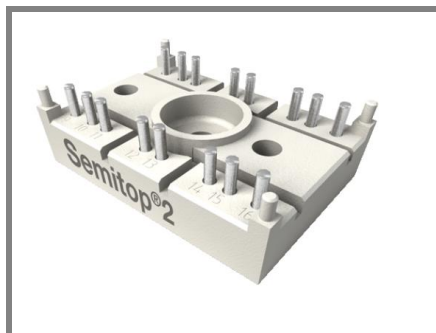




SEMITOP[®] 2

IGBT Module

SK 40GB123

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

Typical Applications

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

Remarks

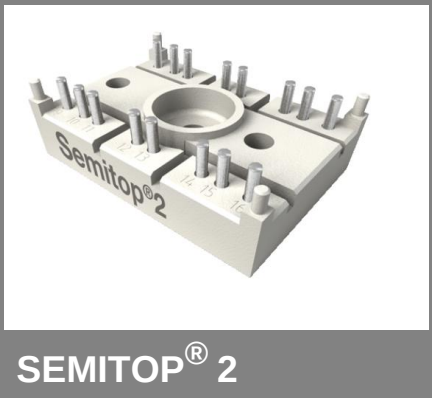
- V_F = chip level value



GB

Absolute Maximum Ratings		T _s = 25 °C, unless otherwise specified		
Symbol	Conditions		Values	Units
IGBT				
V _{CES}	T _j = 25 °C		1200	V
I _C	T _j = 125 °C	T _s = 25 °C	40	A
		T _s = 80 °C	27	A
I _{CRM}	I _{CRM} = 2 x I _{Cnom}		60	A
V _{GES}			± 20	V
t _{psc}	V _{CC} = 600 V; V _{GE} ≤ 20 V; T _j = 125 °C V _{CES} < 1200 V		10	µs
Inverse Diode				
I _F	T _j = 150 °C	T _s = 25 °C	48	A
		T _s = 80 °C	34	A
I _{FRM}	I _{FRM} = 2 x I _{Fnom}		60	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					
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 1,2\text{ mA}$	4,5	5,5	6,5	V
I_{CES}	$V_{GE} = 30\text{ V}$, $V_{CE} = V_{CES}$			0,2	mA
					mA
I_{GES}	$V_{CE} = 0\text{ V}$, $V_{GE} = 30\text{ V}$			560	nA
					nA
V_{CE0}				1,2	V
				1,2	V
r_{CE}	$V_{GE} = 15\text{ V}$			43	$\text{m}\Omega$
				63	$\text{m}\Omega$
$V_{CE(sat)}$	$I_{Cnom} = 30\text{ A}$, $V_{GE} = 15\text{ V}$			2	V
				3	V
C_{ies}	$V_{CE} = 25$, $V_{GE} = 0\text{ V}$			2	nF
C_{oes}				0,3	nF
C_{res}				0,14	nF
$t_{d(on)}$	$R_{Gon} = 20\text{ }\Omega$			35	ns
t_r				45	ns
E_{on}	$R_{Goff} = 20\text{ }\Omega$			3,2	mJ
$t_{d(off)}$				250	ns
t_f				45	ns
E_{off}				3,6	mJ
$R_{th(j-s)}$	per IGBT			0,85	K/W



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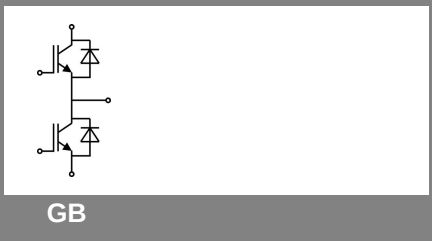
Remarks

