

SK75GAR12T4



SEMITOP® 2

IGBT Module

SK75GAL12T4

SK75GAR12T4

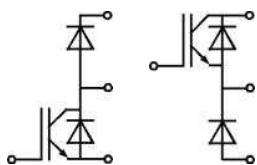
Features

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

Typical Applications*

Remarks

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



GAL

GAR

Absolute Maximum Ratings			T _s = 25 °C, unless otherwise specified	
Symbol	Conditions		Values	Units
IGBT				
V _{CES}	T _j = 25 °C		1200	V
I _C	T _j = 175 °C	T _s = 25 °C	80	A
		T _s = 70 °C	65	A
I _{CRM}	I _{CRM} = 3 × I _{Cnom}		225	A
V _{GES}			± 20	V
t _{psc}	V _{CC} = 800 V; V _{GE} ≤ 15 V; T _j = 150 °C V _{CES} < 1200 V		10	μs
Inverse Diode				
I _F	T _j = 175 °C	T _s = 25 °C	20	A
		T _s = 70 °C	16	A
I _{FRM}	I _{FRM} = 3 × I _{Fnom}		45	A
I _{FSM}	t _p = 10 ms; half sine wave T _j = 150 °C		90	A
Freewheeling Diode				
I _F	T _j = 175 °C	T _s = 25 °C	70	A
		T _s = 70 °C	55	A
I _{FRM}	I _{FRM} = 3×I _{Fnom}		225	A
I _{FSM}	t _p = 10 ms; half sine wave T _j = 150 °C		425	A
Module				
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 °C, unless otherwise specified			
Symbol	Conditions		min.	typ.	max.	Units
IGBT						
V _{GE(th)}	V _{GE} = V _{CE} , I _C = 3 mA		5	5,8	6,5	V
I _{CES}	V _{GE} = 0 V, V _{CE} = V _{CES}		T _j = 25 °C		1,0	mA
			T _j = 150 °C			
I _{GES}	V _{CE} = 0 V, V _{GE} = 20 V		T _j = 25 °C		600	nA
			T _j = 150 °C			
V _{CE0}			T _j = 25 °C		1,1	1,3
			T _j = 150 °C		1	1,2
r _{CE}	V _{GE} = 15 V		T _j = 25°C		10	
			T _j = 150°C		16	
V _{CE(sat)}	I _{Cnom} = 75 A, V _{GE} = 15 V		T _j = 25°C _{chiplev.}		1,85	2,05
			T _j = 150°C _{chiplev.}		2,25	2,45
C _{ies}	V _{CE} = 25, V _{GE} = 0 V		f = 1 MHz		4,4	
C _{oes}					0,29	
C _{res}					0,235	
Q _G	V _{GE} =-7V...+15V				570	nC
R _{Gint}	T _j = 25 °C				10	Ω
t _{d(on)}	R _{Gon} = 15 Ω di/dt = 2000 A/μs	V _{CC} = 600V I _C = 75A			50	ns
t _r					60	ns
E _{on}					13	mJ
t _{d(off)}	R _{Goff} = 15 Ω	T _j = 150 °C V _{GE} = -7/+15V			500	ns
t _f					60	ns
E _{off}					7	mJ
R _{th(i-s)}	per IGBT				0,74	K/W

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Features

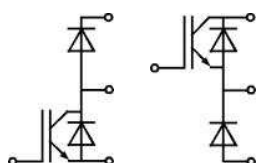
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- Trench4 IGBT technology
- CAL4 technology FWD

