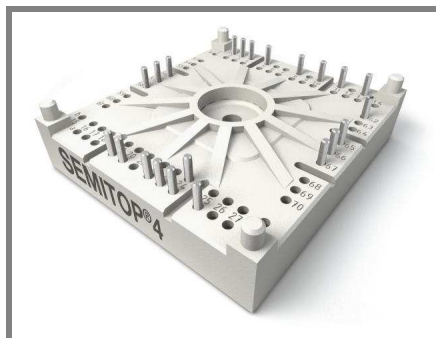


SK50GD12T4T



SEMITOP® 4

IGBT Module

SK50GD12T4T

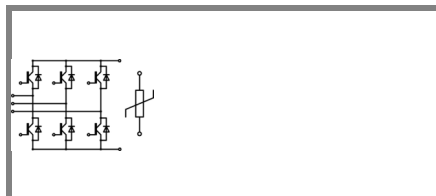
Features

- 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

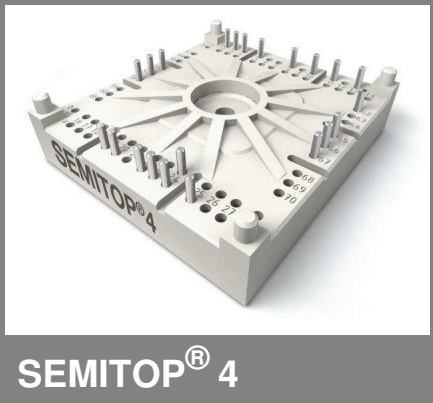


GD-T

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	$^{\circ}\text{C}$
T_{stg}				-40 ... +125	$^{\circ}\text{C}$
V_{isol}	AC, 1 min.			2500	V

Characteristics			T _s = 25 °C, unless otherwise specified			
Symbol	Conditions		min.	typ.	max.	Units
IGBT						
V _{GE(th)}	V _{GE} = V _{CE} , I _C = 1,7 mA		5	5,8	6,5	V
I _{CES}	V _{GE} = 0 V, V _{CE} = V _{CES}	T _j = 25 °C T _j = 125 °C	1,0			mA mA
I _{GES}	V _{CE} = 0 V, V _{GE} = 20 V	T _j = 25 °C T _j = 125 °C	600			nA nA
V _{CE0}		T _j = 25 °C T _j = 150 °C		1,1 1	1,3 1,2	V V
r _{CE}	V _{GE} = 15 V	T _j = 25°C T _j = 150°C		15 25		mΩ mΩ
V _{CE(sat)}	I _{Cnom} = 50 A, V _{GE} = 15 V	T _j = 25°C _{chiplev.} T _j = 150°C _{chiplev.}		1,85 2,25	2,05 2,45	V V
C _{ies}	V _{CE} = 25, V _{GE} = 0 V f = 1 MHz		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 °C			4		Ω
t _{d(on)}	R _{Gon} = 32 Ω di/dt = 920 A/μs	V _{CC} = 600V I _C = 50A T _j = 150 °C V _{GE} = ±15 V		63		ns
t _r				65		ns
E _{on}				8,3		mJ
t _{d(off)}	R _{Goff} = 32 Ω	T _j = 150 °C V _{GE} = ±15 V		521		ns
t _f	di/dt = 920 A/μs			80		ns
E _{off}				5		mJ
R _{th(j-s)}	per IGBT			0,65		K/W

