

**SEMITOP® 4**

## IGBT Module

**SK150GD066T**

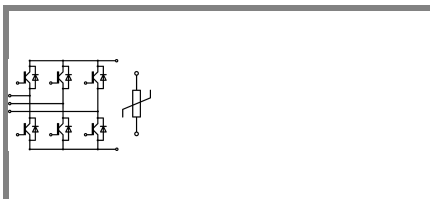
Preliminary Data

### 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\*

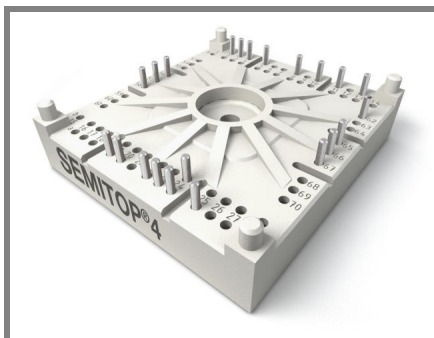
- Inverter up to 32 kVA
- Typ. motor power 15 kW



GD-T

Absolute Maximum Ratings		$T_s = 25\text{ °C}$ , unless otherwise specified	
Symbol	Conditions	Values	Units
<b>IGBT</b>			
$V_{CES}$	$T_j = 25\text{ °C}$	600	V
$I_C$	$T_j = 175\text{ °C}$	$T_s = 25\text{ °C}$	151 A
		$T_s = 70\text{ °C}$	121 A
$I_{CRM}$	$I_{CRM} = 2 \times I_{Cnom}$	300	A
$V_{GES}$		$\pm 20$	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	$\mu\text{s}$
<b>Inverse Diode</b>			
$I_F$	$T_j = 175\text{ °C}$	$T_s = 25\text{ °C}$	198 A
		$T_s = 70\text{ °C}$	152 A
$I_{FRM}$	$I_{FRM} = 2 \times I_{Fnom}$	200	A
<b>Module</b>			
$I_{t(RMS)}$			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
<b>IGBT</b>					
$V_{GE(th)}$	$V_{GE} = V_{CE}, I_C = 2,4\text{ mA}$	5	5,8	6,5	V
$I_{CES}$	$V_{GE} = 0\text{ V}, V_{CE} = V_{CES}$	$T_j = 25\text{ °C}$		0,0076	mA
		$T_j = 125\text{ °C}$			mA
$I_{GES}$	$V_{CE} = 0\text{ V}, V_{GE} = 20\text{ V}$	$T_j = 25\text{ °C}$		1200	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
$r_{CE}$	$V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}$	4	5	$\text{m}\Omega$
		$T_j = 150\text{ °C}$	6,5	7	$\text{m}\Omega$
$V_{CE(sat)}$	$I_{Cnom} = 150\text{ A}, V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}_{chiplev.}$	1,45	1,85	V
		$T_j = 150\text{ °C}_{chiplev.}$	1,65	2,05	V
$C_{ies}$	$V_{CE} = 25, V_{GE} = 0\text{ V}$	$f = 1\text{ MHz}$	9,4		nF
$C_{oes}$			0,6		nF
$C_{res}$			0,3		nF
$t_{d(on)}$	$R_{Gon} = 8\ \Omega$ $di/dt = 2250\text{ A}/\mu\text{s}$	$V_{CC} = 300\text{ V}$ $I_C = 150\text{ A}$	95		ns
$t_r$			50		ns
$E_{on}$	$R_{Goff} = 8\ \Omega$ $di/dt = 2250\text{ A}/\mu\text{s}$	$T_j = 150\text{ °C}$ $V_{GE} = -7/+15\text{ V}$	6,25		mJ
$t_{d(off)}$			541		ns
$t_f$			70		ns
$E_{off}$			5,7		mJ
$R_{th(j-s)}$	per IGBT		0,55		K/W



