

SKM 75GB12T4



SEMITRANS® 2

IGBT4 Modules

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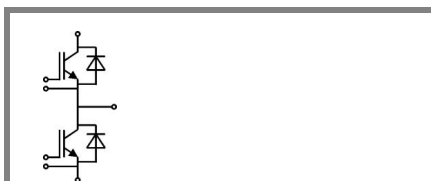
Target Data

Features

- IGBT4 = 4. Generation (Trench) IGBT
- V_{CEsat} with positive temperature coefficient
- High short circuit capability, self limiting
- Soft switching 4. Generation CAL diode (CAL4)

Typical Applications

- AC inverter drives
- UPS
- Electronic welders at f_{sw} up to 20 kHz



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Absolute Maximum Ratings			T _c = 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 _{case} = 25 °C	110	A
		T _{case} = 80 °C	90	A
I _{CRM}	I _{CRM} = 3 x I _{CNOM}		225	A
V _{GES}			± 20	V
t _{psc}	V _{CC} = 600 V; V _{GE} ≤ 15 V; T _j = 150 °C V _{CES} < 1200 V		10	µs
Inverse Diode				
I _F	T _j = 175 °C	T _{case} = 25 °C	95	A
		T _{case} = 80 °C	75	A
I _{FRM}	I _{FRM} = 3 x I _{FNOM}		225	A
I _{FSM}	t _p = 10 ms; sin.	T _j = 175 °C	430	A
Module				
I _{t(RMS)}			200	A
T _{vj}			-40 ... +175	°C
T _{stg}			-40 ... +125	°C
V _{isol}	AC, 1 min.		4000	V

Characteristics			T _c = 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} = V, V _{CE} = V _{CES} T _j = °C					mA	
V _{CE0}	T _j = 25 °C			0,8	0,9	V	
	T _j = 150 °C			0,7	0,8	V	
r _{CE}	V _{GE} = 15 V T _j = 25°C			14	15,3	mΩ	
	T _j = 150°C			20,7	22	mΩ	
V _{CE(sat)}	I _{Cnom} = 75 A, V _{GE} = 15 V T _j = 25°C _{chiplev.}			1,85	2,05	V	
	T _j = 150°C _{chiplev.}			2,25	2,45	V	
C _{ies}	V _{CE} = 25, V _{GE} = 0 V f = 1 MHz			4,4		nF	
C _{oes}				0,29		nF	
C _{res}				0,24		nF	
Q _G	V _{GE} = -8V/15V			425		nC	
R _{Gint}	T _j = 25 °C			10		Ω	
t _{d(on)}	R _{Gon} =	V _{CC} = 600V I _{Cnom} = 75A T _j = 150 °C		8,3		ns	
t _r						ns	
E _{on}	mJ						
t _{d(off)}	R _{Goff} =					ns	
t _f						ns	
E _{off}						8,3	mJ
R _{th(i-c)}	per IGBT						

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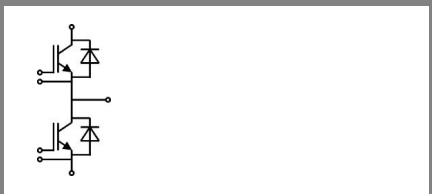
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Characteristics						
Symbol	Conditions		min.	typ.	max.	Units
Inverse Diode						
V _F = V _{EC}	I _{Fnom} = 75 A; V _{GE} = 0 V	T _j = 25 °C _{chiplev.}		2,2	2,5	V
		T _j = 150 °C _{chiplev.}		2,1	2,45	V
V _{F0}		T _j = 25 °C		1,3	1,5	V
		T _j = 150 °C		0,9	1,1	V
r _F		T _j = 25 °C		12	13,3	mΩ
		T _j = 150 °C		16	18	mΩ
I _{RRM}	I _{Fnom} = 75 A	T _j = 150 °C	5,6		A	
Q _{rr}					μC	
E _{rr}					mJ	
R _{th(j-c)}	per diode			0,58	K/W	
Freewheeling Diode						
V _F = V _{EC}	I _{Fnom} = A; V _{GE} = V	T _j = °C _{chiplev.}			V	
V _{F0}		T _j = °C			V	
r _F		T _j = °C			V	
I _{RRM}	I _{Fnom} = A	T _j = °C			A	
Q _{rr}					μC	
E _{rr}					mJ	
	per diode				K/W	
Module						
L _{CE}			20	30	nH	
R _{CC'+EE'}	res., terminal-chip	T _{case} = 25 °C		0,75	mΩ	
		T _{case} = 125 °C		1	mΩ	
R _{th(c-s)}	per module			0,05	K/W	
M _s	to heat sink M6		3	5	Nm	
M _t	to terminals M5		2,5	5	Nm	
w				160	g	

