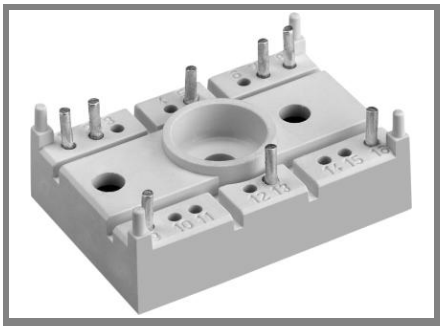
SK 20 GD 065



SEMITOP® 2

IGBT Module

SK 20 GD 065

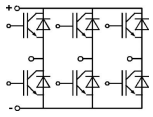
Preliminary Data

Features

- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DCB)
- N channel, Ultrafast NPT technology IGBT
- CAL technology FWD
- High short circuit capability
- Low tail current with low temperature dependence

Typical Applications

- Switching (not for linear use)
- Inverter
- Switched mode power supplies
- UPS



GD

Absolute Maximum Ratings	T_s = 25 °C, unless otherwise specified		
Symbol	**Conditions**	**Values**	**Units**
IGBT			
V_{CES}		600	V
V_{GES}		± 20	V
I_C	T_s = 25 (80) °C;	24 (17)	A
I_{CM}	t_p < 1 ms; T_s = 25 (80) °C;	48 (34)	A
T_j		- 40 ... + 150	°C
Inverse/Freewheeling CAL diode			
I_F	T_s = 25 (80) °C;	22 (15)	A
I_{FM} = - I_{CM}	t_p < 1 ms; T_s = 25 (80) °C;	44 (30)	A
T_j		- 40 ... + 150	°C
T_{stg}		- 40 ... + 125	°C
T_{sol}	Terminals, 10 s	260	°C
V_{isol}	AC 50 Hz, r.m.s. 1 min. / 1 s	2500 / 3000	V

Characteristics	T_s = 25 °C, unless otherwise specified				
Symbol	**Conditions**	**min.**	**typ.**	**max.**	**Units**
IGBT					
$V_{CE(sat)}$	I_C = 20 A, T_j = 25 (125) °C		2 (2,2)		V
$V_{GE(th)}$	V_{CE} = V_{GE}; I_C = 0,0005 A	3	4	5	V
C_{ies}	V_{CE} = 0 V; V_{GE} = 0 V; 1 MHz		1,2		nF
$R_{th(j-s)}$	per IGBT			1,7	K/W
	per module				K/W
	under following conditions:				
$t_{d(on)}$	V_{CC} = 300 V , V_{GE} = ± 15 V		36		ns
t_r	I_C = 20 A, T_j = 125 °C		30		ns
$t_{d(off)}$	R_{Gon} = R_{Goff} = 30 Ω		250		ns
t_f			60		ns
E_{on} + E_{off}	Inductive load		1,04		mJ
Inverse/Freewheeling CAL diode					
V_F = V_{EC}	I_F = 20 A; T_j = 25 (125) °C		1,6 (1,9)	1,9 (1,9)	V
$V_{(TO)}$	T_j = 25 (125) °C		1 (0,9)	1,1 (1)	V
r_T	T_j = 25 (125) °C		30 (33)	40 (47)	mΩ
$R_{th(j-s)}$				1,7	K/W
	under following conditions:				
I_{RRM}	I_F = 20 A; V_R = 300 V		27		A
Q_{rr}	dI_F/dt = 1350 A/µs		2,3		µC
E_{off}	V_{GE} = 0 V; T_j = 125 °C		0,4		mJ
Mechanical data					
M1	mounting torque			2	Nm
w			21		g
Case	SEMITOP® 2		T 47		

