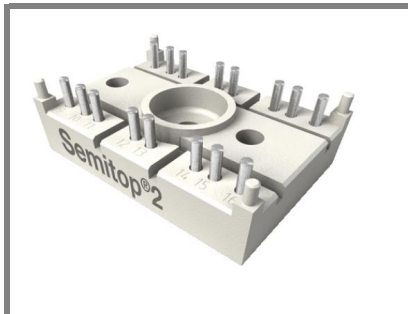


SK 40GB123



SEMITOP® 2

IGBT Module

SK 40GB123

Preliminary Data

Features

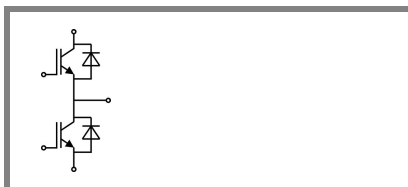
- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DCB)
- N-channel homogeneous silicon structure (NPT-Non punch-through IGBT)
- Low tail current with low temperature dependence

Typical Applications

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

Remarks

- V_F = chip level value

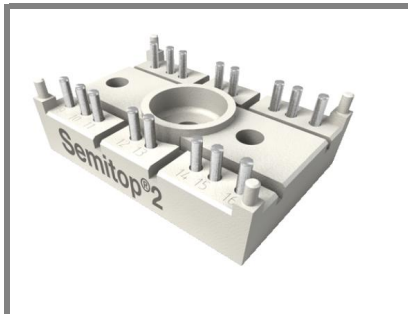


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Absolute Maximum Ratings		$T_s = 25^\circ\text{C}$, unless otherwise specified			
Symbol	Conditions	Values		Units	
IGBT					
V_{CES}	$T_j = 25^\circ\text{C}$	1200		V	
I_C	$T_j = 125^\circ\text{C}$	$T_s = 25^\circ\text{C}$	40		A
		$T_s = 80^\circ\text{C}$	27		A
I_{CRM}	$I_{CRM} = 2 \times I_{Cnom}$	60		A	
V_{GES}		± 20		V	
t_{psc}	$V_{CC} = 600\text{ V}; V_{GE} \leq 20\text{ V}; T_j = 125^\circ\text{C}$ $V_{CES} < 1200\text{ V}$	10		μs	
Inverse Diode					
I_F	$T_j = 150^\circ\text{C}$	$T_s = 25^\circ\text{C}$	48		A
		$T_s = 80^\circ\text{C}$	34		A
I_{FRM}	$I_{FRM} = 2 \times I_{Fnom}$	60		A	
Module					
$I_{t(RMS)}$				A	
T_{vj}		-40 ... +150		$^\circ\text{C}$	
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							
$V_{GE(th)}$	$V_{GE} = V_{CE}; I_C = 1,2\text{ mA}$	4,5	5,5	6,5	V		
I_{CES}	$V_{GE} = 30\text{ V}, V_{CE} = V_{CES}$	$T_j = 25^\circ\text{C}$			0,2	mA	
		$T_j = 125^\circ\text{C}$				mA	
I_{GES}	$V_{CE} = 0\text{ V}, V_{GE} = 30\text{ V}$	$T_j = 25^\circ\text{C}$			560	nA	
		$T_j = 125^\circ\text{C}$				nA	
V_{CE0}		$T_j = 25^\circ\text{C}$			1,2	V	
		$T_j = 125^\circ\text{C}$			1,2	V	
r_{CE}	$V_{GE} = 15\text{ V}$	$T_j = 25^\circ\text{C}$			43	m Ω	
		$T_j = 125^\circ\text{C}$			63	m Ω	
$V_{CE(sat)}$	$I_{Cnom} = 30\text{ A}, V_{GE} = 15\text{ V}$	$T_j = 25^\circ\text{C}_{chiplev.}$	2	2,5	3	V	
		$T_j = 125^\circ\text{C}_{chiplev.}$		3,1	3,7	V	
C_{ies}	$V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}$	$f = 1\text{ MHz}$			2	nF	
C_{oes}					0,3	nF	
C_{res}					0,14	nF	
$t_{d(on)}$	$R_{Gon} = 20\ \Omega$	$V_{CC} = 600\text{ V}$			35	ns	
t_r					45	ns	
E_{on}	$R_{Goff} = 20\ \Omega$	$I_{Cnom} = 30\text{ A}$			3,2	mJ	
$t_{d(off)}$			$T_j = 125^\circ\text{C}$			250	ns
t_f			$V_{GE} = \pm 15\text{ V}$			45	ns
E_{off}					3,6	mJ	
$R_{th(j-s)}$	per IGBT			0,85	K/W		

