



SEMITOP® 2

IGBT Module

SK25GB12T4

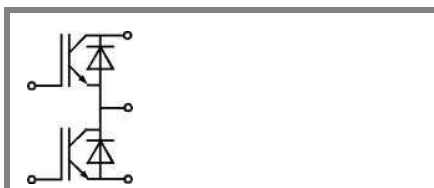
Features

- 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	1			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					
$V_F = V_{EC}$	$I_{Fnom} = 25 \text{ A}$; $V_{GE} = 0 \text{ V}$				
	$T_j = 25 \text{ }^\circ\text{C}_{chiplev.}$		2,4	2,62	V
	$T_j = 150 \text{ }^\circ\text{C}_{chiplev.}$		2,45	2,8	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					
	$T_j = 25 \text{ }^\circ\text{C}$		44	45	mΩ
	$T_j = 150 \text{ }^\circ\text{C}$		62	68	mΩ
I_{RRM}	$I_F = 25 \text{ A}$		31,5		A
Q_{rr}	$di/dt = 2825 \text{ A}/\mu\text{s}$		1,15		μC
E_{rr}	$V_{CC} = 600 \text{ V}$		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

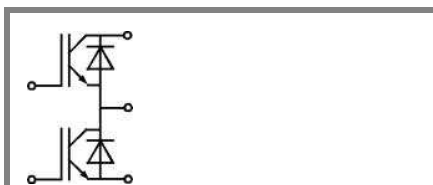
This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, chapter IX.

