

SEMITOP® 4

IGBT Module

SK75GD066T

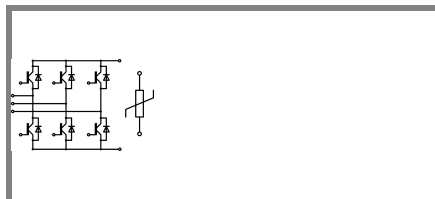
Preliminary Data

Features

- One screw mounting module
- Fully compatible with SEMITOP®1,2,3
- Improved thermal performances by aluminium oxide substrate
- Trench IGBT technology
- CAL technology FWD
- Integrated NTC temperature sensor

Typical Applications*

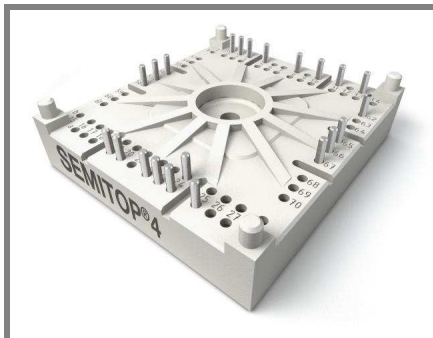
- Inverter up to 16 kVA
- Typ. motor power 7,5 kW



GD-T

Absolute Maximum Ratings		$T_s = 25\text{ °C}$, unless otherwise specified	
Symbol	Conditions	Values	Units
IGBT			
V_{CES}	$T_j = 25\text{ °C}$	600	V
I_C	$T_j = 175\text{ °C}$	$T_s = 25\text{ °C}$	83 A
		$T_s = 70\text{ °C}$	67 A
I_{CRM}	$I_{CRM} = 2 \times I_{Cnom}$	150	A
V_{GES}		± 20	V
t_{psc}	$V_{CC} = 360\text{ V}$; $V_{GE} \leq 20\text{ V}$; $T_j = 125\text{ °C}$ $V_{CES} < 600\text{ V}$	6	μs
Inverse Diode			
I_F	$T_j = 175\text{ °C}$	$T_s = 25\text{ °C}$	92 A
		$T_s = 70\text{ °C}$	73 A
I_{FRM}	$I_{FRM} = 2 \times I_{Fnom}$	150	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					
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 1,2\text{ mA}$	5	5,8	6,5	V
I_{CES}	$V_{GE} = 0\text{ V}$, $V_{CE} = V_{CES}$	$T_j = 25\text{ °C}$		0,0038	mA
		$T_j = 125\text{ °C}$			mA
I_{GES}	$V_{CE} = 0\text{ V}$, $V_{GE} = 20\text{ V}$	$T_j = 25\text{ °C}$		600	nA
		$T_j = 125\text{ °C}$			nA
V_{CE0}		$T_j = 25\text{ °C}$	0,8	1,1	V
		$T_j = 150\text{ °C}$	0,7	1	V
r_{CE}	$V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}$	8	10	$\text{m}\Omega$
		$T_j = 150\text{ °C}$	12,7	14	$\text{m}\Omega$
$V_{CE(sat)}$	$I_{Cnom} = 75\text{ A}$, $V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}_{chiplev.}$	1,45	1,85	V
		$T_j = 150\text{ °C}_{chiplev.}$	1,65	2,05	V
C_{ies}	$V_{CE} = 25$, $V_{GE} = 0\text{ V}$	$f = 1\text{ MHz}$	4,7		nF
C_{oes}			0,3		nF
C_{res}			0,145		nF
$t_{d(on)}$	$R_{Gon} = 16\ \Omega$ $di/dt = 2250\text{ A}/\mu\text{s}$	$V_{CC} = 300\text{V}$ $I_C = 75\text{A}$	95		ns
t_r			50		ns
E_{on}	$R_{Goff} = 16\ \Omega$ $di/dt = 2250\text{ A}/\mu\text{s}$	$T_j = 150\text{ °C}$ $V_{GE} = -7/+15\text{ V}$	3,1		mJ
$t_{d(off)}$			541		ns
t_f			70		ns
E_{off}			2,8		mJ
$R_{th(j-s)}$	per IGBT		0,75		K/W



