SK50GH128T

SEMITOP®4

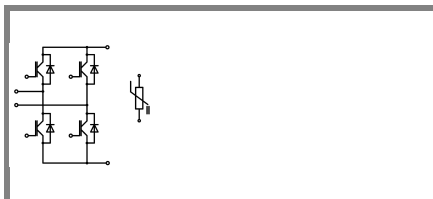## IGBT module

SK50GH128T

Target Data

Features

- One screw mounting module
- Fully compatible with SEMITOP®1,2,3
- Improved thermal performances by aluminium oxide substrate
- SPT IGBT Technology
- CAL technology FWD
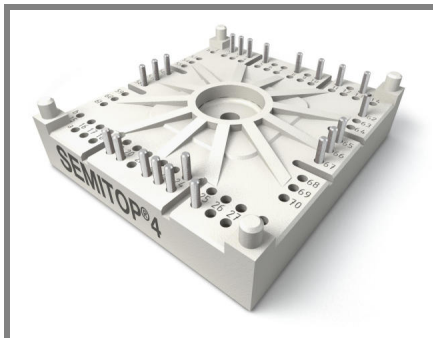- Integrated NTC Temperature sensor

Typical Applications*

- Voltage regulator

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Absolute Maximum Ratings		T_c = 25 °C, unless otherwise specified	
Symbol	Conditions	Values	Units
IGBT			
V_{CES}	T_j = 25 °C	1200	V
I_C	T_j = 125 °C $\quad$ T_s = 25 °C	70	A
	T_s = 70 °C	50	A
I_{CRM}	I_{CRM} = 2 x I_{Cnom} , $t_p \leq$ 1ms	100	A
V_{GES}		20	V
t_{psc}	V_{CC} = 600 V; $V_{GE} \leq$ 20 V; T_j = 125 °C V_{CES} < 1200 V	10	µs
Inverse Diode			
I_F	T_j = 150 °C $\quad$ T_s = 25 °C	67	A
	T_s = 70 °C	50	A
I_{FRM}	I_{FRM} = 2 x I_{Fnom} , $t_p \leq$ 1ms	150	A
I_{FSM}	t_p = 10 ms; half sine wave $\quad$ T_j = 125 °C	550	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_c = 25 °C, unless otherwise specified			
Symbol	Conditions		min.	typ.	max.	Units
IGBT						
$V_{GE(th)}$	V_{GE} = V_{CE}, I_C = 2 mA		4,5	5,5	6,5	V
I_{CES}	V_{GE} = 0 V, V_{CE} = V_{CES}	T_j = 25 °C			0,1	mA
		T_j = 125 °C		0,2		mA
I_{GES}	V_{CE} = 0 V, V_{GE} = 20 V	T_j = 125 °C			200	nA
V_{CE0}		T_j = 25 °C		1,1	1,3	V
		T_j = 125 °C		1	1,2	V
r_{CE}	V_{GE} = 15 V	T_j = 25°C		12		mΩ
		T_j = 125°C		22		mΩ
$V_{CE(sat)}$	I_{Cnom} = 50 A, V_{GE} = 15 V	T_j = 25°C$_{chiplev.}$		1,9	2,3	V
		T_j = 125°C$_{chiplev.}$		2,1		V
C_{ies}				4,5		nF
C_{oes}	V_{CE} = , V_{GE} = V	f = MHz		0,33		nF
C_{res}				0,21		nF
$t_{d(on)}$						ns
t_r	R_{Gon} = 15 Ω	V_{CC} = 600V				ns
E_{on}		I_C = 50A		6		mJ
$t_{d(off)}$	R_{Goff} = 15 Ω	T_j = 125 °C				ns
t_f						ns
E_{off}				4,6		mJ
$R_{th(j-s)}$	per IGBT			0,51		K/W

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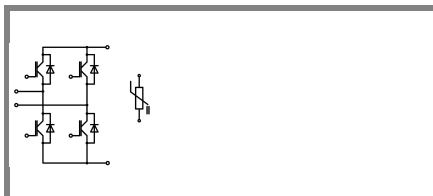
IGBT module

