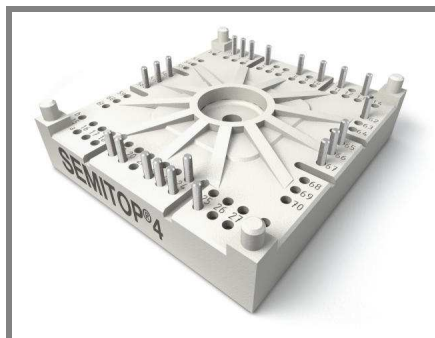


SK50GD12T4T



SEMITOP® 4

IGBT Module

SK50GD12T4T

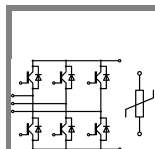
Features

- One screw mounting module
- Fully compatible with SEMITOP®1,2,3
- Improved thermal performances by aluminium oxide substrate
- Trench4 IGBT technology
- CAL4 technology FWD
- Integrated NTC temperature sensor

Typical Applications*

Remarks

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

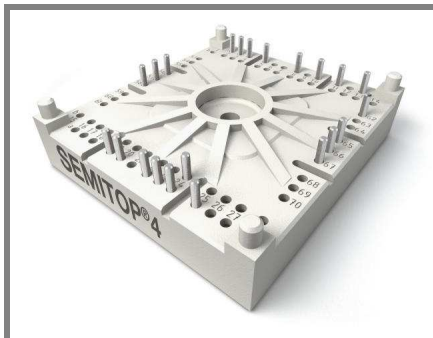


GD-T

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	A
		$T_s = 70\text{ °C}$	60	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	$T_j = 175\text{ °C}$	$T_s = 25\text{ °C}$	60	A
		$T_s = 70\text{ °C}$	45	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}	$V_{GE} = 0\text{ V}$, $V_{CE} = V_{CES}$	$T_j = 25\text{ °C}$	1,0		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	0,65		K/W	

SK50GD12T4T



SEMITOP® 4

IGBT Module

SK50GD12T4T

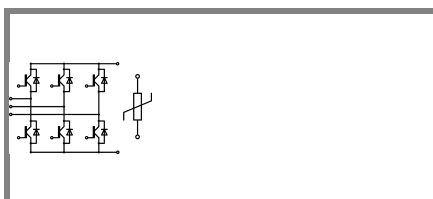
Features

- One screw mounting module
- Fully compatible with SEMITOP®1,2,3
- Improved thermal performances by aluminium oxide substrate
- Trench4 IGBT technology
- CAL4 technology FWD
- Integrated NTC temperature sensor

