

# SK25GB12T4



SEMITOP® 2

## IGBT Module

SK25GB12T4

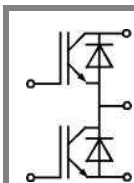
### Features

- 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
<b>IGBT</b>				
$V_{CES}$	$T_j = 25\text{ °C}$	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
<b>Inverse Diode</b>				
$I_F$	$T_j = 175\text{ °C}$	$T_s = 25\text{ °C}$	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
<b>Module</b>				
$I_{t(RMS)}$				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
<b>IGBT</b>					
$V_{GE(th)}$	$V_{GE} = V_{CE}$ , $I_C = 0,85\text{ mA}$	5	5,8	6,5	V
$I_{CES}$	$V_{GE} = 0\text{ V}$ , $V_{CE} = V_{CES}$	$T_j = 25\text{ °C}$	1		mA
		$T_j = 125\text{ °C}$			mA
$I_{GES}$	$V_{CE} = 0\text{ V}$ , $V_{GE} = 20\text{ V}$	$T_j = 25\text{ °C}$	120		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
$r_{CE}$	$V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}$	30		mΩ
		$T_j = 150\text{ °C}$	50		mΩ
$V_{CE(sat)}$	$I_{Cnom} = 25\text{ A}$ , $V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}_{chiplev.}$	1,85	2,05	V
		$T_j = 150\text{ °C}_{chiplev.}$	2,25	2,45	V
$C_{ies}$	$V_{CE} = 25$ , $V_{GE} = 0\text{ V}$	$f = 1\text{ MHz}$	1,43		nF
$C_{oes}$			0,115		nF
$C_{res}$			0,085		nF
$Q_G$	$V_{GE} = -7V...+15V$	137,5		nC	
$t_{d(on)}$	$R_{Gon} = 19\text{ }\Omega$ $di/dt = 2825\text{ A}/\mu\text{s}$	$V_{CC} = 600V$ $I_C = 25A$	22		ns
$t_r$			19,5		ns
$E_{on}$			2,27		mJ
$t_{d(off)}$	$R_{Goff} = 19\text{ }\Omega$ $di/dt = 2825\text{ A}/\mu\text{s}$	$T_j = 150\text{ °C}$ $V_{GE} = -7/+15V$	288		ns
$t_f$			77,5		ns
$E_{off}$			2,7		mJ
$R_{th(j-s)}$	per IGBT	1,31		K/W	



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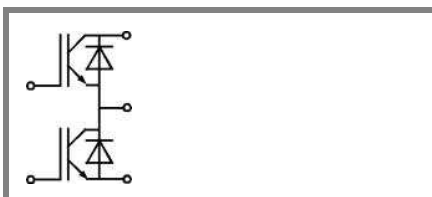
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- One screw mounting module
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### Typical Applications\*

### Remarks

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**GB**

### Characteristics

Symbol	Conditions	min.	typ.	max.	Units
<b>Inverse Diode</b>					
$V_F = V_{EC}$	$I_{Fnom} = 25 \text{ A}; V_{GE} = 0 \text{ V}$	$T_j = 25 \text{ }^\circ\text{C}_{chiplev.}$	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

