

SKM 75GB12T4



SEMITRANS® 2

IGBT4 Modules

SKM 75GB12T4

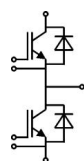
Target Data

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



GB

Absolute Maximum Ratings			$T_c = 25\text{ }^{\circ}\text{C}$, unless otherwise specified	
Symbol	Conditions		Values	Units
IGBT				
V_{CES}	$T_j = 25\text{ }^{\circ}\text{C}$		1200	V
I_C	$T_j = 175\text{ }^{\circ}\text{C}$	$T_{case} = 25\text{ }^{\circ}\text{C}$	110	A
		$T_{case} = 80\text{ }^{\circ}\text{C}$	90	A
I_{CRM}	$I_{CRM} = 3 \times I_{CNOM}$		225	A
V_{GES}			± 20	V
t_{psc}	$V_{CC} = 600\text{ V}; V_{GE} \leq 15\text{ V}; T_j = 150\text{ }^{\circ}\text{C}$ $V_{CES} < 1200\text{ V}$		10	μs
Inverse Diode				
I_F	$T_j = 175\text{ }^{\circ}\text{C}$	$T_{case} = 25\text{ }^{\circ}\text{C}$	95	A
		$T_{case} = 80\text{ }^{\circ}\text{C}$	75	A
I_{FRM}	$I_{FRM} = 3 \times I_{FNOM}$		225	A
I_{FSM}	$t_p = 10\text{ ms}; \sin.$	$T_j = 175\text{ }^{\circ}\text{C}$	430	A
Module				
$I_{t(RMS)}$			200	A
T_{vj}			-40 ... +175	$^{\circ}\text{C}$
T_{stg}			-40 ... +125	$^{\circ}\text{C}$
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			V
	T _j = 150 °C		0,7			V
r _{CE}	V _{GE} = 15 V T _j = 25°C		14			mΩ
	T _j = 150°C		20,7			mΩ
V _{CE(sat)}	I _{Cnom} = 75 A, V _{GE} = 15 V T _j = 25°C _{chiplev.}		1,85			V
	T _j = 150°C _{chiplev.}		2,25			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}	8,3			mJ		
t _{d(off)}				ns		
t _f	8,3			ns		
E _{off}				mJ		
R _{th(j-c)}	per IGBT		0,38			K/W

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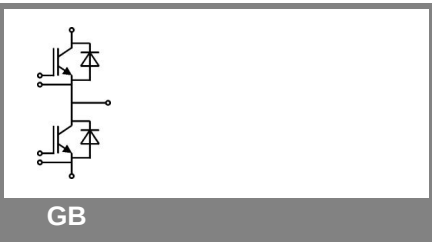
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Characteristics						
Symbol	Conditions		min.	typ.	max.	Units
Inverse Diode						
V _F = V _{EC}	I _{Fnom} = 75 A; V _{GE} = 0 V	T _j = 25 °C _{chiplev.} T _j = 150 °C _{chiplev.}		2,2 2,1	2,5 2,45	V V
V _{F0}		T _j = 25 °C T _j = 150 °C		1,3 0,9	1,5 1,1	V V
r _F		T _j = 25 °C T _j = 150 °C		12 16	13,3 18	mΩ mΩ
I _{RRM} Q _{rr} E _{rr}	I _{Fnom} = 75 A	T _j = 150 °C				A μC 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} Q _{rr} E _{rr}	I _{Fnom} = A	T _j = °C				A μC mJ
	per diode					K/W
Module						
L _{CE}				20	30	nH
R _{CC'+EE'}	res., terminal-chip	T _{case} = 25 °C T _{case} = 125 °C			0,75 1	mΩ 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.

