

SK25MH120TSCp



SEMITOP® 2 Press-Fit

SIC MOSFET Module

Engineering Sample SK25MH120TSCp

Target Data

Features

- SiC Power MOSFET
- Single phase inverter topology
- One screw mounting module
- Fully compatible with other SEMITOP® Press-Fit types
- Improved thermal performance by aluminium oxide substrate
- Ultra Low inductance design
- Extremely fast switching
- UL recognized, file no. E63532

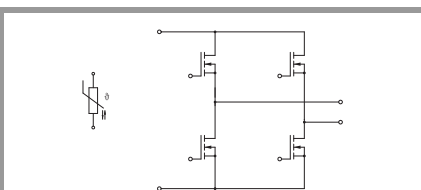
Typical Applications*

- Solar inverter
- UPS
- Power Supply

Absolute Maximum Ratings				
Symbol	Conditions	Values	Unit	
MOSFET				
V_{DSS}		1200	V	
I_D	$T_j = 175\text{ °C}$	$T_s = 25\text{ °C}$	26	A
		$T_s = 70\text{ °C}$	22	A
I_{DM}		140	A	
V_{GS}		-6 ... 22	V	
T_j		-40 ... 175	°C	
Integrated MOS-diode				
I_{FM}			A	

Absolute Maximum Ratings			
Symbol	Conditions	Values	Unit
Module			
$I_{t(RMS)}$	$T_{terminal} = 100\text{ °C}, T_s = 60\text{ °C}$	40	A
T_{stg}		-40 ... 125	°C
V_{isol}	AC, sinusoidal, t = 1 min	2500	V

Characteristics					
Symbol	Conditions	min.	typ.	max.	Unit
MOSFET					
$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = 1\text{ mA}$	1200			V
$V_{GS(th)}$	$V_{DS} = V_{GS}$ $I_D = 4.4\text{ mA}$			4	$T_j = 25\text{ °C}$
					V
I_{DSS}	$V_{GS} = 0\text{ V}, V_{DS} = 1200\text{ V}, T_j = 25\text{ °C}$			0.01	mA
I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = 22\text{ V}$			100	nA
$R_{DS(on)}$	$V_{GS} = 18\text{ V}$ $I_D = 10\text{ A}$			80	$T_j = 25\text{ °C}$
					111
				124	mΩ
C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = 800\text{ V}, f = 1\text{ MHz}$		2070		pF
C_{oss}	$V_{GS} = 0\text{ V}, V_{DS} = 800\text{ V}, f = 1\text{ MHz}$		80		pF
C_{rss}	$V_{GS} = 0\text{ V}, V_{DS} = 800\text{ V}, f = 1\text{ MHz}$		20		pF
R_{Gint}	$T_j = 25\text{ °C}$		9.0		Ω
Q_G	$V_{GS} = 18\text{ V}$		110		nC
$t_{d(on)}$	$V_{DD} = 600\text{ V}$				$T_j = 150\text{ °C}$
$t_{d(off)}$					ns
t_r	$I_D = 25\text{ A}$ $R_G = 2\text{ Ω}$				$T_j = 150\text{ °C}$
t_f					ns
E_{on}	$di/dt_{on} = 1000\text{ A}/\mu\text{s}$				$T_j = 150\text{ °C}$
E_{off}					0.78
					0.33
$R_{th(j-s)}$	per MOSFET		1.4		K/W



MH-T

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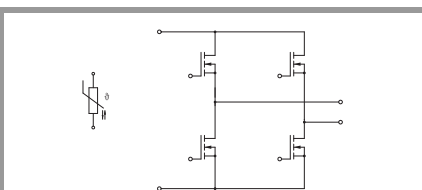
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Characteristics					
Symbol	Conditions	min.	typ.	max.	Unit
Module					
M_s	to heatsink	1.8		2	Nm
w	weight		19		g

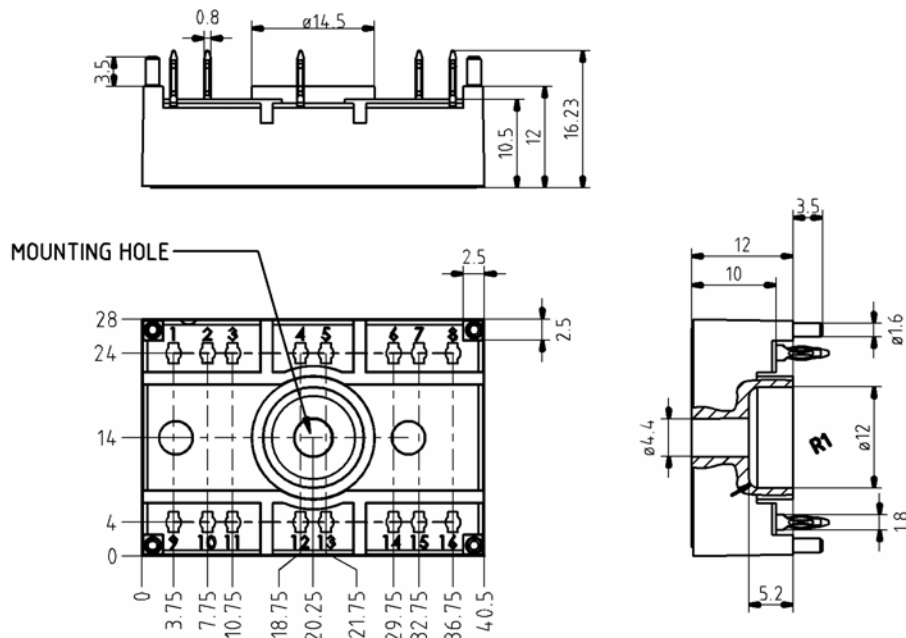
Characteristics					
Symbol	Conditions	min.	typ.	max.	Unit
Temperature Sensor					
R_{100}	$T_r = 100\text{ °C}$,		$493 \pm 5\%$		Ω
$B_{100/125}$	$R_2 = R_1 \cdot \exp[B(1/T_1 - 1/T_2)]$, T(K), ,		$3550 \pm 2\%$		K



MH-T

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dimensions in mm
tolerance system: ISO 2768-m



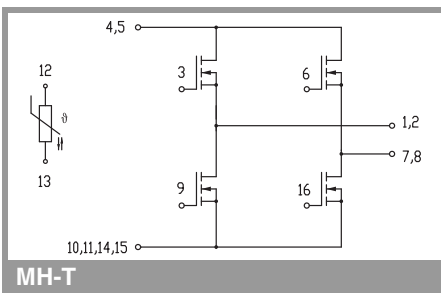
Suggested drilled hole diameter for terminal pins in the circuit board:

- minimum: 1,575mm
- typical: 1,6mm
- maximum: 1,625mm

Suggested hole diameter for the mounting pins in the circuit board: 2mm

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SEMITOP 2 Press-Fit



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

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