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

This technical information specifies semiconductor devices but promises no characteristics. No warranty or guarantee expressed or implied is made regarding delivery, performance or suitability.

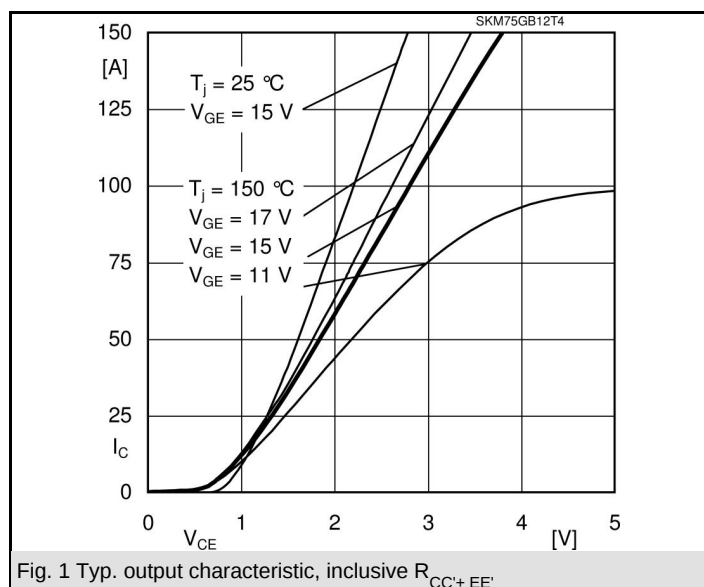


Fig. 1 Typ. output characteristic, inclusive $R_{CC'+EE'}$

