

SEMITOP® 3

IGBT Module

SK100GB12T4 T

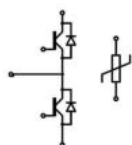
Features

- One screw mounting module
- Trench4 IGBT technology
- CAL4 technology FWD
- Integrated NTC temperature sensor

Typical Applications*

Remarks

- $V_{CE,sat}$, V_F = chip level value

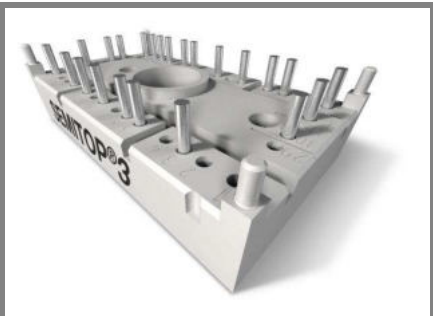


GB-T

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	100	A
		T _s = 70 °C	80	A
I _{CRM}	I _{CRM} = 3 x I _{Cnom}		300	A
V _{GES}			± 20	V
t _{psc}	V _{CC} = 800 V; V _{GE} ≤ 15 V; T _j = 150 °C V _{CES} < 1200 V		10	µs
Inverse Diode				
I _F	T _j = 175 °C	T _s = 25 °C	85	A
		T _s = 70 °C	65	A
I _{FRM}	I _{FRM} = 3 x I _{Fnom}		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		$T_s = 25^\circ\text{C}$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 3,4\text{ mA}$	5	5,8	6,5	V
I_{CES}	$V_{GE} = 0\text{ V}$, $V_{CE} = V_{CES}$			$T_j = 25^\circ\text{C}$	1,0
				$T_j = 125^\circ\text{C}$	mA
I_{GES}	$V_{CE} = 0\text{ V}$, $V_{GE} = 20\text{ V}$			$T_j = 25^\circ\text{C}$	1200
				$T_j = 125^\circ\text{C}$	nA
V_{CE0}				$T_j = 25^\circ\text{C}$	1,1
				$T_j = 150^\circ\text{C}$	1,2
r_{CE}	$V_{GE} = 15\text{ V}$			$T_j = 25^\circ\text{C}$	7,5
				$T_j = 150^\circ\text{C}$	12,5
$V_{CE(sat)}$	$I_{Cnom} = 100\text{ A}$, $V_{GE} = 15\text{ V}$			$T_j = 25^\circ\text{C}_{chiplev.}$	1,85
				$T_j = 150^\circ\text{C}_{chiplev.}$	2,25
C_{ies}	$V_{CE} = 25$, $V_{GE} = 0\text{ V}$			$f = 1\text{ MHz}$	5,54
C_{oes}					0,41
C_{res}					0,32
Q_G	$V_{GE} = -7\text{ V} \dots +15\text{ V}$		750		nC
R_{Gint}	$T_j = 25^\circ\text{C}$		2		Ω
$t_{d(on)}$	$R_{Gon} = 16\ \Omega$ $di/dt = 1800\text{ A}/\mu\text{s}$	$V_{CC} = 600\text{ V}$ $I_C = 100\text{ A}$			63
t_r					65
E_{on}					16,6
$t_{d(off)}$	$R_{Goff} = 16\ \Omega$ $di/dt = 1800\text{ A}/\mu\text{s}$	$T_j = 150^\circ\text{C}$ $V_{GE} = \pm 15\text{ V}$			521
					80
					10
$R_{th(j-s)}$	per IGBT		0,6		K/W

