

SEMITOP[®] 3

IGBT Module

SK25GD065ET

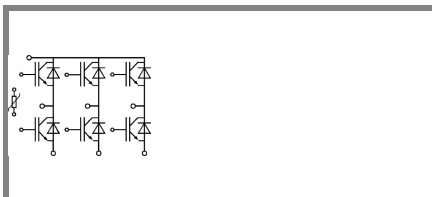
Preliminary Data

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

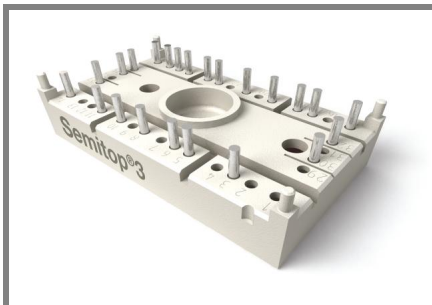


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Absolute Maximum Ratings		$T_s = 25\text{ °C}$, unless otherwise specified			
Symbol	Conditions	Values			Units
IGBT					
V_{CES}	$T_j = 25\text{ °C}$	600			V
I_C	$T_j = 125\text{ °C}$	$T_s = 25\text{ °C}$	30		A
		$T_s = 80\text{ °C}$	22		A
I_{CRM}	$I_{CRM} = 2 \times I_{Cnom}$	60			A
V_{GES}		± 20			V
t_{psc}	$V_{CC} = 300\text{ V}; V_{GE} \leq 20\text{ V}; T_j = 125\text{ °C}$ $V_{CES} < 600\text{ V}$	10			µs
Inverse Diode					
I_F	$T_j = 150\text{ °C}$	$T_s = 25\text{ °C}$	36		A
		$T_s = 80\text{ °C}$	24		A
I_{FRM}	$I_{FRM} = 2 \times I_{Fnom}$	70			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					
$V_{GE(th)}$	$V_{GE} = V_{CE}, I_C = 0,7\text{ mA}$	3	4	5	V
I_{CES}	$V_{GE} = 0\text{ V}, V_{CE} = V_{CES}$	$T_j = 25\text{ °C}$	0,1		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}		$T_j = 25\text{ °C}$	1,2	1,3	V
		$T_j = 125\text{ °C}$	1,1	0,9	V
r_{CE}	$V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}$	26	40	mΩ
		$T_j = 125\text{ °C}$	36,7		mΩ
$V_{CE(sat)}$	$I_{Cnom} = 30\text{ A}, V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}_{chiplev.}$	2	2,5	V
		$T_j = 125\text{ °C}_{chiplev.}$	2,2		V
C_{ies}	$V_{CE} = 25, V_{GE} = 0\text{ V}$	$f = 1\text{ MHz}$	1,6		nF
C_{oes}			0,15		nF
C_{res}			0,092		nF
$t_{d(on)}$	$R_{Gon} = 33\text{ } \Omega$	$V_{CC} = 300\text{ V}$ $I_{Cnom} = 25\text{ A}$	30		ns
t_r			25		ns
E_{on}	$R_{Goff} = 33\text{ } \Omega$	$T_j = 125\text{ °C}$ $V_{GE} = \pm 15\text{ V}$	0,8		mJ
$t_{d(off)}$			250		ns
t_f			15		ns
E_{off}			0,55		mJ
$R_{th(j-s)}$	per IGBT	1,4			K/W

