



SEMITOP[®] 2

IGBT Module

SK25GB12T4

Target Data

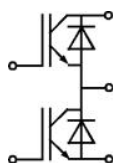
Features

- One screw mounting module
- Trench4 IGBT technology
- CAL4 technology FWD

Typical Applications*

Remarks

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



GB

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	$T_j = 175\text{ °C}$	$T_s = 25\text{ °C}$		37	A
		$T_s = 70\text{ °C}$		30	A
I_{CRM}	$I_{CRM} = 3 \times I_{Cnom}$			75	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	$T_j = 175\text{ °C}$	$T_s = 25\text{ °C}$		30	A
		$T_s = 70\text{ °C}$		25	A
I_{FRM}	$I_{FRM} = 3 \times I_{Fnom}$			75	A
I_{FSM}	$t_p = 10\text{ ms}$; half sine wave $T_j = 150\text{ °C}$			160	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 = 0,85 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	0,0024			mA mA
I _{GES}	V _{CE} = 0 V, V _{GE} = 20 V	T _J = 25 °C T _J = 125 °C	120			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	30 50			mΩ mΩ
V _{CE(sat)}	I _{Cnom} = 25 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} C _{oes} C _{res}	V _{CE} = 25, V _{GE} = 0 V	f = 1 MHz	1,43 0,115 0,085			nF nF nF
Q _G	V _{GE} =-7V...+15V		137,5			nC
t _{d(on)} t _r E _{on}	R _{Gon} = 19 Ω di/dt = 2825 A/μs	V _{CC} = 600V I _C = 25A	22 19,5 2,27			ns ns mJ
t _{d(off)} t _f E _{off}	R _{Goff} = 19 Ω di/dt = 2825 A/μs	T _J = 150 °C V _{GE} = -7/+15V	288 77,5 2,7			ns ns mJ
R _{th(j-s)}	per IGBT		1,31			K/W