*IMPORTANT INFORMATION AND WARNINGS

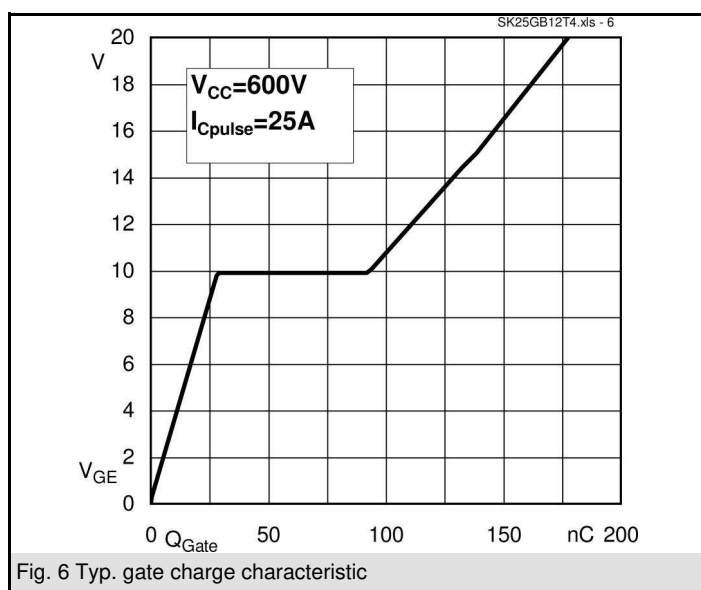
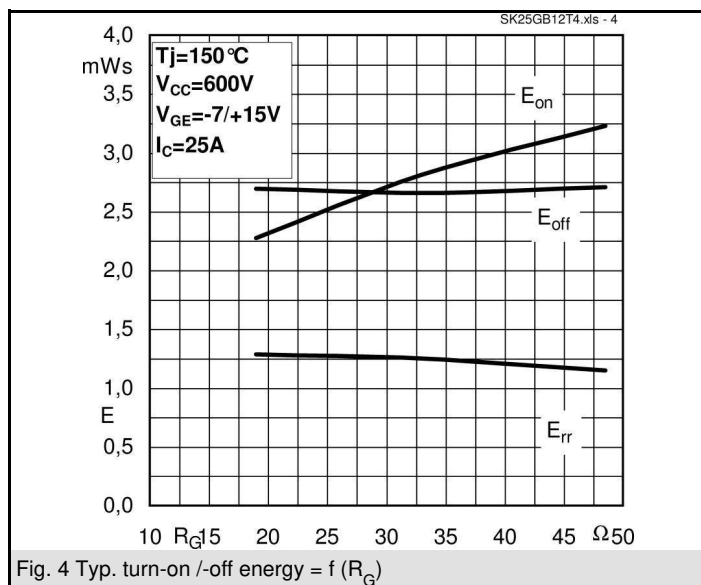
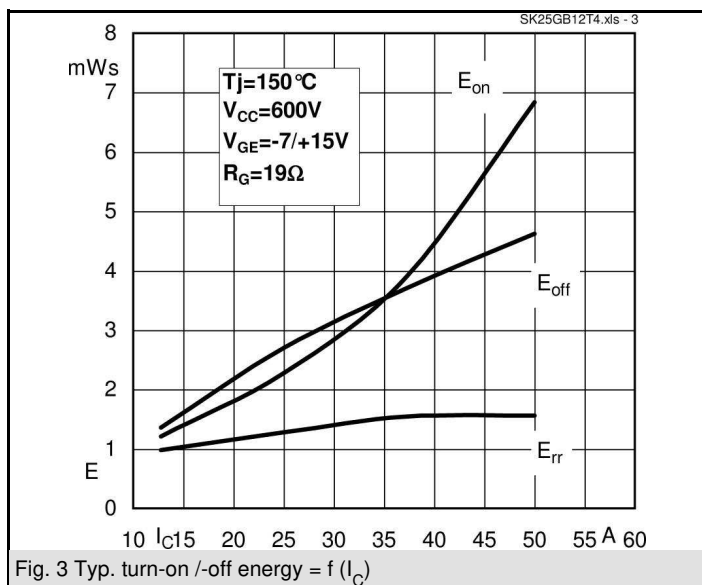
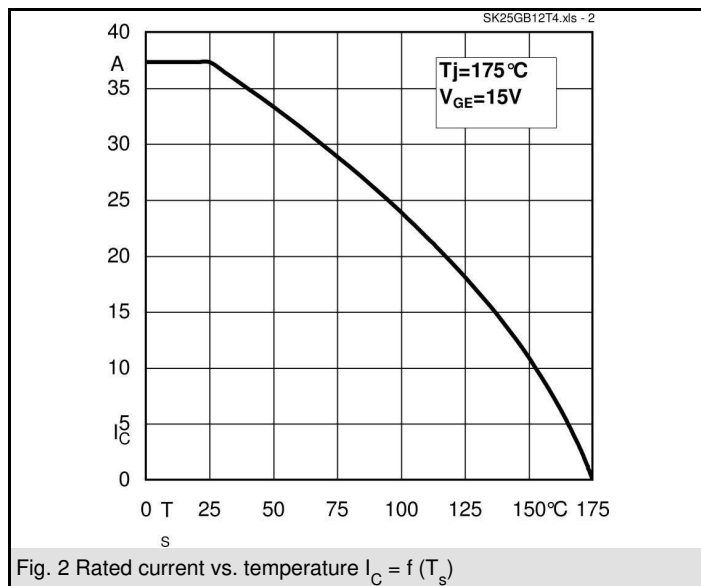
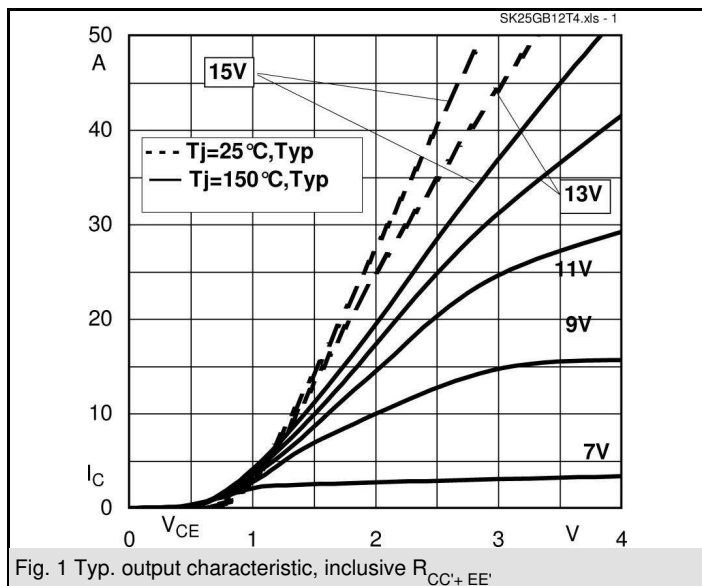
