

SK50GD066ET



SEMITOP[®] 3

IGBT Module

SK50GD066ET

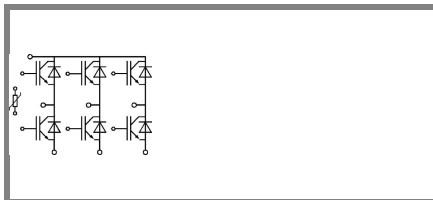
Target Data

Features

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

Typical Applications

- Inverter up to 12,5 kVA
- Typ. motor power 5,5 kW

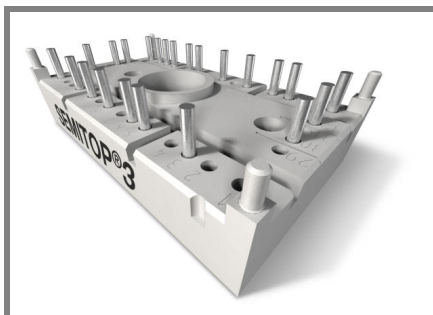


GD-ET

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	$T_j = 175\text{ °C}$	$T_s = 25\text{ °C}$	60	A
		$T_s = 70\text{ °C}$	50	A
I_{CRM}	$I_{CRM} = 2 \times I_{Cnom}$	100		A
V_{GES}		± 20		V
t_{psc}	$V_{CC} = 360\text{ V}$; $V_{GE} \leq 20\text{ V}$; $T_j = 150\text{ °C}$ $V_{CES} < 600\text{ V}$	6		µs
Inverse Diode				
I_F	$T_j = 175\text{ °C}$	$T_s = 25\text{ °C}$	56	A
		$T_s = 70\text{ °C}$	44	A
I_{FRM}	$I_{FRM} = 2 \times I_{Fnom}$	60		A
I_{FSM}	$t_p = 10\text{ ms}$; half sine wave $T_j = 150\text{ °C}$	320		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					
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 0,8\text{ mA}$	5	5,8	6,5	V
I_{CES}	$V_{GE} = 0\text{ V}$, $V_{CE} = V_{CES}$	$T_j = 25\text{ °C}$			mA
		$T_j = 150\text{ °C}$			mA
I_{GES}	$V_{CE} = 0\text{ V}$, $V_{GE} = 20\text{ V}$	$T_j = 25\text{ °C}$	600		nA
		$T_j = 150\text{ °C}$			nA
V_{CE0}		$T_j = 25\text{ °C}$	0,9	1,1	V
		$T_j = 150\text{ °C}$	0,8	1	V
r_{CE}	$V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}$	11	15	mΩ
		$T_j = 150\text{ °C}$	17	21	mΩ
$V_{CE(sat)}$	$I_{Cnom} = 50\text{ A}$, $V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}_{chiplev.}$	1,45	1,85	V
		$T_j = 150\text{ °C}_{chiplev.}$	1,65	2,05	V
C_{ies}	$V_{CE} = 25$, $V_{GE} = 0\text{ V}$	$f = 1\text{ MHz}$	3,1		nF
C_{oes}			0,2		nF
C_{res}			0,093		nF
$t_{d(on)}$	$R_{Gon} = 12\text{ } \Omega$	$V_{CC} = 300\text{ V}$ $I_C = 50\text{ A}$			ns
t_r			1,54		ns
E_{on}	$R_{Goff} = 12\text{ } \Omega$	$T_j = 150\text{ °C}$ $V_{GE} = \pm 15\text{ V}$			mJ
$t_{d(off)}$					ns
t_f			1,56		ns
E_{off}					mJ
$R_{th(j-s)}$	per IGBT	1,11			K/W

