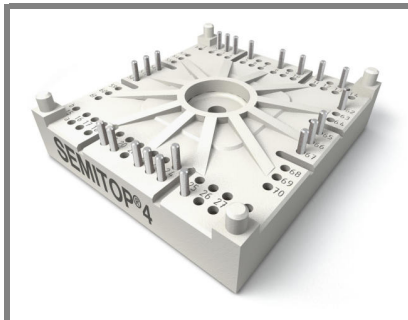


SK100GD126T



SEMITOP® 4

IGBT Module

SK100GD126T

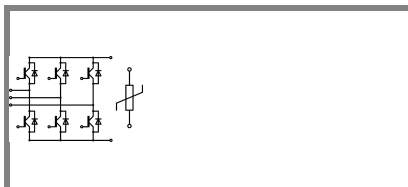
Preliminary Data

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 50 kVA
- Typ. motor power 22 kW

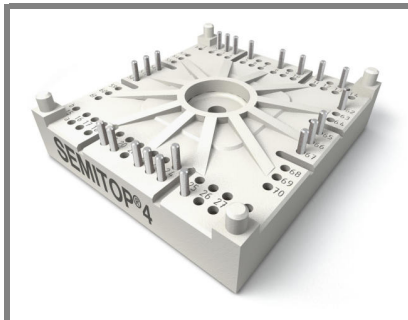


GD-T

Absolute Maximum Ratings		$T_s = 25\text{ °C}$, unless otherwise specified		
Symbol	Conditions	Values		Units
IGBT				
V_{CES}	$T_j = 25\text{ °C}$	1200		V
I_C	$T_j = 150\text{ °C}$	$T_s = 25\text{ °C}$	114	A
		$T_s = 70\text{ °C}$	86	A
I_{CRM}	$I_{CRM} = 2 \times I_{Cnom}$	200		A
V_{GES}		± 20		V
t_{psc}	$V_{CC} = 600\text{ V}; V_{GE} \leq 20\text{ V}; T_j = 125\text{ °C}$ $V_{CES} < 1200\text{ V}$	10		μs
Inverse Diode				
I_F	$T_j = 150\text{ °C}$	$T_s = 25\text{ °C}$	118	A
		$T_s = 70\text{ °C}$	88	A
I_{FRM}	$I_{FRM} = 2 \times I_{Fnom}$	200		A
Module				
$I_{t(RMS)}$				A
T_{vj}		-40 ... +150		$^{\circ}\text{C}$
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					
$V_{GE(th)}$	$V_{GE} = V_{CE}; I_C = 4\text{ mA}$	5	5,8	6,5	V
I_{CES}	$V_{GE} = 0\text{ V}; V_{CE} = V_{CES}$	$T_j = 25\text{ °C}$	0,014		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}		$T_j = 25\text{ °C}$	1	1,2	V
		$T_j = 125\text{ °C}$	0,9	1,1	V
r_{CE}	$V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}$	7	9,5	$\text{m}\Omega$
		$T_j = 125\text{ °C}$	11	14	$\text{m}\Omega$
$V_{CE(sat)}$	$I_{Cnom} = 100\text{ A}; V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}_{chiplev.}$	1,7	2,15	V
		$T_j = 125\text{ °C}_{chiplev.}$	2,1	2,45	V
C_{ies}	$V_{CE} = 25\text{ V}; V_{GE} = 0\text{ V}$	$f = 1\text{ MHz}$	7,2		nF
C_{oes}			0,37		nF
C_{res}			0,32		nF
$t_{d(on)}$	$R_{Gon} = 4\ \Omega$ $di/dt = 2250\text{ A}/\mu\text{s}$	$V_{CC} = 600\text{ V}$ $I_C = 100\text{ A}$	115		ns
t_r			28		ns
E_{on}			9,8		mJ
$t_{d(off)}$	$R_{Goff} = 4\ \Omega$ $di/dt = 2250\text{ A}/\mu\text{s}$	$T_j = 125\text{ °C}$ $V_{GE} = -7/+15\text{ V}$	509		ns
t_f			100		ns
E_{off}			11,7		mJ
$R_{th(j-s)}$	per IGBT	0,4		K/W	

SK100GD126T



SEMITOP® 4

IGBT Module

SK100GD126T

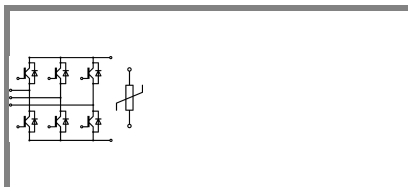
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Typical Applications*