Typical Applications*

Remarks

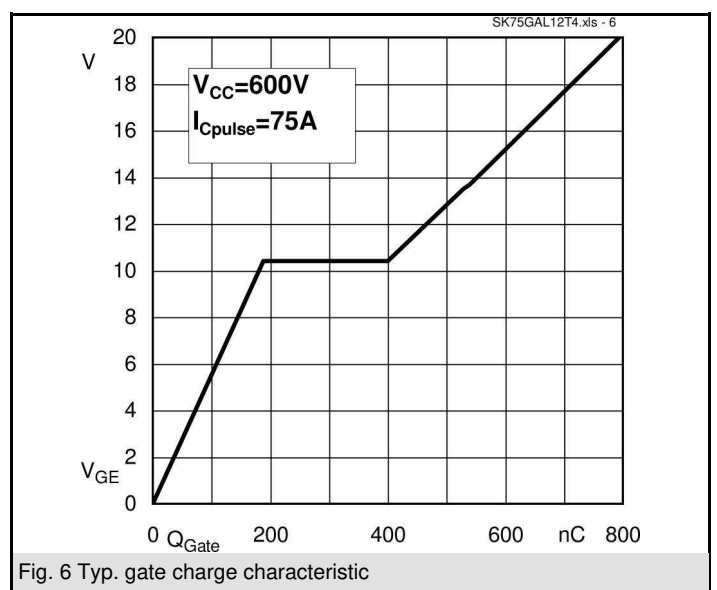
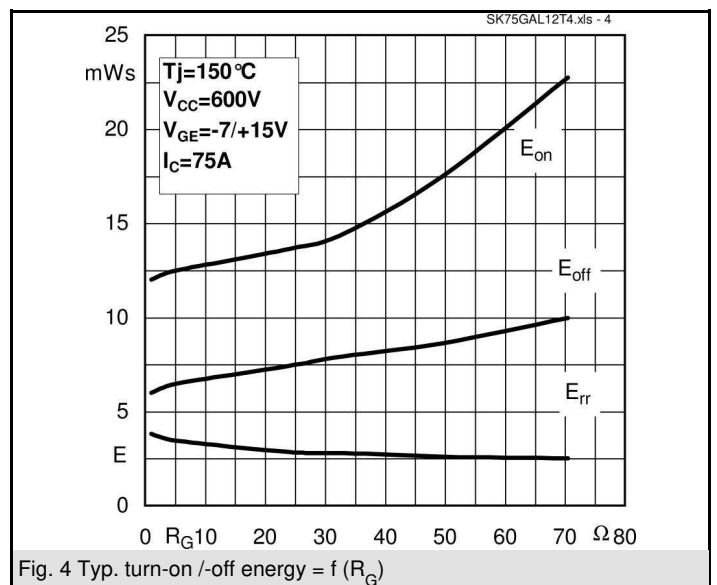
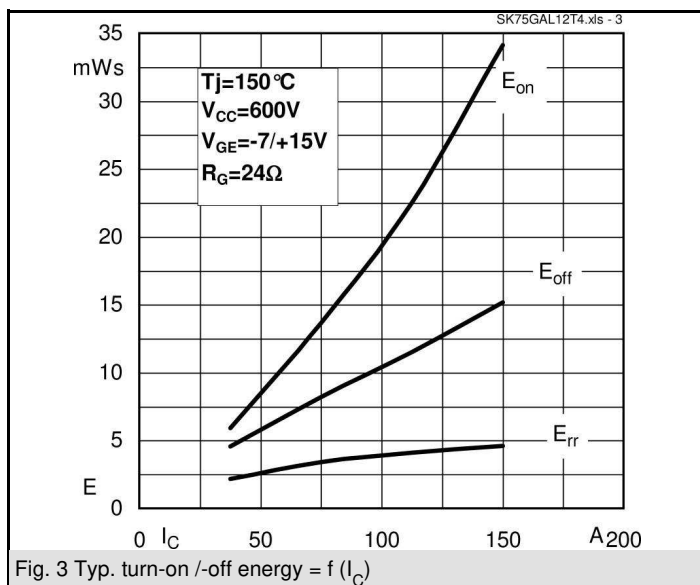
