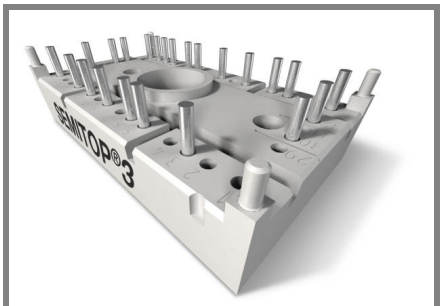
SK20GD065ET



SEMITOP® 3

IGBT Module

SK20GD065ET

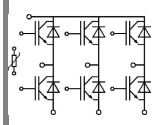
Preliminary Data

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*

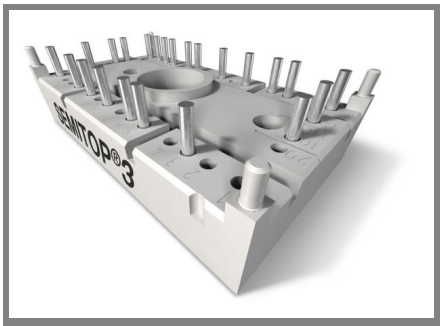
- Inverter



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 = 125 °C	T_s = 25 °C	26	A
		T_s = 80 °C	18	A
I_{CRM}	I_{CRM}= 2 x I_{Cnom}		40	A
V_{GES}			± 20	V
t_{psc}	V_{CC} = 300 V; $V_{GE} \leq$ 20 V; V_{CES} < 600 V	T_j = 125 °C	10	µs
Inverse Diode				
I_F	T_j = 150 °C	T_s = 25 °C	27	A
		T_s = 80 °C	19	A
I_{FRM}	I_{FRM}= 2 x I_{Fnom}		50	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 °C, unless otherwise specified			
Symbol	**Conditions**		**min.**	**typ.**	**max.**	**Units**
IGBT						
$V_{GE(th)}$	V_{GE} = V_{CE}, I_C = 0,5 mA		3	4	5	V
I_{CES}	V_{GE} = 0 V, V_{CE} = V_{CES}	T_j = 25 °C			0,07	mA
		T_j = 125 °C				mA
I_{GES}	V_{CE} = 0 V, V_{GE} = 20 V	T_j = 25 °C			120	nA
		T_j = 125 °C				nA
V_{CE0}		T_j = 25 °C		1,2	1,3	V
		T_j = 125 °C		1,1	0,9	V
r_{CE}	V_{GE} = 15 V	T_j = 25°C		40	60	mΩ
		T_j = 125°C		55		mΩ
$V_{CE(sat)}$	I_{Cnom} = 15 A, V_{GE} = 15 V	T_j = 25°C$_{chiplev.}$		2	2,5	V
		T_j = 125°C$_{chiplev.}$		2,2		V
C_{ies}	V_{CE} = 25, V_{GE} = 0 V	f = 1 MHz		1,1		nF
C_{oes}				0,107		nF
C_{res}				0,063		nF
$t_{d(on)}$	R_{Gon} = 50 Ω	V_{CC} = 300V				ns
t_r		I_C= 20A				ns
E_{on}		T_j = 125 °C		0,6		mJ
$t_{d(off)}$	R_{Goff} = 50 Ω	V_{GE}=±15V				ns
t_f						ns
E_{off}				0,44		mJ
$R_{th(j-s)}$	per IGBT				1,7	K/W



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IGBT Module

SK20GD065ET

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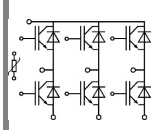


GD-ET

Characteristics

Symbol	Conditions		min.	typ.	max.	Units
Inverse Diode						
$V_F = V_{EC}$	I_{Fnom} = 20 A; V_{GE} = 0 V	T_j = 25 °$C_{chiplev.}$		1,6		V
		T_j = 125 °$C_{chiplev.}$		1,6		V
V_{F0}		T_j = 25 °C		1		V
		T_j = 125 °C		0,9		V
r_F		T_j = 25 °C				mΩ
		T_j = 125 °C		52		mΩ
I_{RRM}	I_F = A	T_j = 125 °C				A
Q_{rr}						µC
E_{rr}	V_{CC}= 300V					mJ
$R_{th(j-s)D}$	per diode				1,9	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.