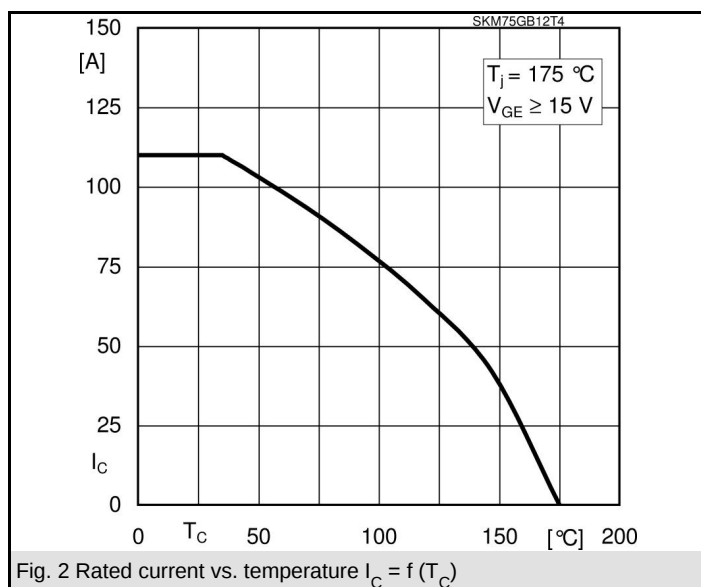


Fig. 2 Rated current vs. temperature $I_C = f(T_C)$

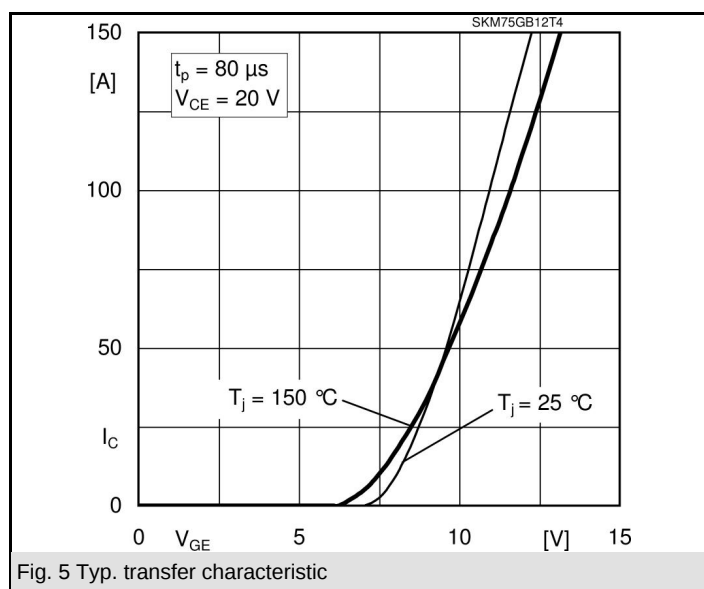


Fig. 5 Typ. transfer characteristic

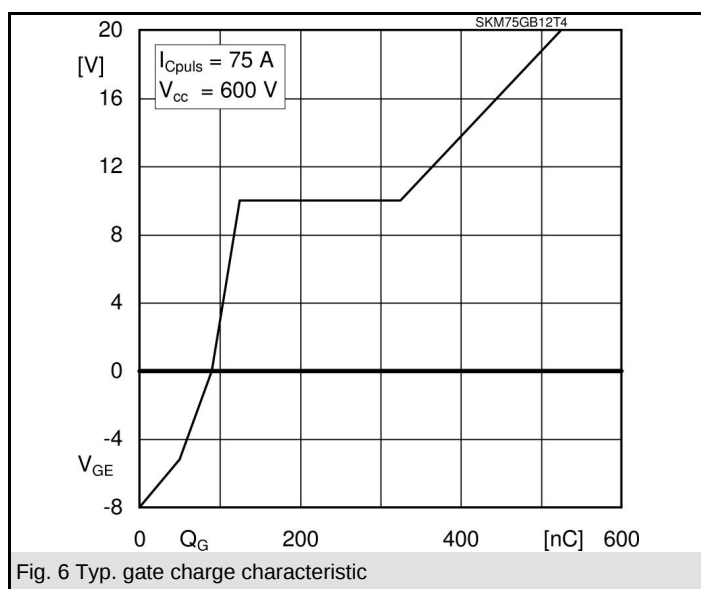
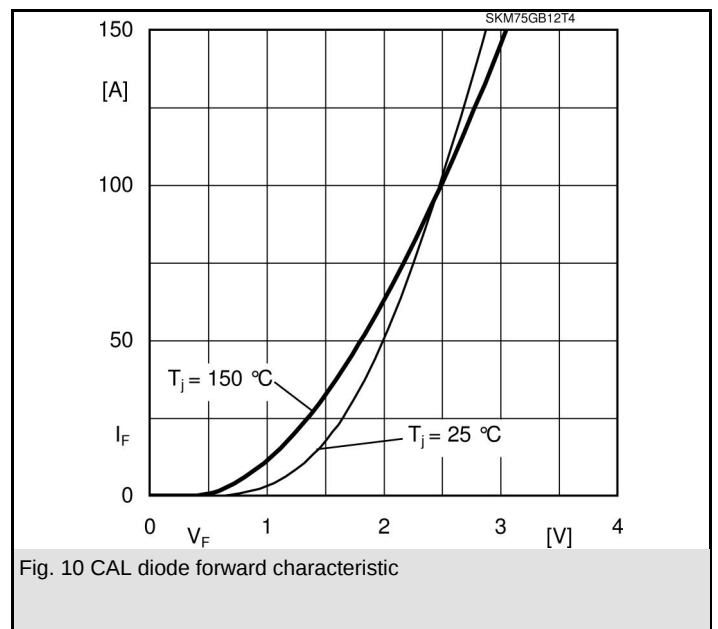
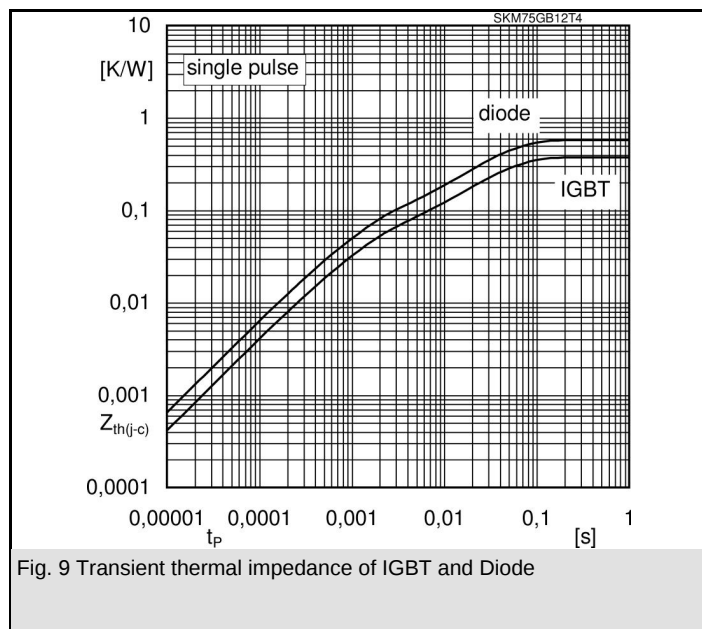