Typical Applications*

Remarks

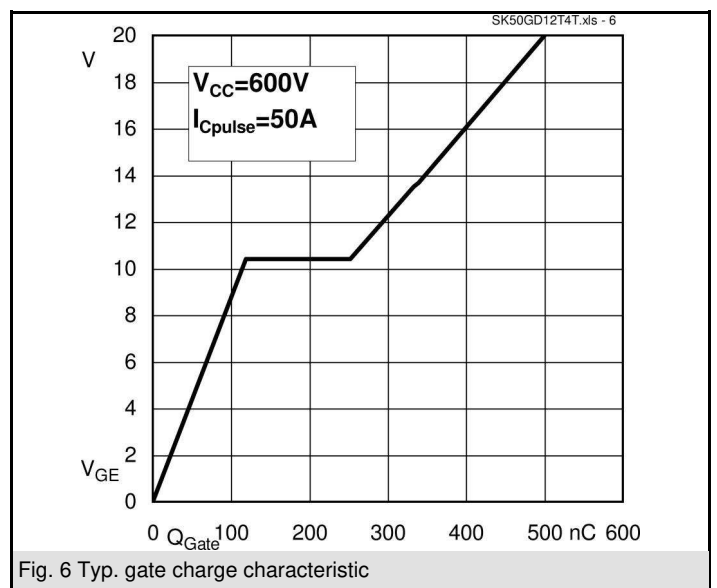
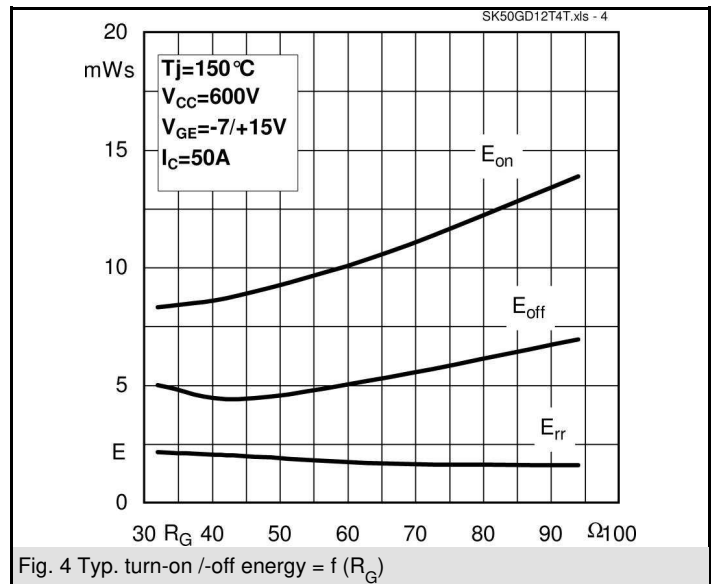
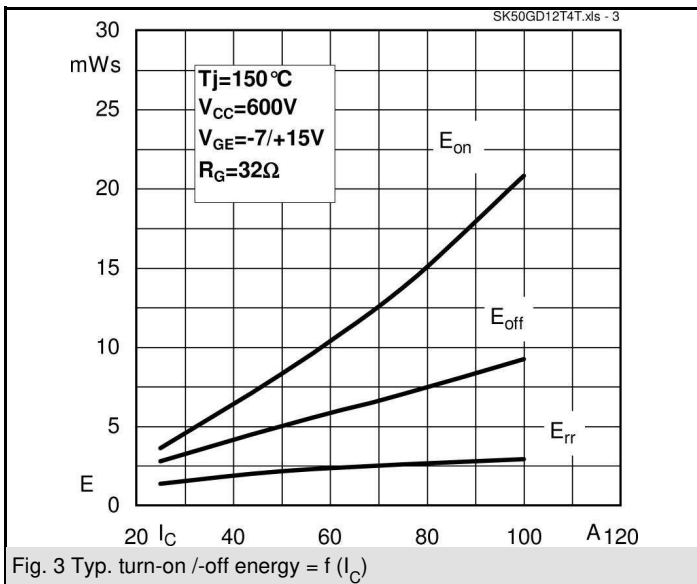
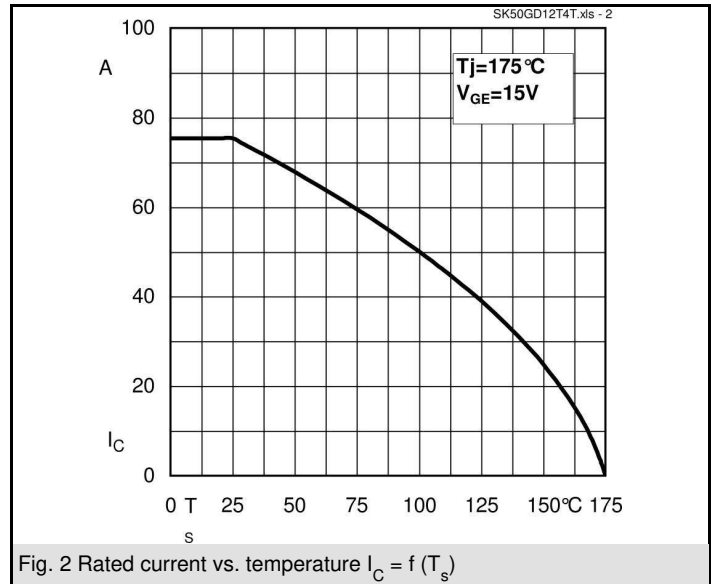
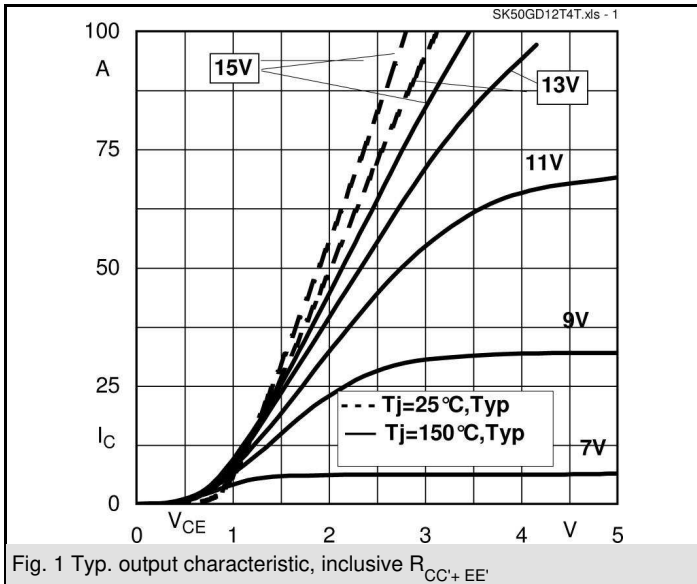
- $V_{CE,sat}$, V_F = chip level value