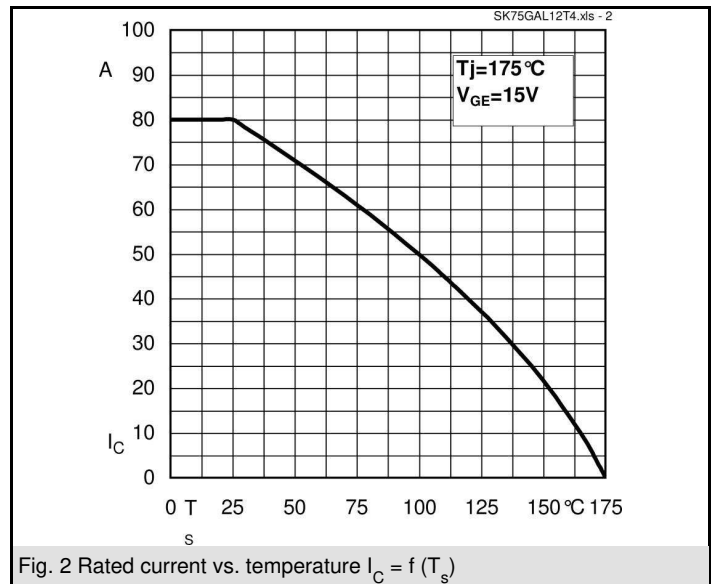
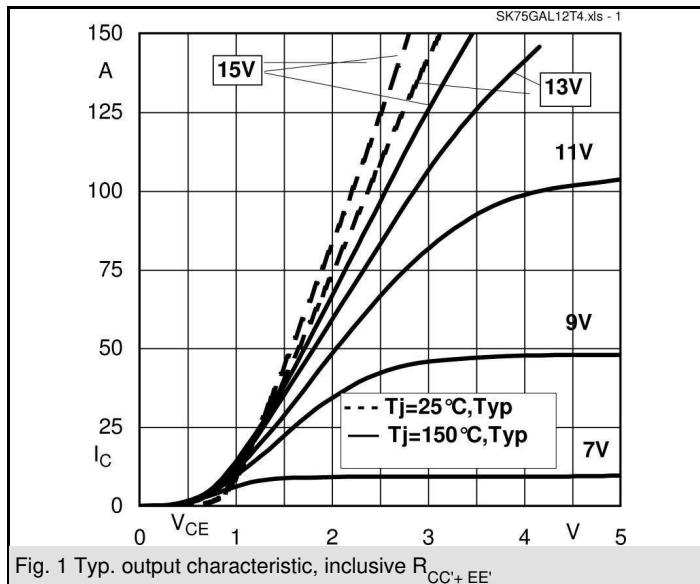
- $V_{CE,sat}$, V_F = chip level value