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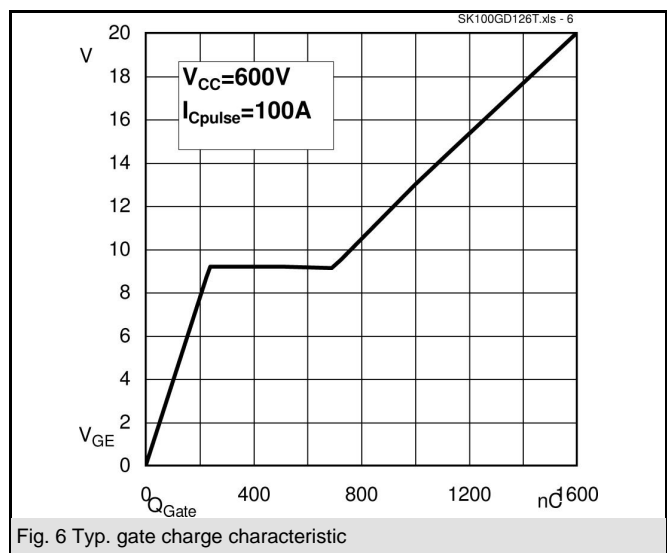
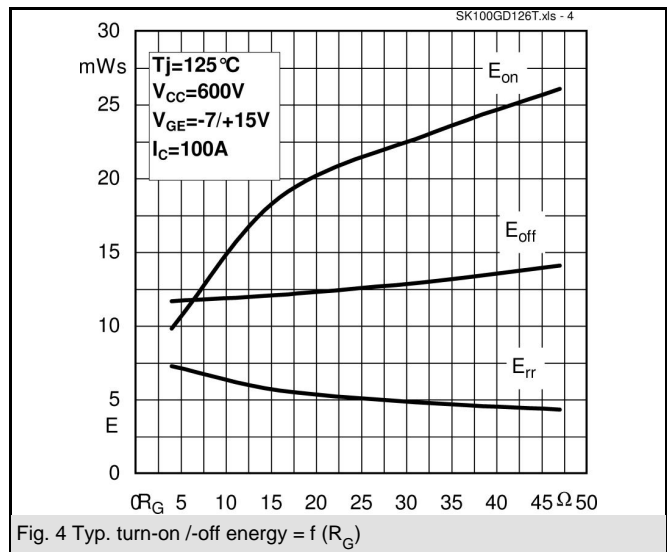
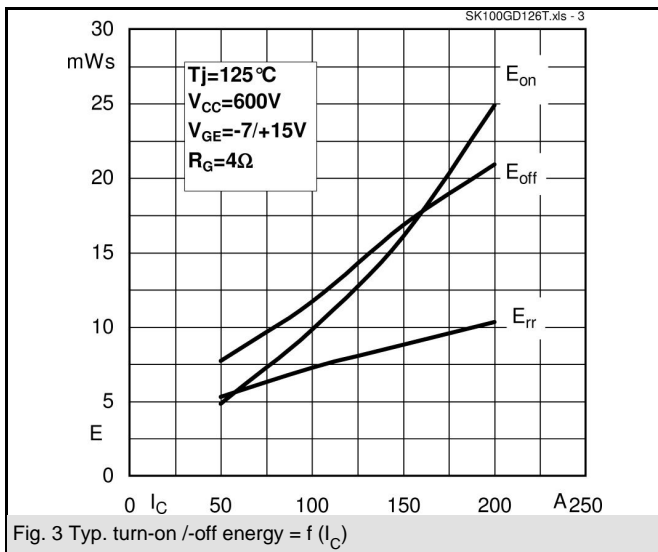
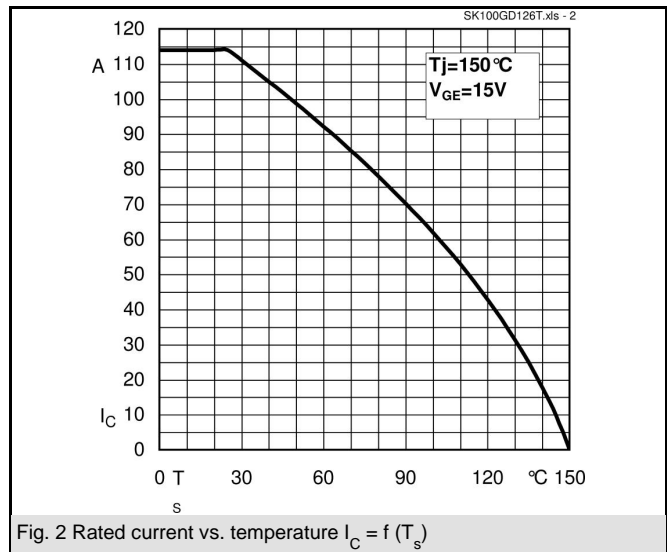
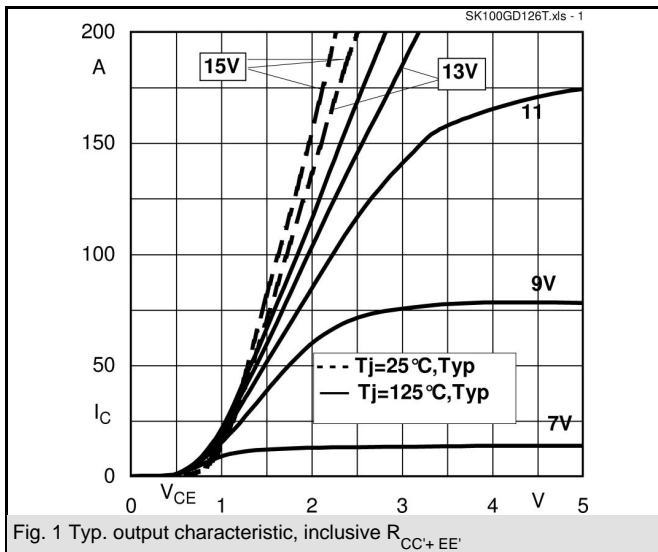
GD-T