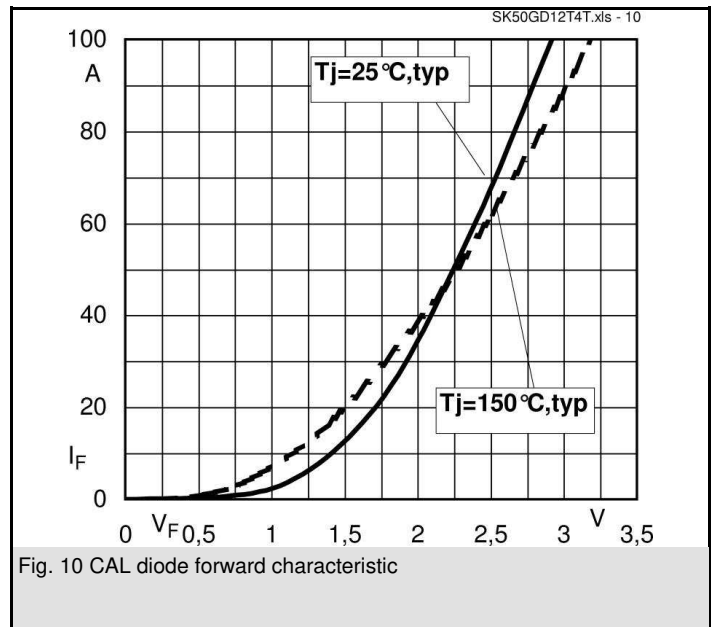
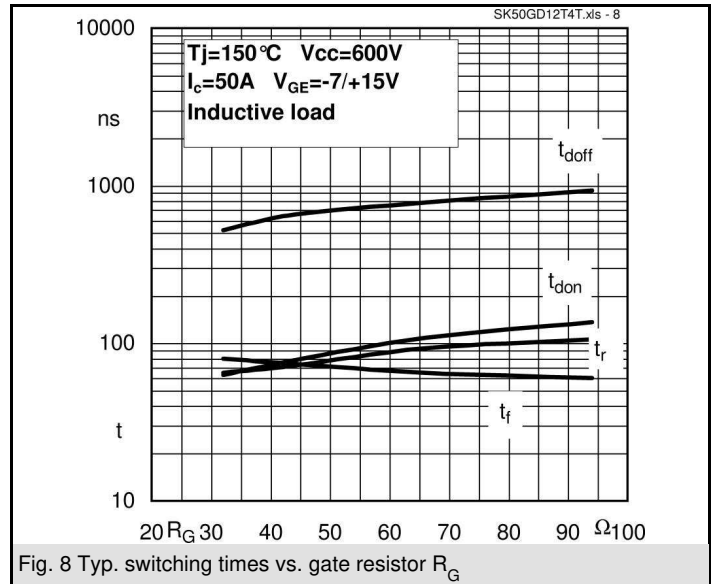
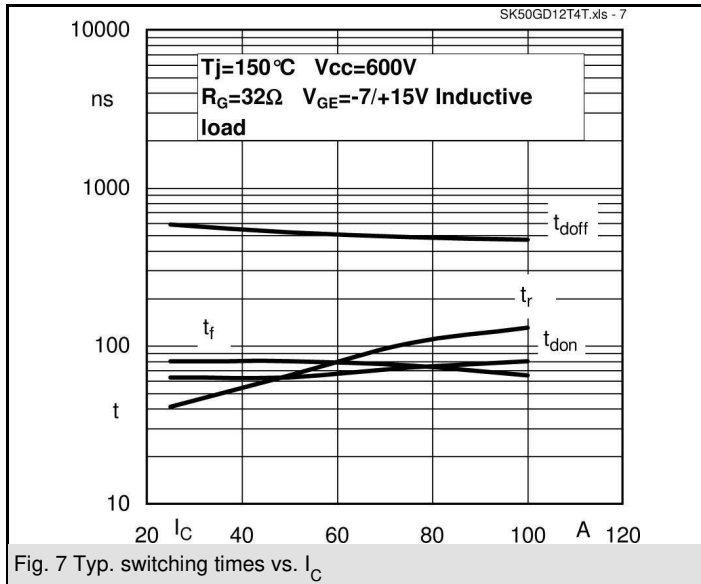


