

SEMITOP® 3

IGBT Module

SK75GB066T

Target Data

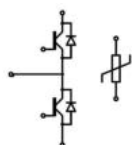
Features

- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DCB)
- Trench IGBT technology
- CAL HD technology FWD
- Integrated NTC temperature sensor

Typical Applications*

Remarks

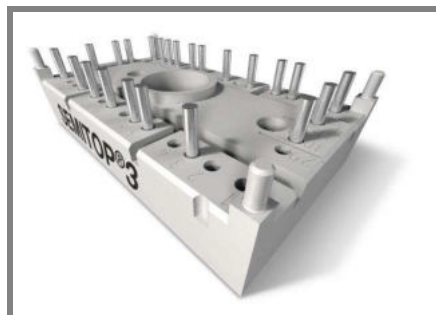
- $V_{\text{isol}} = 3000\text{V AC}, 50\text{Hz}, 1\text{s}$



GB-T

Absolute Maximum Ratings				$T_s = 25^\circ\text{C}$, unless otherwise specified	
Symbol	Conditions			Values	Units
IGBT					
V_{CES}	$T_j = 25^\circ\text{C}$			600	V
I_C	$T_j = 175^\circ\text{C}$	$T_s = 25^\circ\text{C}$		77	A
		$T_s = 70^\circ\text{C}$		60	A
I_{CRM}	$I_{\text{CRM}} = 2 \times I_{\text{Cnom}}$			150	A
V_{GES}				± 20	V
t_{psc}	$V_{\text{CC}} = 360\text{V}; V_{\text{GE}} \leq 20\text{V}; T_j = 150^\circ\text{C}$ $V_{\text{CES}} < 600\text{V}$			6	μs
Inverse Diode					
I_F	$T_j = 175^\circ\text{C}$	$T_s = 25^\circ\text{C}$		62	A
		$T_s = 70^\circ\text{C}$		47	A
I_{FRM}	$I_{\text{FRM}} = 2 \times I_{\text{Fnom}}$			150	A
I_{FSM}	$t_p = 10\text{ms}; \text{half sine wave } T_j = 150^\circ\text{C}$			395	A
Module					
$I_{\text{t(RMS)}}$					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 °C, unless otherwise specified				
Symbol	Conditions		min.	typ.	max.	Units	
IGBT							
V _{GE(th)}	V _{GE} = V _{CE} , I _C = 1,2 mA		5	5,8	6,5	V	
I _{CES}	V _{GE} = 0 V, V _{CE} = V _{CES}	T _J = 25 °C T _J = 125 °C	0,0038			mA mA	
I _{GES}	V _{CE} = 0 V, V _{GE} = 20 V	T _J = 25 °C T _J = 125 °C	600			nA nA	
V _{CE0}		T _J = 25 °C T _J = 150 °C		0,8 0,7	1,1 1	V V	
r _{CE}	V _{GE} = 15 V	T _J = 25°C T _J = 150°C		8 12,7	10 14	mΩ mΩ	
V _{CE(sat)}	I _{Cnom} = 75 A, V _{GE} = 15 V	T _J = 25°C _{chiplev.} T _J = 150°C _{chiplev.}		1,45 1,65	1,85 2,05	V V	
C _{ies} C _{oes} C _{res}	V _{CE} = 25, V _{GE} = 0 V	f = 1 MHz		4,7 0,3 0,145		nF nF nF	
Q _G	V _{GE} = -7V...+15V			700		nC	
t _{d(on)} t _r E _{on}	R _{Gon} = 16 Ω di/dt = 2250 A/μs	V _{CC} = 300V I _C = 75A T _J = 150 °C V _{GE} = -7/+15 V		95 50 3,1		ns ns mJ	
t _{d(off)} t _f E _{off}	R _{Goff} = 16 Ω di/dt = 2250 A/μs			541 70 2,8		ns ns mJ	
R _{th(j-s)}	per IGBT			0,94		K/W	



