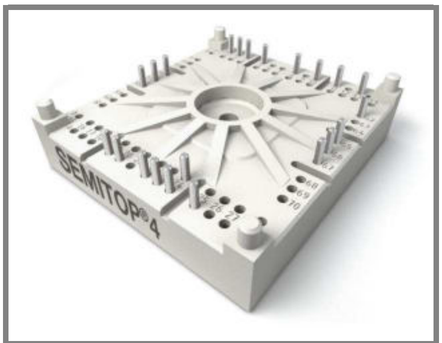
SK100GH12T4T



SEMITOP®4

IGBT module

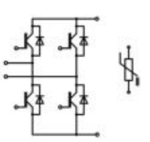
SK100GH12T4T

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*

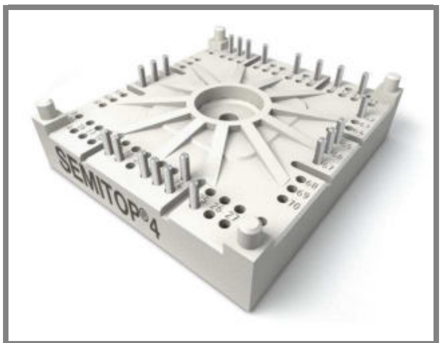
- Voltage regulator



GH-T

Absolute Maximum Ratings		T_s = 25 °C, unless otherwise specified		
Symbol	**Conditions**		**Values**	**Units**
IGBT				
V_{CES}	T_j = 25 °C		1200	V
I_C	T_j = 175 °C	T_s = 25 °C	126	A
		T_s = 70 °C	100	A
I_{CRM}	I_{CRM}= 3 x I_{Cnom} , $t_p \le$ 1ms		300	A
V_{GES}			±20	V
t_{psc}	V_{CC} = 800 V; $V_{GE} \le$ 15 V; VCES < 1200 V	T_j = 150 °C	10	µs
Inverse Diode				
I_F	T_j = 175 °C	T_s = 25 °C	102	A
		T_s = 70 °C	81	A
I_{FRM}	I_{FRM}= 3 x I_{Fnom} , $t_p \le$ 1ms		300	A
I_{FSM}	t_p = 10 ms; half sine wave	T_j = 150 °C	715	A
Module				
$I_{t(RMS)}$				A
T_{vj}			-40 ... +175	°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 = 3,4 mA		5	5,8	6,5	V
I_{CES}	V_{GE} = 0 V, V_{CE} = V_{CES}	T_j = 25 °C			1,68	mA
		T_j = 125 °C		0,4		mA
I_{GES}	V_{CE} = 0 V, V_{GE} = 20 V	T_j = 125 °C			1200	nA
V_{CE0}		T_j = 25 °C		0,8	0,9	V
		T_j = 150 °C		0,7	0,8	V
r_{CE}	V_{GE} = 15 V	T_j = 25°C		10		mΩ
		T_j = 150°C		15		mΩ
$V_{CE(sat)}$	I_{Cnom} = 100 A, V_{GE} = 15 V	T_j = 25°$C_{chiplev.}$		1,8	2	V
		T_j = 150°$C_{chiplev.}$		2,2	2,4	V
C_{ies}	V_{CE} = 25, V_{GE} = 0 V	f = 1 MHz		5,54		nF
C_{oes}				0,41		nF
C_{res}				0,32		nF
Q_G	V_{GE}=-7V...+15V			750		nC
R_{Gint}	T_j = 25 °C			2		Ω
$t_{d(on)}$	R_{Gon} = 16 Ω	V_{CC} = 600V		63		ns
t_r	di/dt = 1800 A/µs	I_C= 100A		65		ns
E_{on}		T_j = 150 °C		16,6		mJ
$t_{d(off)}$	R_{Goff} = 16 Ω			521		ns
t_f	di/dt = 1800 A/µs			80		ns
E_{off}				10		mJ
$R_{th(j-s)}$	per IGBT			0,43		K/W



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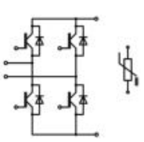


