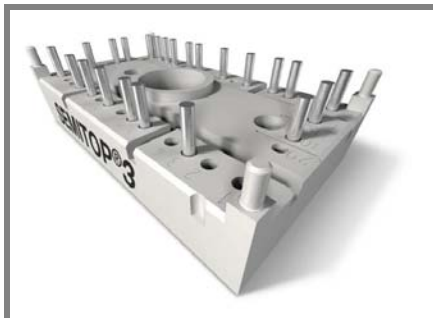


SK50GB12T4T



SEMITOP® 3

IGBT Module

SK50GB12T4T

Target Data

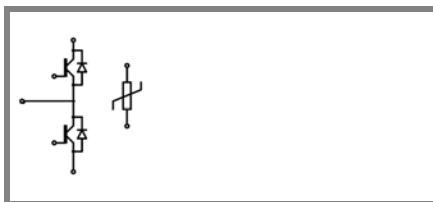
Features

- 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

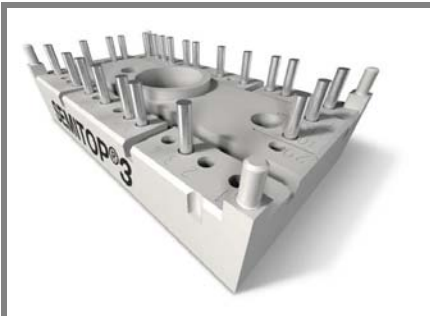


GB-T

Absolute Maximum Ratings		$T_s = 25\text{ °C}$, unless otherwise specified		
Symbol	Conditions	Values		Units
IGBT				
V_{CES}	$T_j = 25\text{ °C}$	1200		V
I_C	$T_j = 175\text{ °C}$	$T_s = 25\text{ °C}$	71	A
		$T_s = 70\text{ °C}$	56	A
I_{CRM}	$I_{CRM} = 3 \times I_{Cnom}$	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	$T_j = 175\text{ °C}$	$T_s = 25\text{ °C}$	50	A
		$T_s = 70\text{ °C}$	40	A
I_{FRM}	$I_{FRM} = 3 \times I_{Fnom}$	150		A
I_{FSM}	$t_p = 10\text{ ms}$; half sine wave $T_j = 150\text{ °C}$	265		A
Module				
$I_{t(RMS)}$				A
T_{vj}		-40 ... +175		°C
T_{stg}		-40 ... +125		°C
V_{isol}	AC, 1 min.	2500		V

Characteristics		$T_s = 25\text{ °C}$, 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
		$T_j = 125\text{ °C}$			mA
I_{GES}	$V_{CE} = 0\text{ V}$, $V_{GE} = 20\text{ V}$	$T_j = 25\text{ °C}$	600		nA
		$T_j = 125\text{ °C}$			nA
V_{CE0}		$T_j = 25\text{ °C}$	1,1	1,3	V
		$T_j = 150\text{ °C}$	1	1,2	V
r_{CE}	$V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}$	15		mΩ
		$T_j = 150\text{ °C}$	25		mΩ
$V_{CE(sat)}$	$I_{Cnom} = 50\text{ A}$, $V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}_{chiplev.}$	1,85	2,05	V
		$T_j = 150\text{ °C}_{chiplev.}$	2,25	2,45	V
C_{ies}	$V_{CE} = 25$, $V_{GE} = 0\text{ V}$	2,77		nF	
C_{oes}		0,2		nF	
C_{res}		0,16		nF	
Q_G	$V_{GE} = -7V...+15V$	375		nC	
R_{Gint}	$T_j = 25\text{ °C}$	4		Ω	
$t_{d(on)}$	$R_{Gon} = 32\text{ Ω}$ $di/dt = 920\text{ A/μs}$	63		ns	
t_r		65		ns	
E_{on}		$V_{CC} = 600V$ $I_C = 50A$	8,3		mJ
$t_{d(off)}$	$R_{Goff} = 32\text{ Ω}$ $di/dt = 920\text{ A/μs}$	521		ns	
t_f		$T_j = 150\text{ °C}$ $V_{GE} = \pm 15\text{ V}$	80		ns
E_{off}		5		mJ	
$R_{th(j-s)}$	per IGBT	0,9		K/W	

