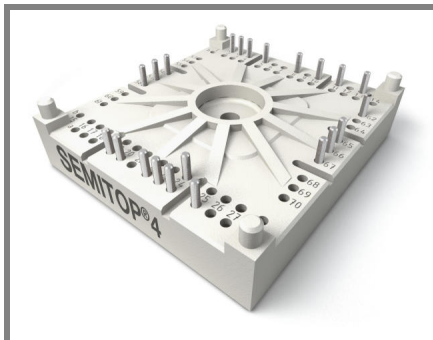


SK50GH12T4T



SEMITOP® 4

IGBT module

SK50GH12T4T

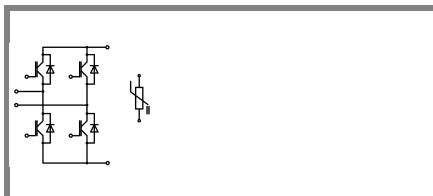
Target Data

Features

- One screw mounting module
- Fully compatible with SEMITOP®1,2,3
- Improved thermal performances by aluminium oxide substrate
- New IGBT4 Technology
- CAL 4 technology FWD
- Integrated NTC Temperature sensor

Typical Applications*

- Voltage regulator

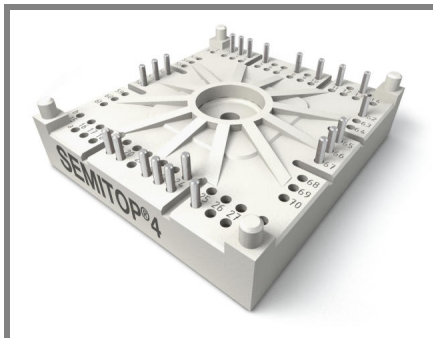


GH-T

Absolute Maximum Ratings		$T_s = 25\text{ °C}$, unless otherwise specified	
Symbol	Conditions	Values	Units
IGBT			
V_{CES}	$T_j = 25\text{ °C}$	1200	V
I_C	$T_j = 175\text{ °C}$	$T_s = 25\text{ °C}$	75
		$T_s = 70\text{ °C}$	60
I_{CRM}	$I_{CRM} = 3 \times I_{Cnom}$, $t_p \leq 1\text{ ms}$	150	A
V_{GES}		± 20	V
t_{psc}	$V_{CC} = 800\text{ V}$; $V_{GE} \leq 15\text{ V}$; $T_j = 150\text{ °C}$ $V_{CES} < 1200\text{ V}$	10	μs
Inverse Diode			
I_F	$T_j = 175\text{ °C}$	$T_s = 25\text{ °C}$	56
		$T_s = 70\text{ °C}$	45
I_{FRM}	$I_{FRM} = 3 \times I_{Fnom}$, $t_p \leq 1\text{ ms}$	150	A
I_{FSM}	$t_p = 10\text{ ms}$; half sine wave $T_j = 150\text{ °C}$	335	A
Module			
$I_{t(RMS)}$			A
T_{vj}		-40 ... +175	$^{\circ}\text{C}$
T_{stg}		-40 ... +125	$^{\circ}\text{C}$
V_{isol}	AC, 1 min.	2500	V

Characteristics		$T_c = 25\text{ °C}$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 1,7\text{ mA}$	5	5,8	6,5	V
I_{CES}	$V_{GE} = 0\text{ V}$, $V_{CE} = V_{CES}$	$T_j = 25\text{ °C}$		0,01	mA
		$T_j = 125\text{ °C}$		0,4	mA
I_{GES}	$V_{CE} = 0\text{ V}$, $V_{GE} = 20\text{ V}$			600	nA
V_{CE0}		$T_j = 25\text{ °C}$	0,8	0,9	V
		$T_j = 150\text{ °C}$	0,7	0,8	V
r_{CE}	$V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}$	20		m Ω
		$T_j = 150\text{ °C}$	30		m Ω
$V_{CE(sat)}$	$I_{Cnom} = 50\text{ A}$, $V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}_{chiplev.}$	1,8	2	V
		$T_j = 150\text{ °C}_{chiplev.}$	2,2	2,4	V
C_{ies}	$V_{CE} = 25$, $V_{GE} = 0\text{ V}$	$f = 1\text{ MHz}$	5,54		nF
C_{oes}			0,41		nF
C_{res}			0,32		nF
Q_G	$V_{GE} = -7\text{ V} \dots +15\text{ V}$		375		nC
R_{Gint}	$T_j = 25\text{ °C}$		4		Ω
$t_{d(on)}$	$R_{Gon} = 32\ \Omega$ $di/dt = 920\text{ A}/\mu\text{s}$	$V_{CC} = 600\text{ V}$ $I_C = 50\text{ A}$	63		ns
t_r			65		ns
E_{on}			8,3		mJ
$t_{d(off)}$	$R_{Goff} = 32\ \Omega$	$T_j = 150\text{ °C}$	521		ns
t_f			80		ns
E_{off}			5		mJ
$R_{th(j-s)}$	per IGBT		0,65		K/W