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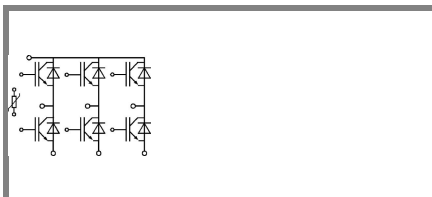
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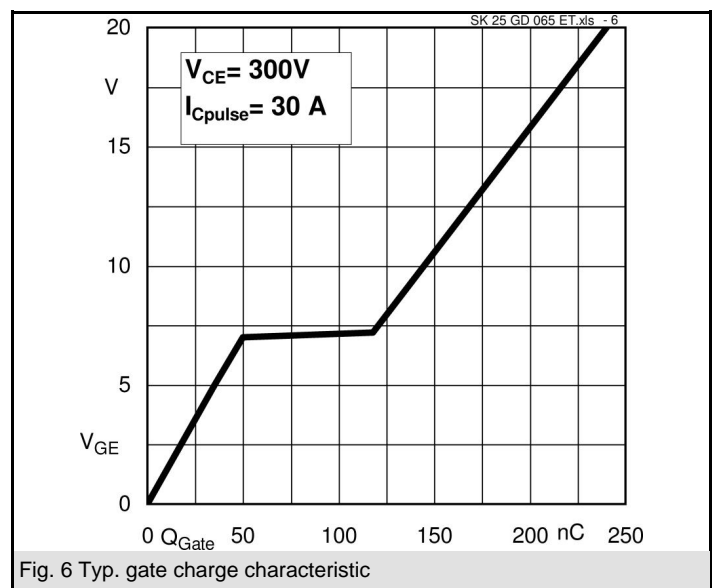
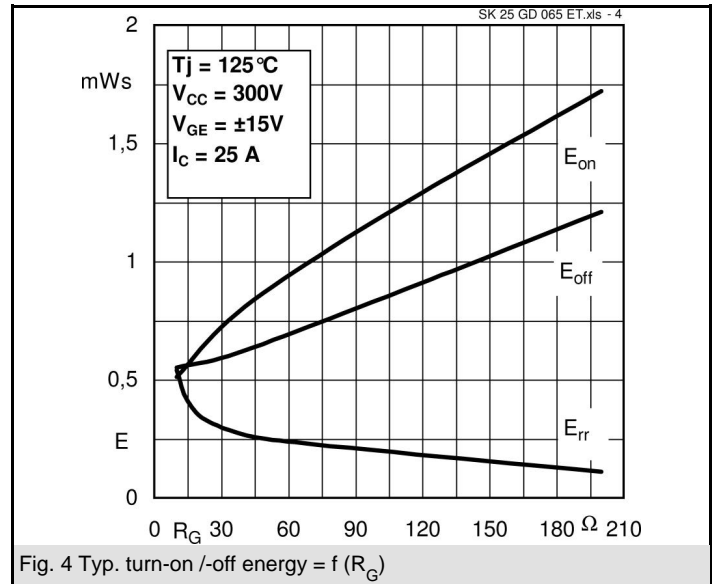
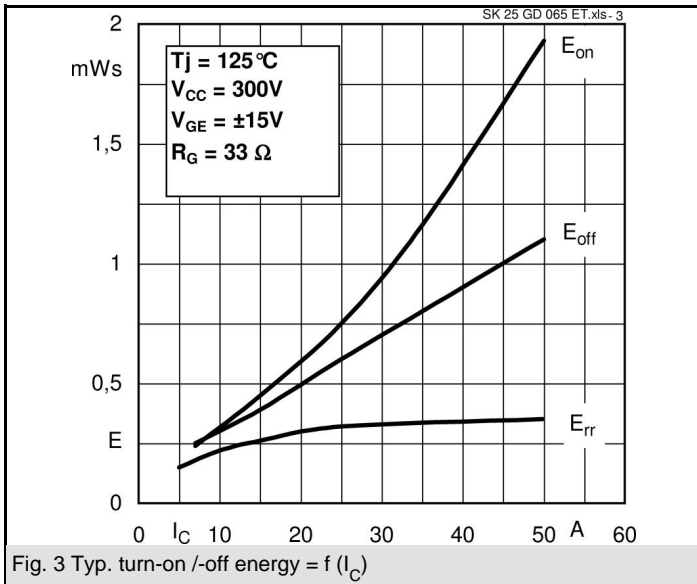
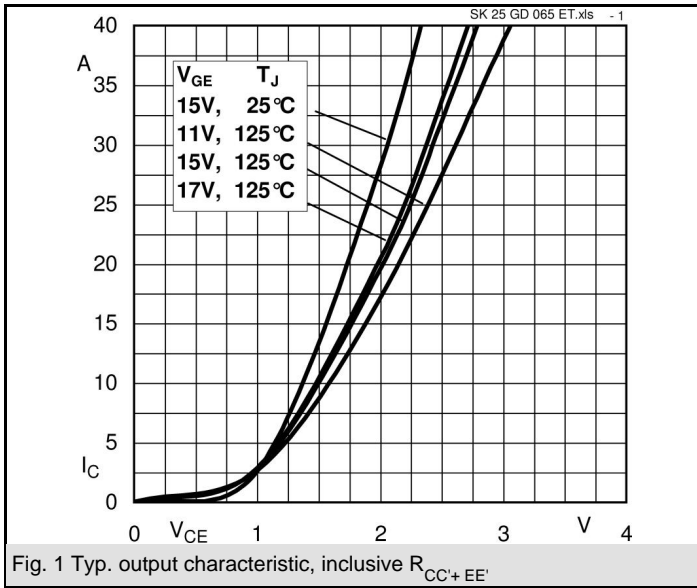