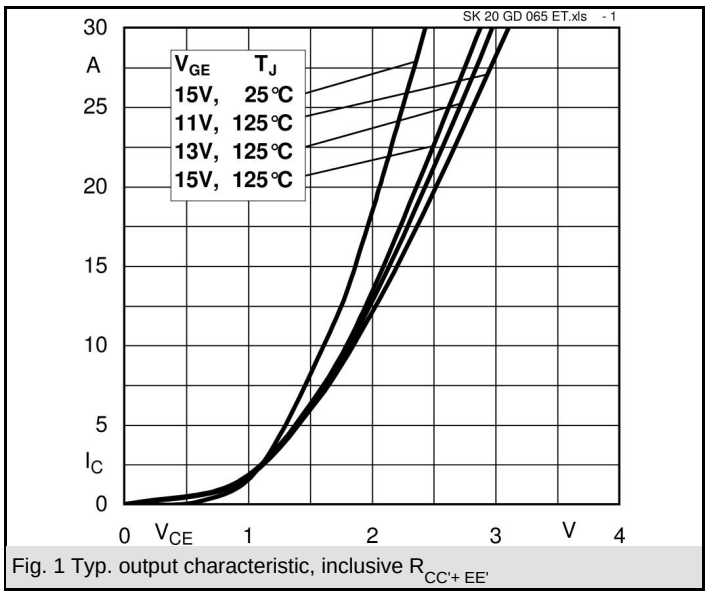


Fig. 1 Typ. output characteristic, inclusive $R_{CC'+EE'}$

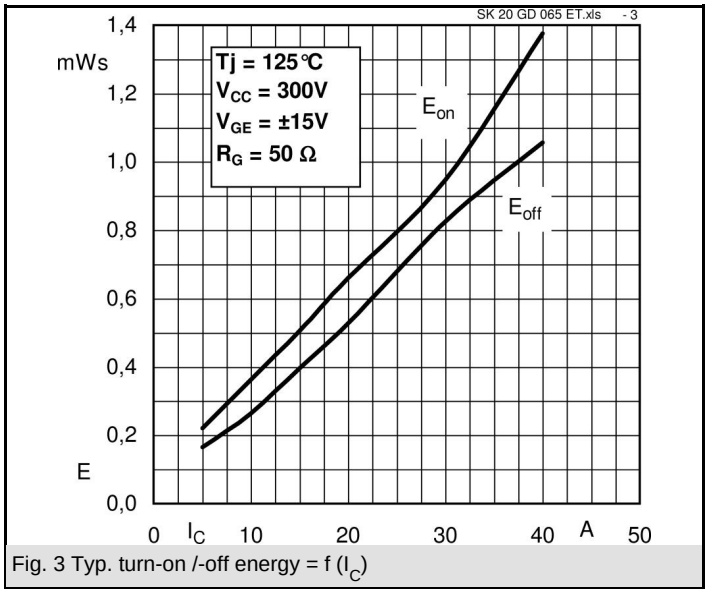


Fig. 3 Typ. turn-on /-off energy = f (I_C)

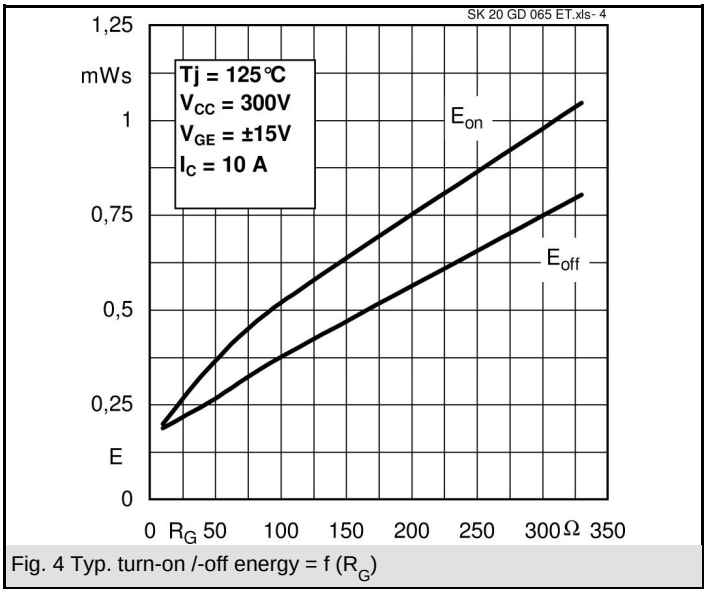


Fig. 4 Typ. turn-on /-off energy = f (R_G)