SK50GD12T4T



IGBT Module

SK50GD12T4T

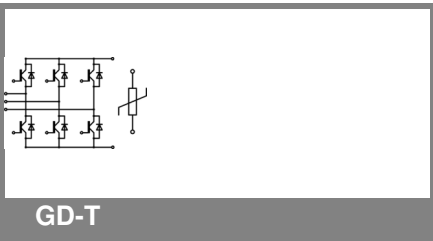
Features

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

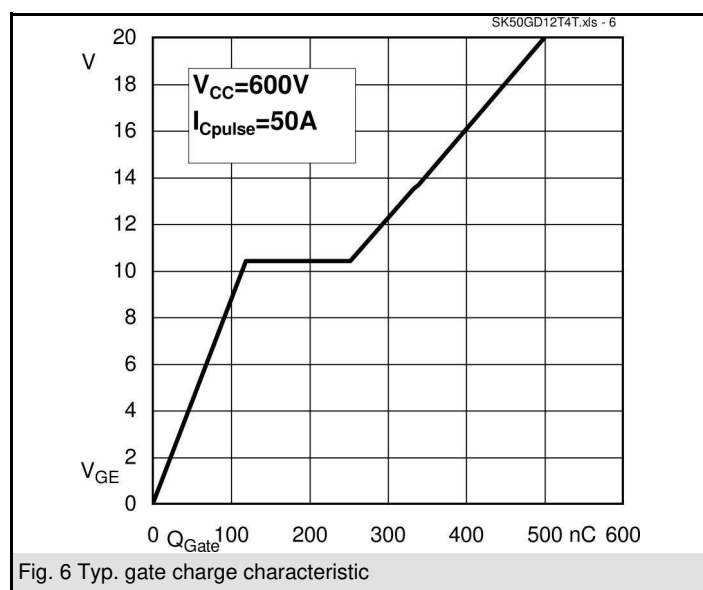
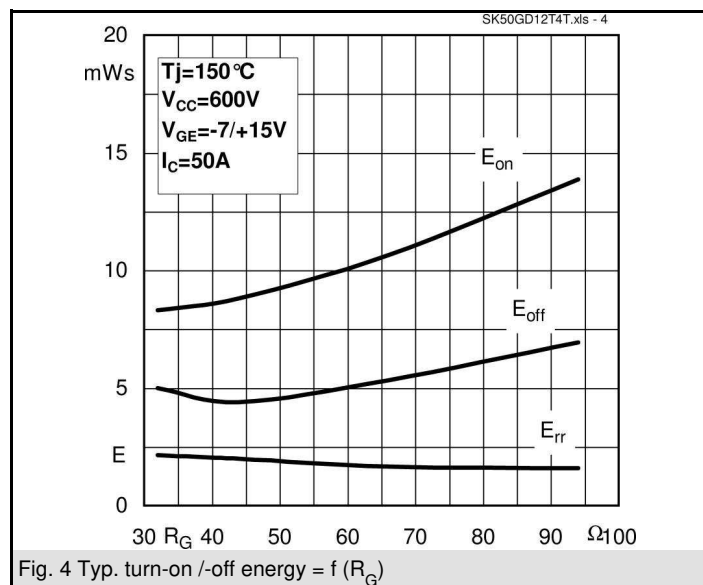
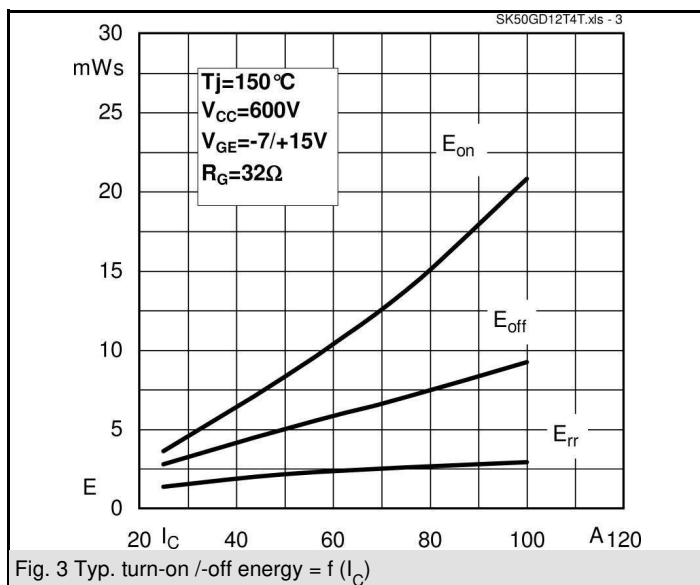
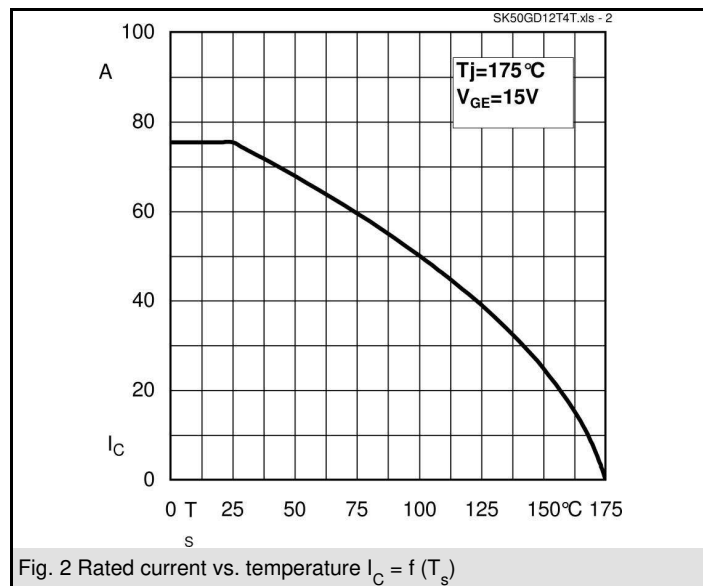
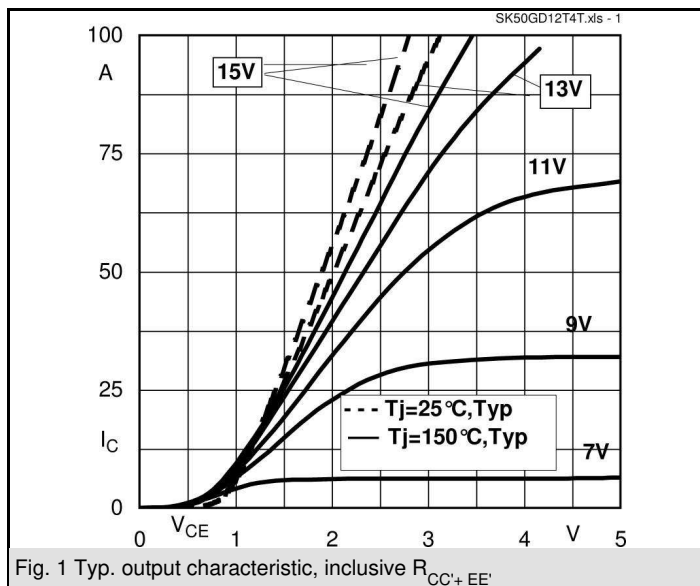
Typical Applications*