GH-T

Characteristics						
Symbol	**Conditions**		**min.**	**typ.**	**max.**	**Units**
Inverse Diode						
$V_F = V_{EC}$	I_{Fnom} = 100 A; V_{GE} = 0 V	T_j = 25 °$C_{chiplev.}$		2,2	2,5	V
		T_j = 150 °$C_{chiplev.}$		2,1	2,45	V
V_{F0}		T_j = 25 °C		1,3	1,5	V
		T_j = 150 °C		0,9	1,1	V
r_F		T_j = 25 °C		9,5	10,5	mΩ
		T_j = 150 °C		13	14	mΩ
I_{RRM}	I_F = 100 A	T_j = 150 °C		52		A
Q_{rr}	di/dt = 1800 A/µs			14		µC
E_{rr}	V_{CC}=600V			5,2		mJ
$R_{th(j-s)D}$	per diode			0,62		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}=5kΩ)			493±5%		Ω

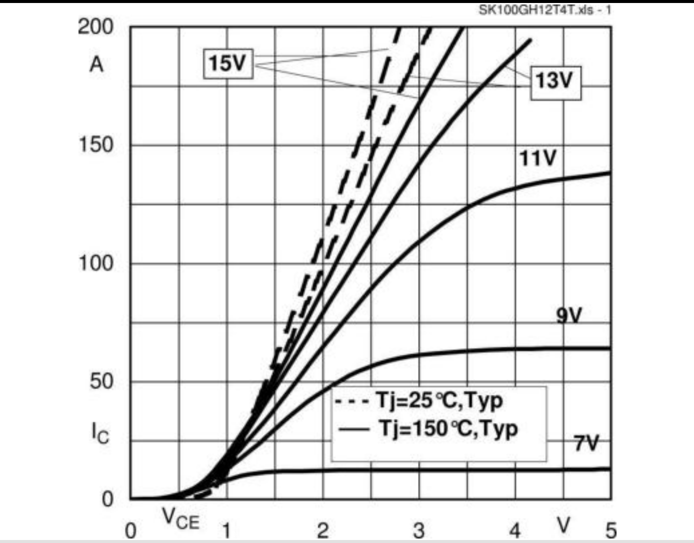


Fig. 1 Typ. output characteristic, inclusive $R_{CC'+EE'}$

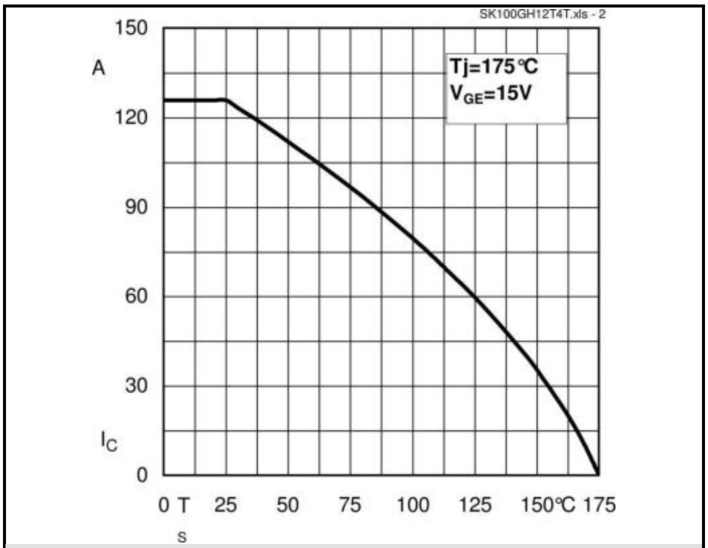


Fig. 2 Rated current vs. temperature $I_C = f(T_s)$

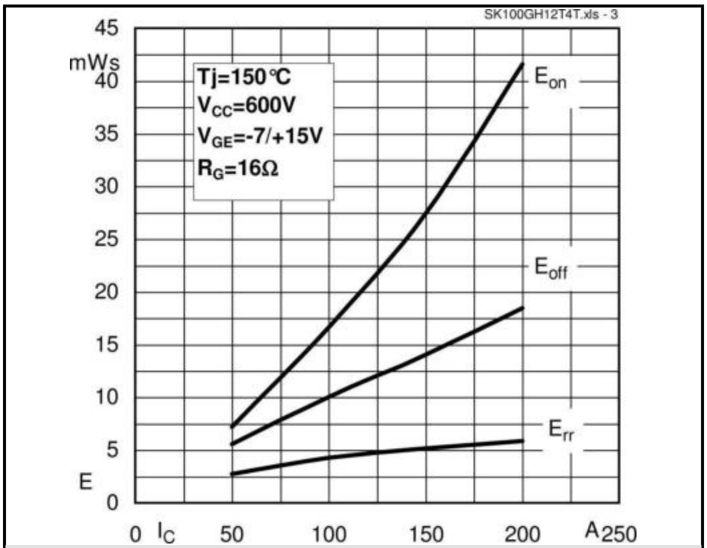


Fig. 3 Typ. turn-on /-off energy = f (I_C)

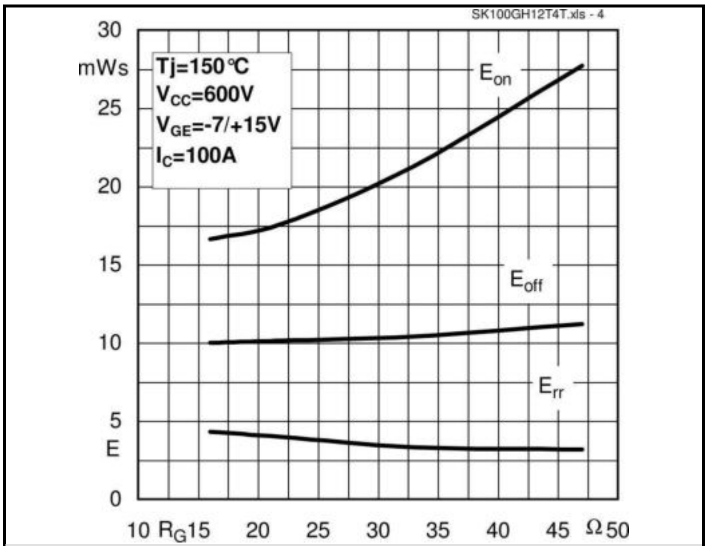


Fig. 4 Typ. turn-on /-off energy = f (R_G)