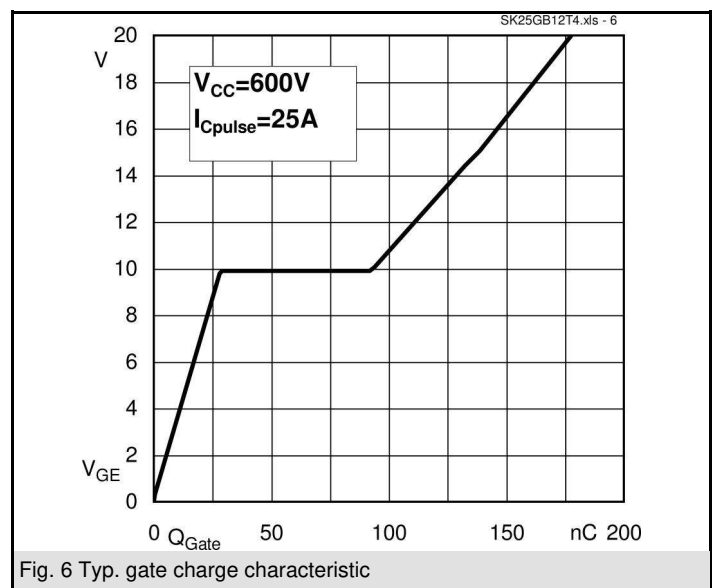
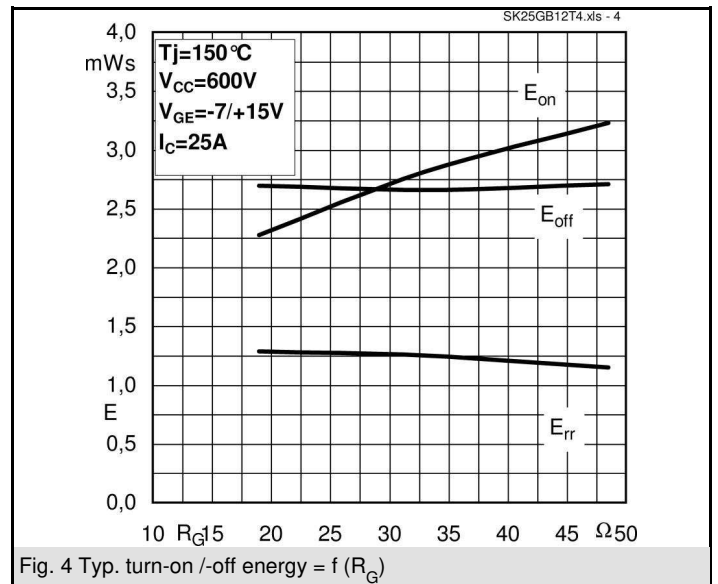
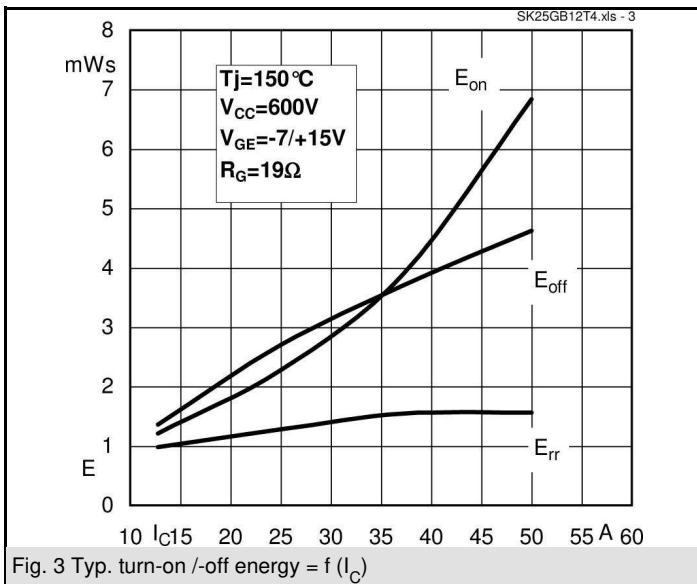
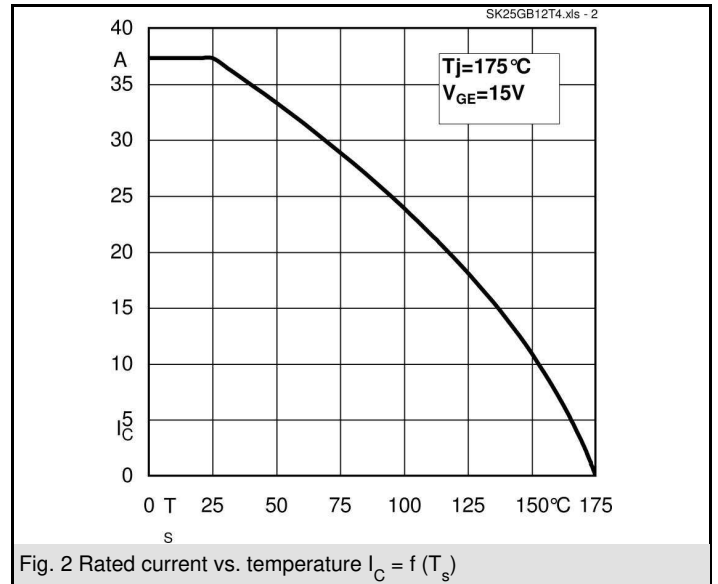
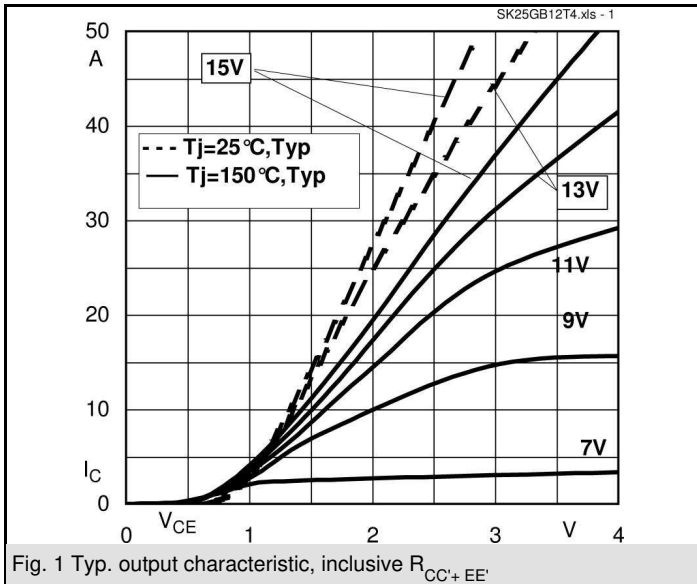
This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, chapter IX.