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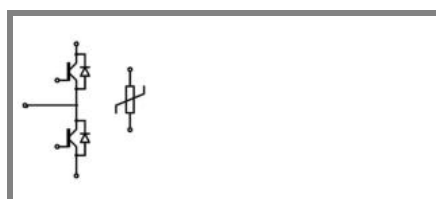
Remarks

- $V_{isol} = 3000V$ AC, 50Hz, 1s

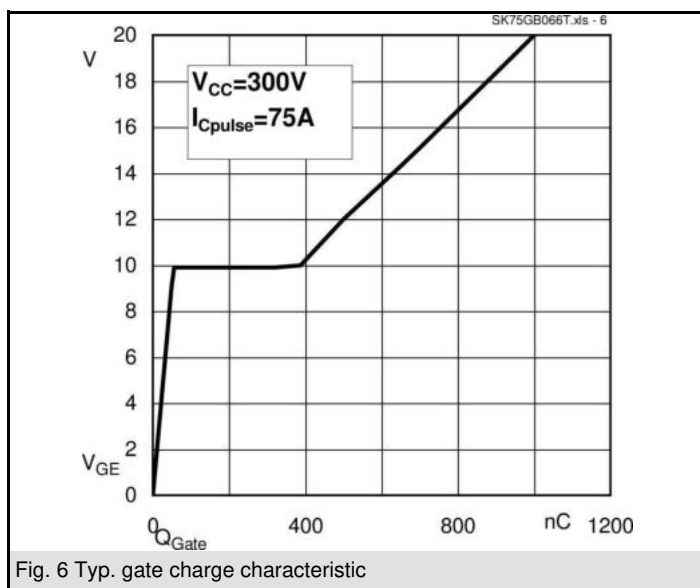
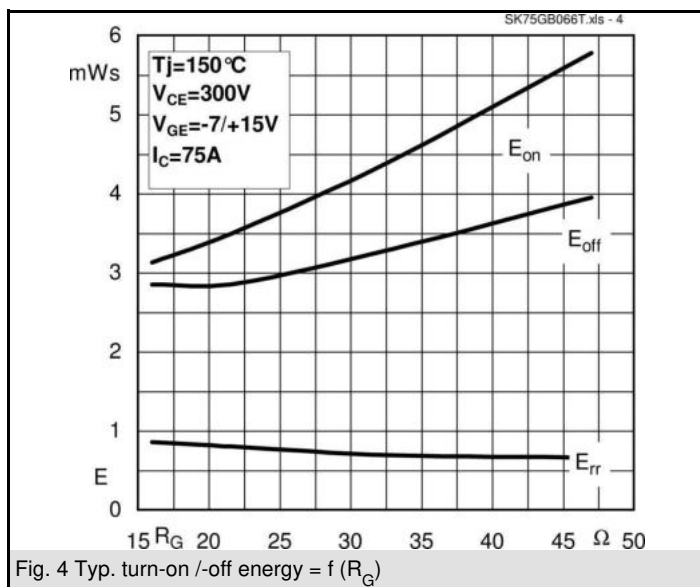
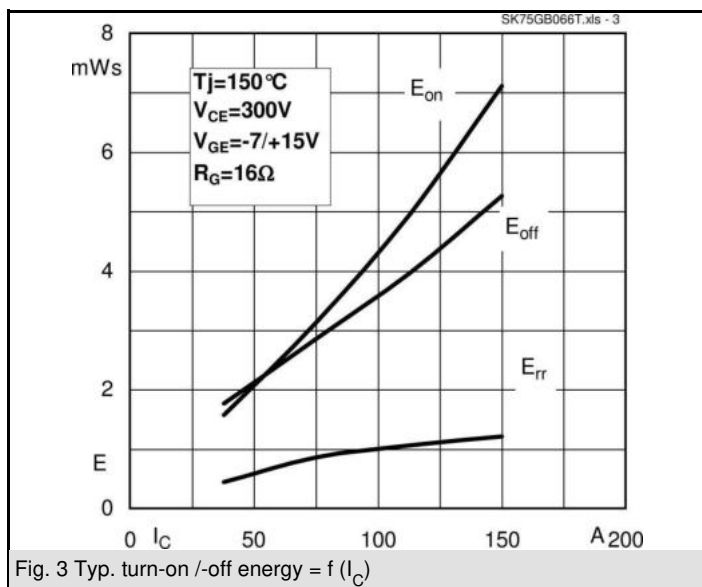
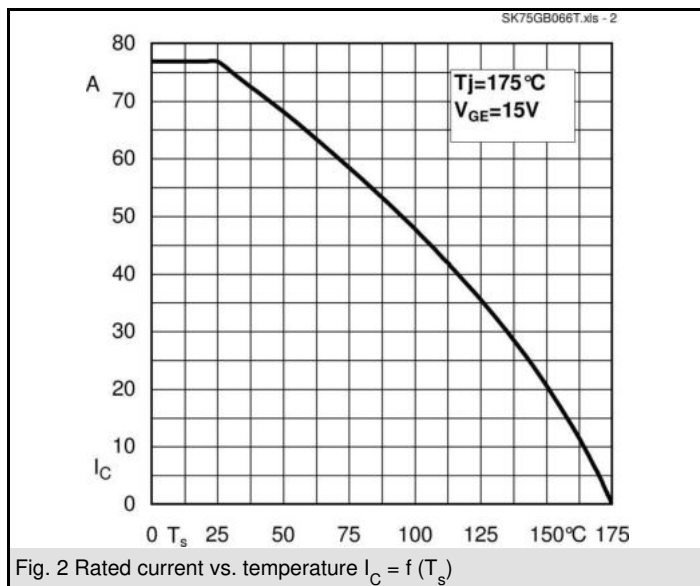
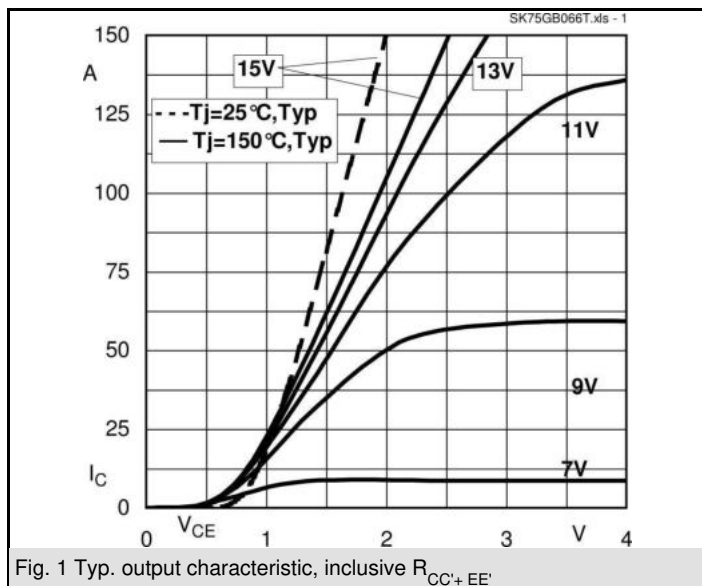
Characteristics				
Symbol	Conditions	min.	typ.	max. Units
Inverse Diode				
$V_F = V_{EC}$	$I_{Fnom} = 75 A$; $V_{GE} = 0 V$			
	$T_j = 25 ^\circ C_{chiplev.}$		1,35	V
	$T_j = 150 ^\circ C_{chiplev.}$		1,31	V
V_{F0}				V
	$T_j = 25 ^\circ C$			V
	$T_j = 150 ^\circ C$		0,85	V
r_F				mΩ
	$T_j = 25 ^\circ C$			mΩ
	$T_j = 150 ^\circ C$		7,8	mΩ
I_{RRM}	$I_F = 75 A$		60	A
Q_{rr}	$di/dt = 2250 A/\mu s$		6	μC
E_{rr}	$V_{CC} = 300V$		0,85	mJ
$R_{th(j-s)D}$	per diode		1,55	K/W
M_s	to heat sink	2,5		2,75 Nm
w			60	g
Temperature sensor				
R_{100}	$T_s = 100^\circ C$ ($R_{25} = 5k\Omega$)		493±5%	Ω

