

SEMITOP® 3

IGBT Module

SK20GD066ET

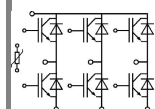
Target Data

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 6,3 kVA
- Typ. motor power 4 kW

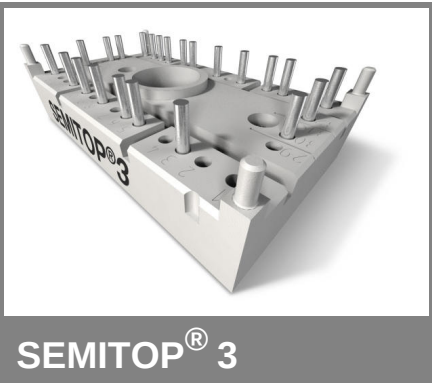


GD-ET

Absolute Maximum Ratings		T _s = 25 °C, unless otherwise specified		
Symbol	Conditions	Values	Units	
IGBT				
V _{CES}	T _j = 25 °C	600	V	
I _C	T _j = 175 °C	T _s = 25 °C	30	A
		T _s = 70 °C	25	A
I _{CRM}	I _{CRM} = 2 x I _{Cnom}	40	A	
V _{GES}		± 20	V	
t _{psc}	V _{CC} = 360 V; V _{GE} ≤ 20 V; T _j = 150 °C V _{CES} < 600 V	6	μs	
Inverse Diode				
I _F	T _j = 175 °C	T _s = 25 °C	31	A
		T _s = 70 °C	24	A
I _{FRM}	I _{FRM} = 2 x I _{Fnom}	40	A	
I _{FSM}	t _p = 10 ms; half sine wave T _j = 150 °C	95	A	
Module				
I _{t(RMS)}			A	
T _{vj}		-40 ... +175	°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					
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 0,29\text{ mA}$	5	5,8	6,5	V
I_{CES}	$V_{GE} = 0\text{ V}$, $V_{CE} = V_{CES}$			0,0011	$T_j = 25\text{ °C}$ mA
					$T_j = 125\text{ °C}$ mA
I_{GES}	$V_{CE} = 0\text{ V}$, $V_{GE} = 20\text{ V}$			300	$T_j = 25\text{ °C}$ nA
					$T_j = 125\text{ °C}$ nA
V_{CE0}			0,9	1,1	$T_j = 25\text{ °C}$ V
					$T_j = 150\text{ °C}$ V
r_{CE}	$V_{GE} = 15\text{ V}$		27,5	37,5	$T_j = 25\text{ °C}$ m Ω
					$T_j = 150\text{ °C}$ m Ω
$V_{CE(sat)}$	$I_{Cnom} = 20\text{ A}$, $V_{GE} = 15\text{ V}$		1,45	1,85	$T_j = 25\text{ °C}_{chiplev.}$ V
					$T_j = 125\text{ °C}_{chiplev.}$ V
C_{ies}	$V_{CE} = 25$, $V_{GE} = 0\text{ V}$		1,1		nF
C_{oes}					nF
C_{res}					nF
Q_G	$V_{GE} = -7V...+15V$		225		nC
$t_{d(on)}$	$R_{Gon} = 15\text{ }\Omega$ $di/dt = 3300\text{ A}/\mu\text{s}$		16		$V_{CC} = 300V$ ns
t_r					$I_C = 20A$ ns
E_{on}	$R_{Goff} = 15\text{ }\Omega$ $di/dt = 3300\text{ A}/\mu\text{s}$		0,34		$T_j = 150\text{ °C}$ mJ
$t_{d(off)}$					$V_{GE} = \pm 15V$ ns
t_f					ns
E_{off}			40		mJ
$R_{th(j-s)}$	per IGBT		1,95		K/W

