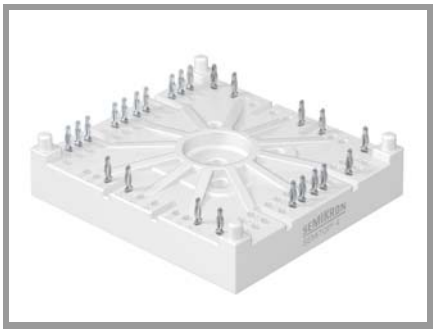
SK200GB12T4Tp



SEMITOP® 4 Press-Fit

IGBT module

Engineering Sample

SK200GB12T4Tp

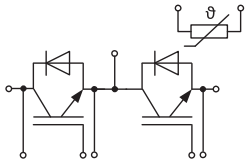
Target Data

Features

- One screw mounting module
- Solder free mounting with Press-Fit terminals
- Fully compatible with SEMITOP® 2 and 3 Press-Fit
- Improved thermal performances by aluminum oxide substrate
- Trench4 IGBT technology
- CAL4F diode technology
- Integrated PTC temperature sensor
- UL recognized, file no. E 63 532

Typical Applications*

- Switching SR Drives
- Inverter
- Switched mode power supplies
- UPS



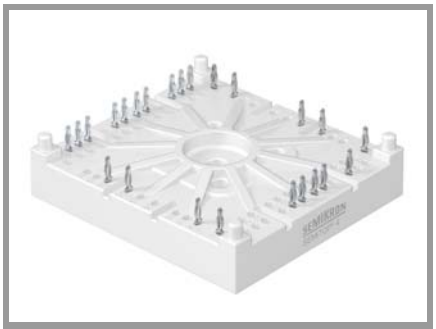
GB-T

Absolute Maximum Ratings

Symbol	Conditions		Values	Unit
Inverter - IGBT				
V_{CES}	T_j = 25 °C		1200	V
I_C	T_j = 175 °C	T_s = 25 °C	210	A
		T_s = 70 °C	170	A
I_{Cnom}			200	A
I_{CRM}	I_{CRM} = 3 x I_{Cnom}		600	A
V_{GES}			-20 ... 20	V
t_{psc}	V_{CC} = 800 V V_{GE} ≤ 15 V V_{CES} ≤ 1200 V	T_j = 150 °C	10	µs
T_j			-40 ... 175	°C
Inverse - Diode				
V_{RRM}	T_j = 25 °C		1200	V
I_F	T_j = 175 °C	T_s = 25 °C	190	A
		T_s = 70 °C	151	A
I_{Fnom}			200	A
I_{FRM}	I_{FRM} = 3 x I_{Fnom}		600	A
I_{FSM}	10 ms, sin 180°, T_j = 150 °C		990	A
T_j			-40 ... 175	°C
Module				
$I_{t(RMS)}$	$T_{terminal}$ = 100 °C, T_S = 60°C		40	A
T_{stg}			-40 ... 125	°C
V_{isol}	AC, sinusoidal, 50Hz, t = 1 min		2500	V

Characteristics

Symbol	Conditions		min.	typ.	max.	Unit
Inverter - IGBT						
$V_{CE(sat)}$	I_C = 200 A V_{GE} = 15 V chiplevel	T_j = 25 °C		1.80	2.05	V
		T_j = 150 °C		2.20	2.40	V
V_{CE0}	chiplevel	T_j = 25 °C		0.80	0.90	V
		T_j = 150 °C		0.70	0.80	V
r_{CE}	V_{GE} = 15 V chiplevel	T_j = 25 °C		5.0	5.8	mΩ
		T_j = 150 °C		7.5	8.0	mΩ
$V_{GE(th)}$	V_{GE} = V_{CE}, I_C = 12 mA		5	5.8	6.5	V
I_{CES}	V_{GE} = 0 V, V_{CE} = 1200 V, T_j = 25 °C				2.66	mA
C_{ies}	V_{CE} = 25 V V_{GE} = 0 V	f = 1 MHz		12.3		nF
C_{oes}		f = 1 MHz		0.81		nF
C_{res}		f = 1 MHz		0.69		nF
Q_G	-8V...+15V			1130		nC
R_{Gint}	T_j = 25 °C			3.8		Ω
$t_{d(on)}$	V_{CC} = 600 V	T_j = 150 °C				ns
t_r	I_C = 200 A	T_j = 150 °C				ns
E_{on}	$R_{G\ on}$ = 2 Ω	T_j = 150 °C		13.6		mJ
$t_{d(off)}$	$R_{G\ off}$ = 2 Ω	T_j = 150 °C				ns
t_f		T_j = 150 °C				ns
E_{off}	V_{GE} = +15/-15 V	T_j = 150 °C		22.1		mJ
$R_{th(j-s)}$	per IGBT			0.28		K/W



SEMITOP® 4 Press-Fit

IGBT module

Engineering Sample

SK200GB12T4Tp

Target Data

Features

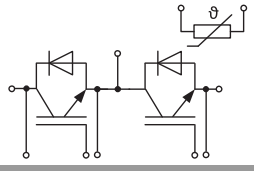
- One screw mounting module
- Solder free mounting with Press-Fit terminals
- Fully compatible with SEMITOP® 2 and 3 Press-Fit
- Improved thermal performances by aluminum oxide substrate
- Trench4 IGBT technology
- CAL4F diode technology
- Integrated PTC temperature sensor
- UL recognized, file no. E 63 532