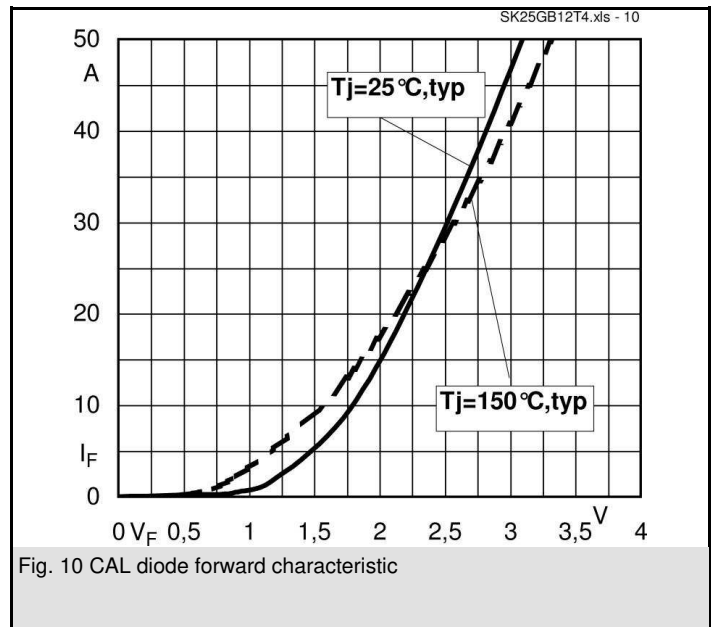
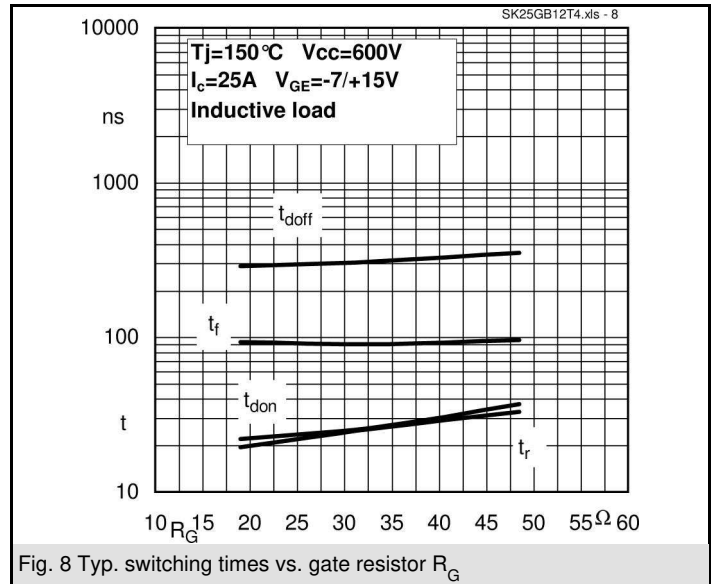
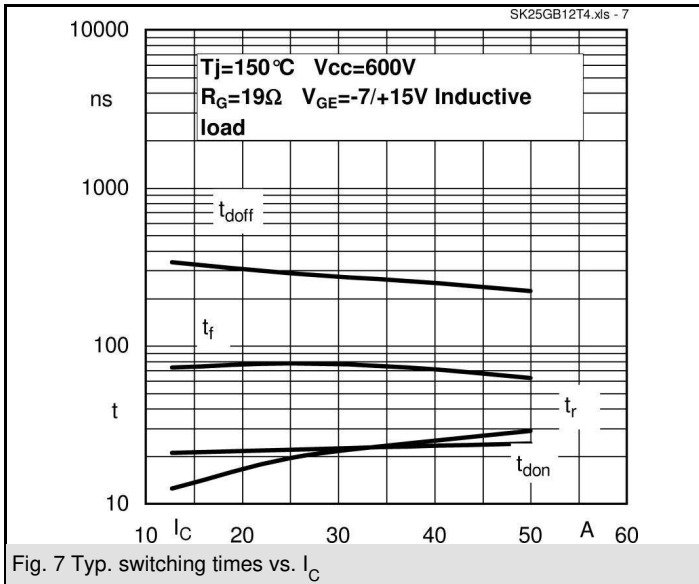
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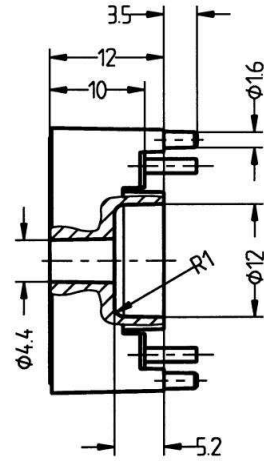
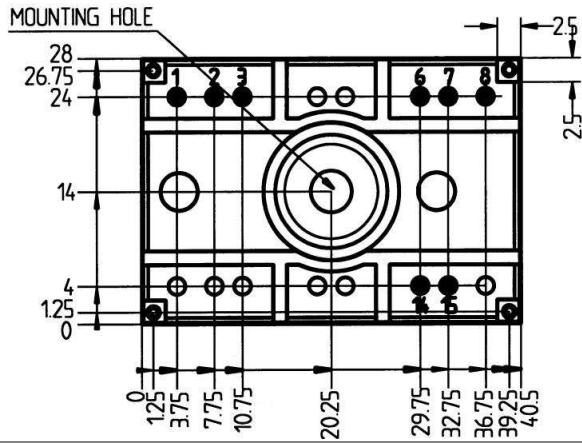