SK50GB12T4T



SEMITOP® 3

IGBT Module

SK50GB12T4T

Target Data

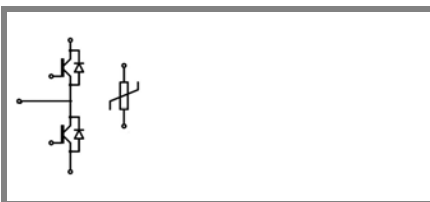
Features

- 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

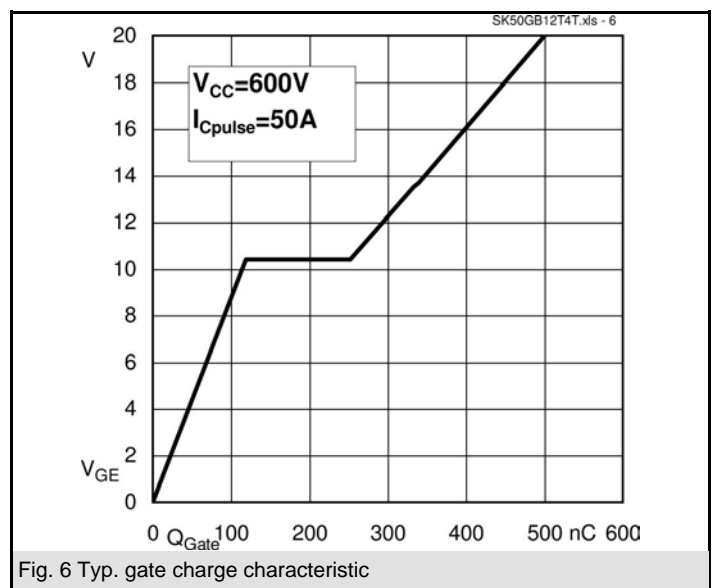
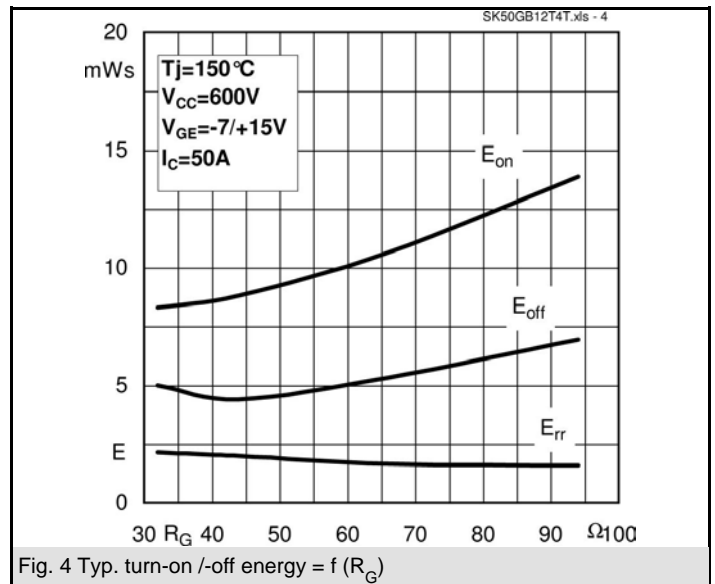
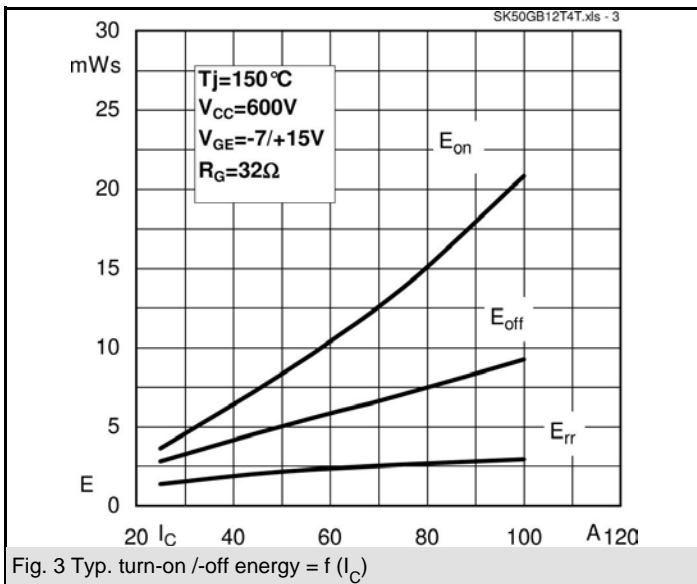
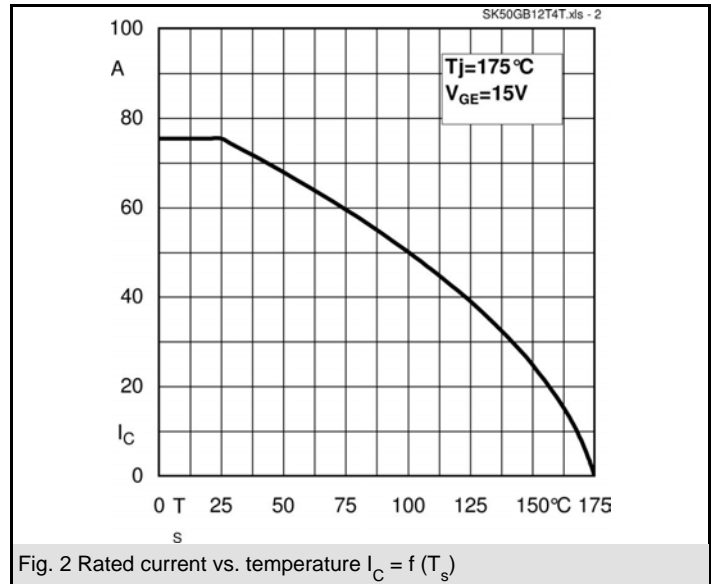
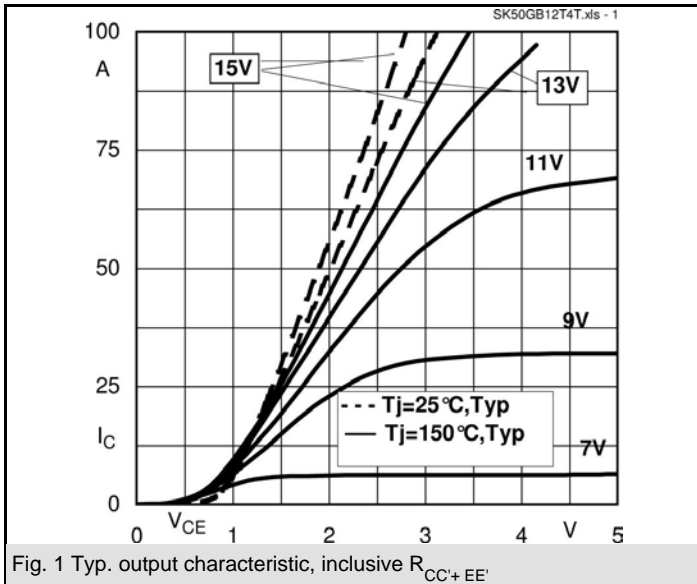


