

SEMITOP® 3

IGBT Module

SK10GD126ET

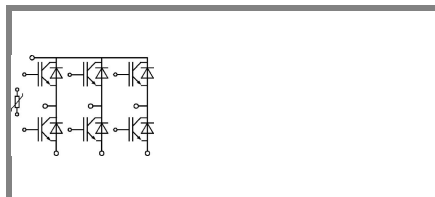
Preliminary Data

Features

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

Typical Applications

- Inverter

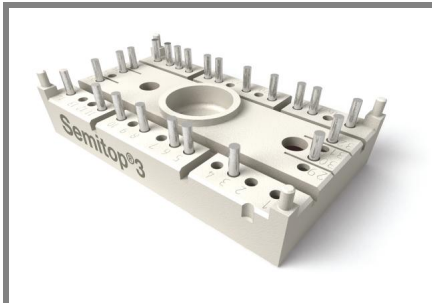


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Absolute Maximum Ratings		$T_s = 25\text{ °C}$, unless otherwise specified			
Symbol	Conditions	Values			Units
IGBT					
V_{CES}	$T_j = 25\text{ °C}$	1200			V
I_C	$T_j = 150\text{ °C}$	$T_s = 25\text{ °C}$	15		A
		$T_s = 80\text{ °C}$	11		A
I_{CRM}	$I_{CRM} = 2 \times I_{Cnom}$	16			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	$T_j = 150\text{ °C}$	$T_s = 25\text{ °C}$	25		A
		$T_s = 80\text{ °C}$	17		A
I_{FRM}	$I_{FRM} = 2 \times I_{Fnom}$	30			A
Module					
$I_{t(RMS)}$					A
T_{vj}		-40 ... +150			°C
T_{stg}		-40 ... +125			°C
V_{isol}	AC, 1 min.	2500			V

Characteristics		$T_s = 25\text{ °C}$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	$V_{GE} = V_{CE}, I_C = 0,3\text{ mA}$	5	5,8	6,5	V
I_{CES}	$V_{GE} = 0\text{ V}, V_{CE} = V_{CES}$	$T_j = 25\text{ °C}$	0,05		mA
		$T_j = 125\text{ °C}$			mA
I_{GES}	$V_{CE} = 0\text{ V}, V_{GE} = 20\text{ V}$	$T_j = 25\text{ °C}$	120		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		V
r_{CE}	$V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}$	87	113	mΩ
		$T_j = 125\text{ °C}$	138		mΩ
$V_{CE(sat)}$	$I_{Cnom} = 8\text{ A}, V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}_{chiplev.}$	1,7	2,1	V
		$T_j = 125\text{ °C}_{chiplev.}$	2,2		V
C_{ies}	$V_{CE} = 25, V_{GE} = 0\text{ V}$	$f = 1\text{ MHz}$	0,6		nF
C_{oes}			0,037		nF
C_{res}			0,029		nF
$t_{d(on)}$	$R_{Gon} = 75\text{ } \Omega$	$V_{CC} = 600\text{ V}$ $I_{Cnom} = 8\text{ A}$	85		ns
t_r			30		ns
E_{on}			1		mJ
$t_{d(off)}$	$R_{Goff} = 75\text{ } \Omega$	$T_j = 125\text{ °C}$ $V_{GE} = \pm 15\text{ V}$	430		ns
t_f			90		ns
E_{off}			1		mJ
$R_{th(j-s)}$	per IGBT	2			K/W