**SEMITOP® 4**

## IGBT Module

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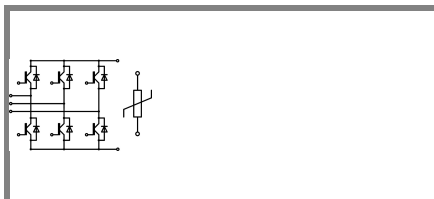
Preliminary Data

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### Typical Applications\*

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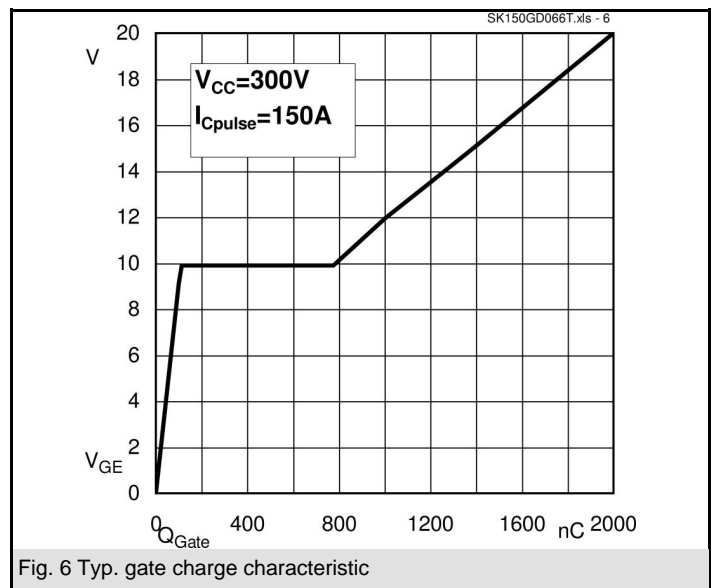
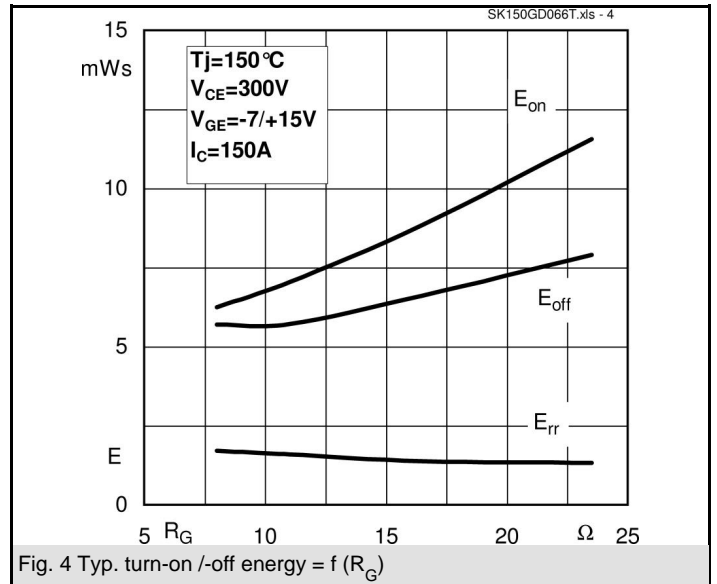
