

SK75GAL12T4



SEMITOP[®] 2

IGBT Module

SK75GAL12T4

SK75GAR12T4

Target Data

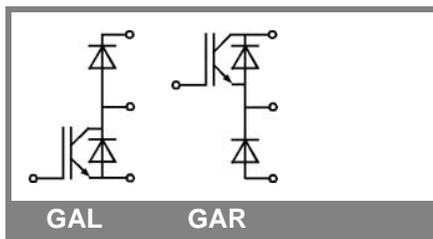
Features

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

Typical Applications*

Remarks

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



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	$T_j = 175\text{ °C}$	$T_s = 25\text{ °C}$	80
		$T_s = 70\text{ °C}$	65
I_{CRM}	$I_{CRM} = 3 \times I_{Cnom}$	225	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	$T_j = 175\text{ °C}$	$T_s = 25\text{ °C}$	20
		$T_s = 70\text{ °C}$	16
I_{FRM}	$I_{FRM} = 3 \times I_{Fnom}$	45	A
I_{FSM}	$t_p = 10\text{ ms}$; half sine wave $T_j = 150\text{ °C}$	90	A
Freewheeling Diode			
I_F	$T_j = 175\text{ °C}$	$T_s = 25\text{ °C}$	70
		$T_s = 70\text{ °C}$	55
I_{FRM}	$I_{FRM} = 3 \times I_{Fnom}$	225	A
I_{FSM}	$t_p = 10\text{ ms}$; half sine wave $T_j = 150\text{ °C}$	425	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		$T_s = 25\text{ °C}$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 3\text{ mA}$	5	5,8	6,5	V
I_{CES}	$V_{GE} = 0\text{ V}$, $V_{CE} = V_{CES}$	$T_j = 25\text{ °C}$		0,01	mA
		$T_j = 150\text{ °C}$			mA
I_{GES}	$V_{CE} = 0\text{ V}$, $V_{GE} = 20\text{ V}$	$T_j = 25\text{ °C}$		600	nA
		$T_j = 150\text{ °C}$			nA
V_{CE0}		$T_j = 25\text{ °C}$	1,1	1,3	V
		$T_j = 150\text{ °C}$	1	1,2	V
r_{CE}	$V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}$	10		$\text{m}\Omega$
		$T_j = 150\text{ °C}$	16		$\text{m}\Omega$
$V_{CE(sat)}$	$I_{Cnom} = 75\text{ A}$, $V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}_{chiplev.}$	1,85	2,05	V
		$T_j = 150\text{ °C}_{chiplev.}$	2,25	2,45	V
C_{ies}	$V_{CE} = 25$, $V_{GE} = 0\text{ V}$	$f = 1\text{ MHz}$	4,4		nF
C_{oes}			0,29		nF
C_{res}			0,235		nF
Q_G	$V_{GE} = -7\text{ V} \dots +15\text{ V}$		570		nC
R_{Gint}	$T_j = 25\text{ °C}$		10		Ω
$t_{d(on)}$	$R_{Gon} = 15\text{ }\Omega$ $di/dt = 2000\text{ A}/\mu\text{s}$	$V_{CC} = 600\text{ V}$ $I_C = 75\text{ A}$	50		ns
t_r			60		ns
E_{on}			13		mJ
$t_{d(off)}$	$R_{Goff} = 15\text{ }\Omega$	$T_j = 150\text{ °C}$ $V_{GE} = -7/+15\text{ V}$	500		ns
t_f			60		ns
E_{off}			7		mJ
$R_{th(j-s)}$	per IGBT		0,74		K/W