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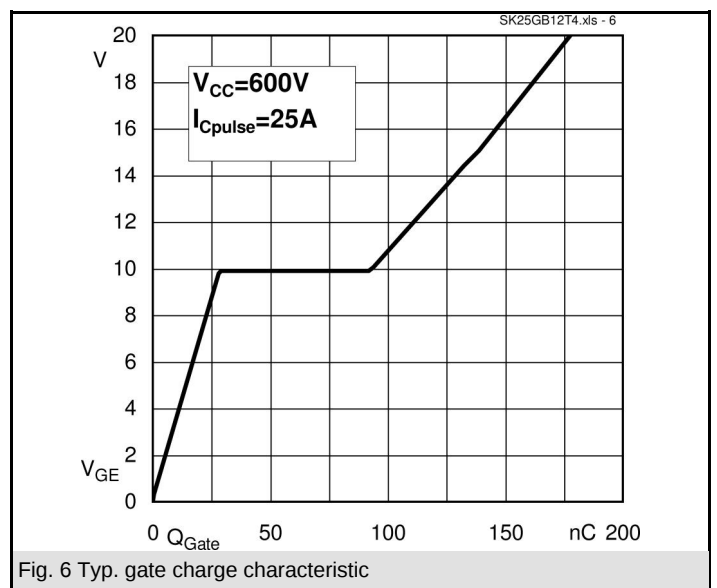
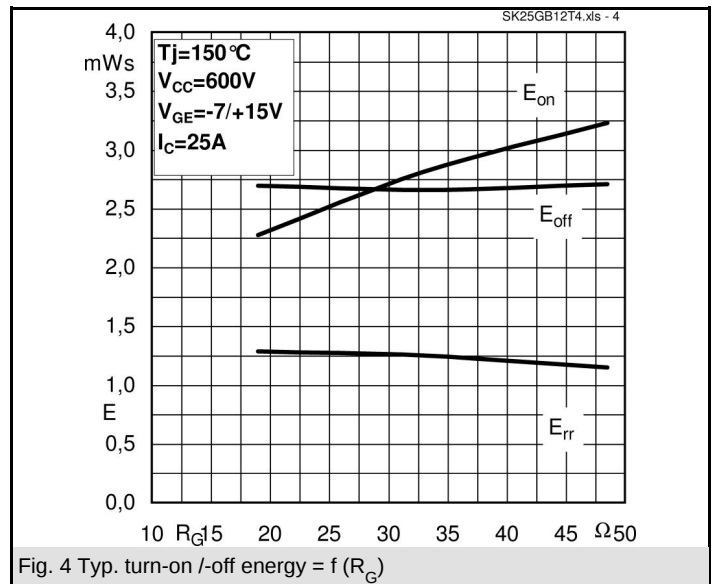
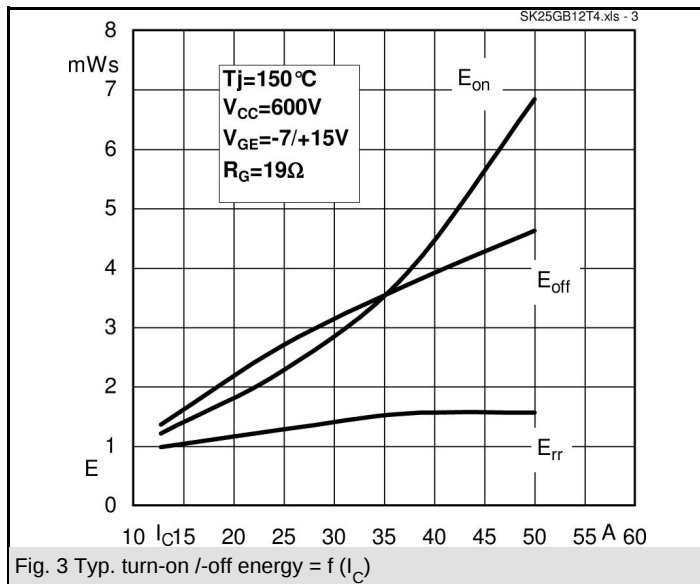
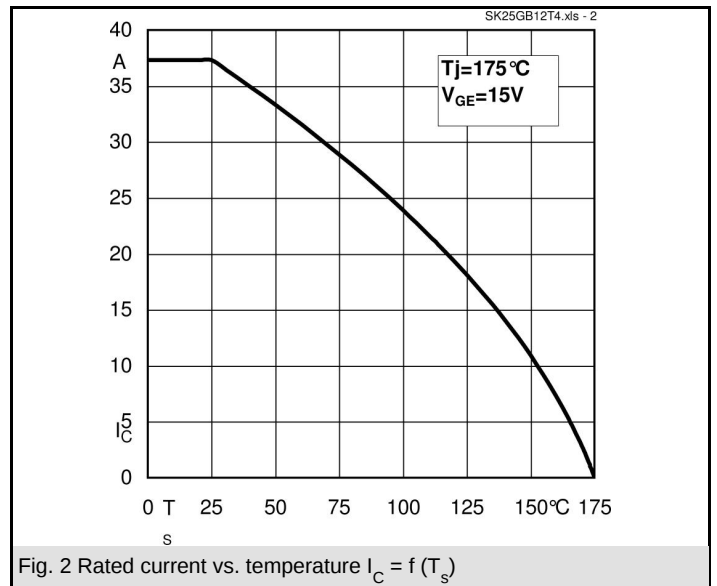
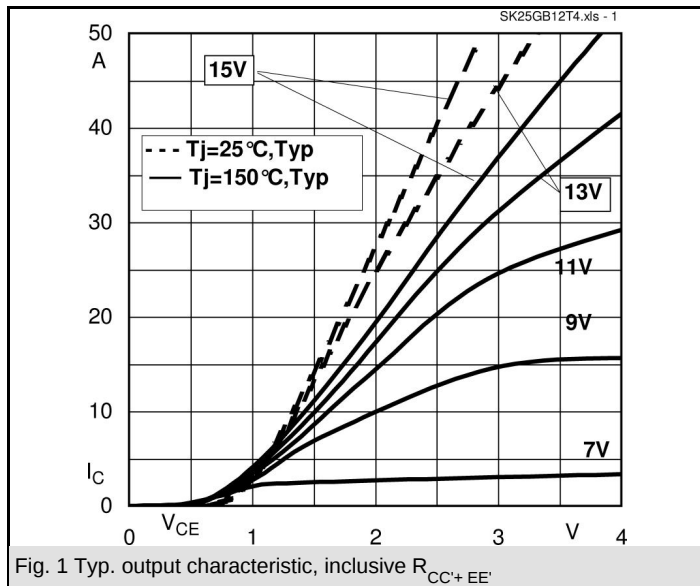
Characteristics						
Symbol	Conditions		min.	typ.	max.	Units
Inverse Diode						
V _F = V _{EC}	I _{Fnom} = 25 A; V _{GE} = 0 V	T _j = 25 °C _{chiplev.}		2,4	2,62	V
		T _j = 150 °C _{chiplev.}		2,45	2,8	V
V _{F0}		T _j = 25 °C		1,3	1,5	V
		T _j = 150 °C		0,9	1,1	V
r _F		T _j = 25 °C		44	45	mΩ
		T _j = 150 °C		62	68	mΩ
I _{RRM}	I _F = 25 A	T _j = 150 °C		31,5		A
Q _{rr}	di/dt = 2825 A/μs			1,15		μC
E _{rr}	V _{CC} = 600V			1,28		mJ
R _{th(j-s)D}	per diode			1,91		K/W
M _s	to heat sink		2,25		2,5	Nm
w				30		g