Characteristics

Symbol	Conditions	min.	typ.	max.	Units
Inverse Diode					
$V_F = V_{EC}$	$I_{Fnom} = 100 \text{ A}; V_{GE} = 0 \text{ V}$	$T_j = 25 \text{ }^\circ\text{C}_{chiplev.}$	1,5		V
		$T_j = 125 \text{ }^\circ\text{C}_{chiplev.}$	1,5		V
V_{F0}		$T_j = 25 \text{ }^\circ\text{C}$	1,18		V
		$T_j = 125 \text{ }^\circ\text{C}$	1		V
r_F		$T_j = 25 \text{ }^\circ\text{C}$	3,2		mΩ
		$T_j = 125 \text{ }^\circ\text{C}$	5		mΩ
I_{RRM}	$I_F = 100 \text{ A}$	$T_j = 125 \text{ }^\circ\text{C}$	100		A
Q_{rr}	$di/dt = 2250 \text{ A}/\mu\text{s}$		20		μC
E_{tr}	$V_{CC} = 600\text{V}$		7,3		mJ
$R_{th(j-s)D}$	per diode		0,55		K/W
M_s	to heat sink	2,5		2,75	Nm
w			60		g
Temperature sensor					
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.



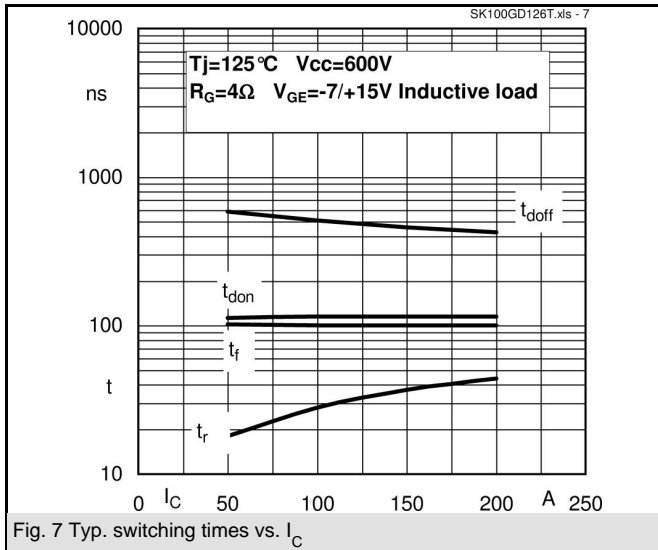


Fig. 7 Typ. switching times vs. I_C

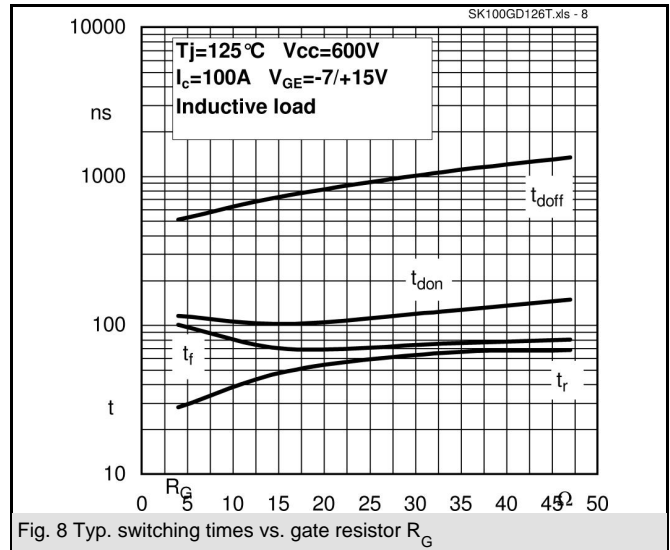


Fig. 8 Typ. switching times vs. gate resistor R_G

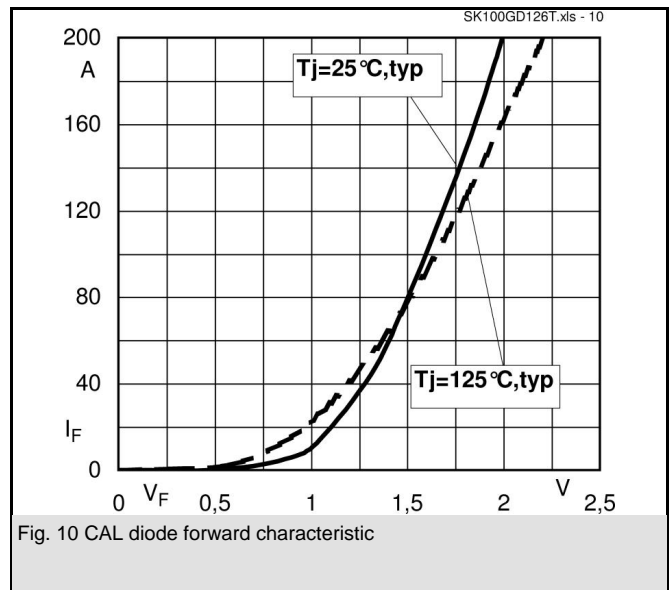
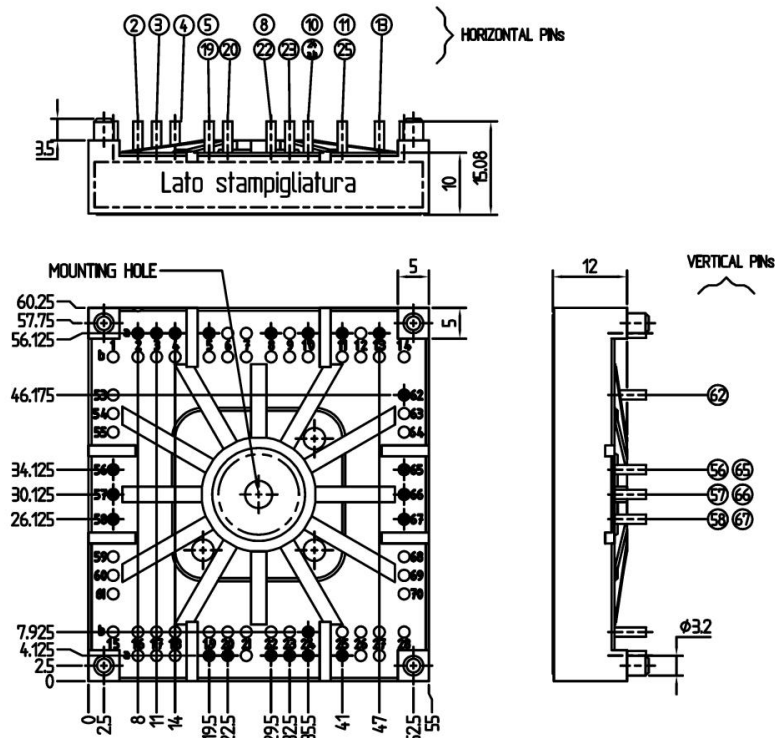


Fig. 10 CAL diode forward characteristic

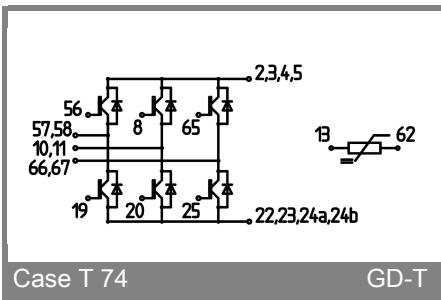
SK100GD126T

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

GD-T