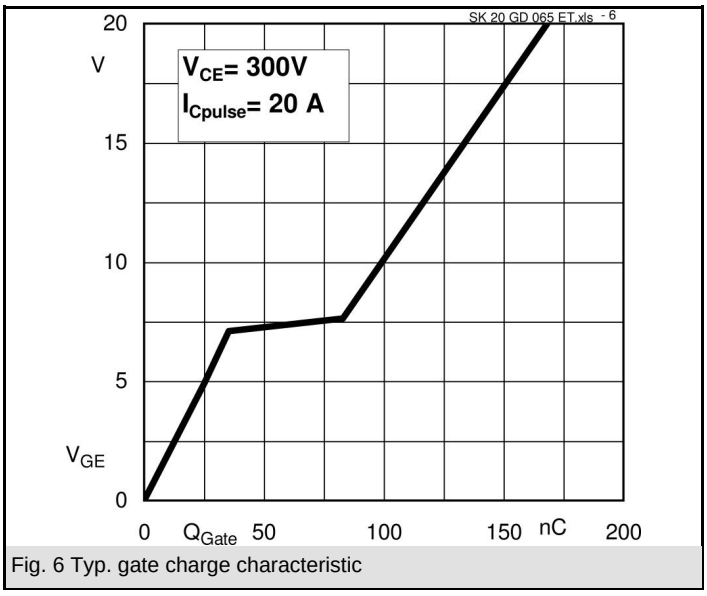


Fig. 6 Typ. gate charge characteristic

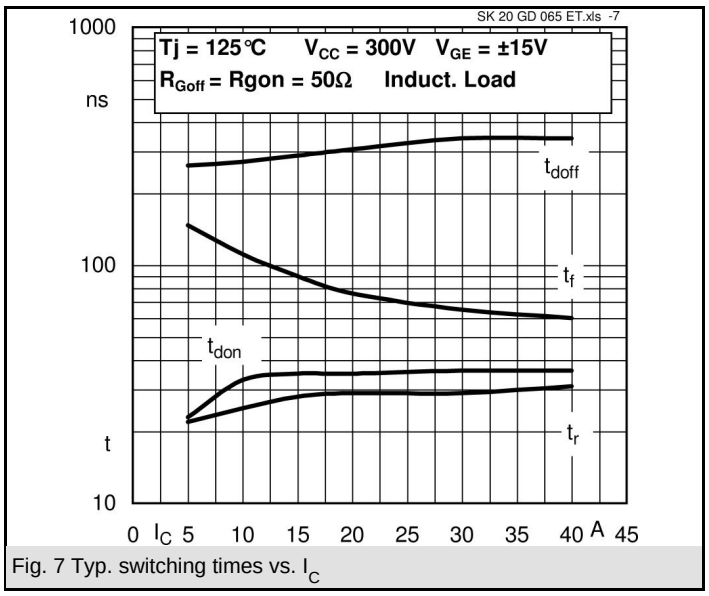


Fig. 7 Typ. switching times vs. I_C

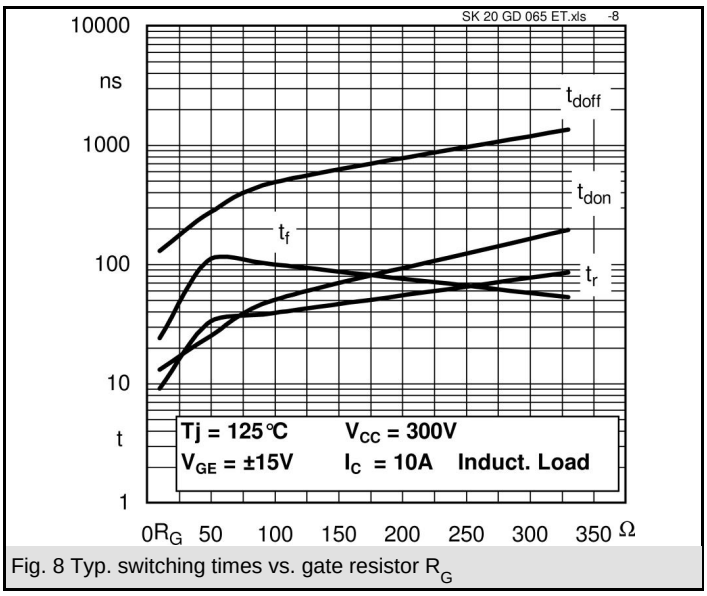


Fig. 8 Typ. switching times vs. gate resistor R_G