SK50GH12T4T



SEMITOP® 4

IGBT module

SK50GH12T4T

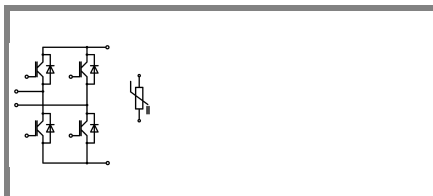
Target Data

Features

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- Improved thermal performances by aluminium oxide substrate
- New IGBT4 Technology
- CAL 4 technology FWD
- Integrated NTC Temperature sensor

Typical Applications*

- Voltage regulator

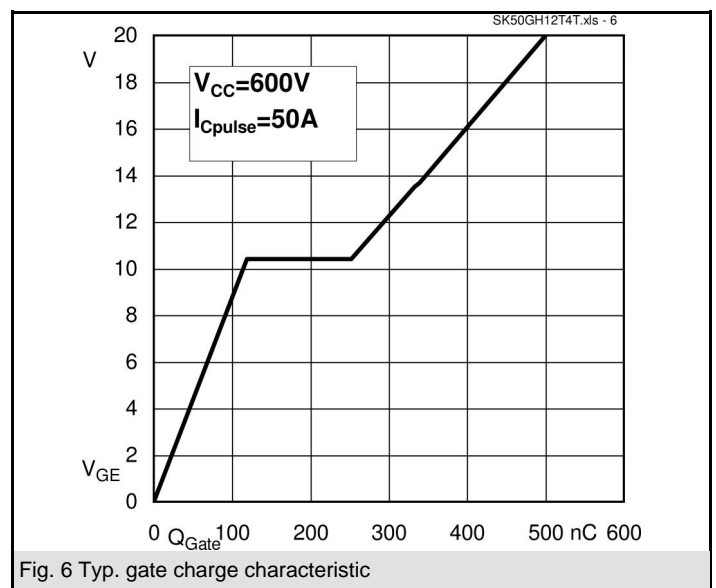
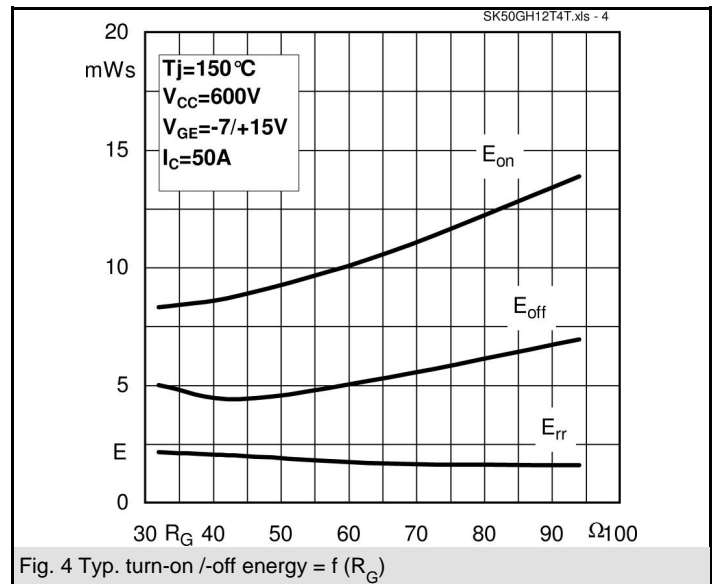
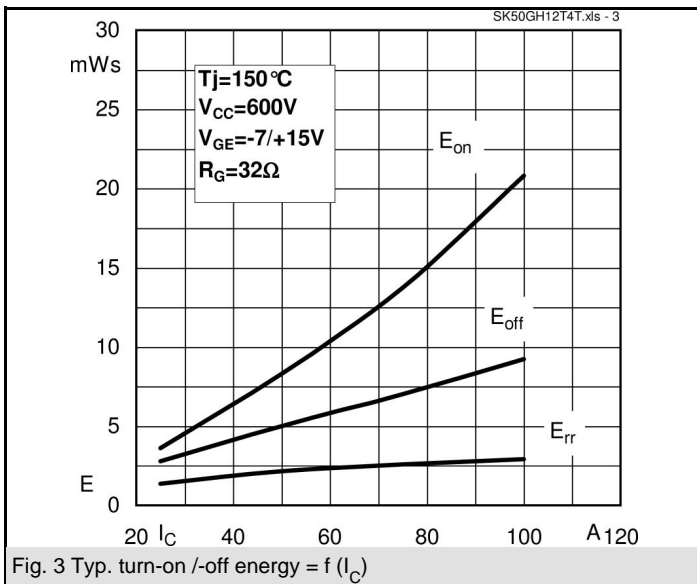
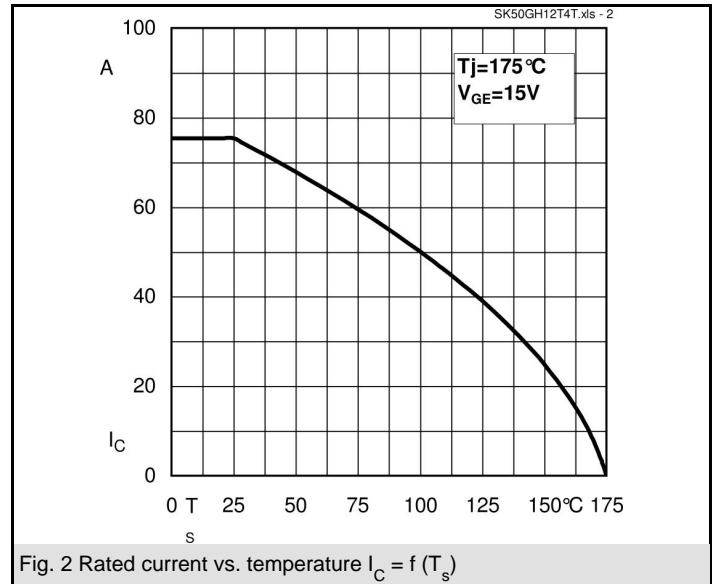
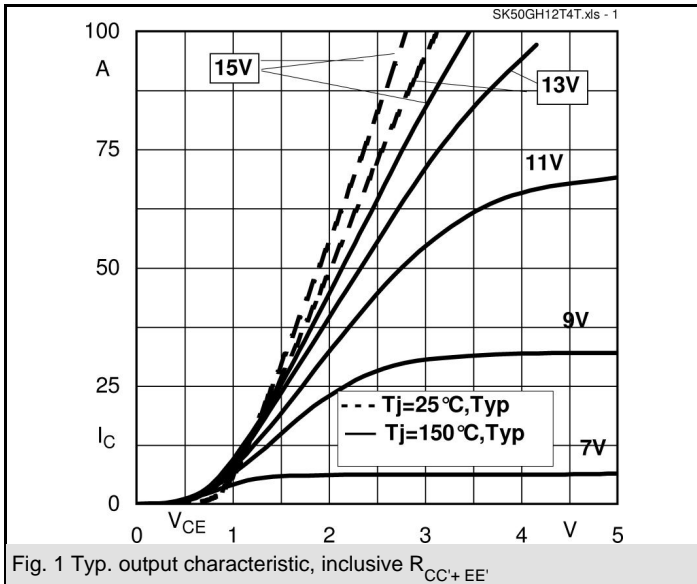