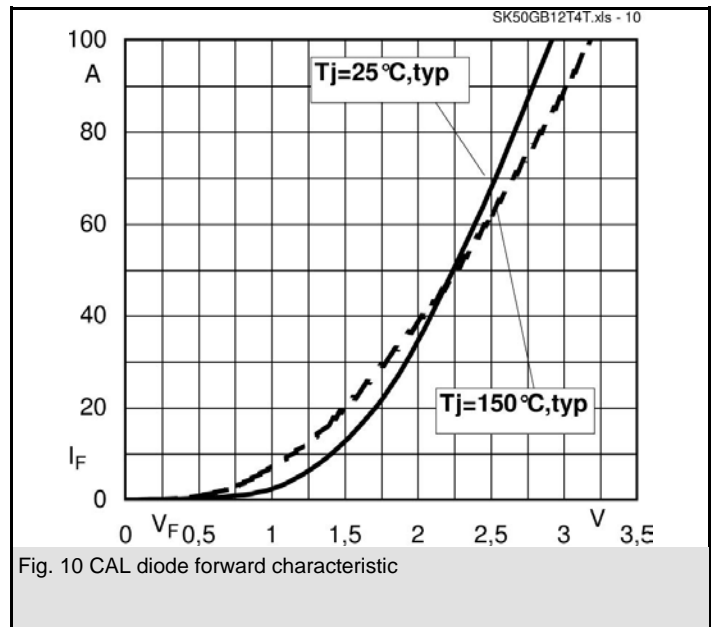
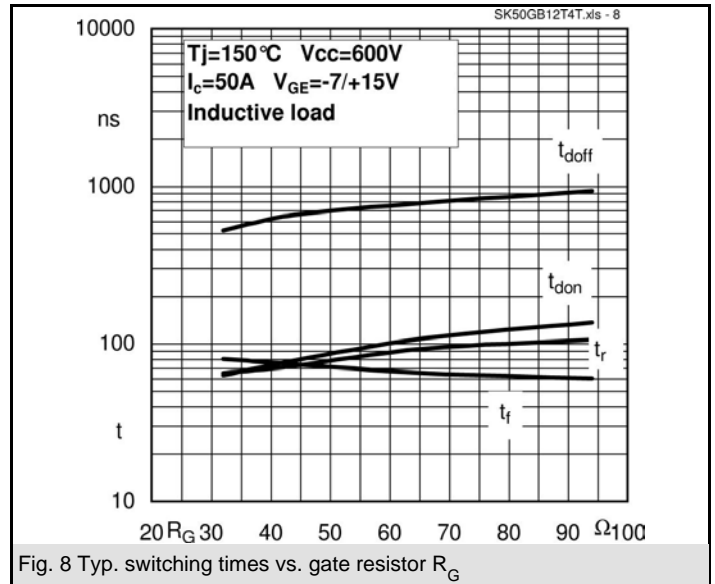
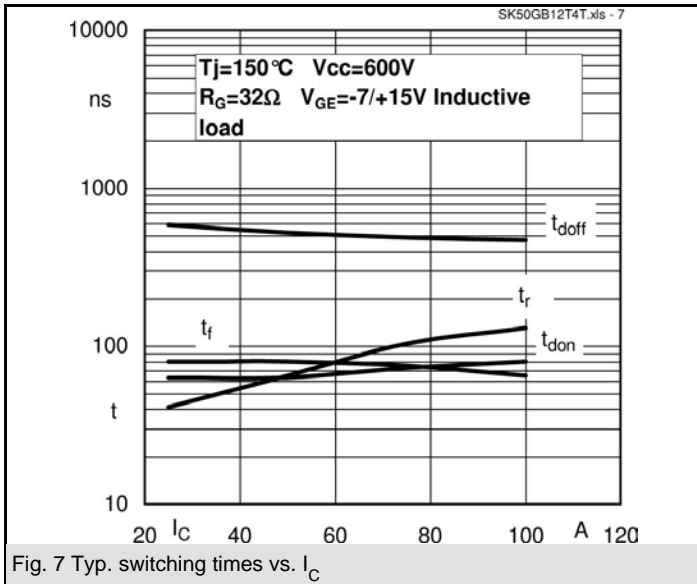
GB-T