SK75GAL12T4



SEMITOP[®] 2

IGBT Module

SK75GAL12T4

SK75GAR12T4

Target Data

Features

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

Typical Applications*

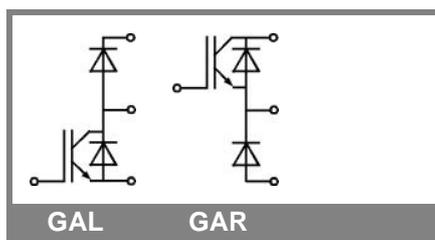
Remarks

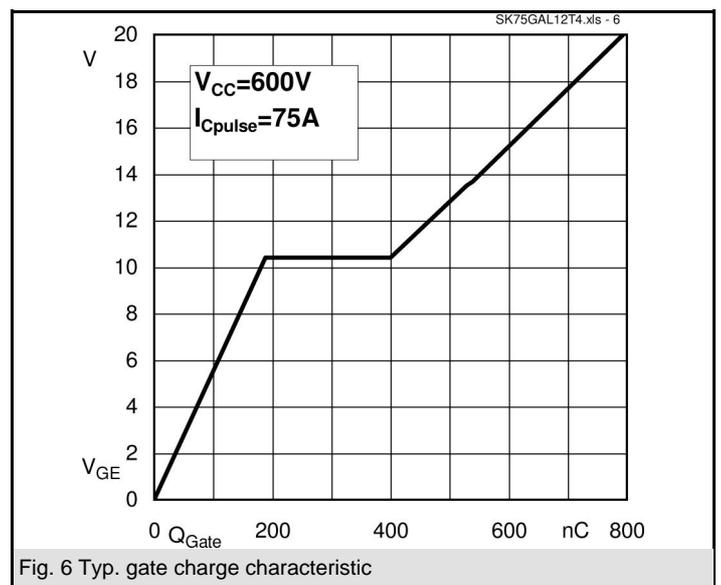
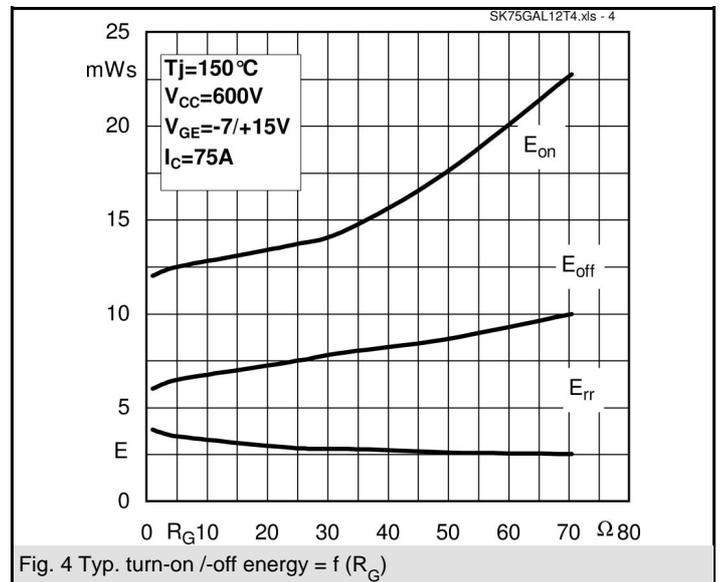
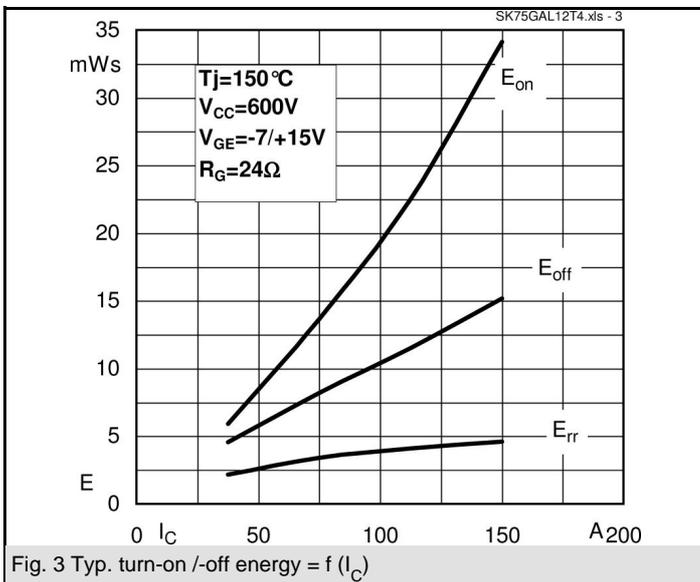
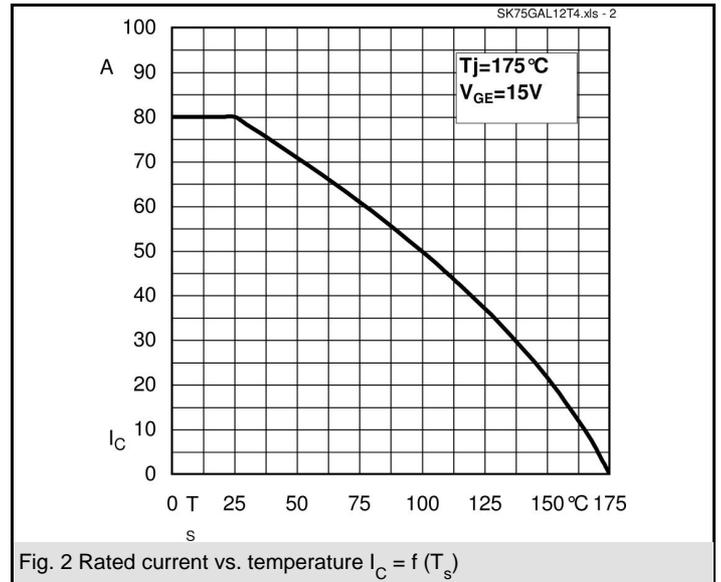
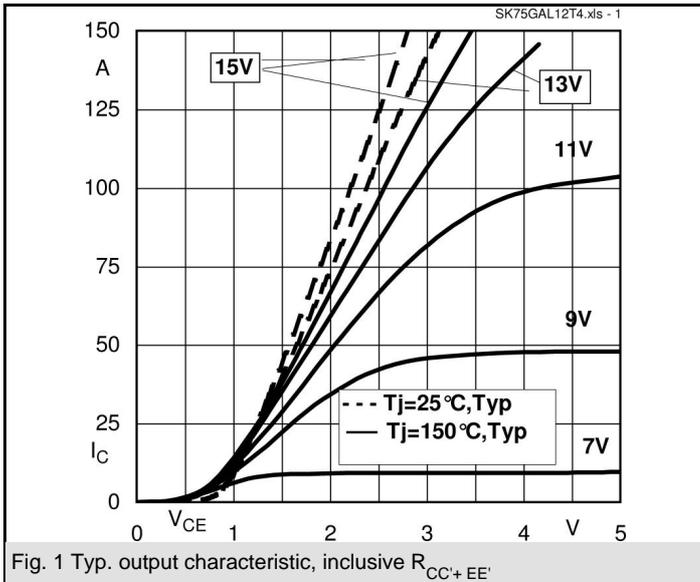
- $V_{CE,sat}$, V_F = chip level value