Typical Applications*

- Switching SR Drives
- Inverter
- Switched mode power supplies
- UPS

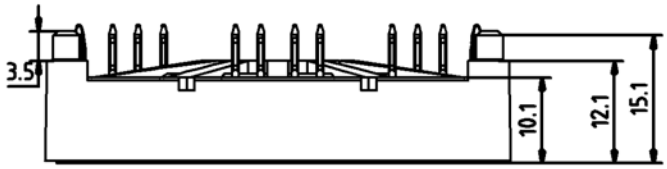
Characteristics

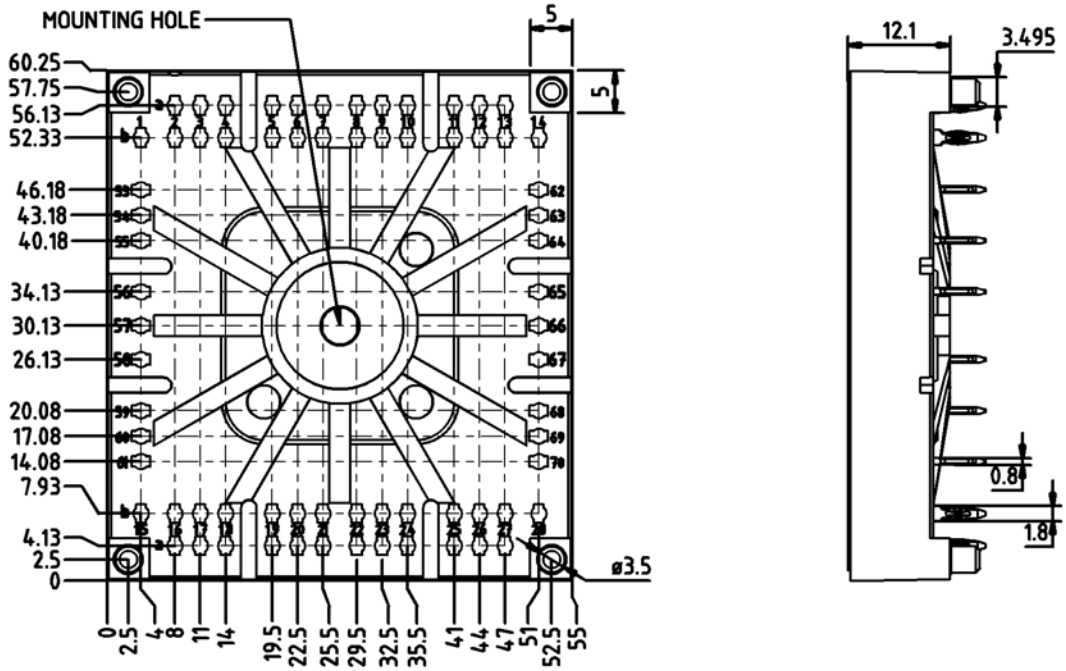
Symbol	Conditions		min.	typ.	max.	Unit
Inverse - Diode						
$V_F = V_{EC}$	I_F = 200 A	T_j = 25 °C		2.20	2.52	V
	chiplevel	T_j = 150 °C		2.15	2.47	V
V_{F0}	chiplevel	T_j = 25 °C		1.30	1.50	V
		T_j = 150 °C		0.90	1.10	V
r_F	chiplevel	T_j = 25 °C		4.5	5.1	mΩ
		T_j = 150 °C		6.3	6.9	mΩ
I_{RRM}	I_F = 200 A	T_j = 150 °C		-		A
Q_{rr}	V_{GE} = -15 V	T_j = 150 °C		-		µC
E_{rr}	V_{CC} = 600 V	T_j = 150 °C		13.4		mJ
$R_{th(j-s)}$	per Diode			0.35		K/W
Module						
L_{CE}				t.b.d.		nH
M_s	to heatsink		2.5		2.75	Nm
w				60		g
Temperature Sensor						
R_{100}	T_r=100°C (R_{25}=1000Ω)			1670 ± 3%		Ω
R(T)	R(T)=1000Ω[1+A(T-25°C)+B(T-25°C)^2], A = 7.635*10^{-3} °C^{-1}, B = 1.731*10^{-5} °C^{-2}					



GB-T

dimensions in mm
tolerance system: ISO 2768-m

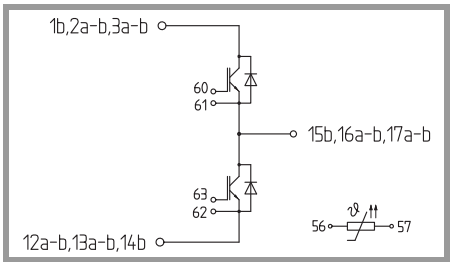




Suggested drilled hole diameter for terminal pins in the circuit board:
•minimum:1,575mm
•typical: 1,6mm
•maximum: 1,625mm

Suggested hole diameter for the mounting pins in the circuit board: 3,6mm

SEMITOP 4 Press-Fit



GB-T

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

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