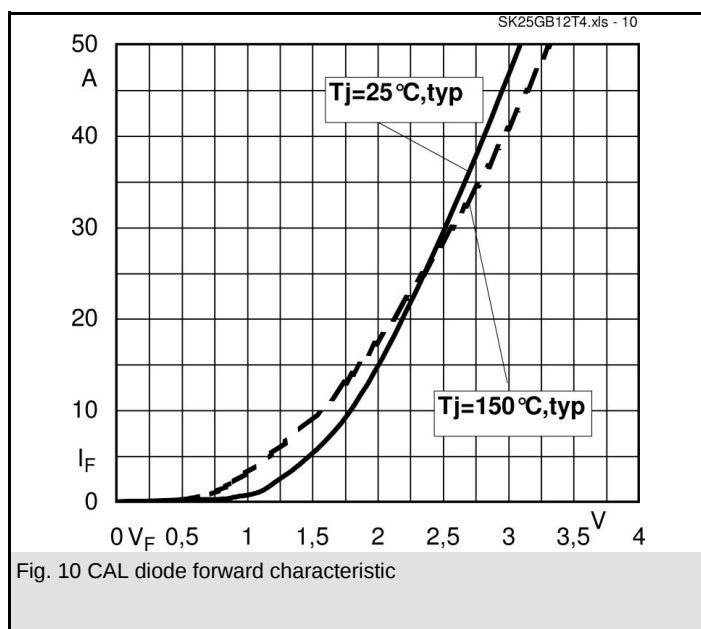
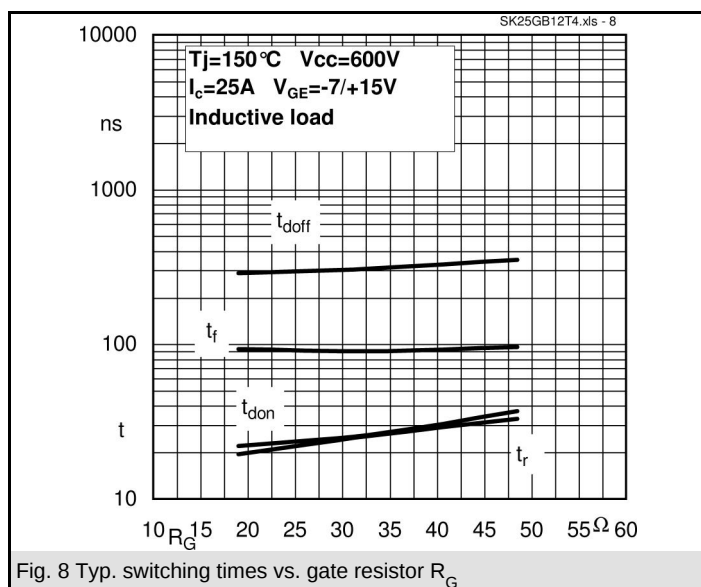
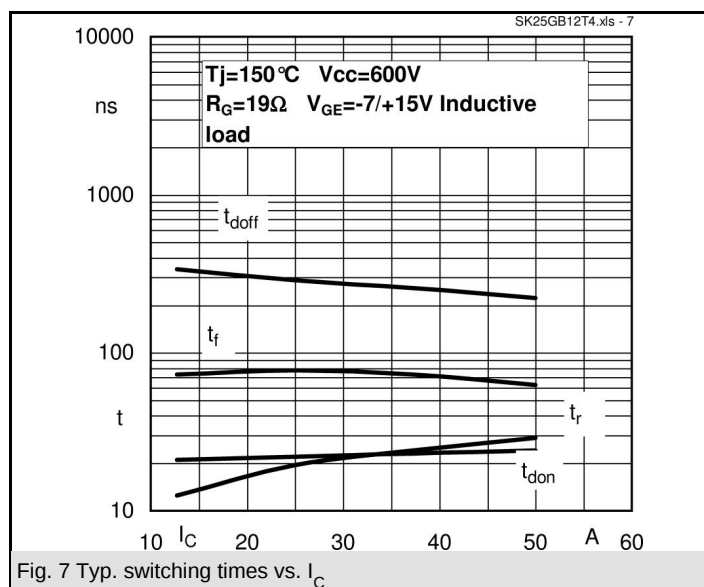
This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