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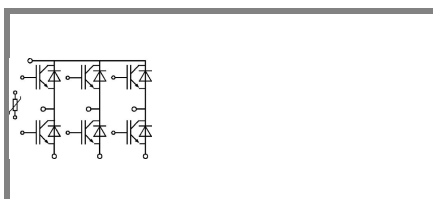
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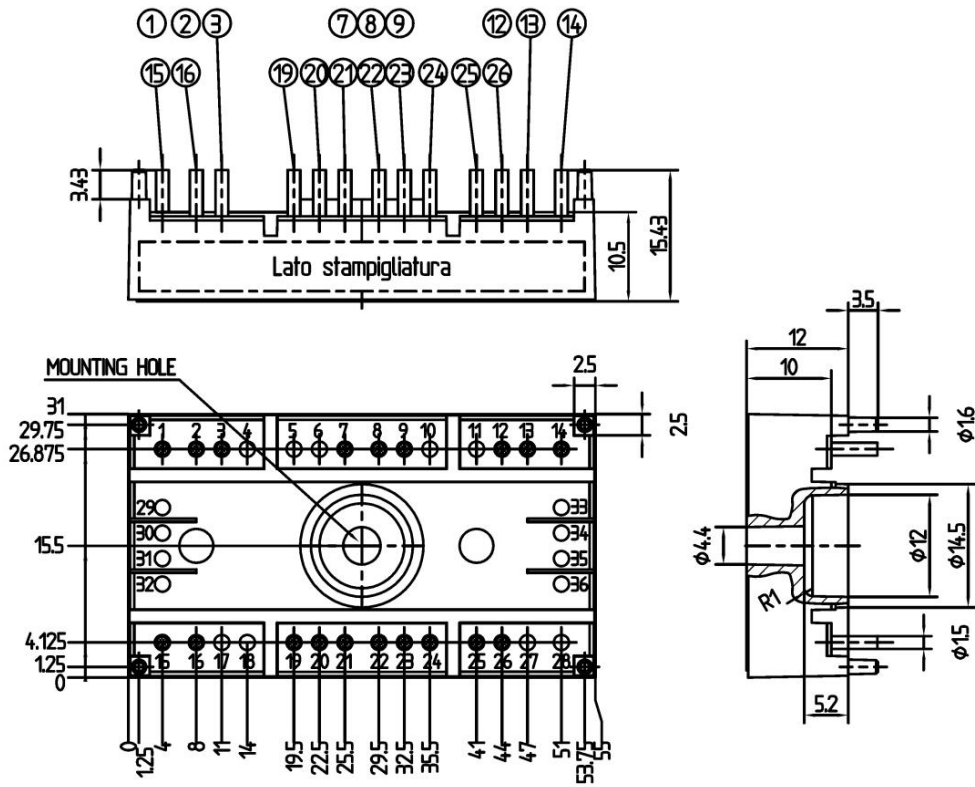


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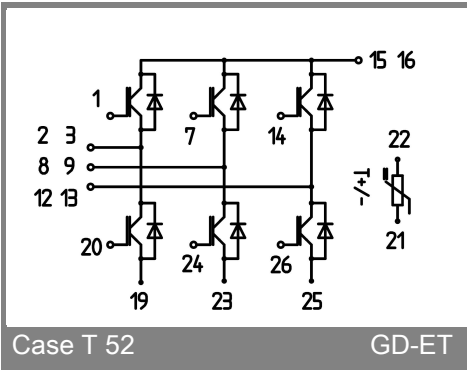
Characteristics			min.	typ.	max.	Units
Symbol	Conditions					
Inverse Diode						
$V_F = V_{EC}$	$I_{Fnom} = 50 \text{ A}; V_{GE} = 0 \text{ V}$	$T_j = 25 \text{ }^\circ\text{C}_{\text{chiplev.}}$		1,5		V
		$T_j = 150 \text{ }^\circ\text{C}_{\text{chiplev.}}$		1,5		V
V_{F0}		$T_j = 25 \text{ }^\circ\text{C}$		1	1,1	V
		$T_j = 150 \text{ }^\circ\text{C}$		0,9	1	V
r_F		$T_j = 25 \text{ }^\circ\text{C}$		10	12	m Ω
		$T_j = 150 \text{ }^\circ\text{C}$		12	14	m Ω
I_{RRM}	$I_F = 50 \text{ A}$	$T_j = 150 \text{ }^\circ\text{C}$				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 \pm 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

GD-ET