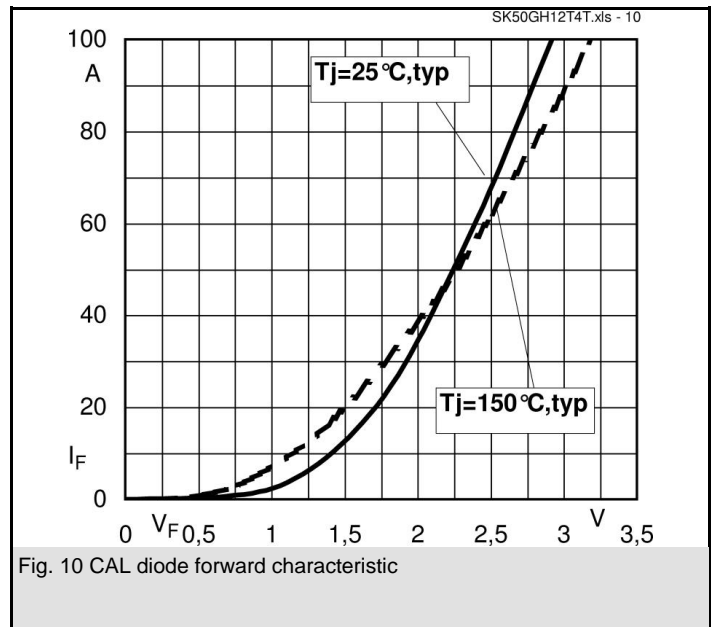
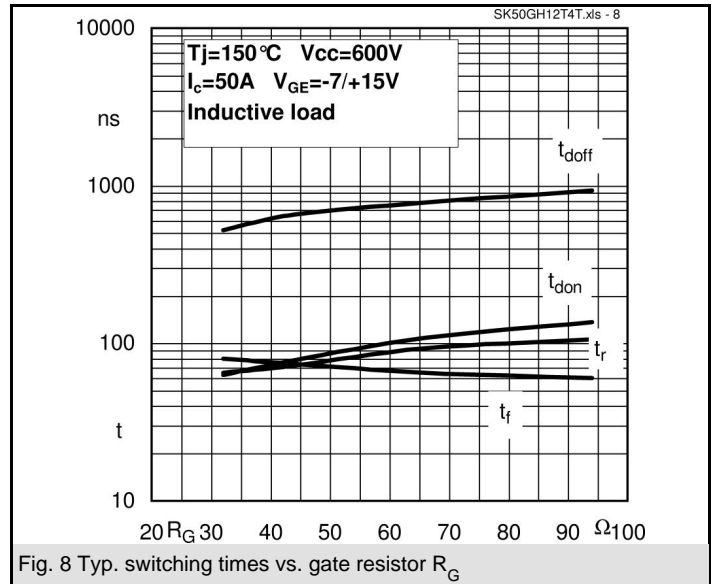
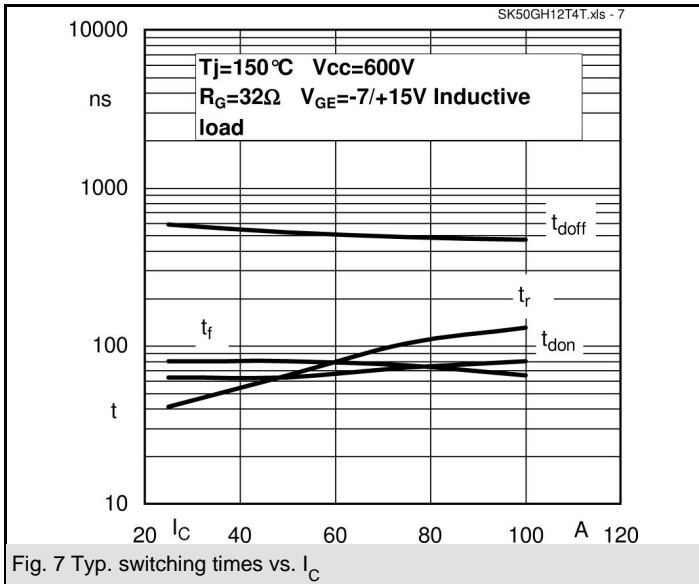
GH-T