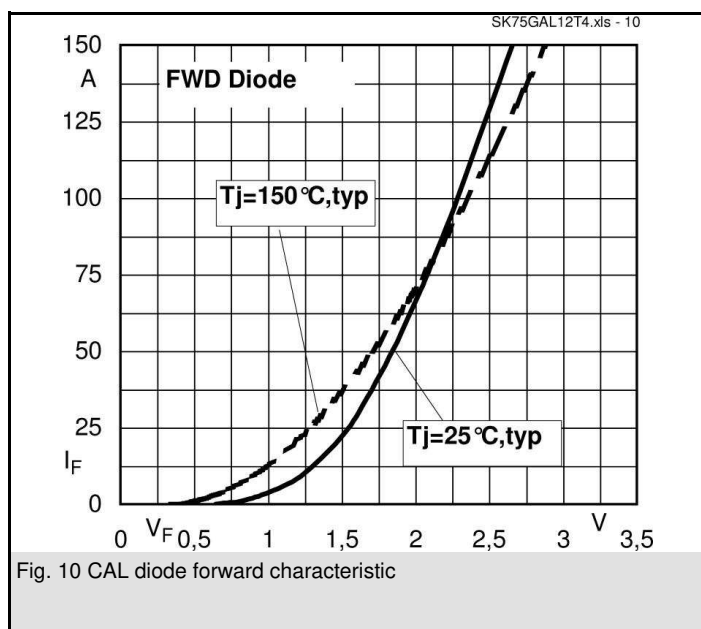
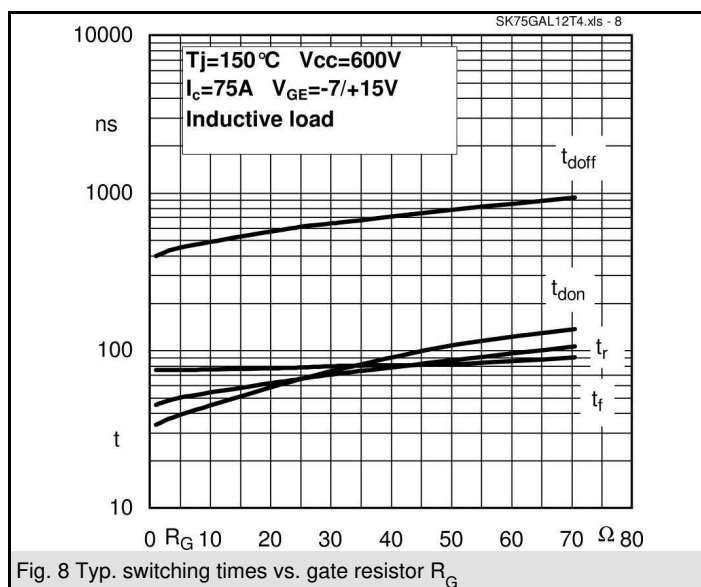
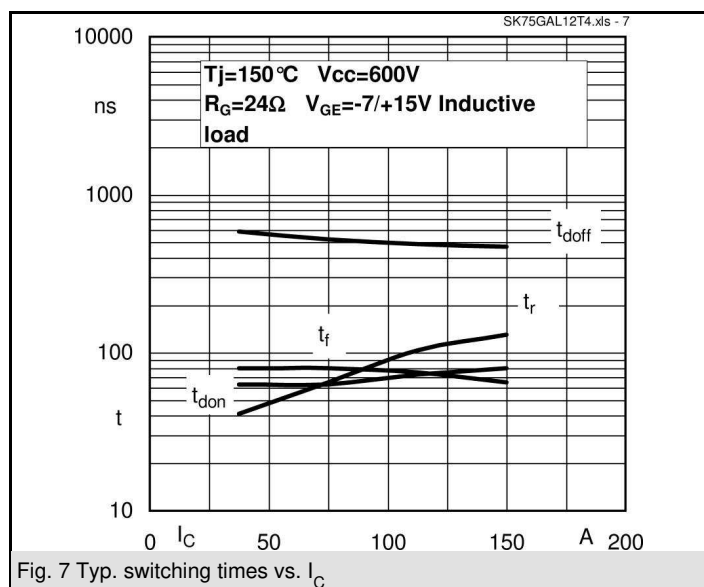
Characteristics					
Symbol	Conditions	min.	typ.	max.	Units
Inverse Diode					
$V_F = V_{EC}$	$I_{Fnom} = 15\text{ A}$; $V_{GE} = 0\text{ V}$				
	$T_j = 25\text{ °C}_{chiplev.}$		2,38	2,71	V
	$T_j = 150\text{ °C}_{chiplev.}$		2,44	2,77	V
V_{F0}	$T_j = 25\text{ °C}$		1,3	1,5	V
	$T_j = 150\text{ °C}$		0,9	1,1	V
r_F	$T_j = 25\text{ °C}$		72	80,7	mΩ
	$T_j = 150\text{ °C}$		102,8	111,6	mΩ
I_{RRM}	$I_F = A$				A
Q_{rr}					μC
E_{rr}	$V_{CC} = 600\text{ V}$				mJ
$R_{th(j-s)D}$	per diode		2,34		K/W
Freewheeling Diode					
$V_F = V_{EC}$	$I_{Fnom} = 75\text{ A}$; $V_{GE} = 0\text{ V}$				
	$T_j = 25\text{ °C}_{chiplev.}$		2,1	2,5	V
	$T_j = 150\text{ °C}_{chiplev.}$		2,4	2,5	V
V_{F0}	$T_j = 25\text{ °C}$		1,3	1,5	V
	$T_j = 150\text{ °C}$		0,9	1,1	V
r_F	$T_j = 25\text{ °C}$		12	13,3	V
	$T_j = 150\text{ °C}$		16	17,3	V
I_{RRM}	$I_F = 75\text{ A}$		45		A
Q_{rr}	$di/dt = 2000\text{ A/μs}$		10		μC
E_{rr}	$V_{CC} = 600\text{ V}$		3		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}	$T_s = 100\text{ °C}$ ($R_{25} = 5\text{ kΩ}$)		493±5%		Ω