SK 40GB123



SEMITOP[®] 2

IGBT Module

SK 40GB123

Preliminary Data

Features

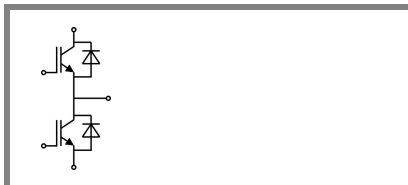
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Remarks

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Characteristics					
Symbol	Conditions	min.	typ.	max.	Units
Inverse Diode					
$V_F = V_{EC}$	$I_{Fnom} = 30 \text{ A}; V_{GE} = 0 \text{ V}$	$T_j = 25 \text{ }^\circ\text{C}_{chiplev.}$	2		V
		$T_j = 125 \text{ }^\circ\text{C}_{chiplev.}$	1,8		V
V_{F0}			1	1,2	V
r_F			53	73	m Ω
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

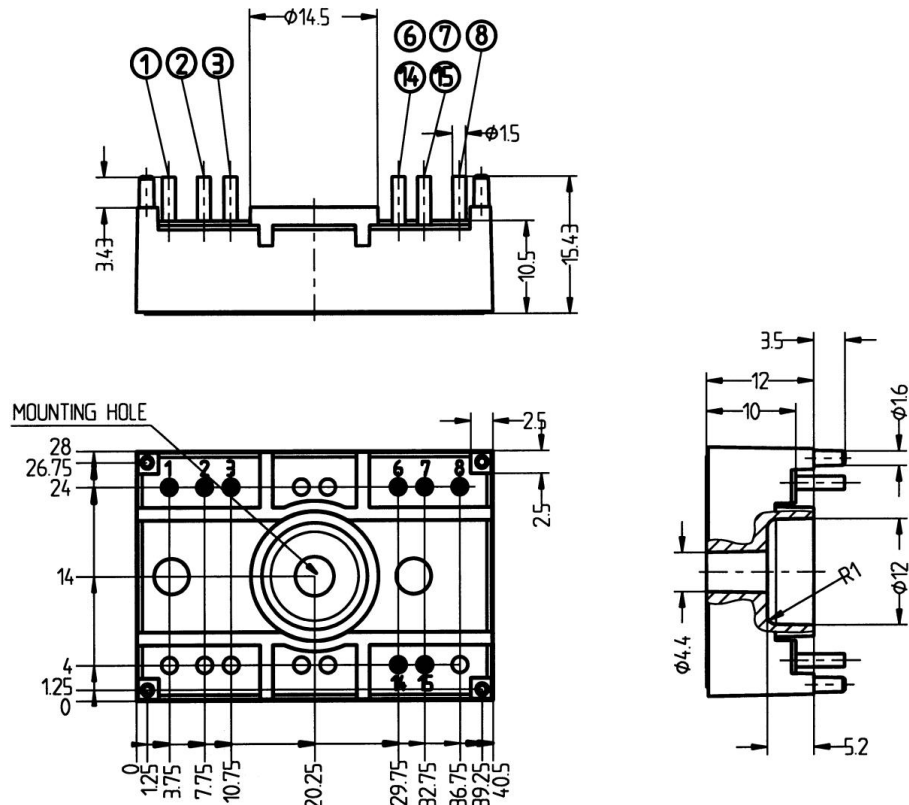
This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

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

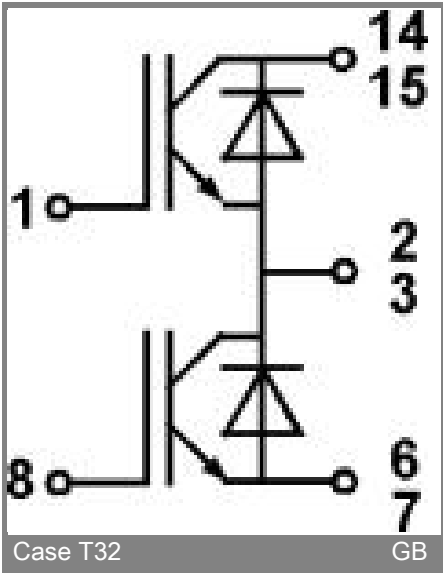
SK 40GB123

UL recognized file

no. E 63 532



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



Case T32

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