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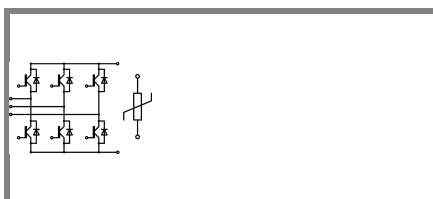
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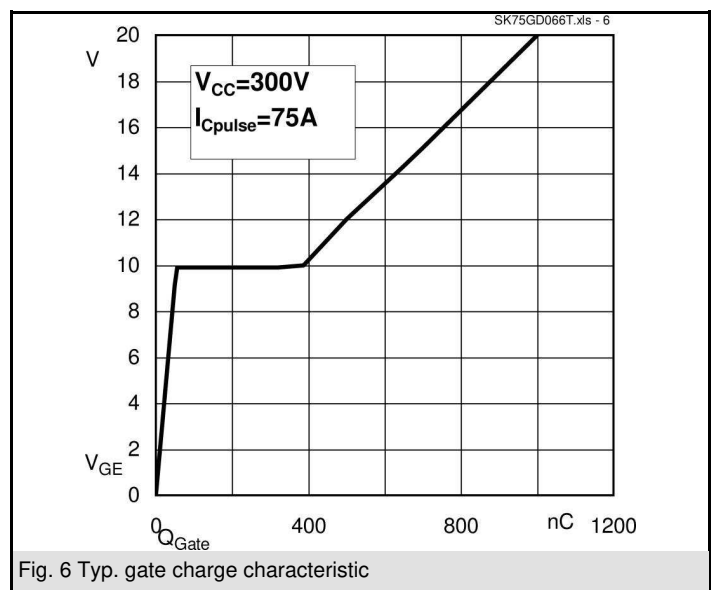
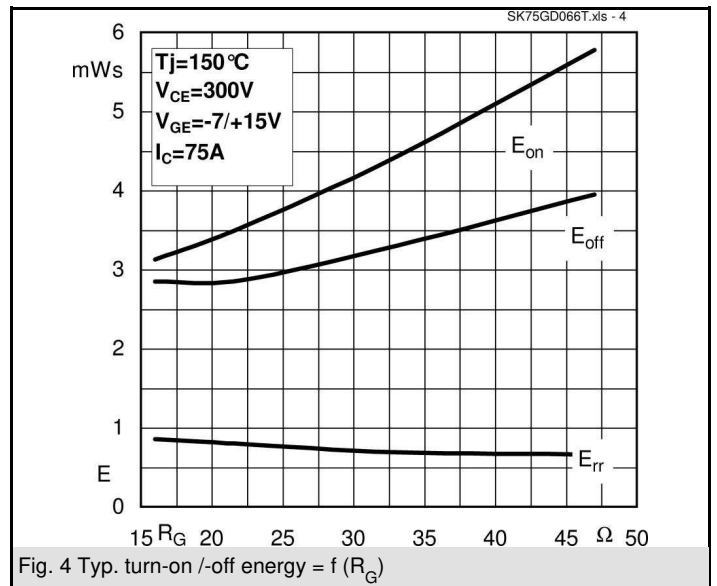
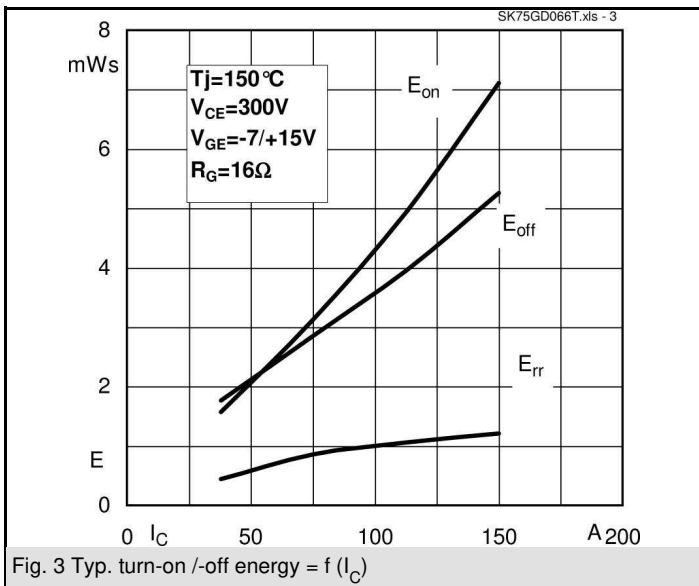
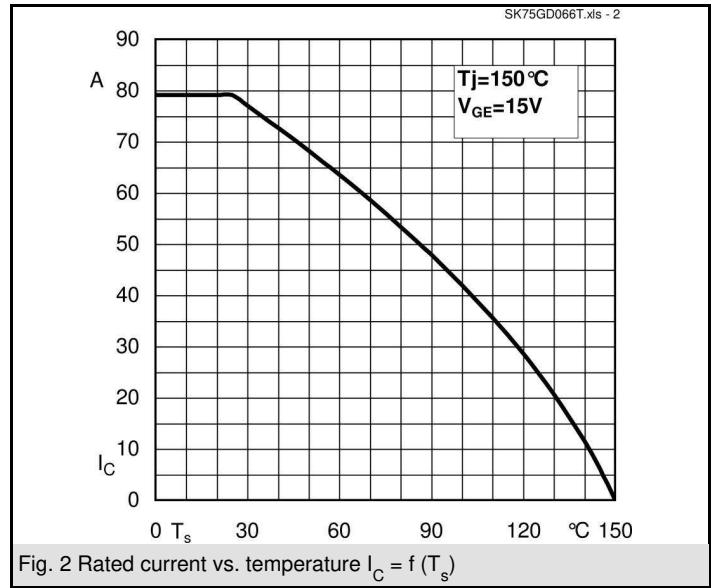
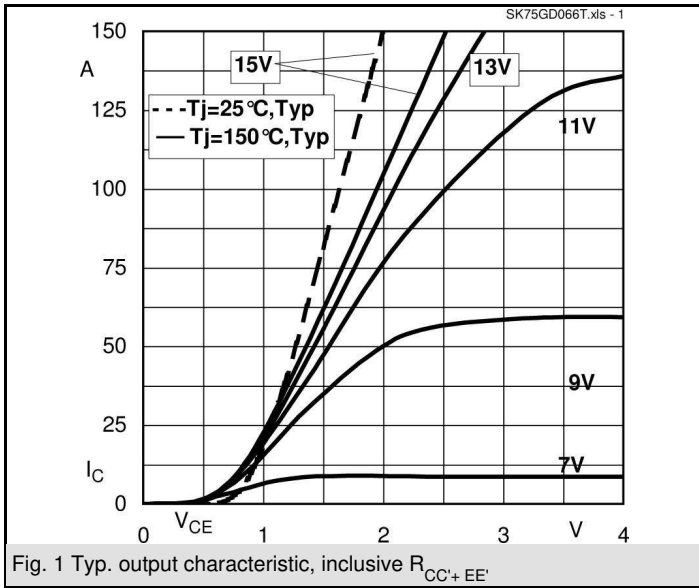


