



SEMITOP[®] 2

IGBT Module

SK50GB065

Preliminary Data

Features

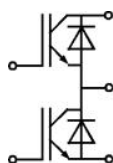
- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DCB)
- N-channel homogeneous silicon structure (NPT-Non-Punch-Through IGBT)
- Low tail current with low temperature dependence
- Low threshold voltage

Typical Applications

- Switching (not for linear use)
- Inverter
- Switched mode power supplies
- UPS

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 = 125 °C	T _s = 25 °C	54	A
		T _s = 80 °C	40	A
I _{CRM}	I _{CRM} = 2 x I _{Cnom}	60	A	
V _{GES}		± 20	V	
t _{psc}	V _{CC} = 300 V; V _{GE} ≤ 20 V; T _j = 125 °C V _{CES} < 600 V	10	µs	
Inverse Diode				
I _F	T _j = 150 °C	T _s = 25 °C	64	A
		T _s = 80 °C	48	A
I _{FRM}	I _{FRM} = 2 x I _{Fnom}		A	
I _{FSM}	t _p = 10 ms; half sine wave T _j = 150 °C	200	A	
Module				
I _{t(RMS)}			A	
T _{vj}		-40 ... +150	°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					
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 1,4\text{ mA}$	3	4	5	V
I_{CES}	$V_{GE} = 0\text{ V}$, $V_{CE} = V_{CES}$ $T_j = 25\text{ °C}$			0,0044	mA
I_{GES}	$V_{CE} = 0\text{ V}$, $V_{GE} = 20\text{ V}$ $T_j = 25\text{ °C}$			240	nA
V_{CE0}			$T_j = 25\text{ °C}$	1,1	V
			$T_j = 125\text{ °C}$	1,1	V
r_{CE}	$V_{GE} = 15\text{ V}$		$T_j = 25\text{ °C}$	15	$\text{m}\Omega$
			$T_j = 125\text{ °C}$	19	$\text{m}\Omega$
$V_{CE(sat)}$	$I_{Cnom} = 60\text{ A}$, $V_{GE} = 15\text{ V}$		$T_j = 25\text{ °C}_{chiplev.}$	2	V
			$T_j = 125\text{ °C}_{chiplev.}$	2,2	V
C_{ies}	$V_{CE} = 25$, $V_{GE} = 0\text{ V}$ $f = 1\text{ MHz}$		3,2		nF
C_{oes}			0,3		nF
C_{res}			0,18		nF
$t_{d(on)}$	$R_{Gon} = 16\text{ }\Omega$	$V_{CC} = 300\text{ V}$ $I_C = 40\text{ A}$	60	80	ns
t_r			30	40	ns
E_{on}	$R_{Goff} = 16\text{ }\Omega$	$T_j = 125\text{ °C}$ $V_{GE} = \pm 15\text{ V}$	1,1	1,4	mJ
$t_{d(off)}$			220	280	ns
t_f			20	26	ns
E_{off}			0,7	0,9	mJ
$R_{th(j-s)}$	per IGBT			0,85	K/W