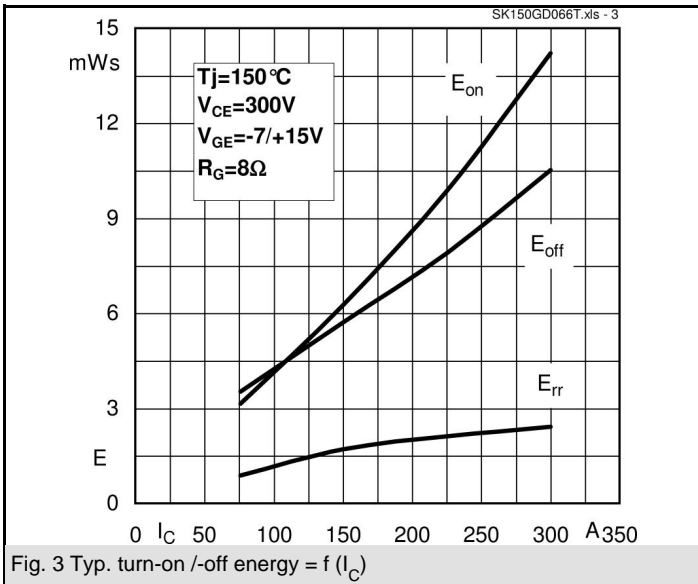
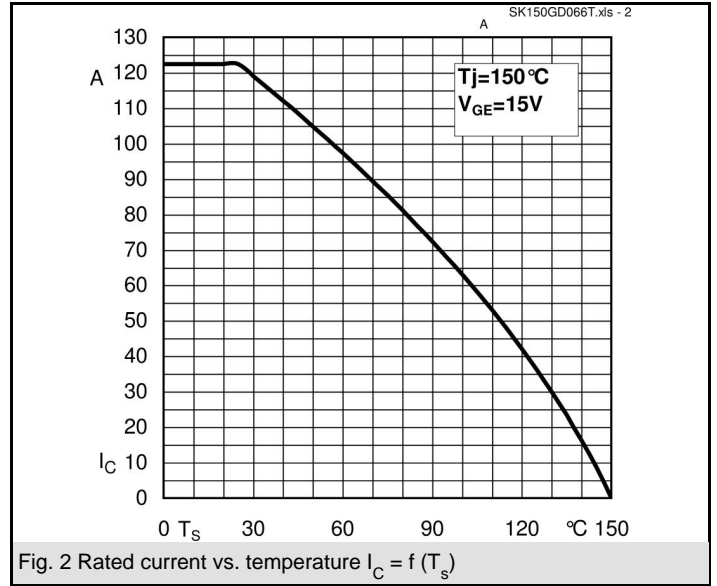
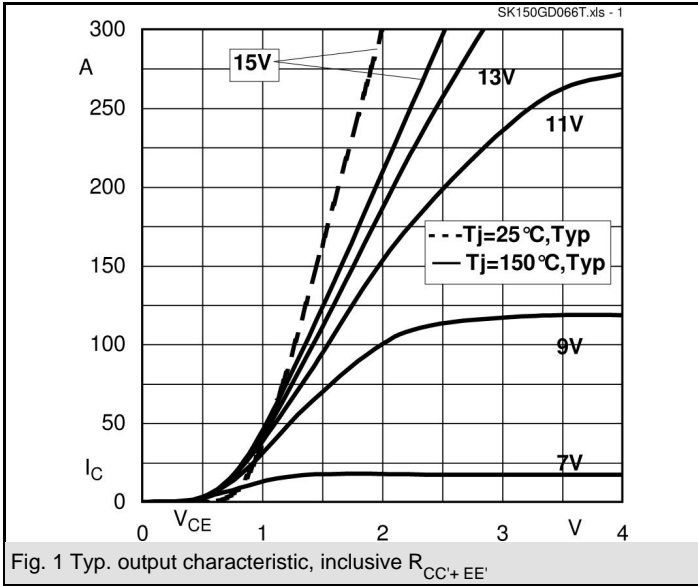
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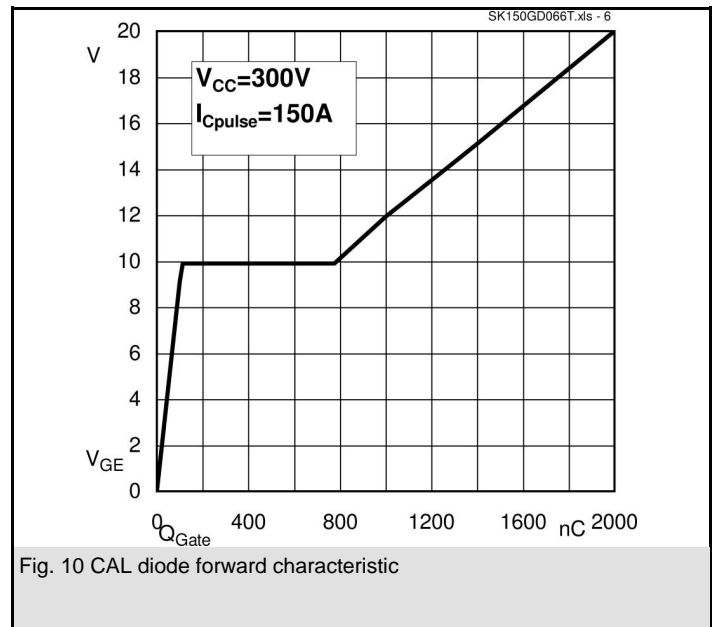
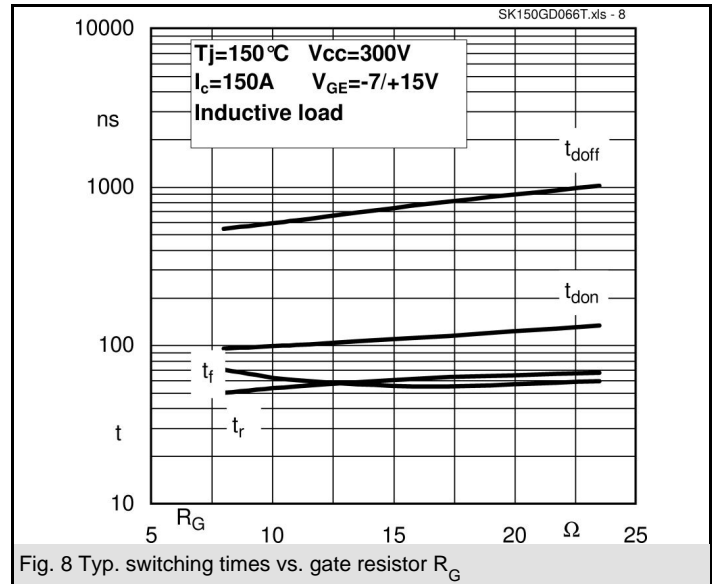
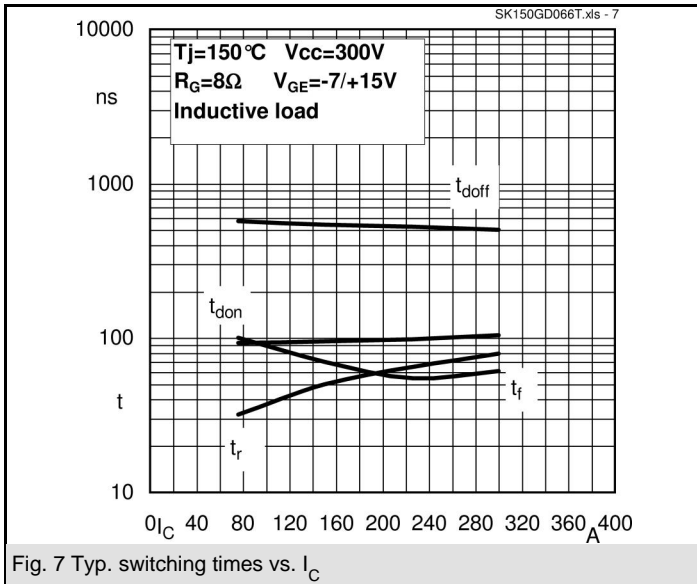
### Characteristics