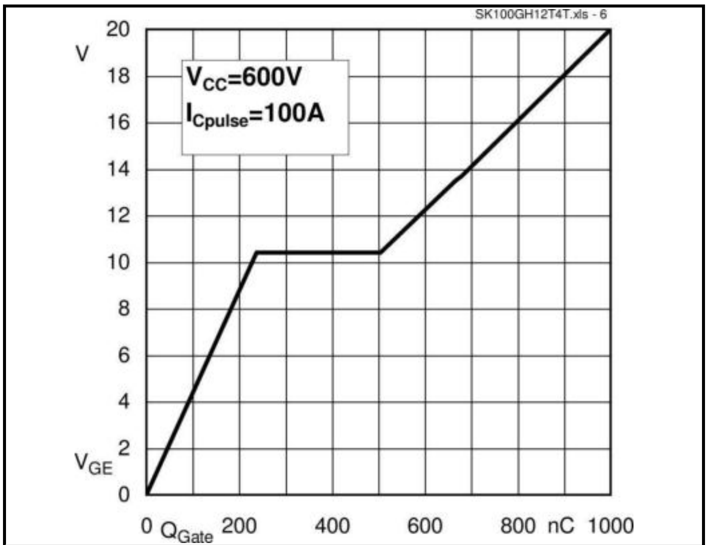


Fig. 6 Typ. gate charge characteristic

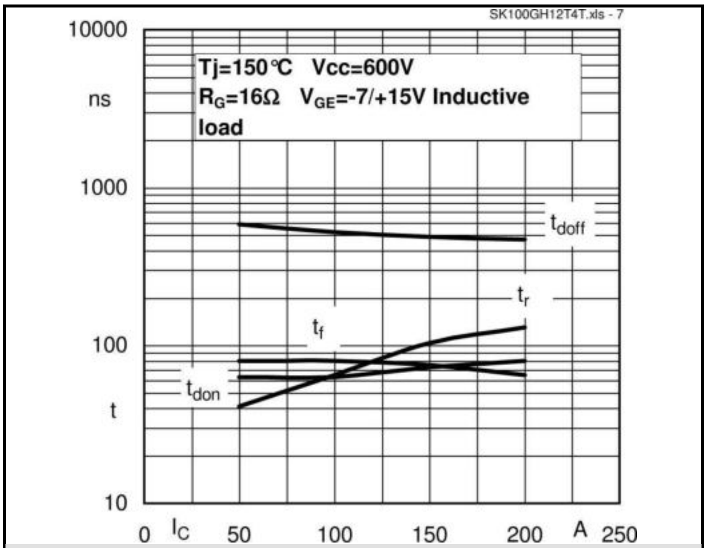


Fig. 7 Typ. switching times vs. I_C

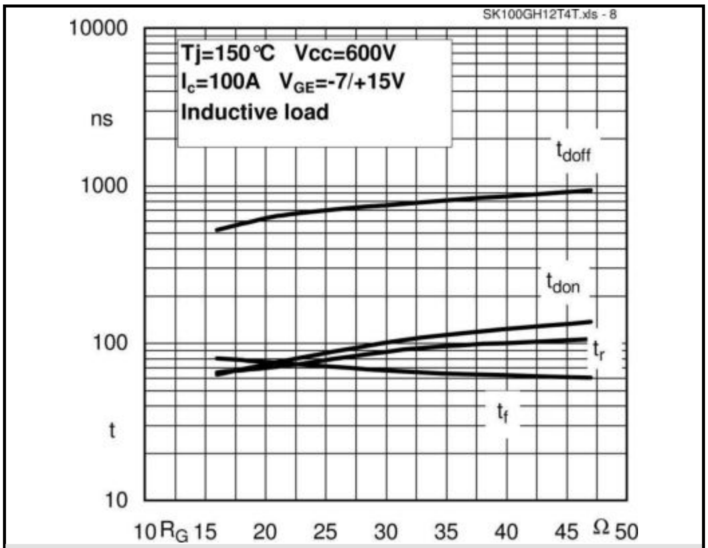


Fig. 8 Typ. switching times vs. gate resistor R_G

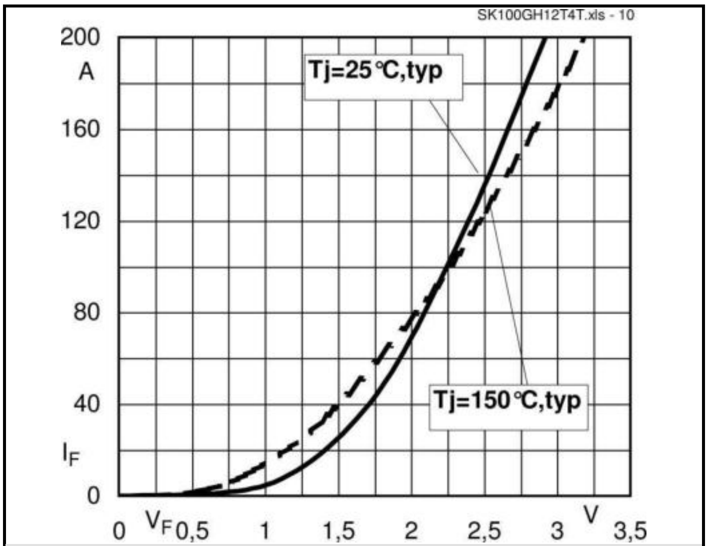