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Typical Applications*
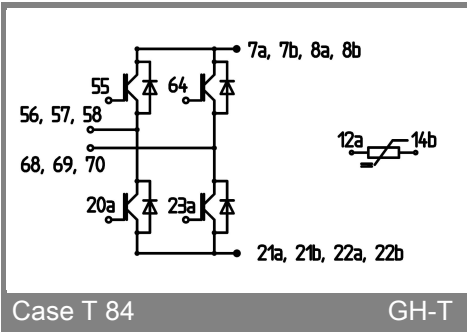
- Voltage regulator

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$_{chiplev.}$		2		V
		$T_j = 125$ °C$_{chiplev.}$		1,8		V
V_{F0}		$T_j = 125$ °C		1	1,2	V
r_F		$T_j = 125$ °C		16	22	mΩ
I_{RRM}	$I_F = 50$ A	$T_j = 125$ °C				A
Q_{rr}						µC
E_{rr}	$V_{CC}=600$V			4		mJ
$R_{th(j-s)D}$	per diode			0,7		K/W
Freewheeling Diode						
$V_F = V_{EC}$	$I_{Fnom} = $ A; $V_{GE} = $ V	$T_j = $ °C$_{chiplev.}$				V
V_{F0}		$T_j = $ °C				V
r_F		$T_j = $ °C				V
I_{RRM}	$I_F = $ A	$T_j = $ °C				A
Q_{rr}						µC
E_{rr}						mJ
	per diode					K/W
M_s	to heat sink		2,5		2,75	Nm
w				60		g
Temperature sensor						
R_{100}	$T_s= 100$°C ($R_{25}=5$kΩ)			493±5%		Ω

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

* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and written approval by SEMIKRON. We therefore strongly recommend prior consultation of our personal.

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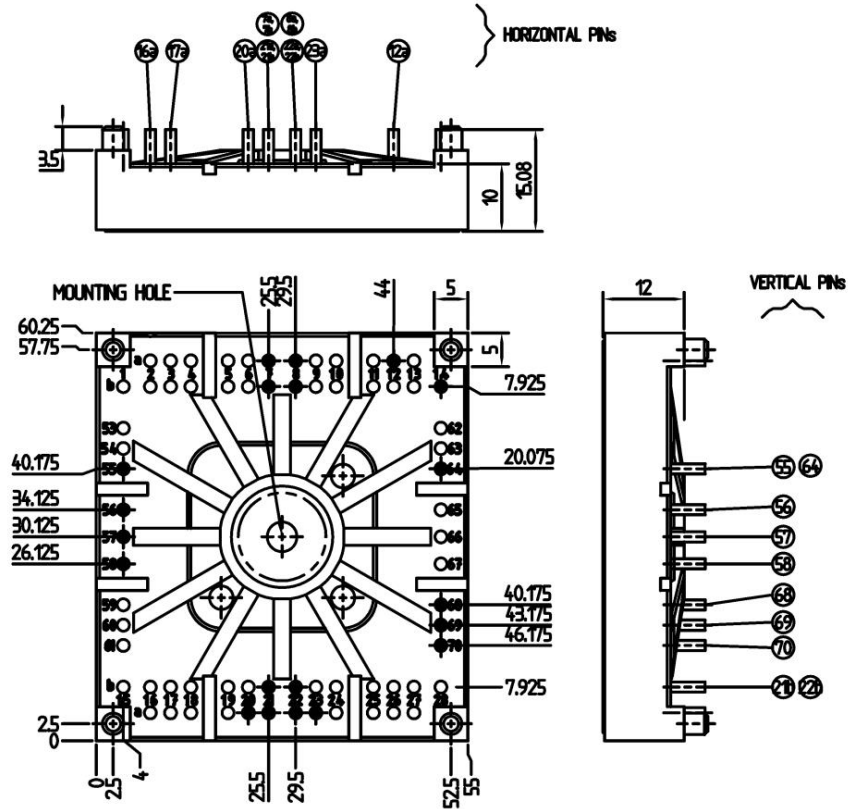
Case T84 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)

Case T 84   GH-T