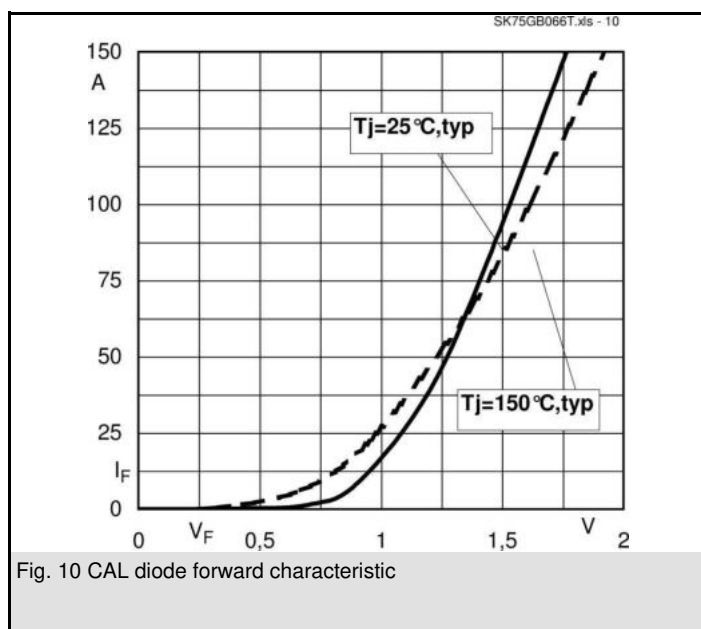
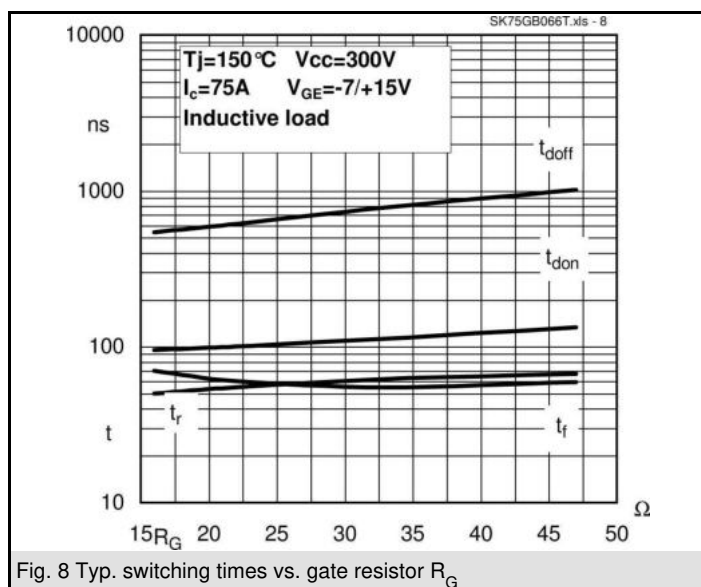
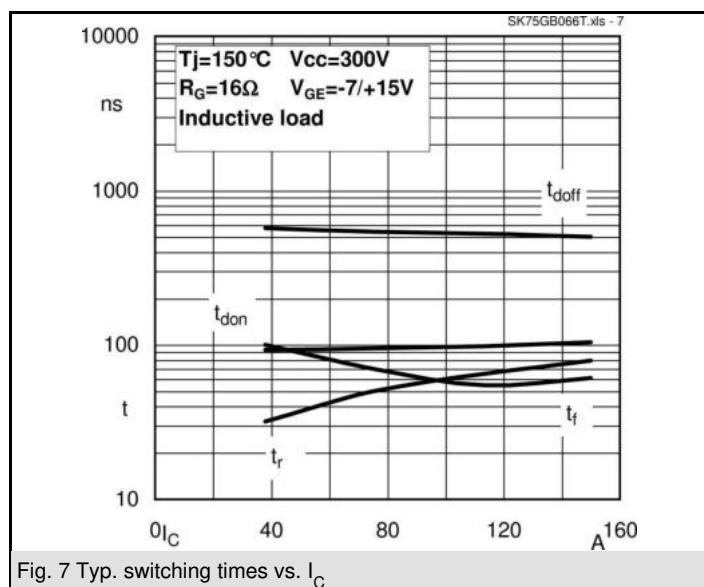
This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