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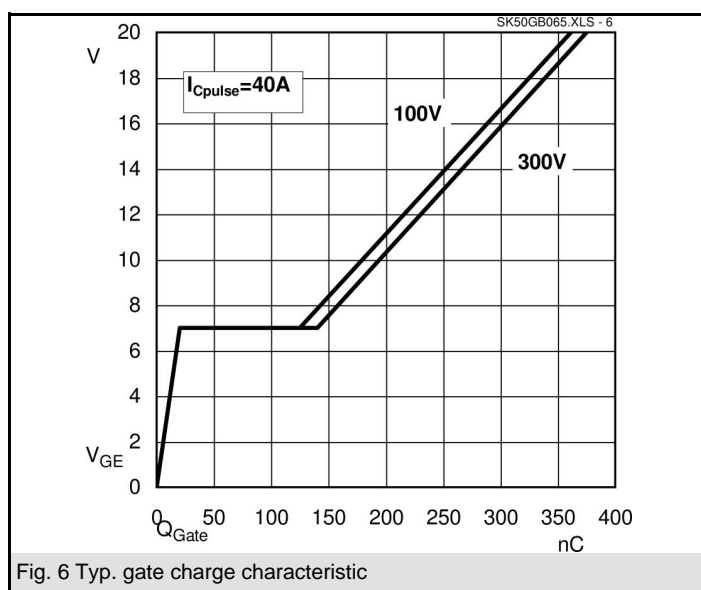
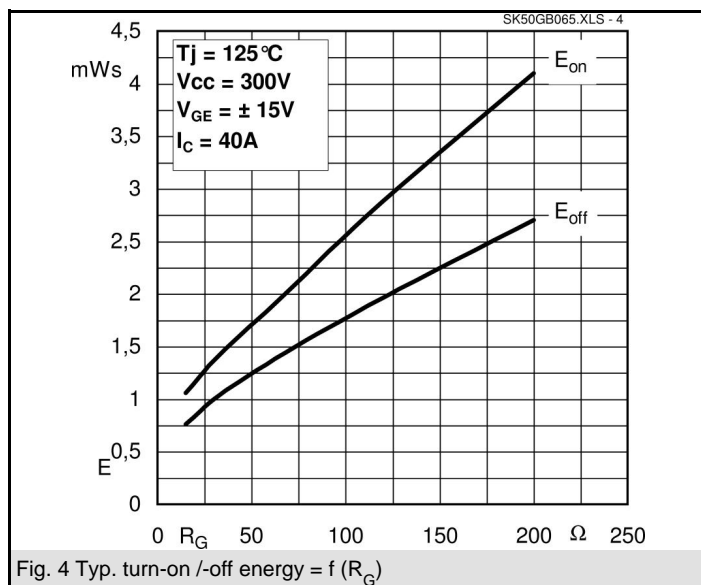
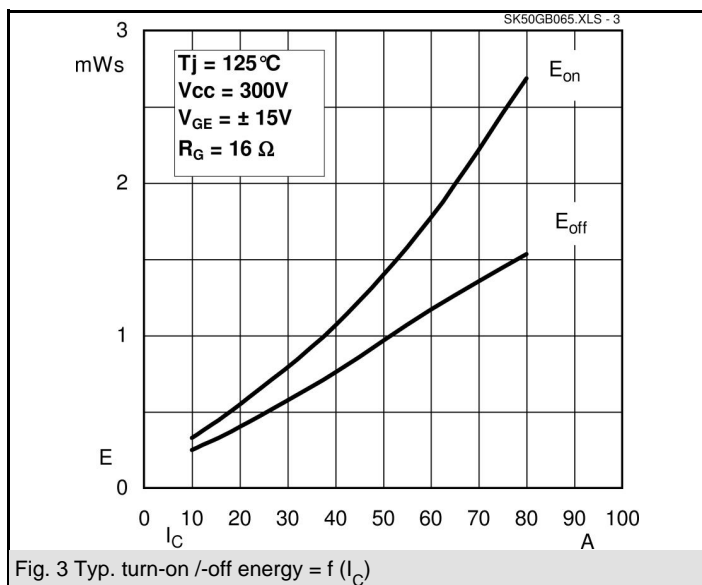
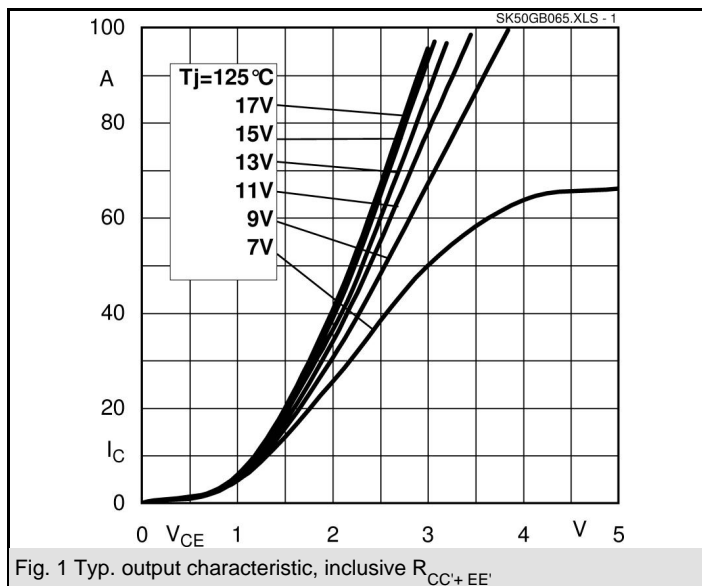