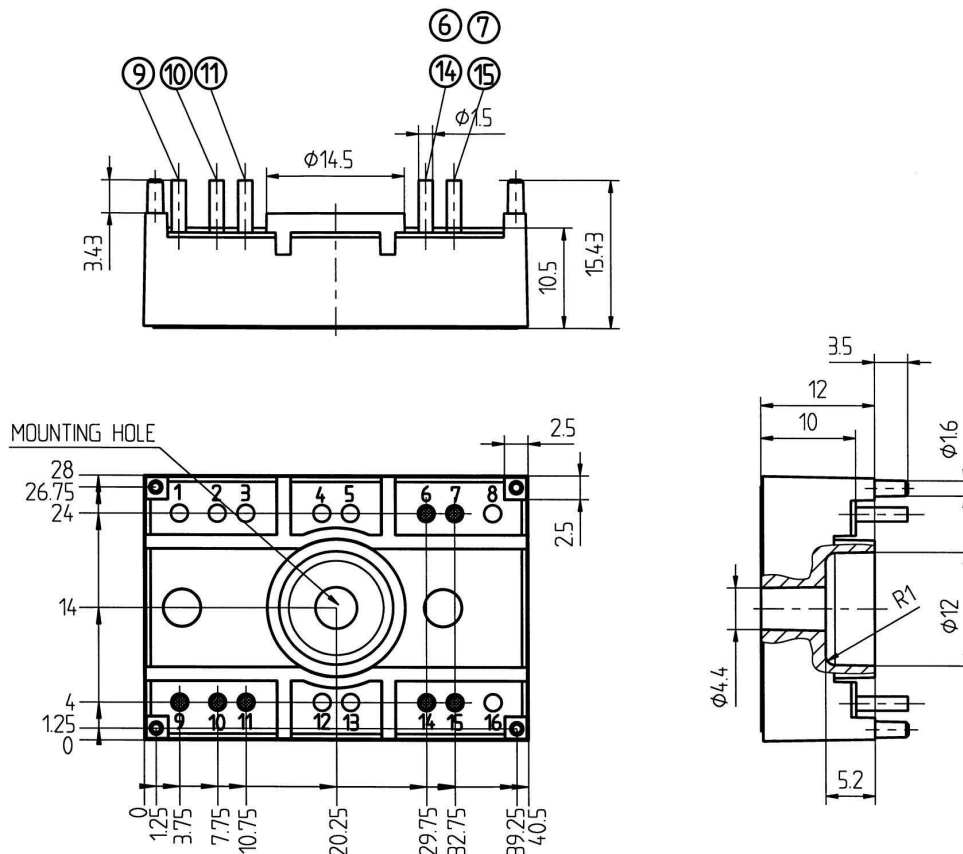


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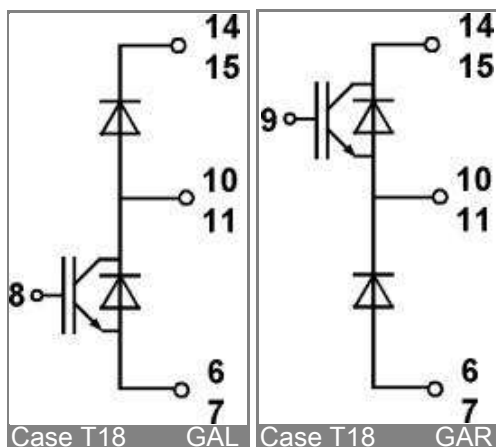
GAR







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



Case T18 GAL

Case T18 GAR

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

*IMPORTANT INFORMATION AND WARNINGS

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