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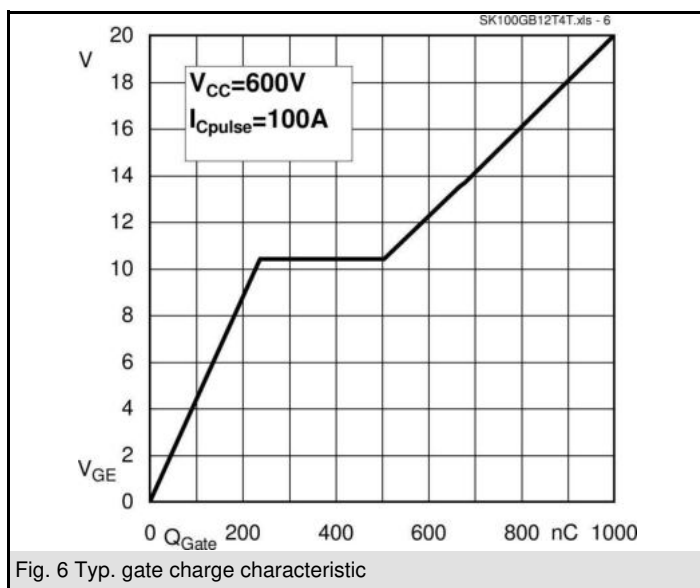
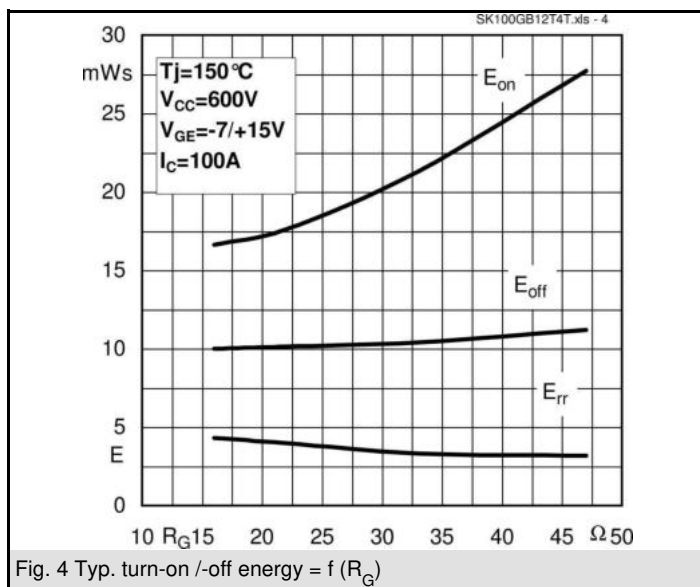
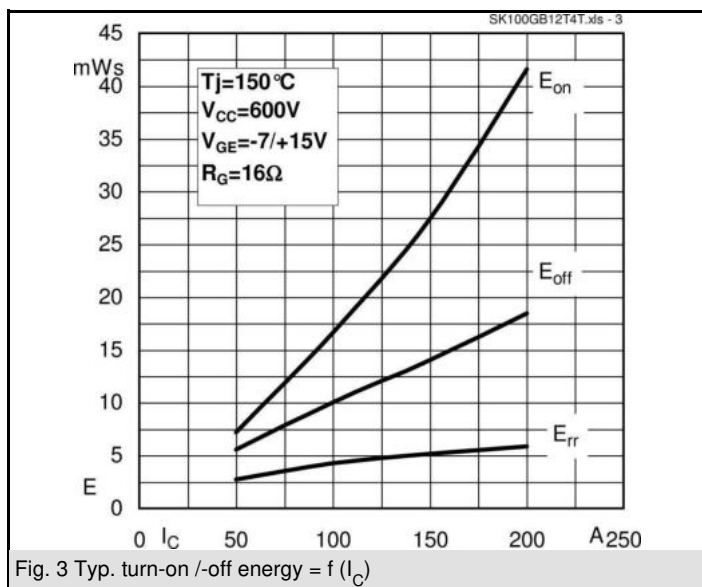
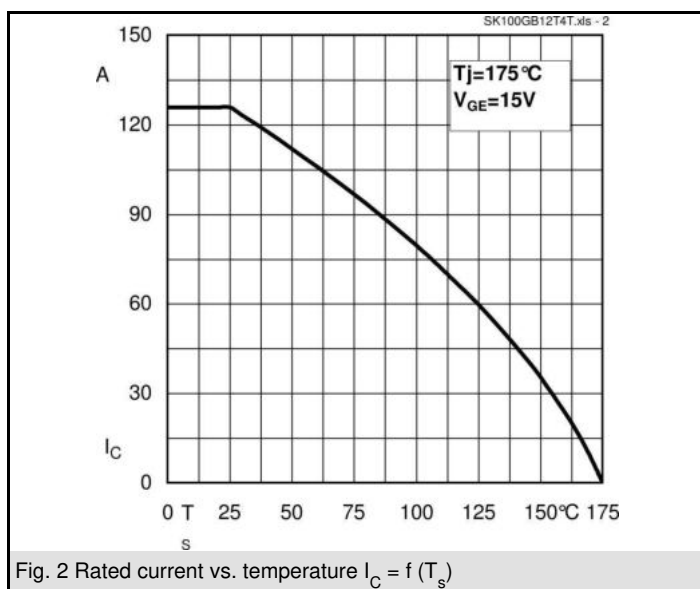
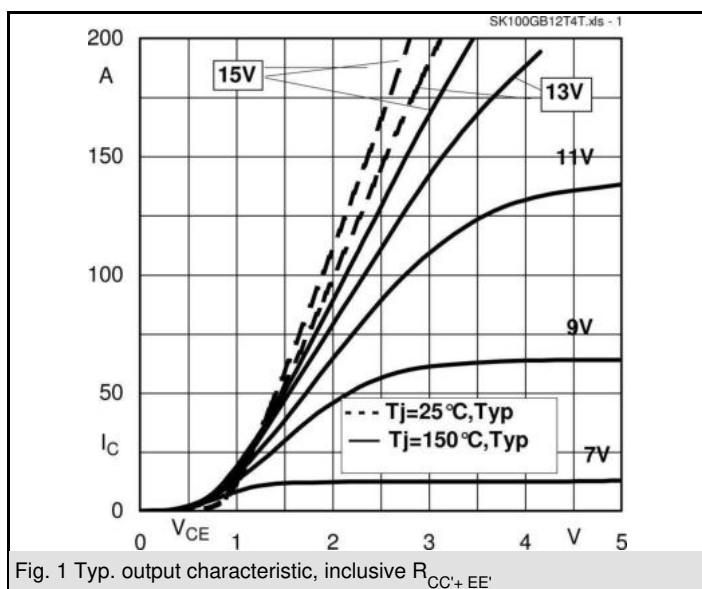
Remarks