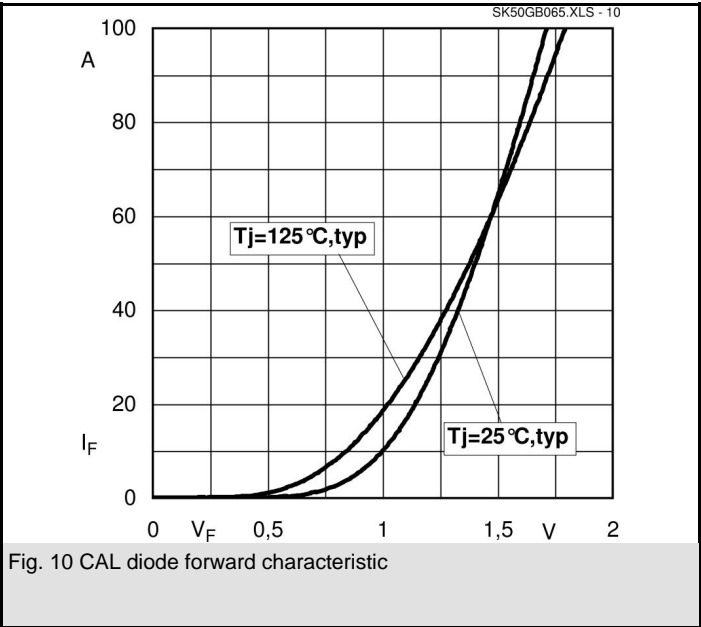
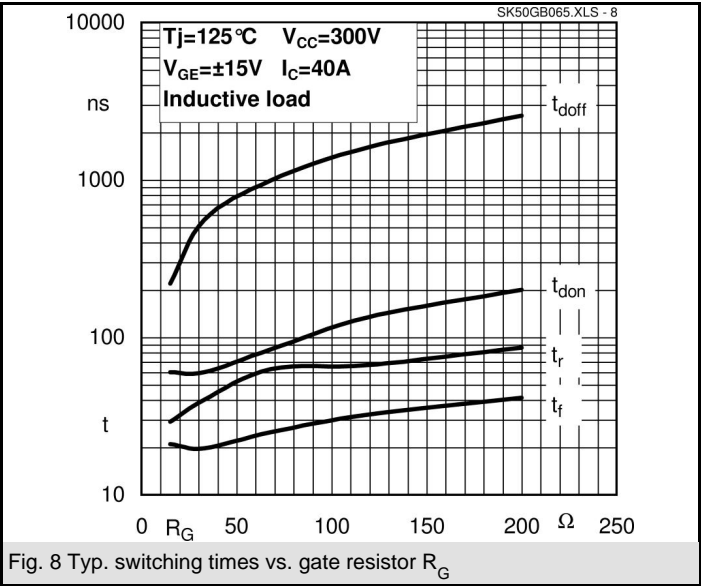
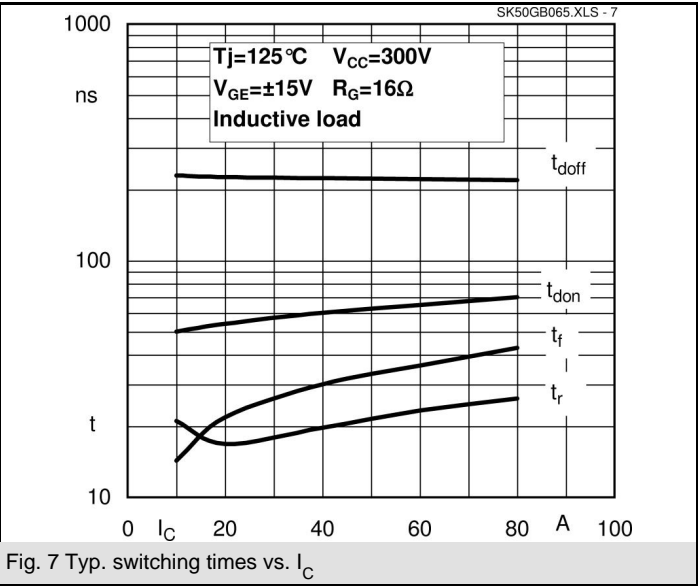
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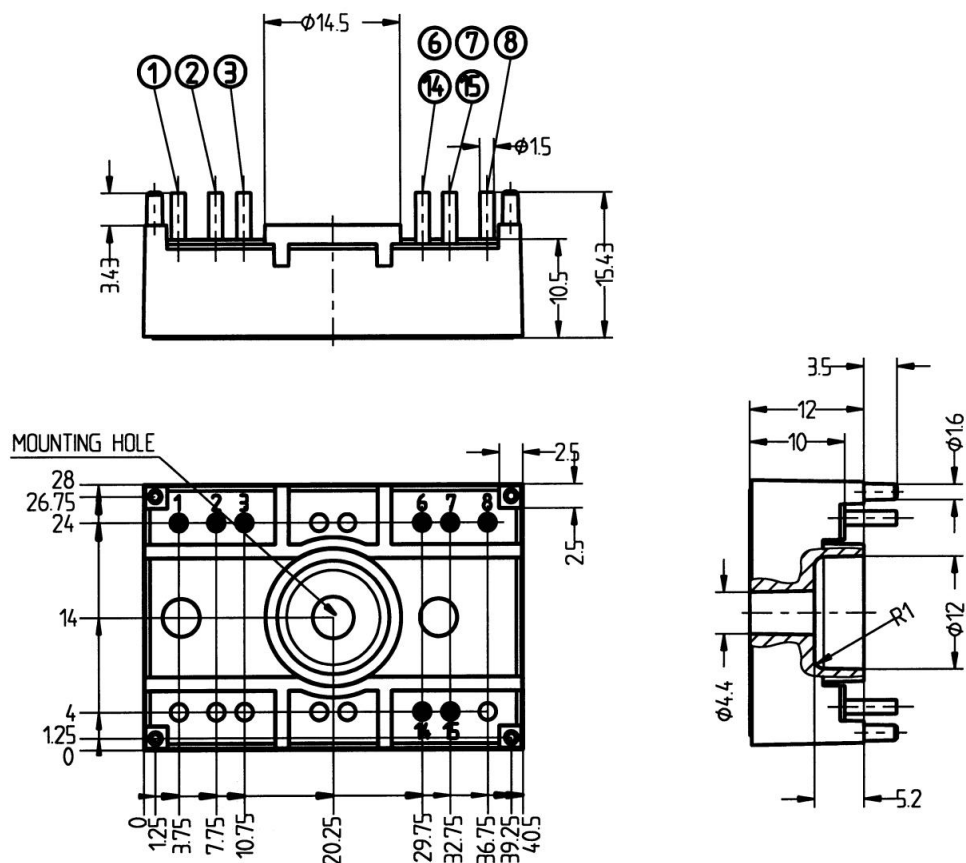
Characteristics						
Symbol	Conditions		min.	typ.	max.	Units
Inverse Diode						
V _F = V _{EC}	I _{Fnom} = 50 A; V _{GE} = 0 V	T _j = 25 °C _{chiplev.}		1,45	1,7	V
		T _j = 150 °C _{chiplev.}		1,4	1,75	V
V _{F0}		T _j = 25 °C				V
		T _j = 125 °C		0,85	0,9	V
r _F		T _j = 25 °C				mΩ