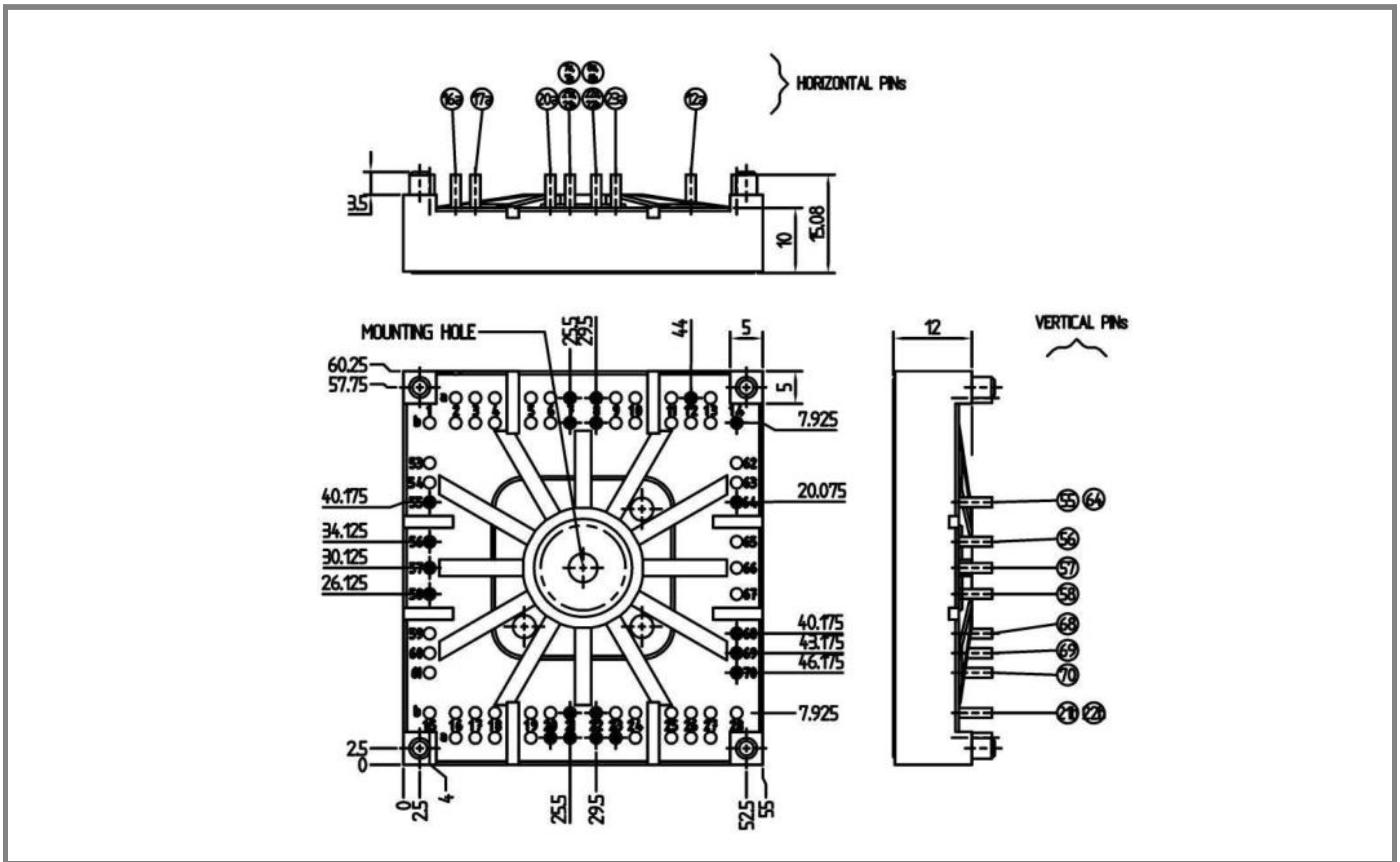
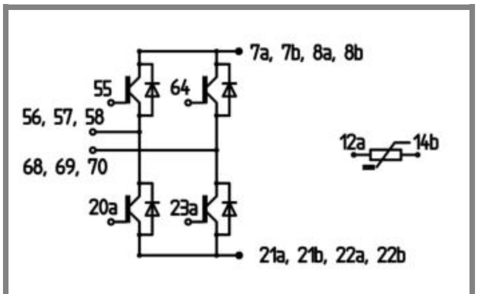


Fig. 10 CAL diode forward characteristic



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



Case T 84 GH-T

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

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