Characteristics			min.	typ.	max.	Units
Symbol	Conditions					
Inverse Diode						
$V_F = V_{EC}$	$I_{Fnom} = 50 \text{ A}; V_{GE} = 0 \text{ V}$	$T_j = 25 \text{ }^\circ\text{C}_{chiplev.}$		2,2	2,5	V
		$T_j = 150 \text{ }^\circ\text{C}_{chiplev.}$		2,1	2,45	V
V_{F0}		$T_j = 25 \text{ }^\circ\text{C}$		1,3	1,5	V
		$T_j = 150 \text{ }^\circ\text{C}$		0,9	1,1	V
r_F		$T_j = 25 \text{ }^\circ\text{C}$		18		mΩ
		$T_j = 150 \text{ }^\circ\text{C}$		24		mΩ
I_{RRM}	$I_F = 50 \text{ A}$	$T_j = 150 \text{ }^\circ\text{C}$		30		A
Q_{rr}	$di/dt = 920 \text{ A}/\mu\text{s}$			7,2		μC
E_{rr}	$V_{CC} = 600 \text{ V}$			2,15		mJ
$R_{th(j-s)D}$	per diode			1,05		K/W
Freewheeling Diode						
$V_F = V_{EC}$	$I_{Fnom} = \text{A}; V_{GE} = \text{V}$	$T_j = \text{ }^\circ\text{C}_{chiplev.}$				V
V_{F0}		$T_j = \text{ }^\circ\text{C}$				V
r_F		$T_j = \text{ }^\circ\text{C}$				V
I_{RRM}	$I_F = \text{A}$	$T_j = \text{ }^\circ\text{C}$				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}	$T_s = 100 \text{ }^\circ\text{C} (R_{25} = 5 \text{ k}\Omega)$			493±5%		Ω

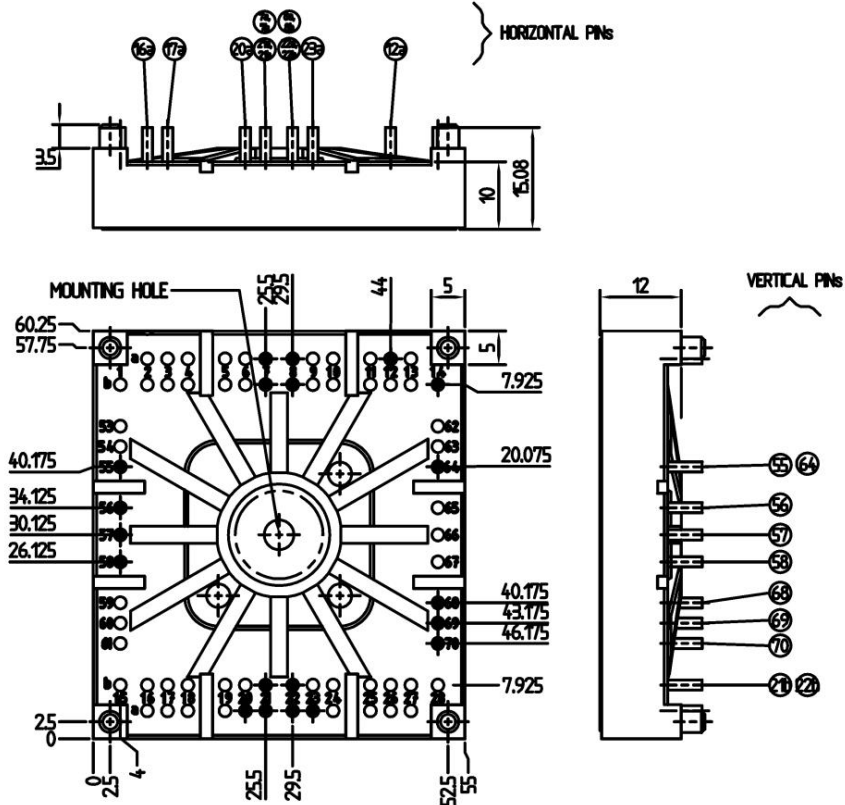
This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

* 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.

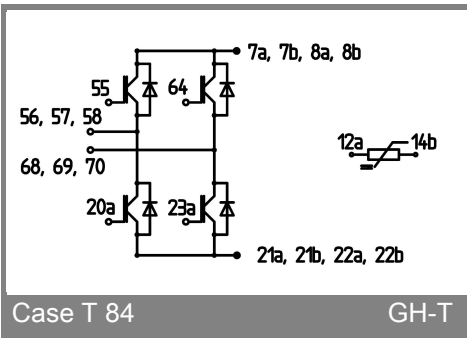




SK50GH12T4T



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



Case T 84

GH-T