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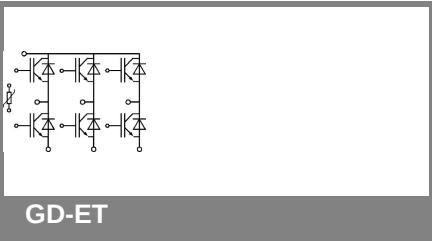
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Typical Applications*

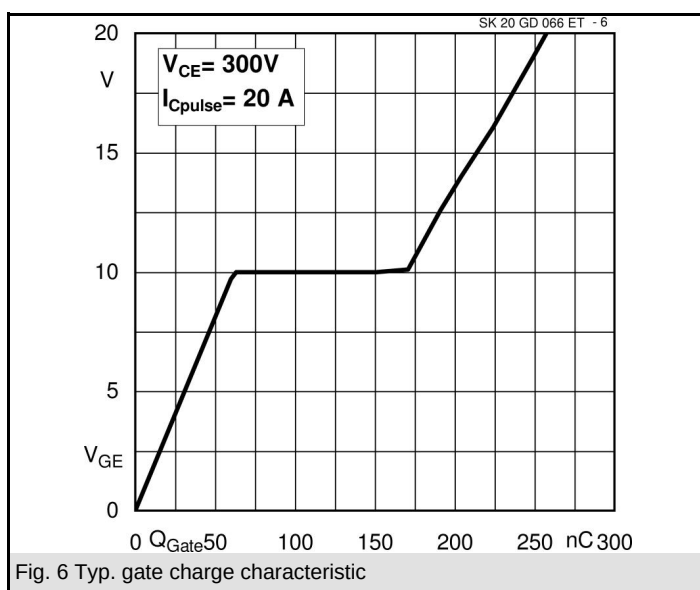
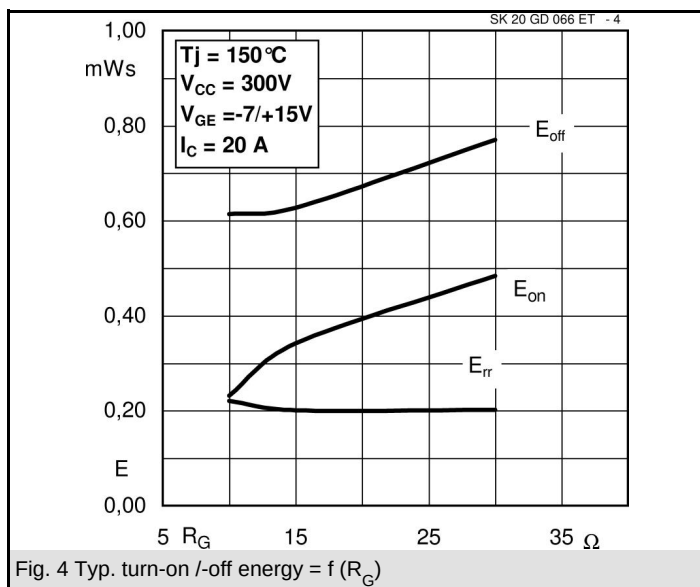
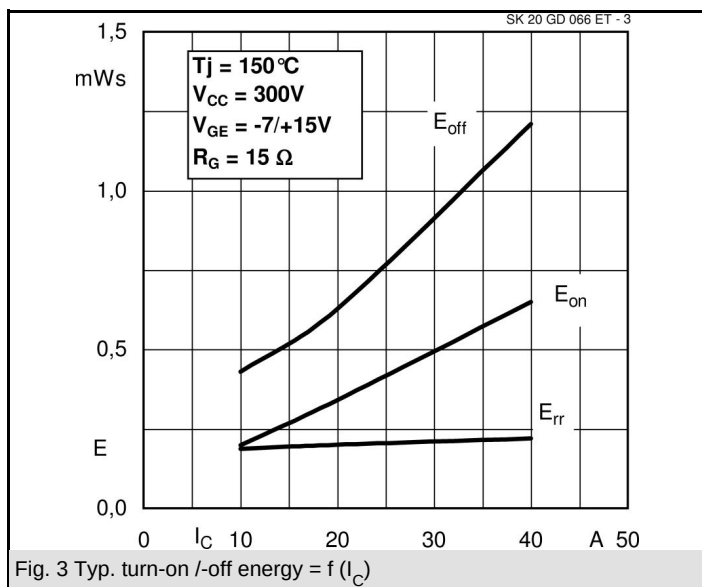
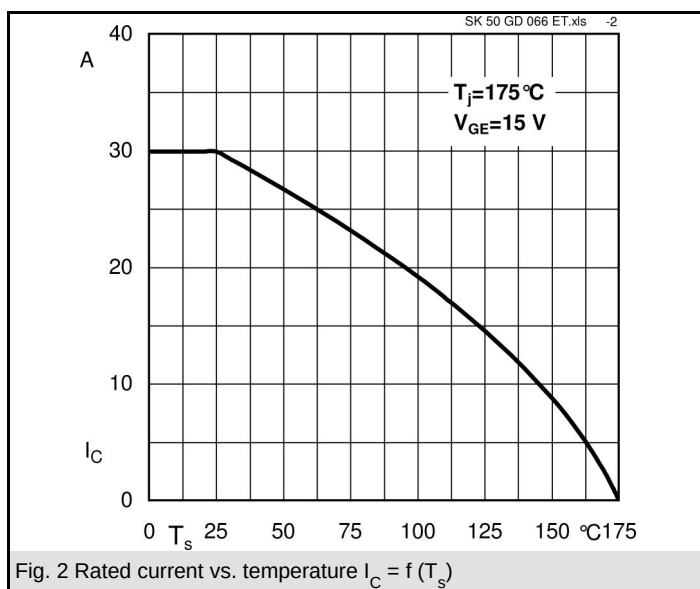
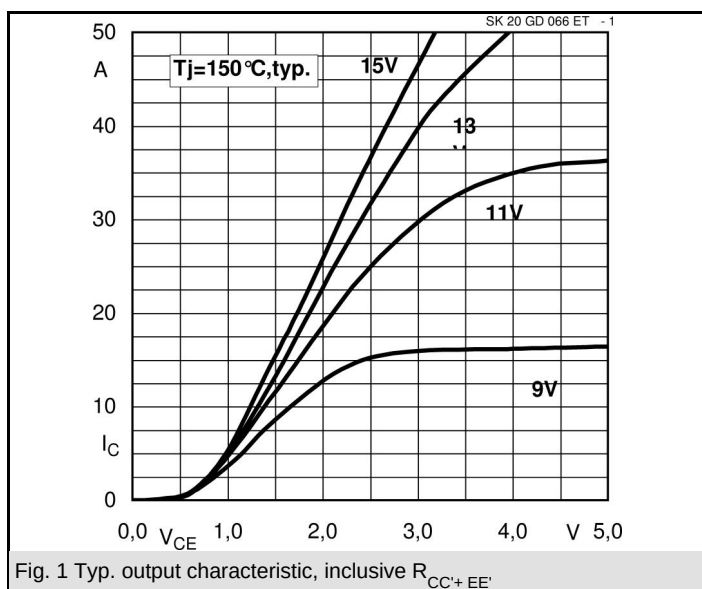