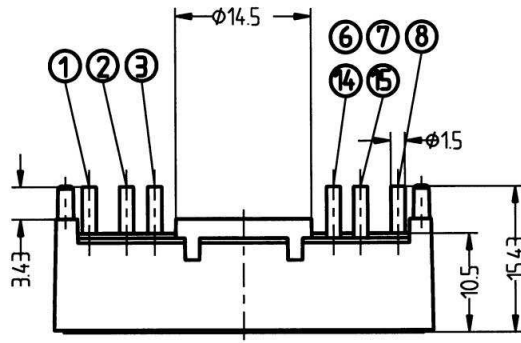
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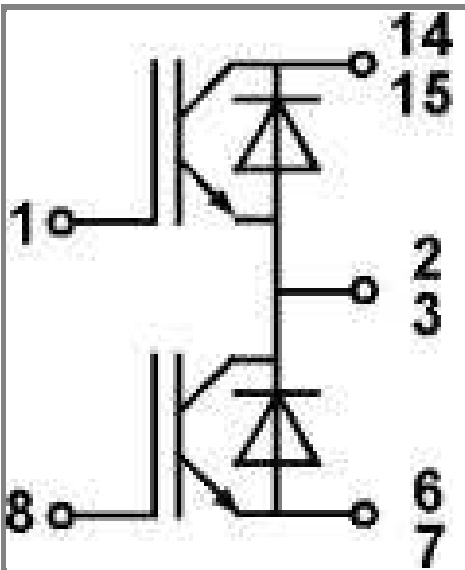




# SK25GB12T4



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



Case T 32

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