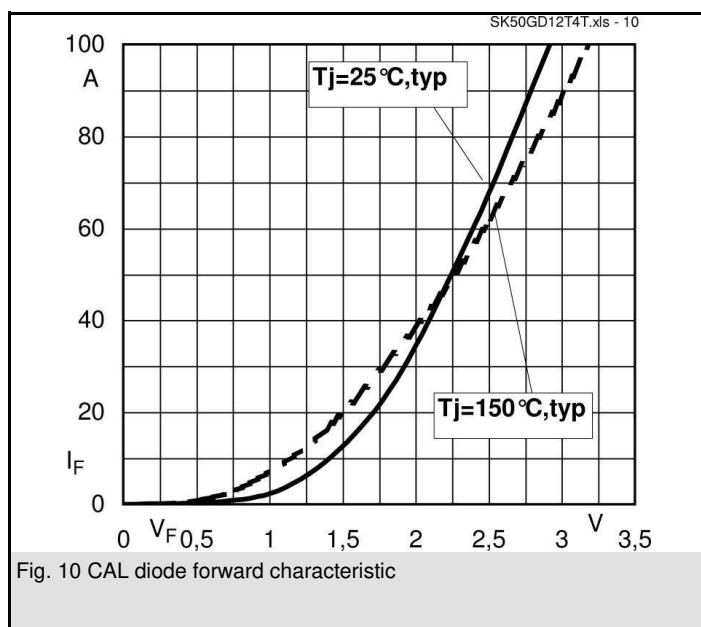
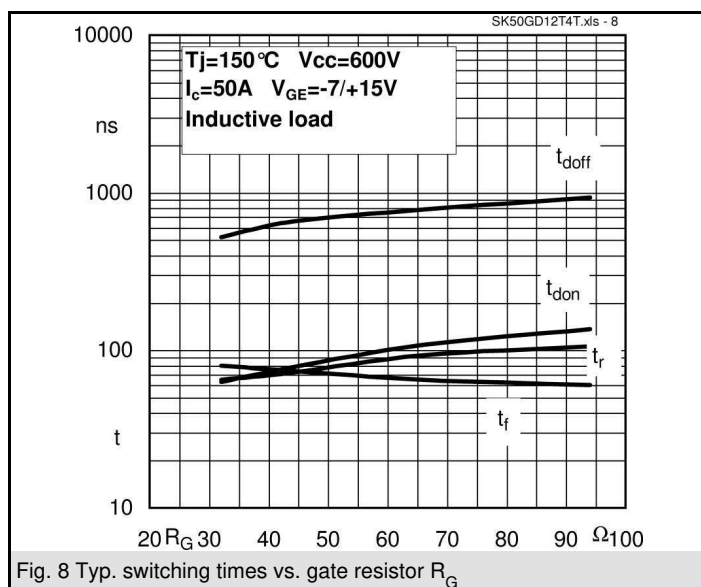
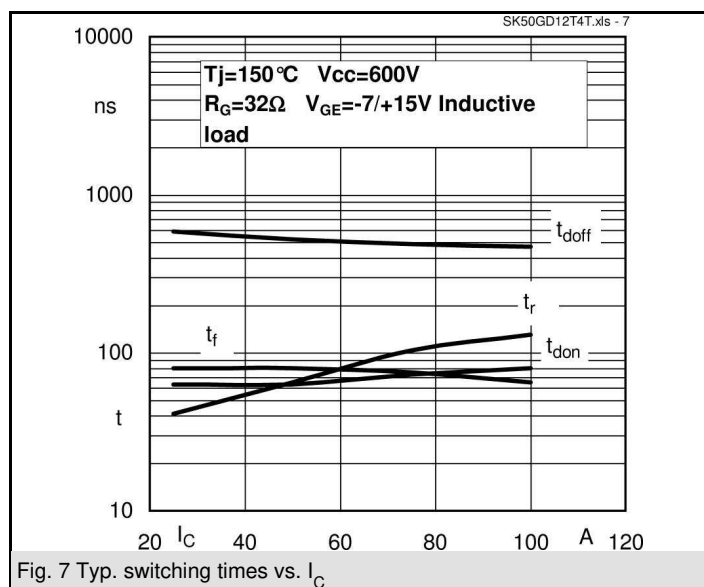
Remarks