Symbol	Conditions	min.	typ.	max.	Units
<b>Inverse Diode</b>					
$V_F = V_{EC}$	$I_{Fnom} = 150 \text{ A}; V_{GE} = 0 \text{ V}$	$T_j = 25 \text{ }^\circ\text{C}_{chiplev.}$		1,3	V
		$T_j = 150 \text{ }^\circ\text{C}_{chiplev.}$		1,2	V
$V_{F0}$		$T_j = 25 \text{ }^\circ\text{C}$		0,85	V
		$T_j = 150 \text{ }^\circ\text{C}$		0,9	V
$r_F$		$T_j = 25 \text{ }^\circ\text{C}$		3	mΩ
		$T_j = 150 \text{ }^\circ\text{C}$		2	mΩ
$I_{RRM}$	$I_F = 150 \text{ A}$	$T_j = 150 \text{ }^\circ\text{C}$		100	A
$Q_{rr}$	$di/dt = 2250 \text{ A}/\mu\text{s}$			11	μC
$E_{rr}$	$V_{CC} = 300\text{V}$			1,7	mJ
$R_{th(j-s)D}$	per diode			0,54	K/W
$M_s$	to heat sink	2,5		2,75	Nm
w			60		g
<b>Temperature sensor</b>					
$R_{100}$	$T_s = 100^\circ\text{C} (R_{25}=5\text{k}\Omega)$		493±5%		Ω