* 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.



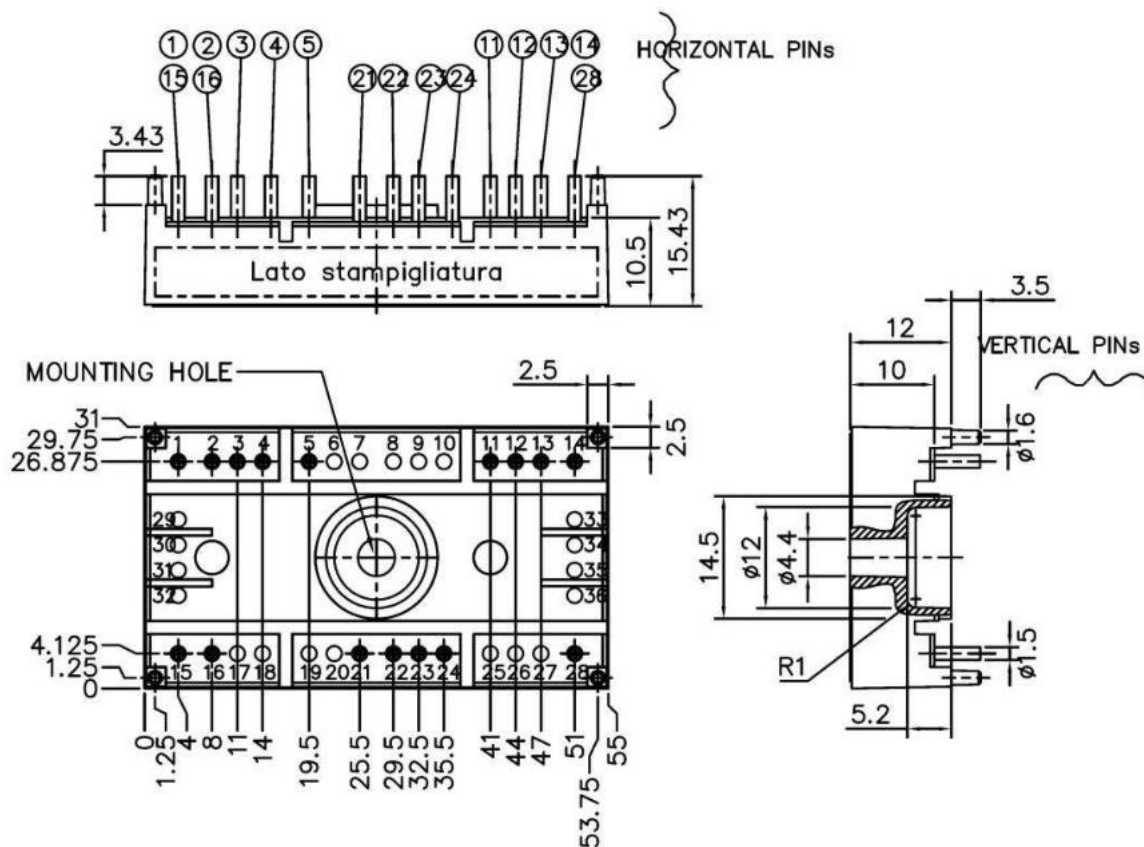
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UL recognized

file no. E 63 532



Case T73 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)