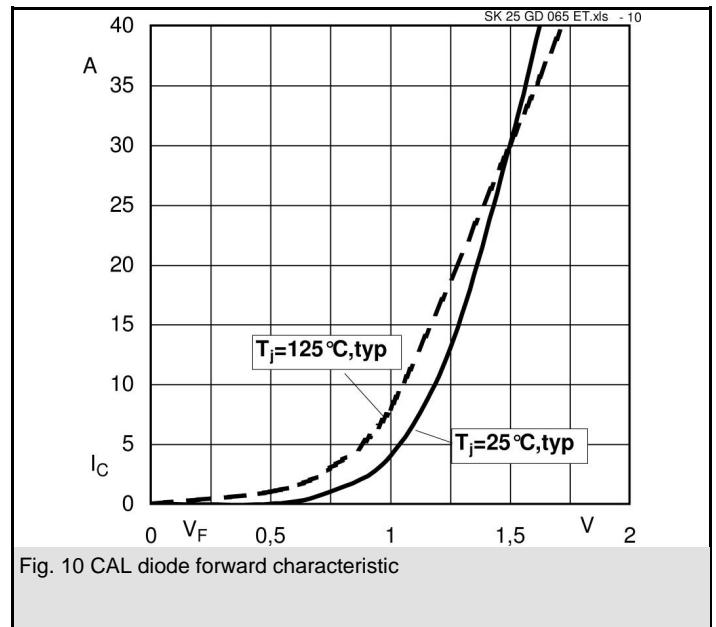
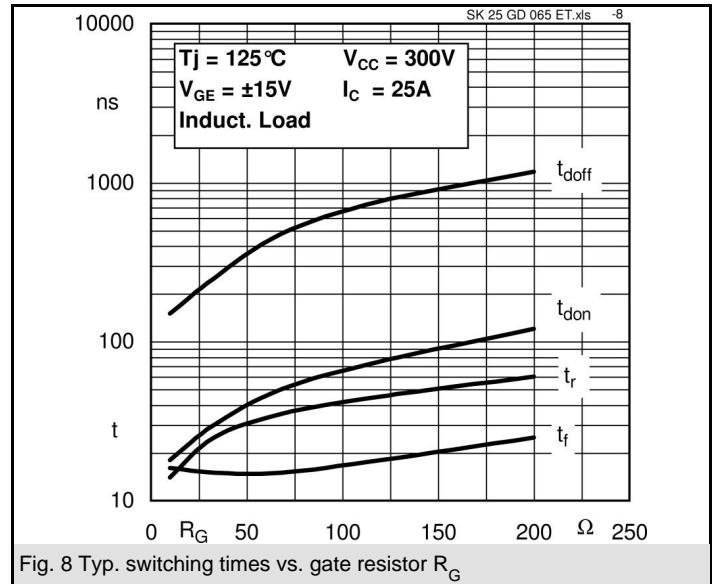
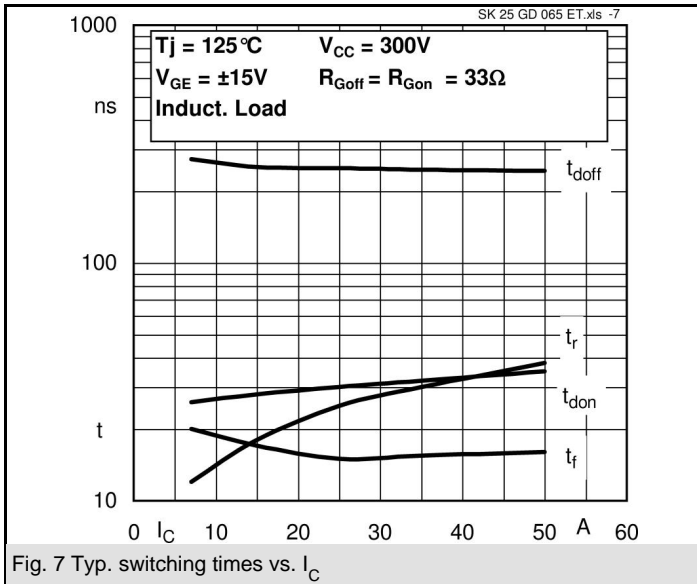
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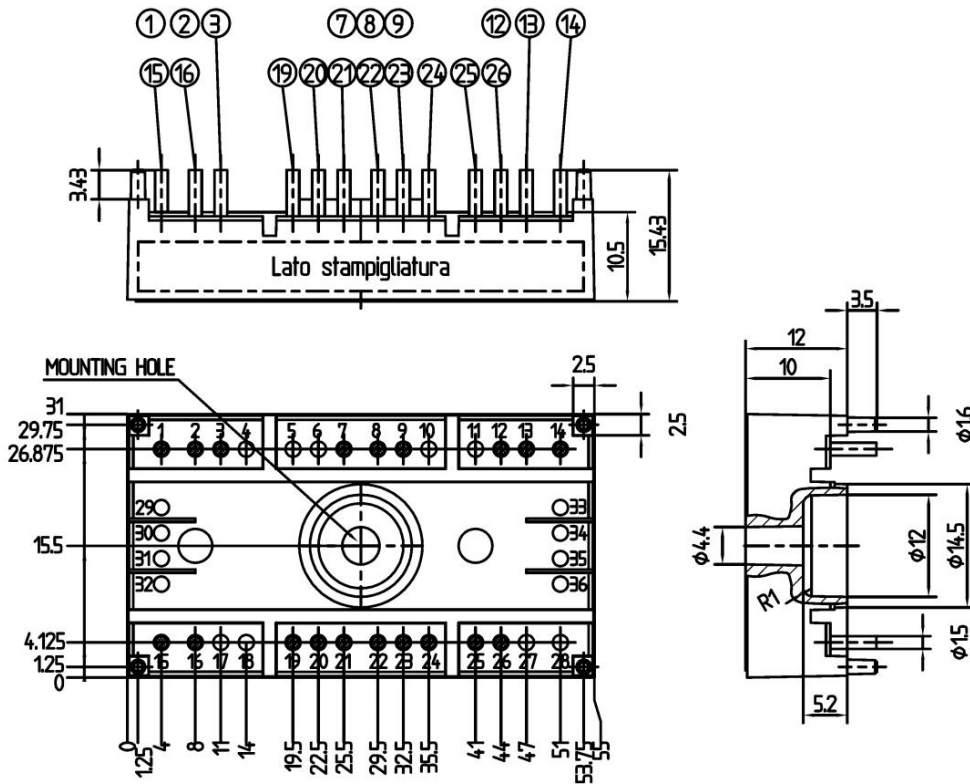
Characteristics			min.	typ.	max.	Units
Symbol	Conditions					
Inverse Diode						
$V_F = V_{EC}$	$I_{Fnom} = 25 \text{ A}; V_{GE} = 0 \text{ V}$	$T_j = 25 \text{ }^\circ\text{C}_{\text{chiplev.}}$		1,45	1,7	V
		$T_j = 125 \text{ }^\circ\text{C}_{\text{chiplev.}}$		1,4	1,75	V
V_{F0}		$T_j = 25 \text{ }^\circ\text{C}$		0,85		V
		$T_j = 125 \text{ }^\circ\text{C}$		0,9		V
r_F		$T_j = 25 \text{ }^\circ\text{C}$				mΩ
		$T_j = 125 \text{ }^\circ\text{C}$		22	32	mΩ
I_{RRM}	$I_{Fnom} = \text{A}$	$T_j = 125 \text{ }^\circ\text{C}$				A
Q_{rr}						μC
E_{rr}	$V_{CC} = 300\text{V}$					mJ
$R_{th(j-s)D}$	per diode				1,7	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.

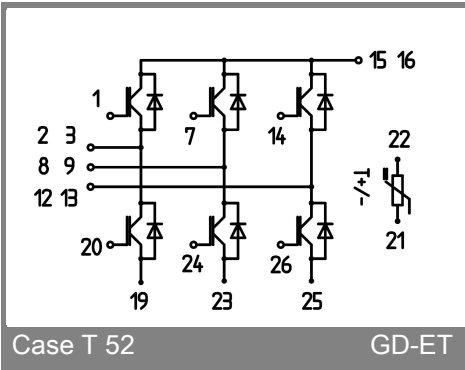
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Case T52 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)



Case T 52

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