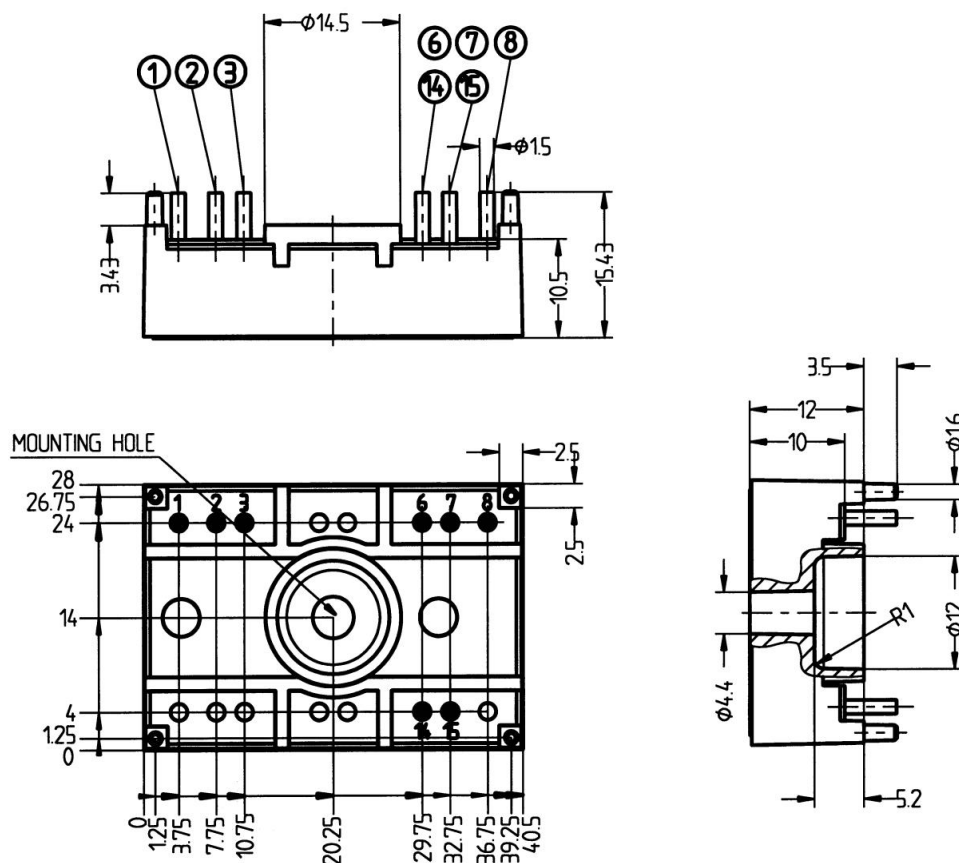
- V_F = chip level value

Characteristics		min.	typ.	max.	Units
Symbol	Conditions				
Inverse Diode					
$V_F = V_{EC}$	$I_{Fnom} = 30\text{ A}; V_{GE} = 0\text{ V}$		$T_j = 25\text{ }^{\circ}\text{C}_{chiplev.}$ $T_j = 125\text{ }^{\circ}\text{C}_{chiplev.}$	2 1,8	V V
V_{F0}			$T_j = 125\text{ }^{\circ}\text{C}$	1	1,2 V
r_F			$T_j = 125\text{ }^{\circ}\text{C}$	53	73 mΩ
I_{RRM}	$I_{Fnom} = 30\text{ A}$		$T_j = 125\text{ }^{\circ}\text{C}$	32	A
Q_{rr}	$di/dt = 400\text{ A}/\mu\text{s}$			5,4	μC
E_{rr}	$V_{CC} = 600\text{ V}$			1,2	mJ
$R_{th(j-s)D}$	per diode			1	K/W
M_s	to heat sink M1			2	Nm
w				21	g

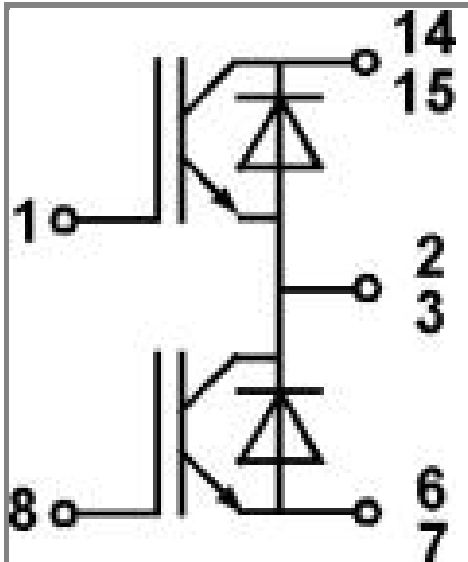
This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

This technical information specifies semiconductor devices but promises no characteristics. No warranty or guarantee expressed or implied is made regarding delivery, performance or suitability.





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



Case T32

GB