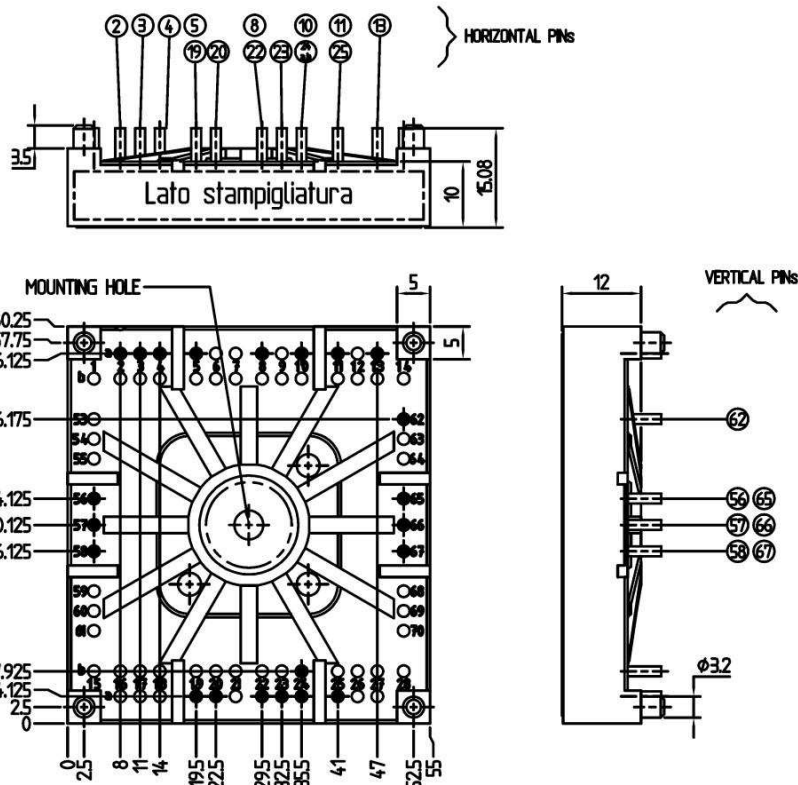
GD-T

Characteristics

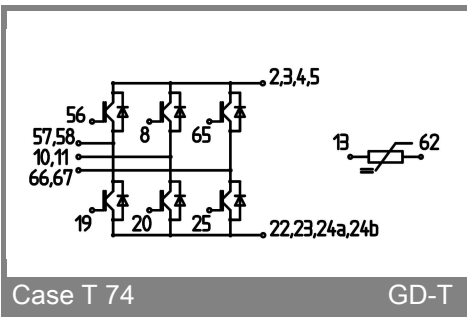
Symbol	Conditions	min.	typ.	max.	Units
Inverse Diode					
$V_F = V_{EC}$	$I_{Fnom} = 50 \text{ A}; V_{GE} = 0 \text{ V}$	$T_j = 25 \text{ }^\circ\text{C}_{chiplev.}$	2,2	2,55	V
		$T_j = 150 \text{ }^\circ\text{C}_{chiplev.}$	2,18	2,5	V
V_{F0}		$T_j = 25 \text{ }^\circ\text{C}$	1,3	1,5	V
		$T_j = 150 \text{ }^\circ\text{C}$	0,9	1,1	V
r_F		$T_j = 25 \text{ }^\circ\text{C}$	19	21	mΩ
		$T_j = 150 \text{ }^\circ\text{C}$	26	28	mΩ
I_{RRM}	$I_F = 50 \text{ A}$		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		0,97		K/W
M_s	to heat sink	2,5		2,75	Nm
w			60		g
Temperature sensor					
R_{100}	$T_s = 100^\circ\text{C}$ ($R_{25} = 5\text{k}\Omega$)		493±5%		Ω







Case T74 (Suggested hole diameter for the solder pins in the circuit board: 2mm. Suggested hole diameter for the mounting pins in the circuit board: 3,6mm)



Case T 74

GD-T

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

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