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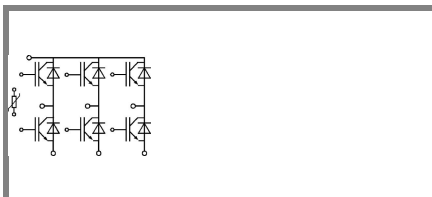
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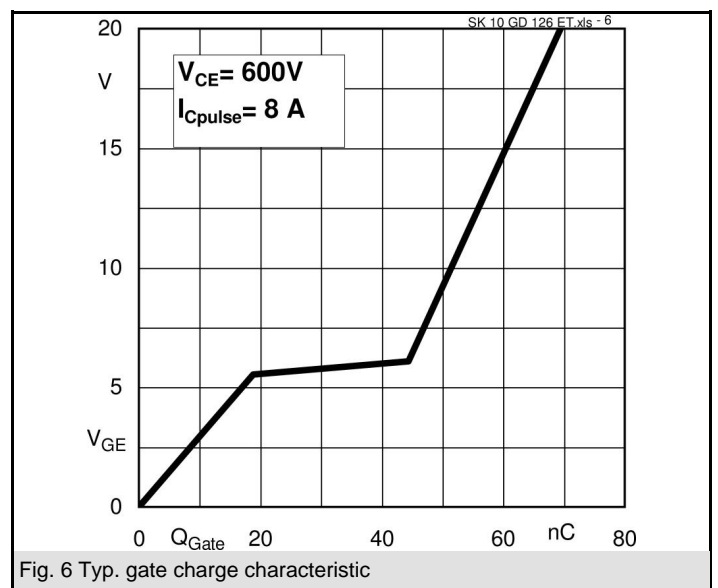
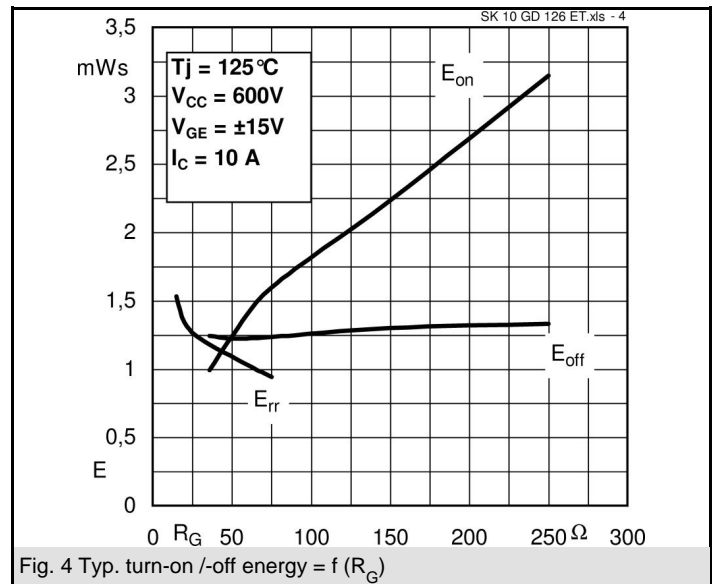
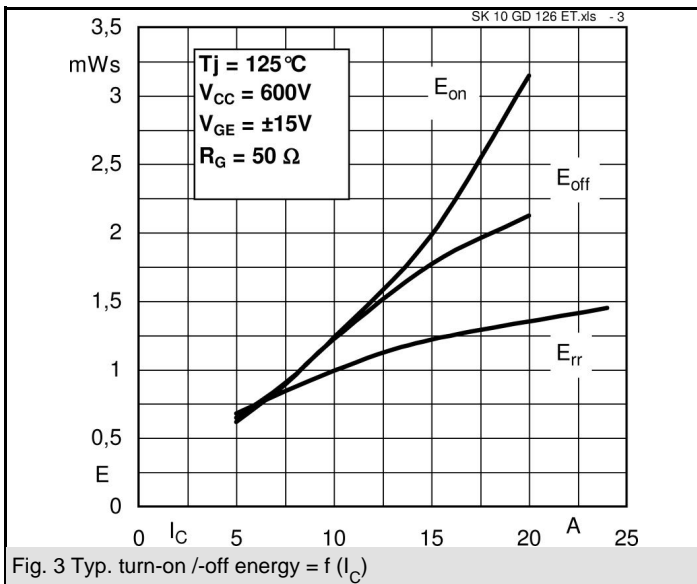
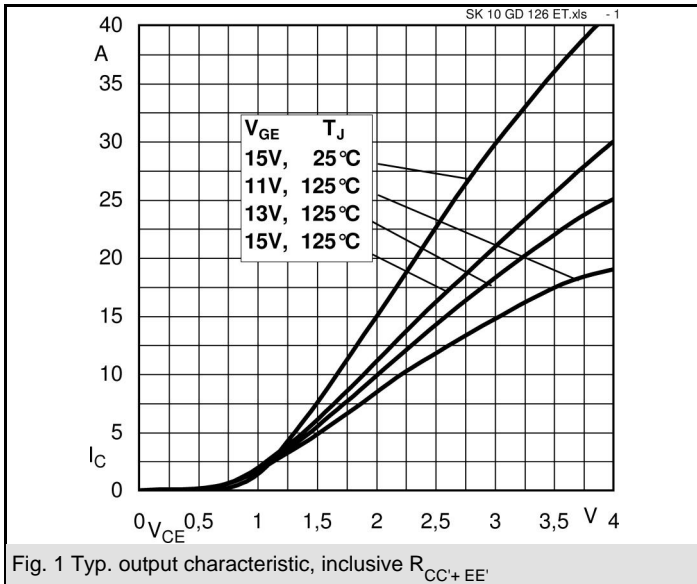