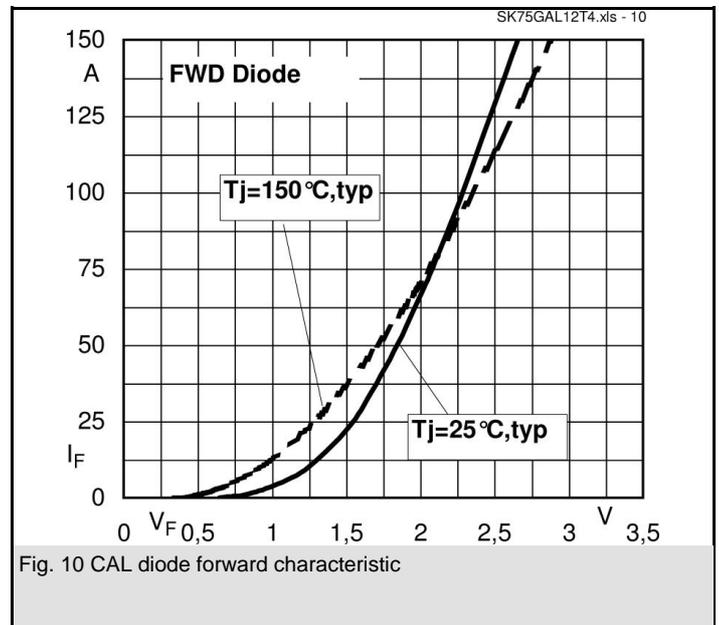
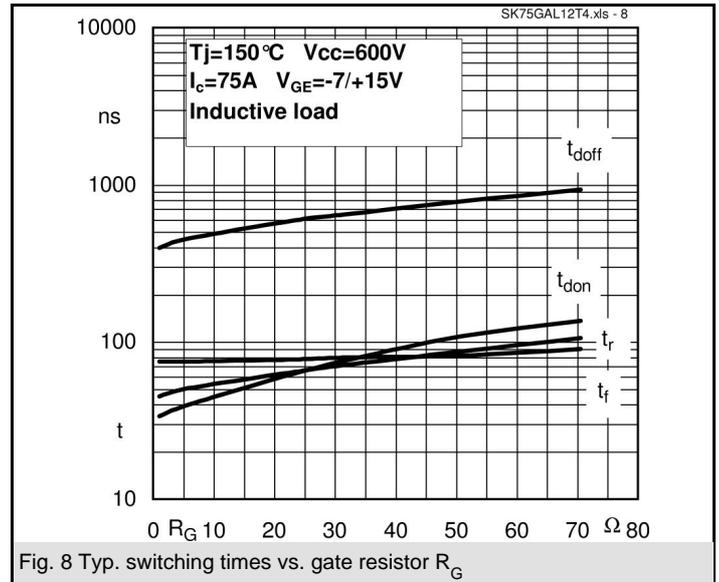
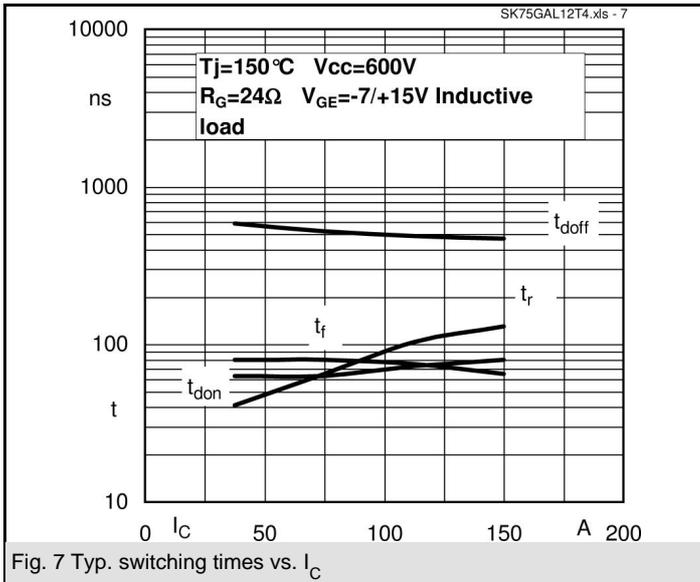
Characteristics			min.	typ.	max.	Units
Inverse Diode						
$V_F = V_{EC}$	$I_{Fnom} = 15 \text{ A}; V_{GE} = 0 \text{ V}$	$T_j = 25 \text{ }^\circ\text{C}_{chiplev.}$ $T_j = 150 \text{ }^\circ\text{C}_{chiplev.}$		2,38 2,44	2,71 2,77	V
V_{F0}		$T_j = 25 \text{ }^\circ\text{C}$ $T_j = 150 \text{ }^\circ\text{C}$		1,3 0,9	1,5 1,1	V
r_F		$T_j = 25 \text{ }^\circ\text{C}$ $T_j = 150 \text{ }^\circ\text{C}$		72 102,8	80,7 111,6	m Ω
I_{RRM} Q_{rr} E_{rr}	$I_F = \text{A}$ $V_{CC} = 600\text{V}$	$T_j = 150 \text{ }^\circ\text{C}$				A μC mJ
$R_{th(j-s)D}$	per diode			2,34		K/W
Freewheeling Diode						
$V_F = V_{EC}$	$I_{Fnom} = 75 \text{ A}; V_{GE} = 0 \text{ V}$	$T_j = 25 \text{ }^\circ\text{C}_{chiplev.}$ $T_j = 150 \text{ }^\circ\text{C}_{chiplev.}$		2,1 2,4	2,5 2,5	V
V_{F0}		$T_j = 25 \text{ }^\circ\text{C}$ $T_j = 150 \text{ }^\circ\text{C}$		1,3 0,9	1,5 1,1	V
r_F		$T_j = 25 \text{ }^\circ\text{C}$ $T_j = 150 \text{ }^\circ\text{C}$		12 16	13,3 17,3	V
I_{RRM} Q_{rr} E_{rr}	$I_F = 75 \text{ A}$ $di/dt = 2000 \text{ A}/\mu\text{s}$ $V_{CC} = 600\text{V}$	$T_j = 150 \text{ }^\circ\text{C}$		45 10 3		A μC mJ
$R_{th(j-s)FD}$	per diode			0,97		K/W
M_s	to heat sink				2,5	Nm
w				30		g
Temperature sensor						
R_{100}	$T_s = 100^\circ\text{C}$ ($R_{25} = 5\text{k}\Omega$)			493 \pm 5%		Ω