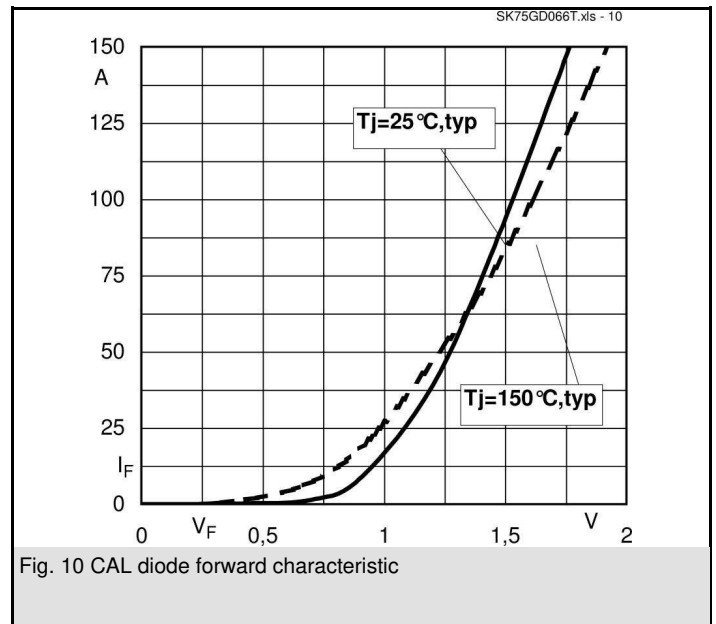
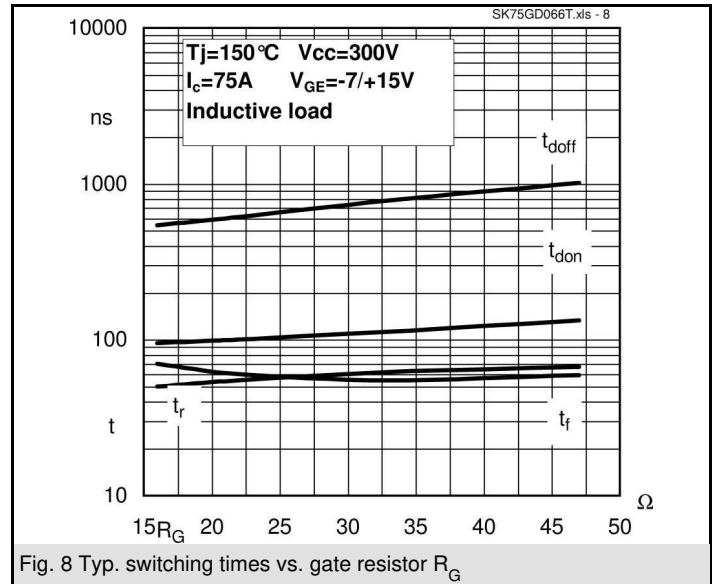
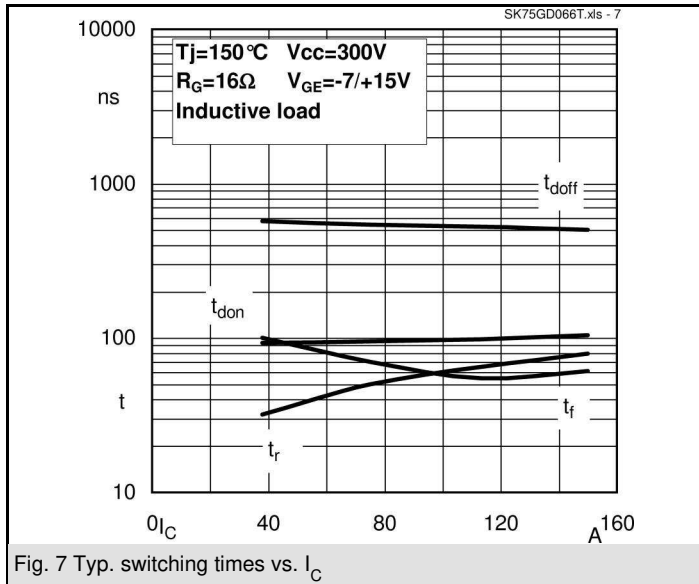
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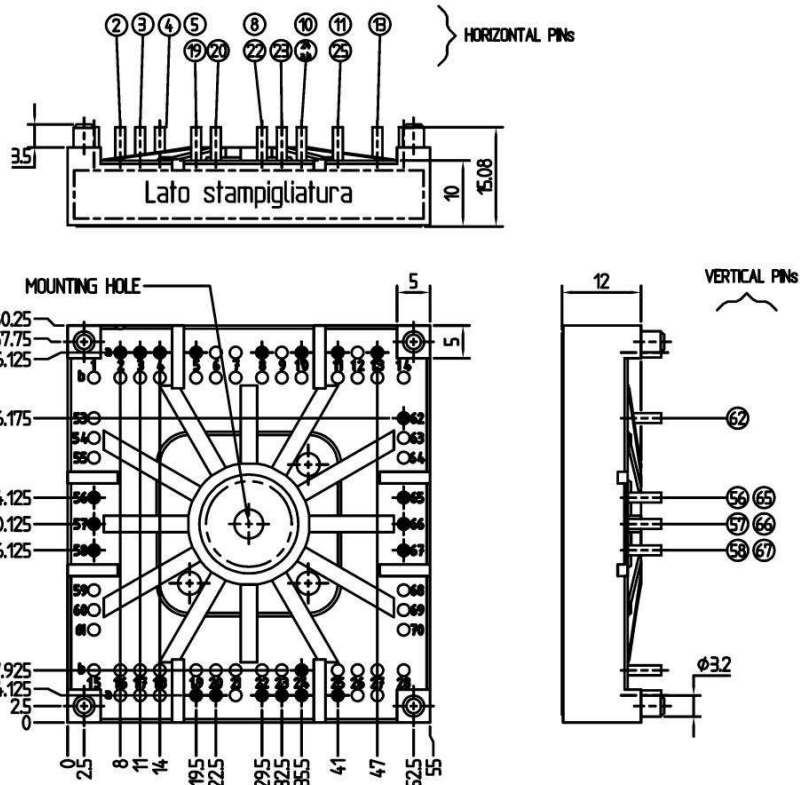
Characteristics				min.	typ.	max.	Units
Symbol	Conditions						
Inverse Diode							
$V_F = V_{EC}$	$I_{Fnom} = 60 \text{ A}; V_{GE} = 0 \text{ V}$	$T_j = 25 \text{ }^\circ\text{C}_{\text{chiplev.}}$		1,35			V
		$T_j = 150 \text{ }^\circ\text{C}_{\text{chiplev.}}$		1,31			V
V_{F0}			$T_j = 25 \text{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

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

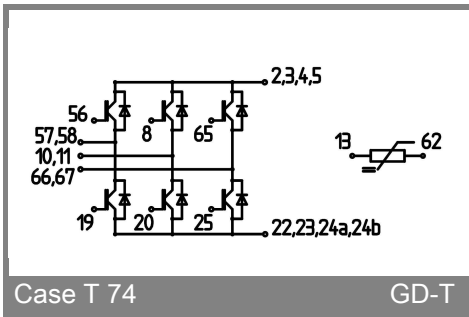
* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and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







Case T74 (Suggested hole diameter for the solder pins in the circuit board: 2mm. Suggested hole diameter for the mounting pins in the circuit board: 3,6mm)



Case T 74

GD-T