\mu\text{s}$		4,8	μC
E_{rr}	$V_{CC} = 300 \text{ V}$		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}	$T_s = 100^{\circ}\text{C}$ ($R_{25} = 5 \text{ k}\Omega$)		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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