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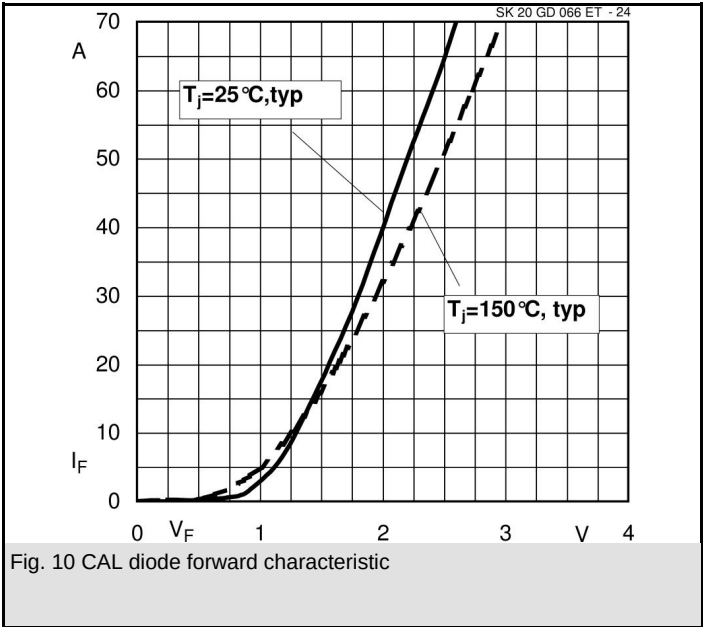
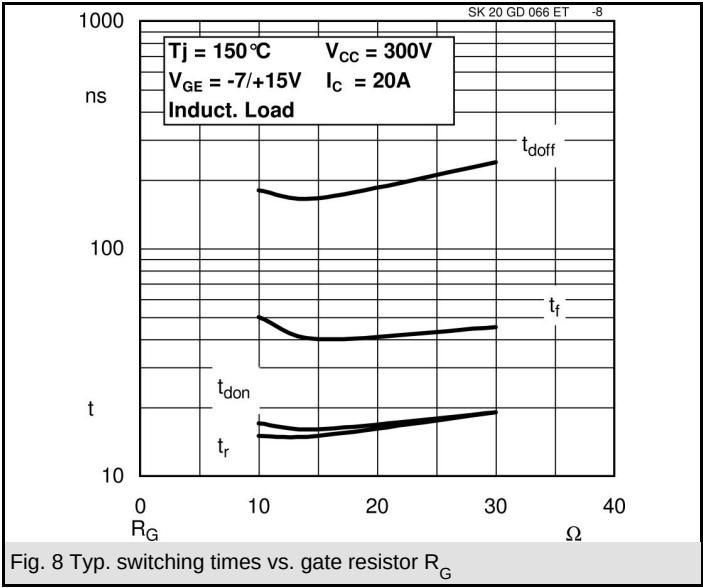
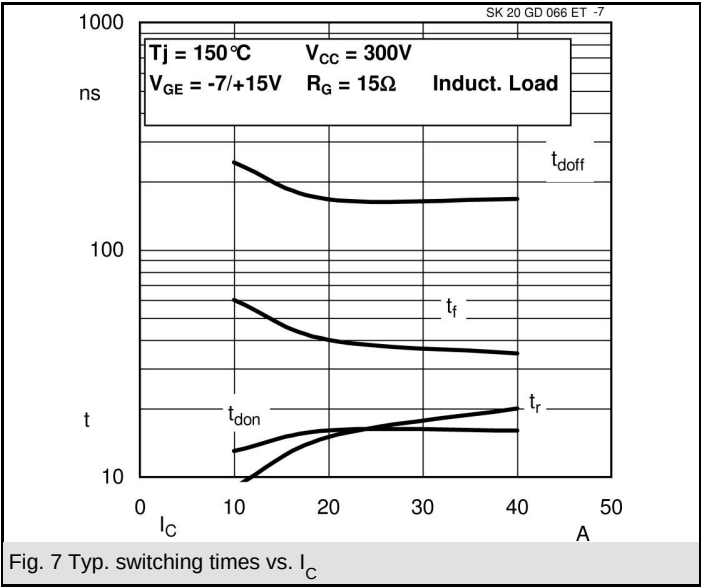