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

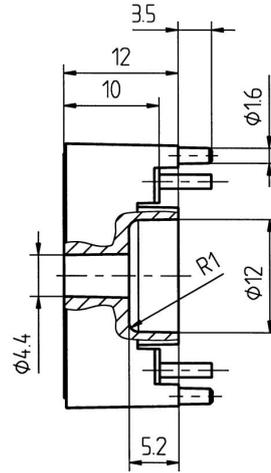
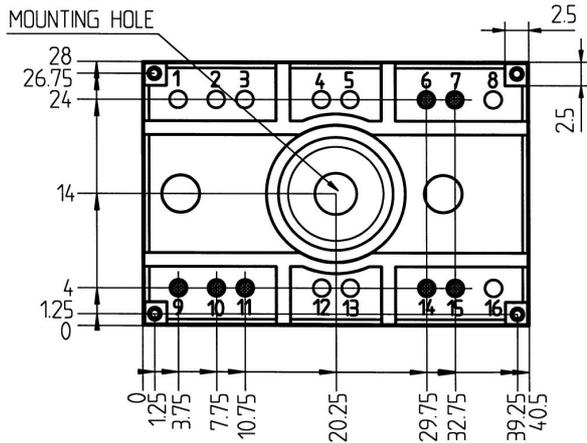
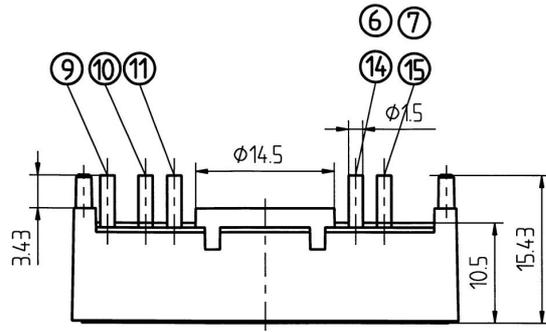
* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and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



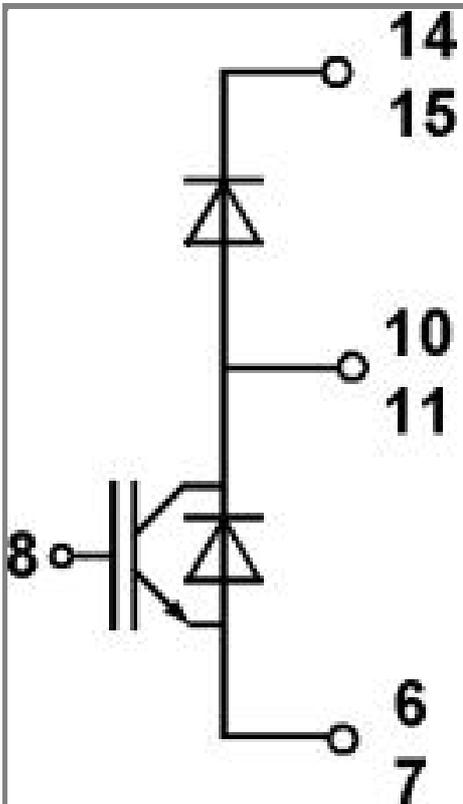




SK75GAL12T4

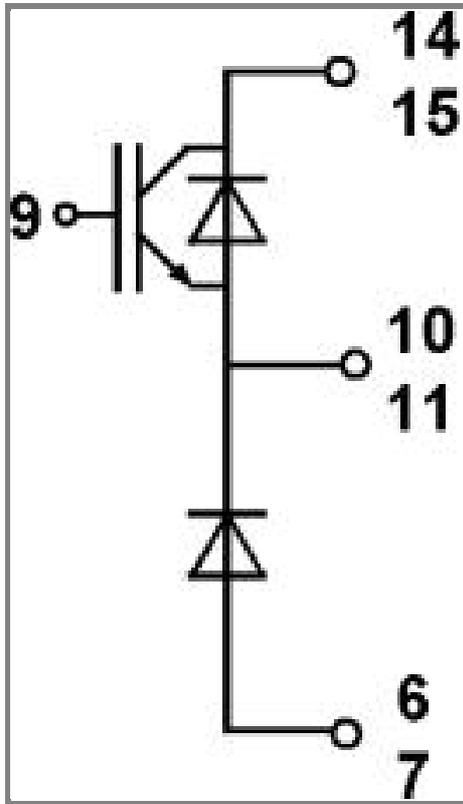


Case T18 (Suggested hole diameter for the solder pins and mounting plastic pins: 2mm)



Case T18

GAL



Case T18

GAR