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

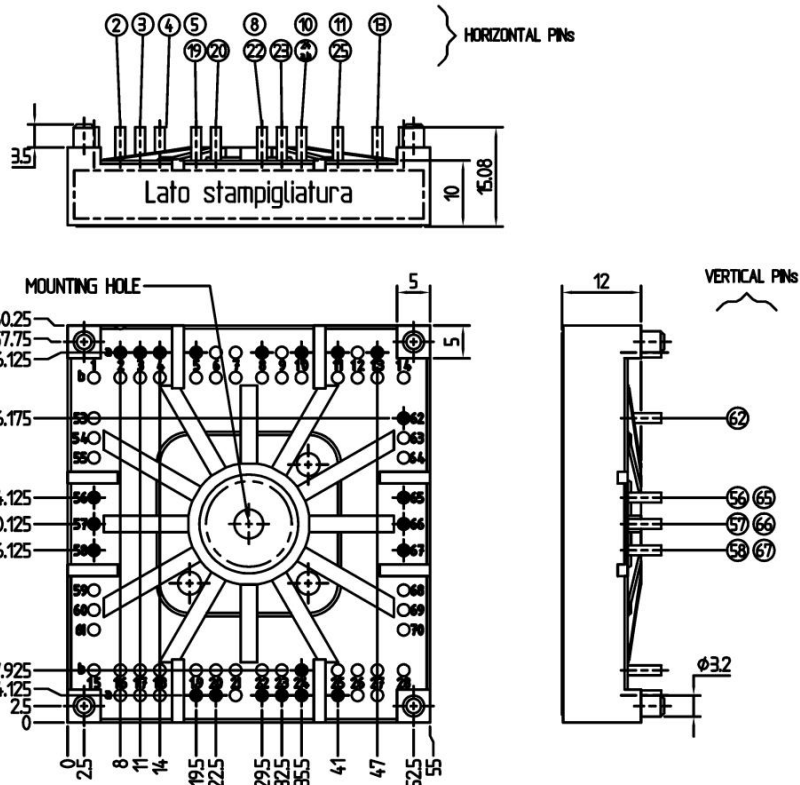
\* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification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



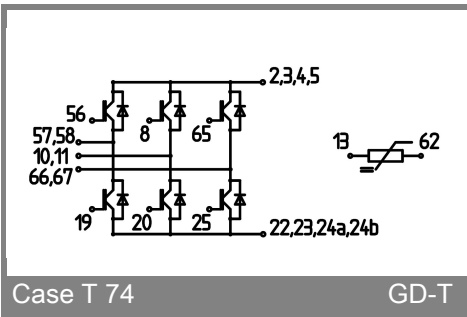


UL recognized

file no E 63 532



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

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