Fig. 6 Typ. gate charge characteristic

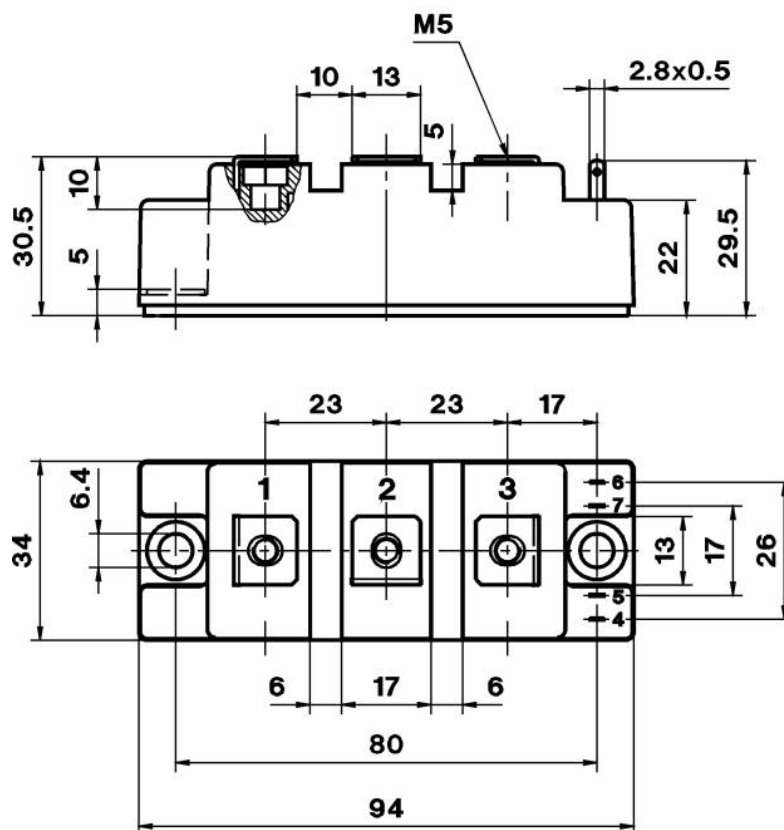


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UL recognized file

CASED61

no. E 63 532



Case D61