Characteristics			min.	typ.	max.	Units
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	2,55	V
		$T_j = 150 \text{ }^\circ\text{C}_{chiplev.}$		2,18	2,5	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		$T_j = 25 \text{ }^\circ\text{C}$		19	21	m Ω
		$T_j = 150 \text{ }^\circ\text{C}$		26	28	m Ω
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			1,24		K/W
M_s	to heat sink				2,5	Nm
w				30		g
Temperature sensor						
R_{100}	$T_s = 100^\circ\text{C}$ ($R_{25} = 5\text{k}\Omega$)			493 \pm 5%		Ω

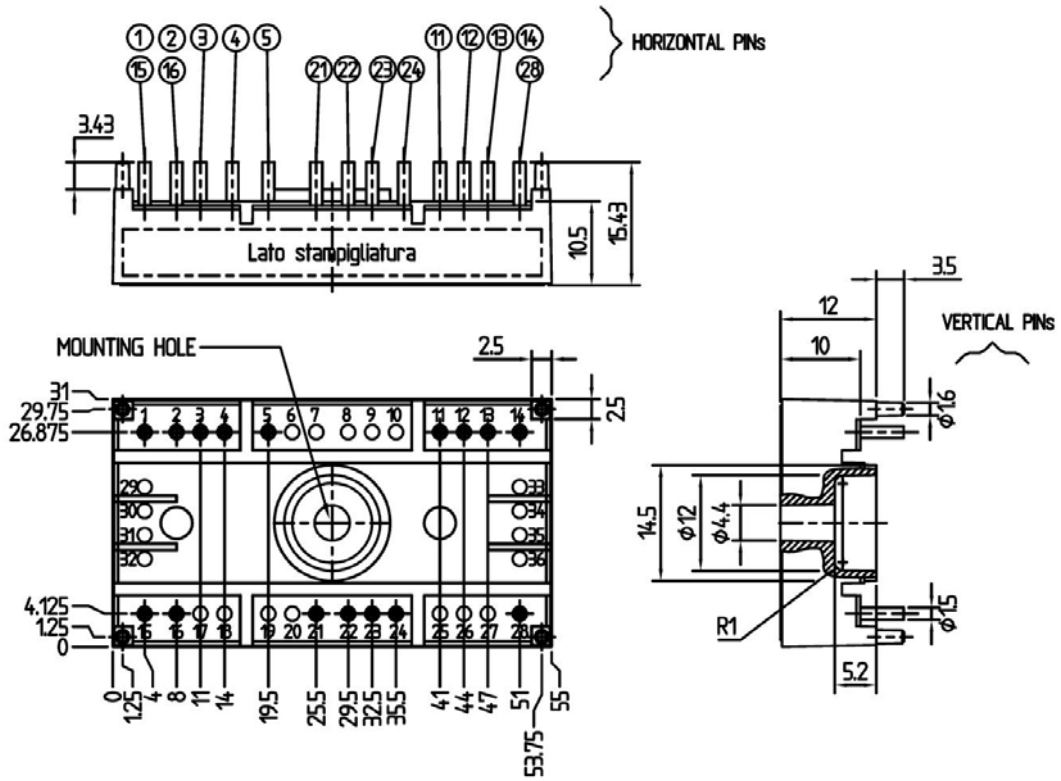
This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

* 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.

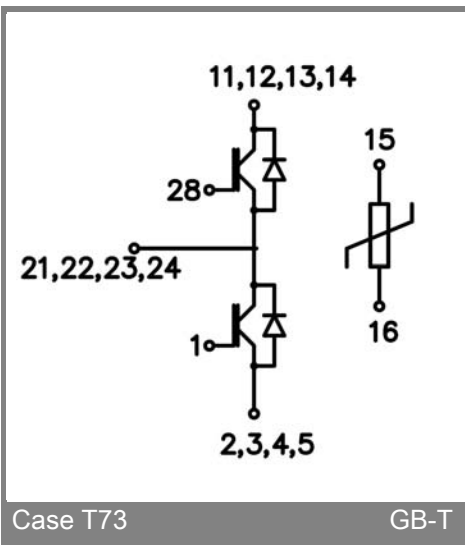




SK50GB12T4T



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



Case T73

GB-T