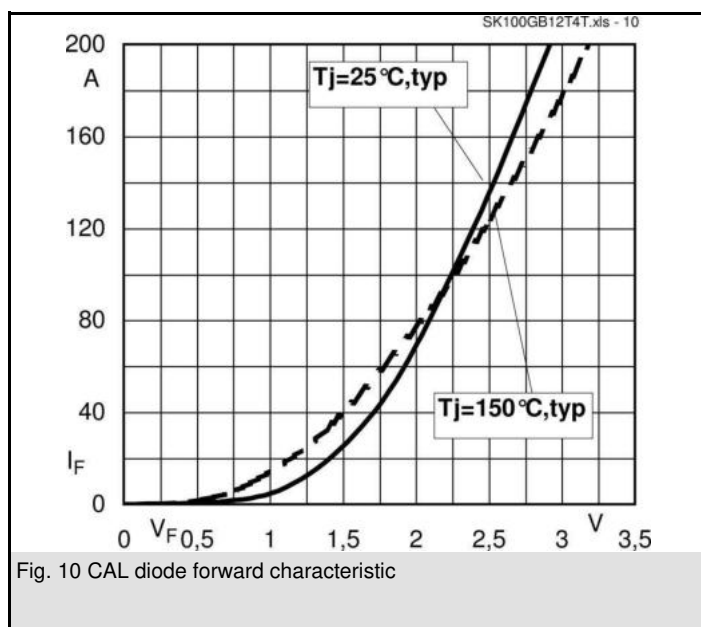
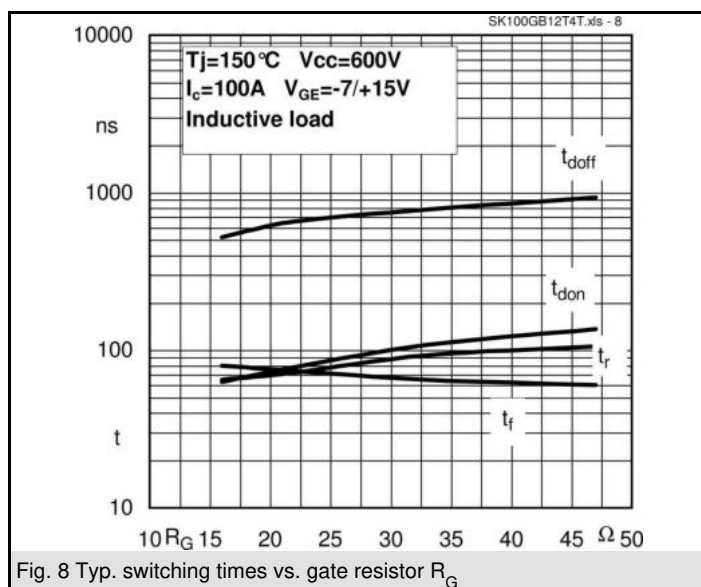
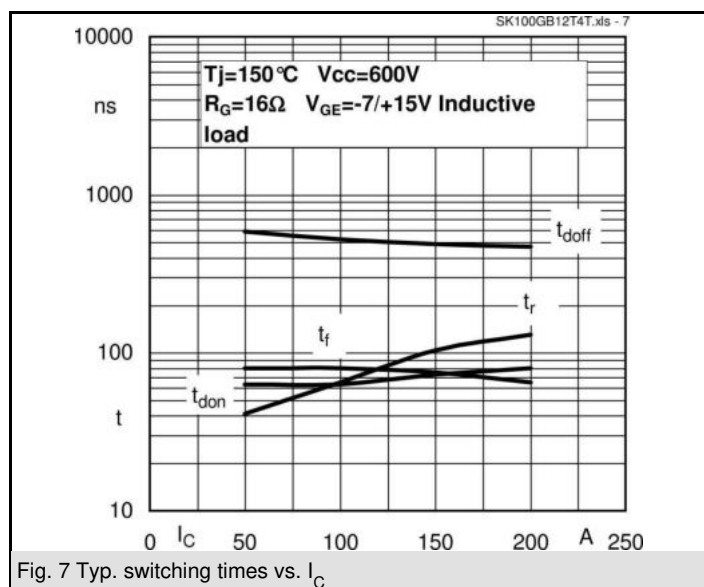
- $V_{CE,sat}$, V_F = chip level value