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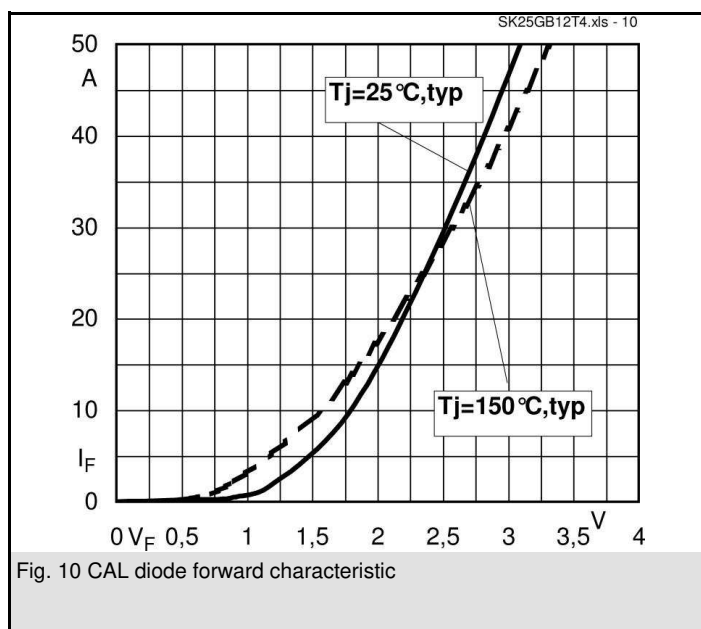
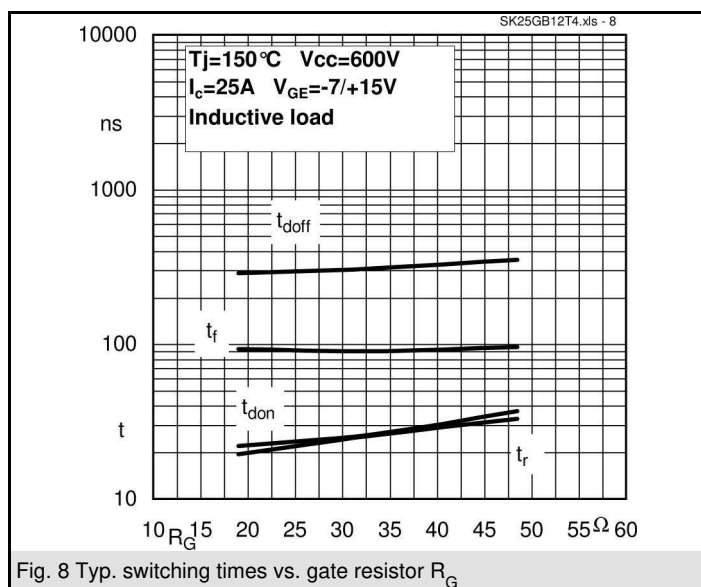
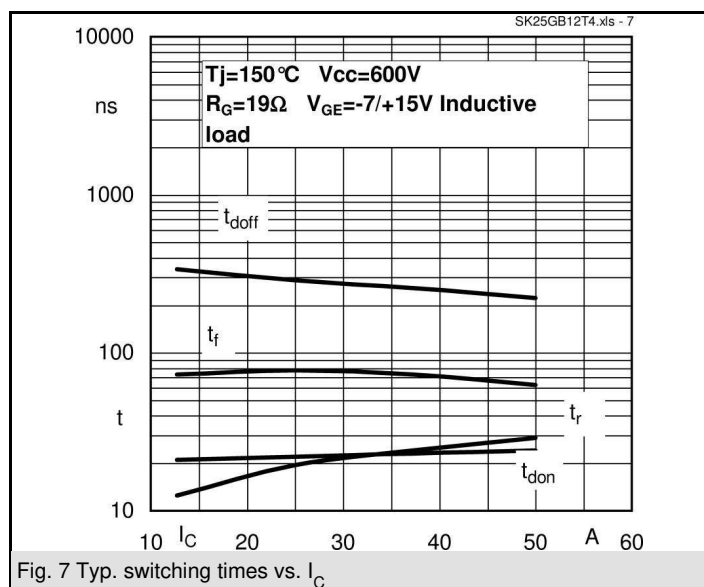
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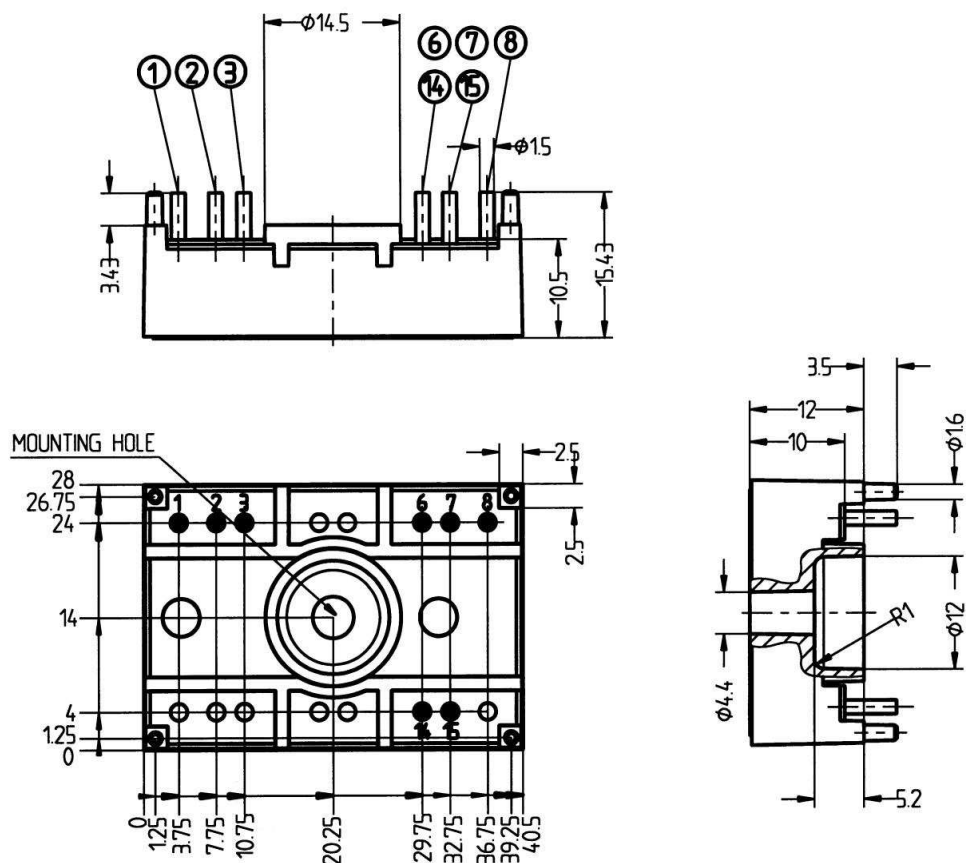
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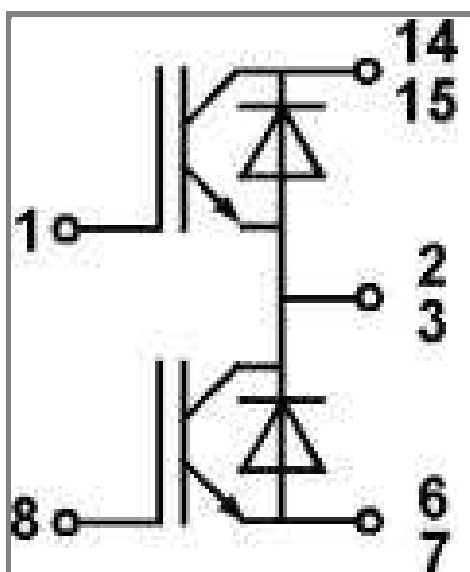
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Case T32 (Suggested hole diameter for solder pins and plastic mounting pins: 2mm)



Case T 32

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