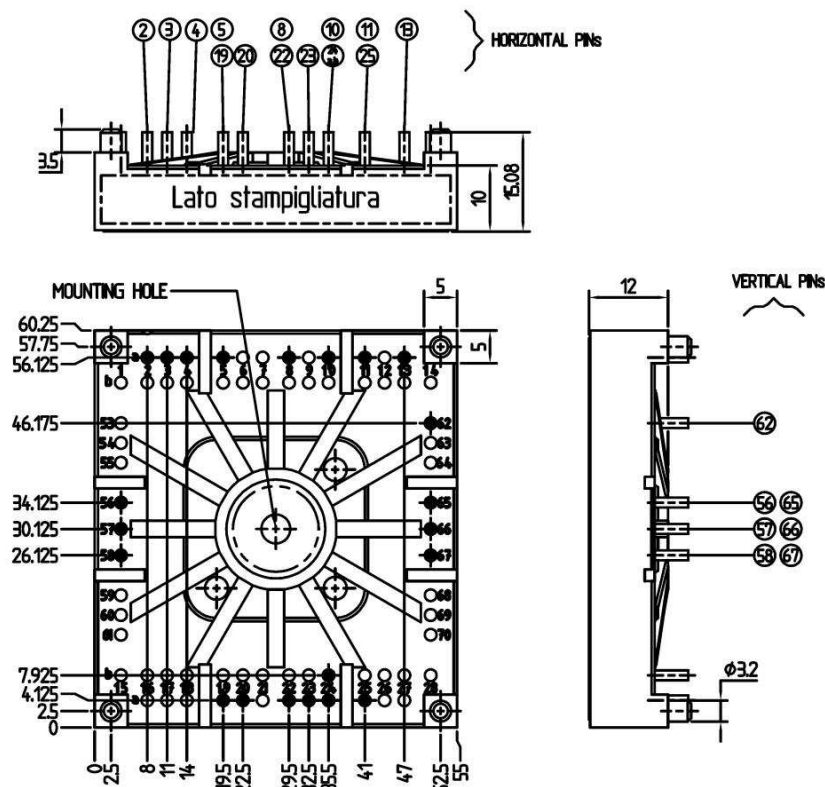
- $V_{CE,sat}$, V_F = chip level value



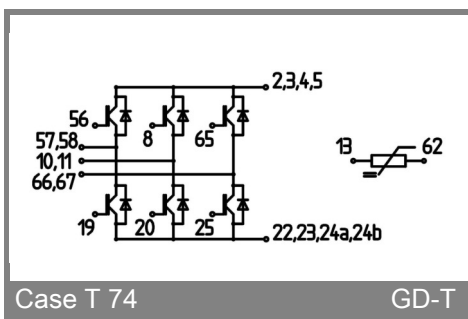
Characteristics						
Symbol	Conditions		min.	typ.	max.	Units
Inverse Diode						
V _F = V _{EC}	I _{Fnom} = 50 A; V _{GE} = 0 V	T _j = 25 °C _{chiplev.}		2,2	2,55	V
		T _j = 150 °C _{chiplev.}		2,18	2,5	V
V _{F0}		T _j = 25 °C		1,3	1,5	V
		T _j = 150 °C		0,9	1,1	V
r _F		T _j = 25 °C		19	21	mΩ
		T _j = 150 °C		26	28	mΩ
I _{RRM}	I _F = 50 A	T _j = 150 °C		30		A
Q _{rr}	di/dt = 920 A/μs			7,2		μC
E _{rr}	V _{CC} = 600V			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°C (R ₂₅ =5kΩ)			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)



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

*IMPORTANT INFORMATION AND WARNINGS

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