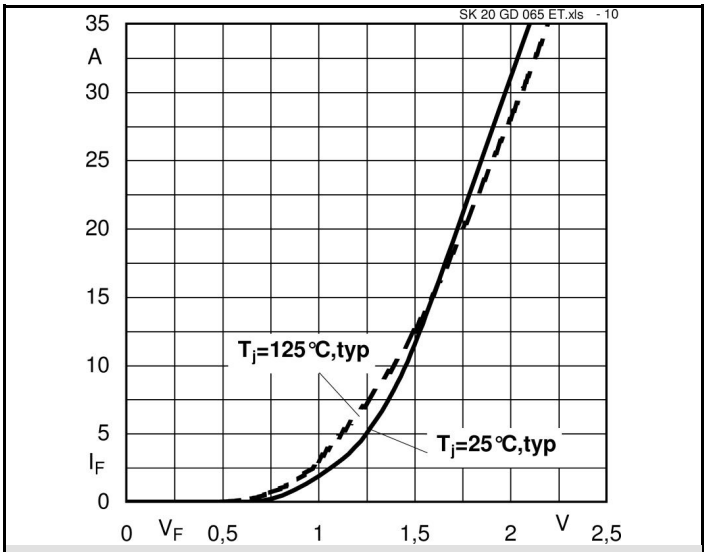
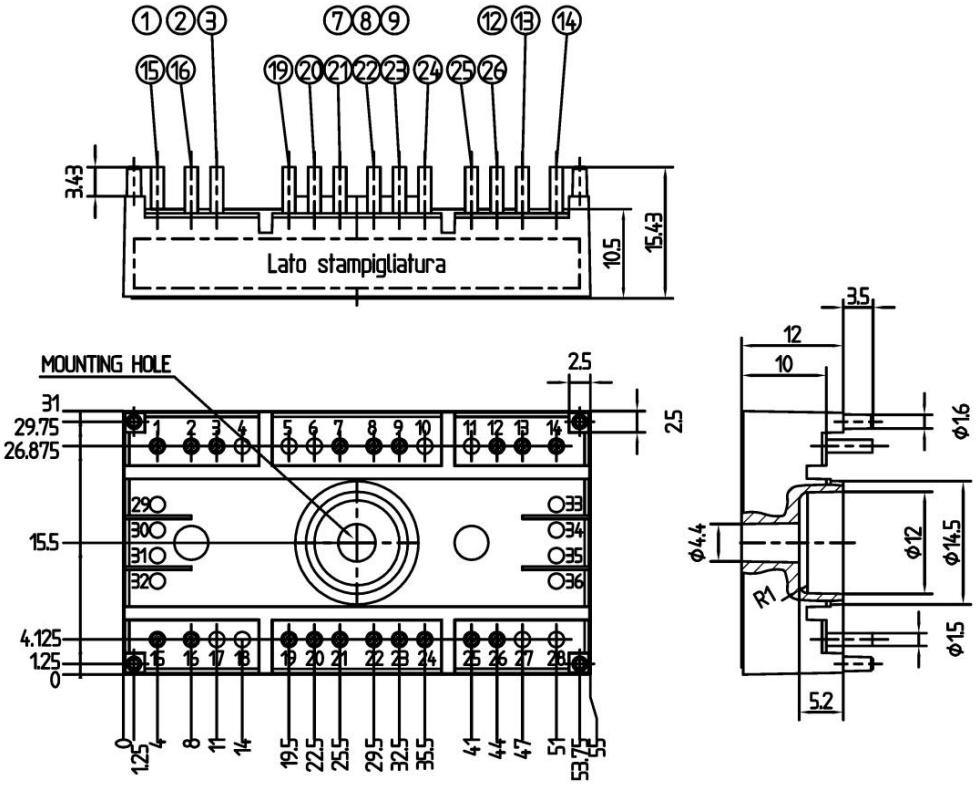
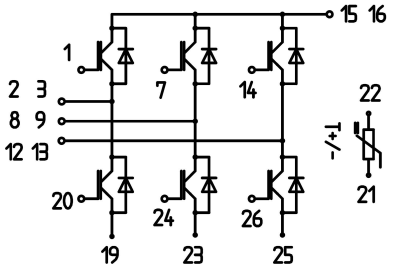


Fig. 10 CAL diode forward characteristic

UL recognized file no. E 63 532



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



Case T 52 GD-ET