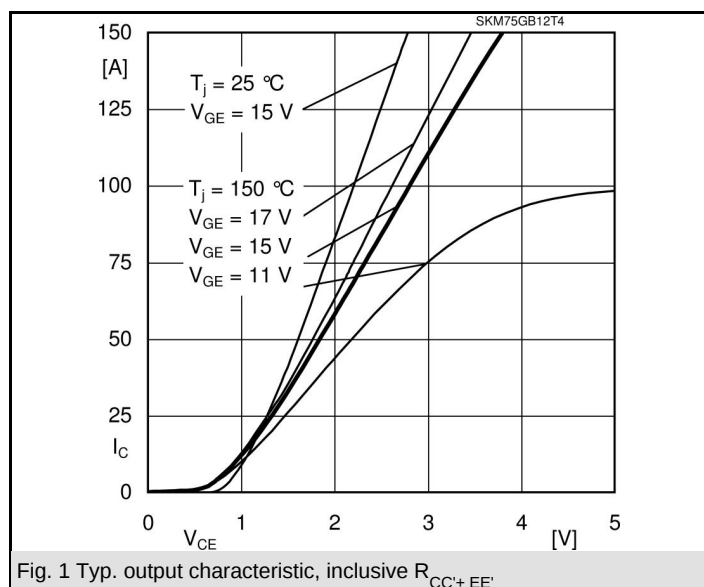


Fig. 1 Typ. output characteristic, inclusive $R_{CC'+EE'}$

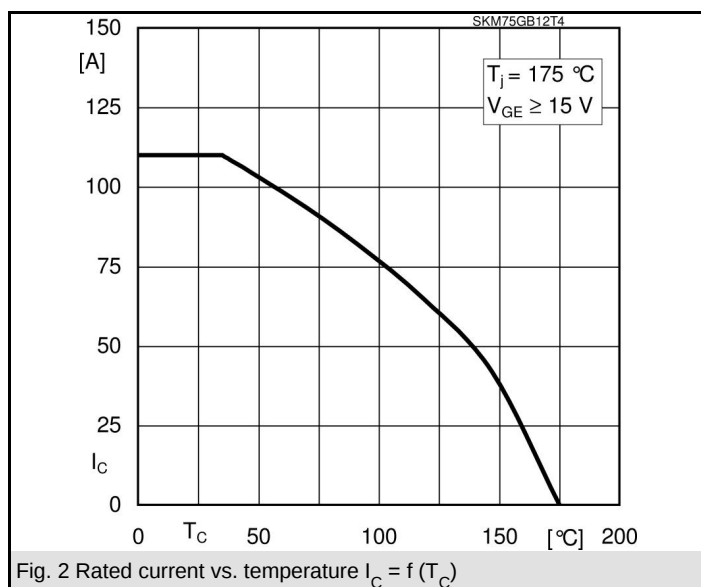


Fig. 2 Rated current vs. temperature $I_C = f(T_C)$

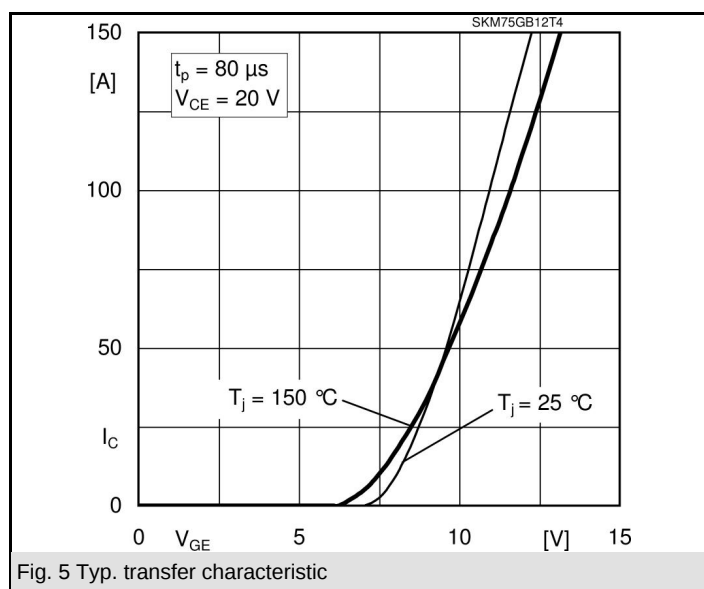


Fig. 5 Typ. transfer characteristic