		T _j = 125 °C		11	16	mΩ
I _{RRM}	I _F = 50 A	T _j = 125 °C		40		A
Q _{rr}	di/dt = -1000 A/μs			3,6		μC
E _{rr}	V _{CC} = 300V			0,55		mJ
R _{th(j-s)D}	per diode				1,1	K/W
M _s	to heat sink				2	Nm
w				19		g

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

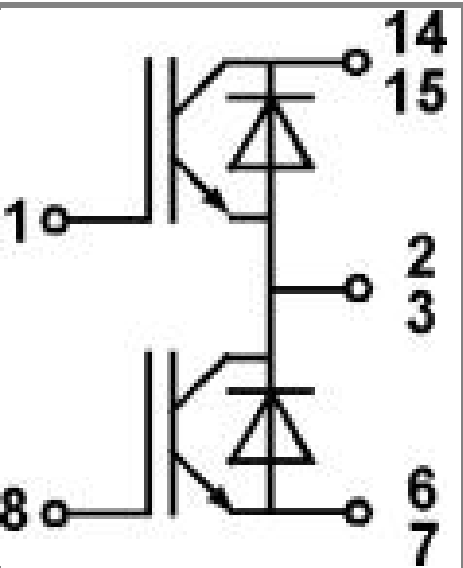
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Case T32 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)



Case T 32

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