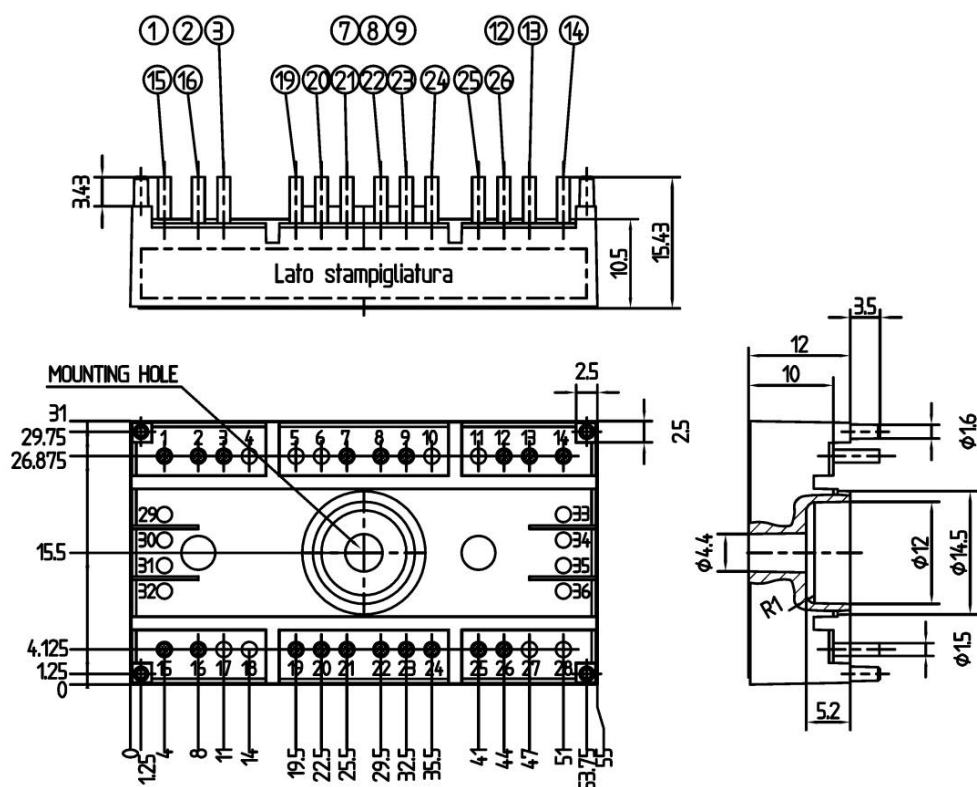
Characteristics					
Symbol	Conditions	min.	typ.	max.	Units
Inverse Diode					
V _F = V _{EC}	I _{Fnom} = 20 A; V _{GE} = 0 V	T _j = 25 °C _{chiplev.}	1,45	1,7	V
		T _j = 150 °C _{chiplev.}	1,45	1,7	V
V _{F0}		T _j = 25 °C	1	1,1	V
		T _j = 150 °C	0,9	1	V
r _F		T _j = 25 °C	22,5	30	mΩ
		T _j = 150 °C	27,5	35	mΩ
I _{RRM}	I _F = 30 A	T _j = 150 °C	32		A
Q _{rr}	di/dt = 3300 A/μs		2		μC
E _{rr}	V _{CC} = 300V		0,2		mJ
R _{th(j-s)D}	per diode		2,46		K/W
M _s	to heat sink	2,25		2,5	Nm
w			30		g
Temperature sensor					
R ₁₀₀	T _s =100°C (R ₂₅ =5kΩ)		493±5%		Ω

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

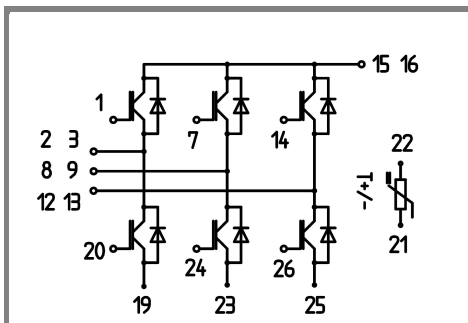
* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and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







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



Case T 52

GD-ET