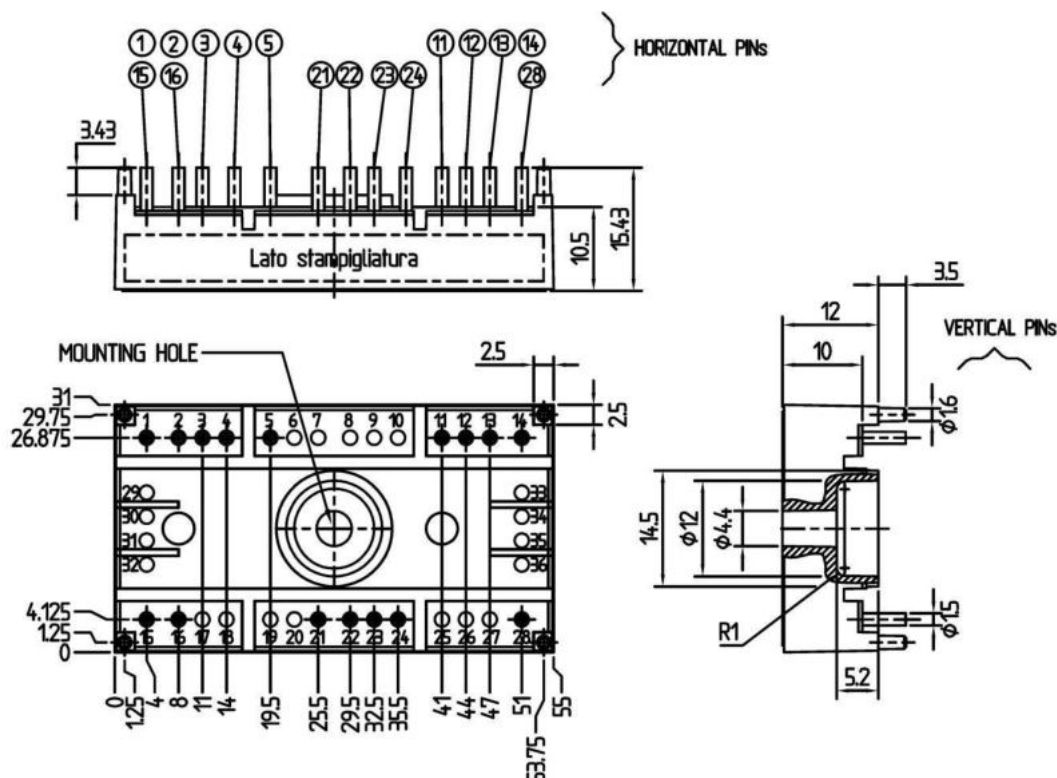
Characteristics						
Symbol	Conditions		min.	typ.	max.	Units
Inverse Diode						
V _F = V _{EC}	I _{Fnom} = 100 A; V _{GE} = 0 V	T _j = 25 °C _{chiplev.}		2,25	2,55	V
		T _j = 150 °C _{chiplev.}		2,2	2,5	V
V _{F0}		T _j = 25 °C		1,3	1,5	V
		T _j = 150 °C		0,9	1,1	V
r _F		T _j = 25 °C		9,5	10,5	mΩ
		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			0,87		K/W
M _s	to heat sink				2,5	Nm
w				30		g
Temperature sensor						
R ₁₀₀	T _s =100°C (R ₂₅ =5kΩ)			493±5%		Ω



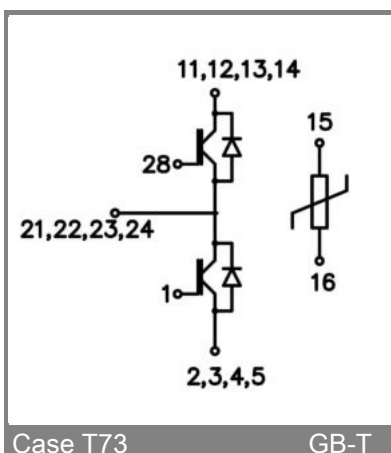
GB-T







Case T73 (Suggested hole diameter for the solder pins and mounting plastic pins: 2mm)



Case T73

GB-T

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

*IMPORTANT INFORMATION AND WARNINGS

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