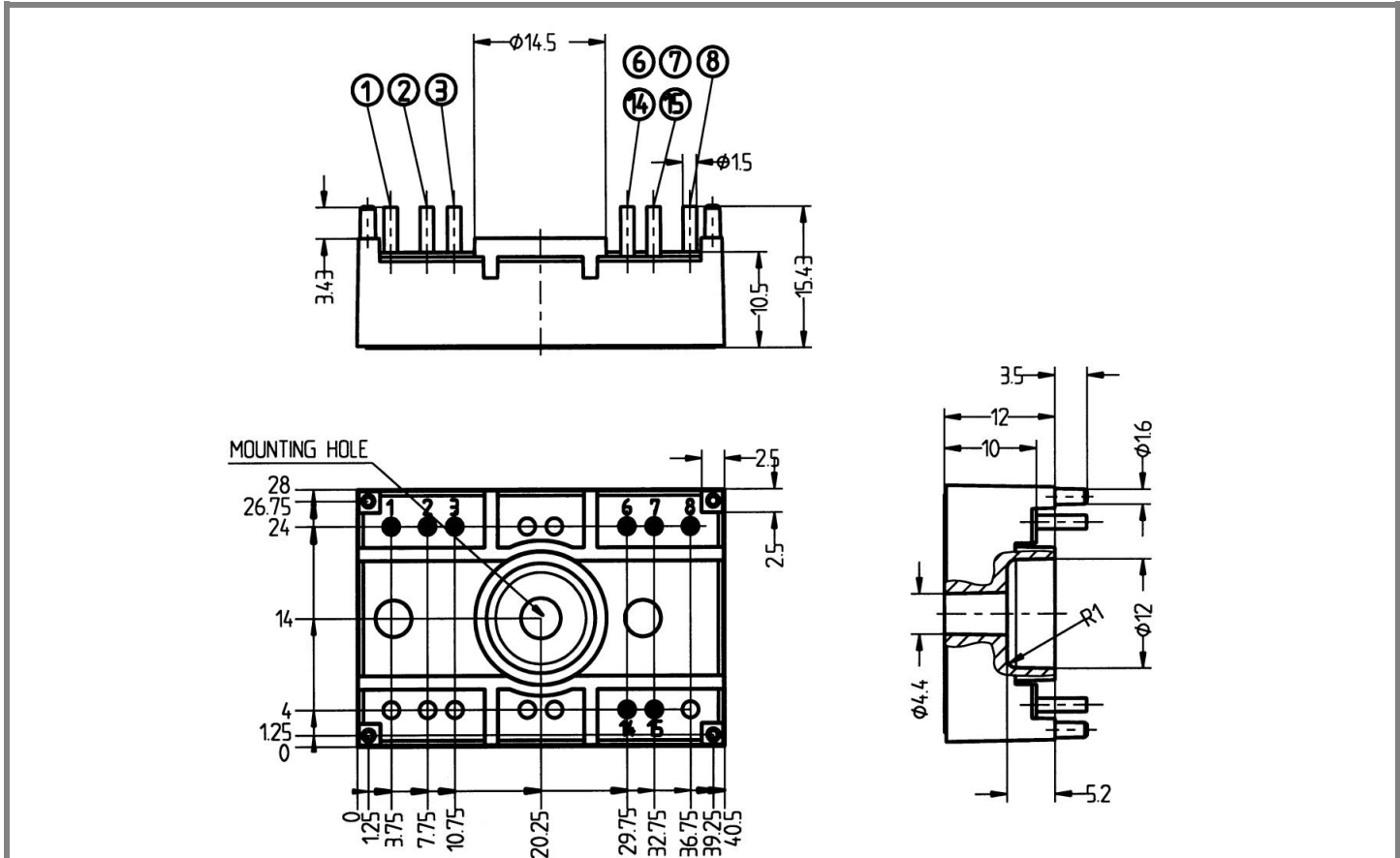
* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and written approval by SEMIKRON. We therefore strongly recommend prior consultation of our personal.



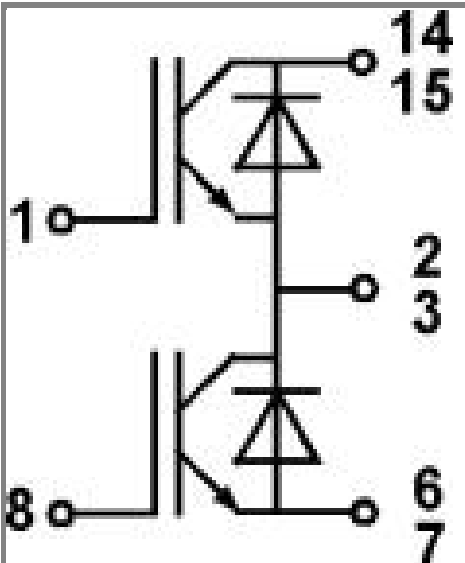
GB







Case T32 (Suggested hole diameter for solder pins and plastic mounting pins: 2mm)



Case T 32 GB