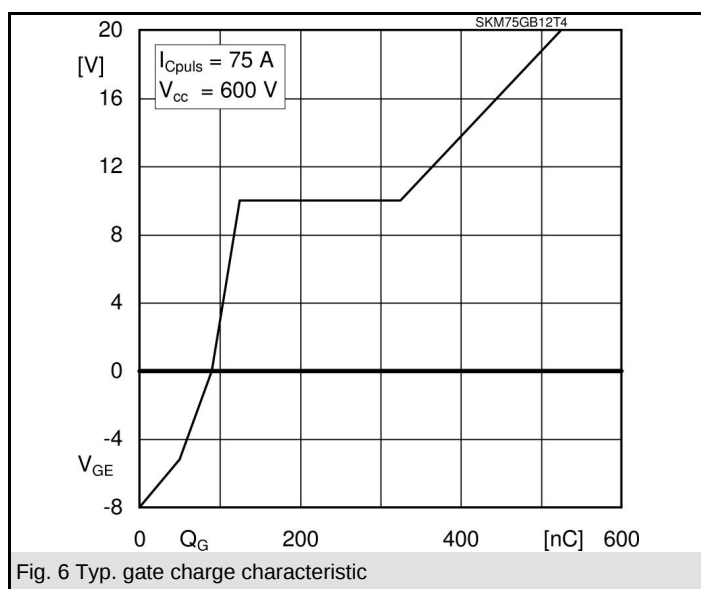
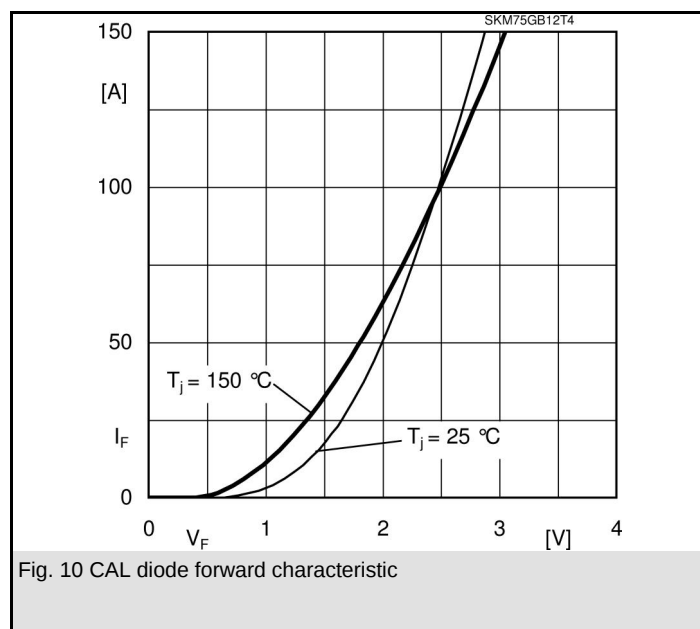
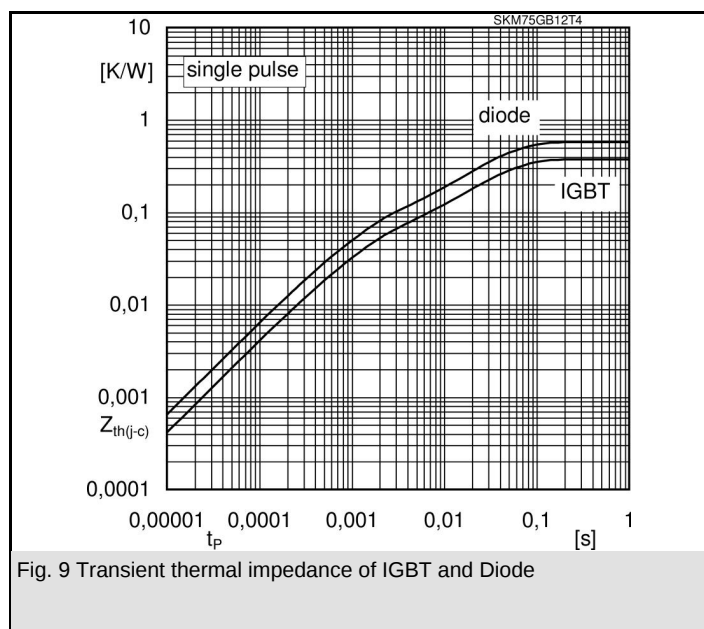


Fig. 6 Typ. gate charge characteristic

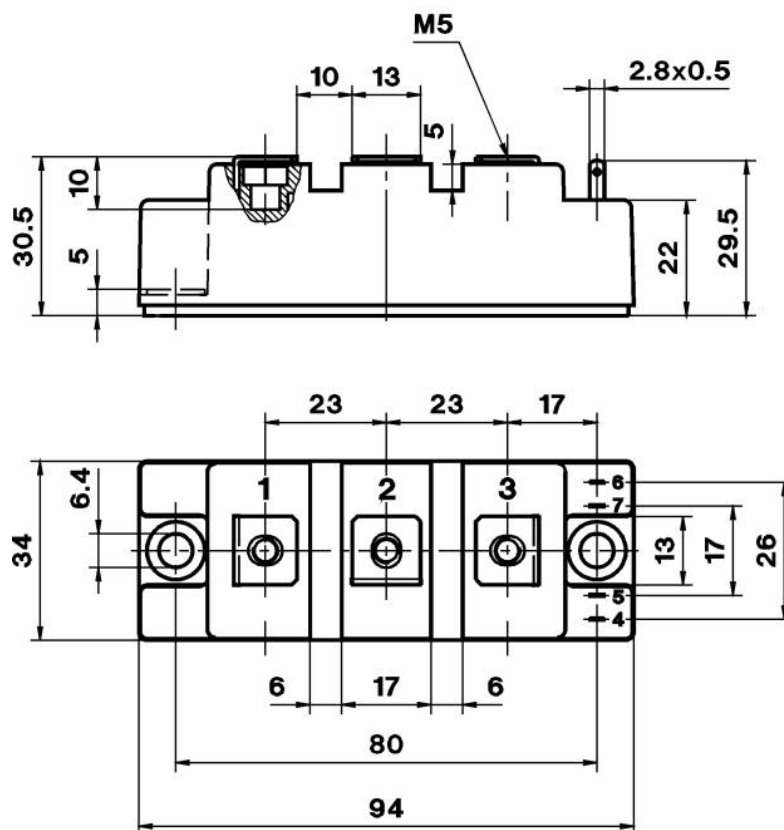


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UL recognized file

CASED61

no. E 63 532



Case D61