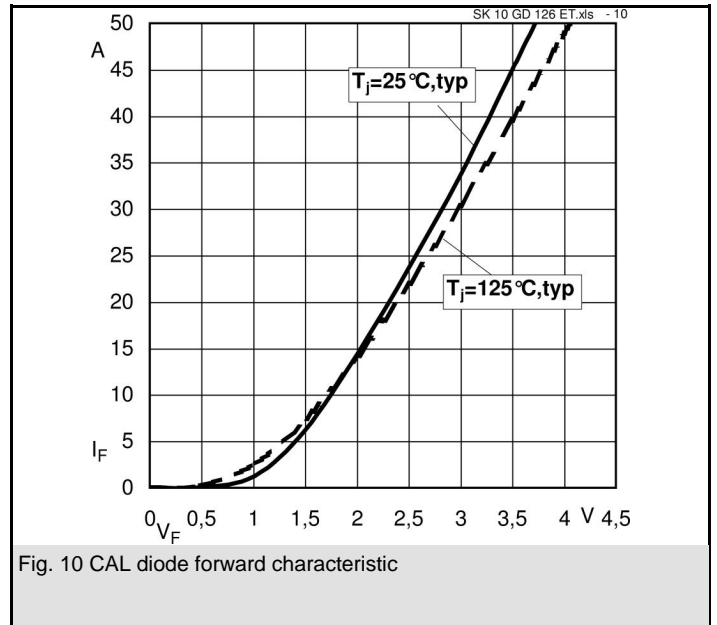
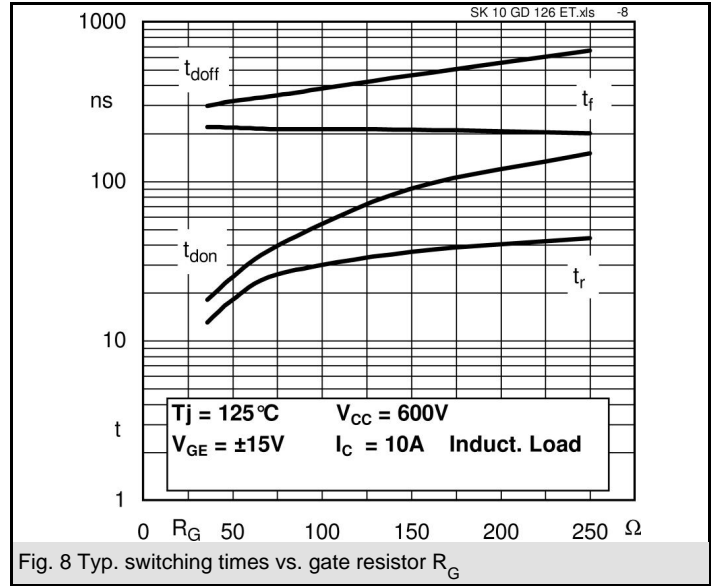
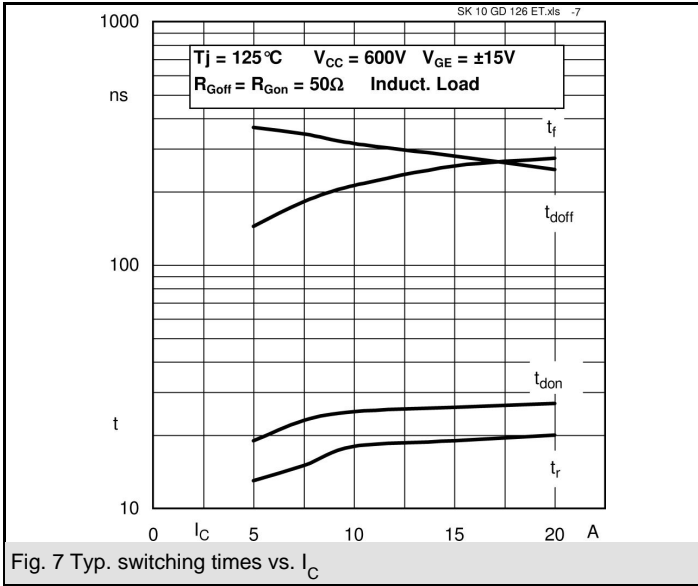
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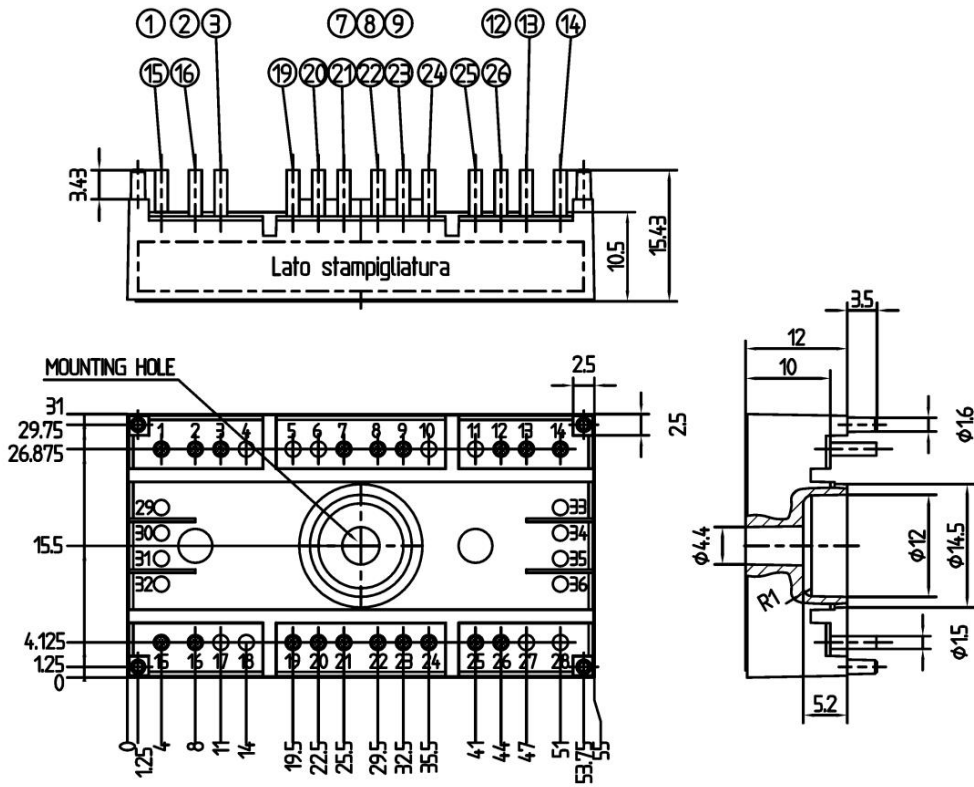
Characteristics		min.	typ.	max.	Units
Symbol	Conditions				
Inverse Diode					
$V_F = V_{EC}$	$I_{Fnom} = 8 \text{ A}; V_{GE} = 0 \text{ V}$		1,9	2,2	V
			2		V
					V
V_{F0}			1	1,1	V
			0,8	0,9	V
r_F			40	47	mΩ
			53		mΩ
I_{RRM}	$I_{Fnom} = 15 \text{ A}$		21		A
Q_{rr}	$di/dt = -300 \text{ A}/\mu\text{s}$		3,5		μC
E_{rr}	$V_{CC} = 600 \text{ V}$		1,4		mJ
$R_{th(j-s)D}$	per diode			2,1	K/W
M_s	to heat sink	2,25		2,5	Nm
w			30		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.

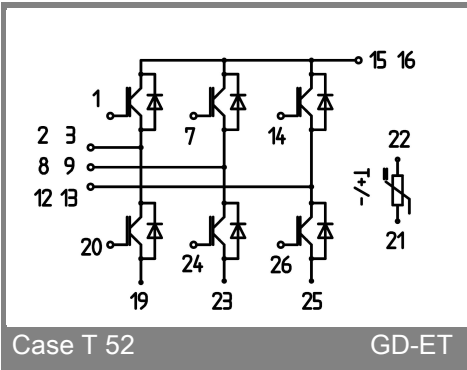
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Case T52 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)



Case T 52

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