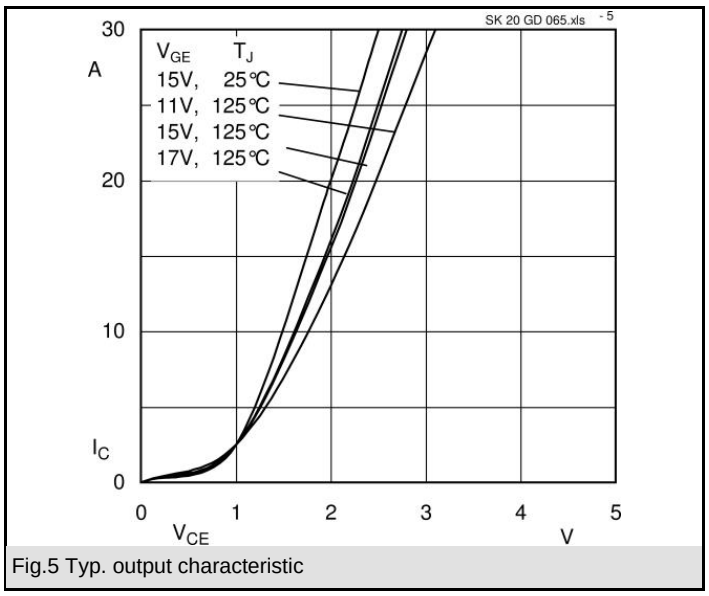


Fig.5 Typ. output characteristic

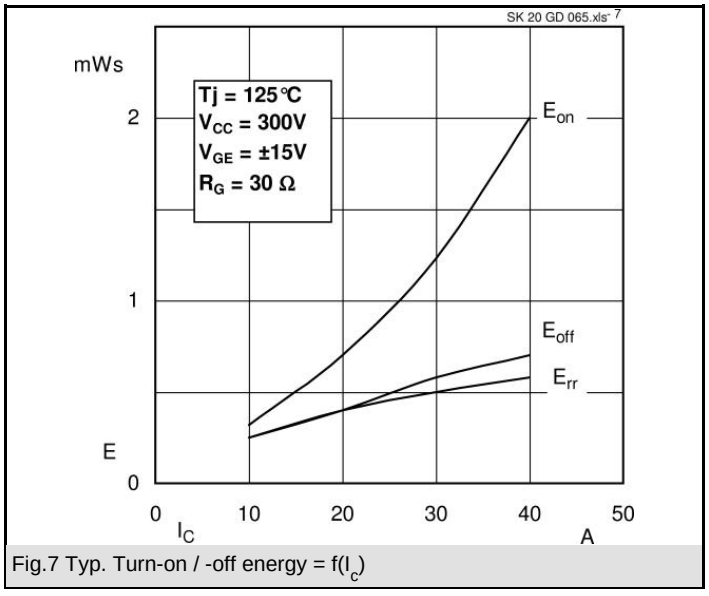


Fig.7 Typ. Turn-on / -off energy = f(I_c)

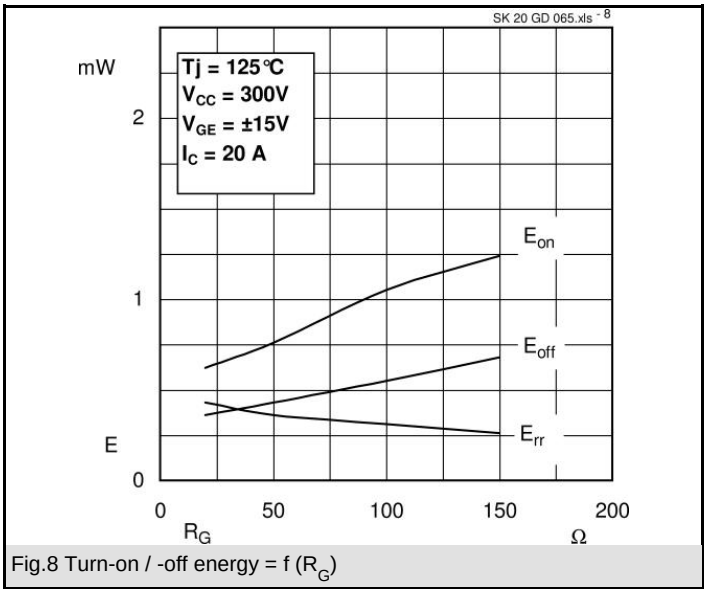


Fig.8 Turn-on / -off energy = f (R_G)

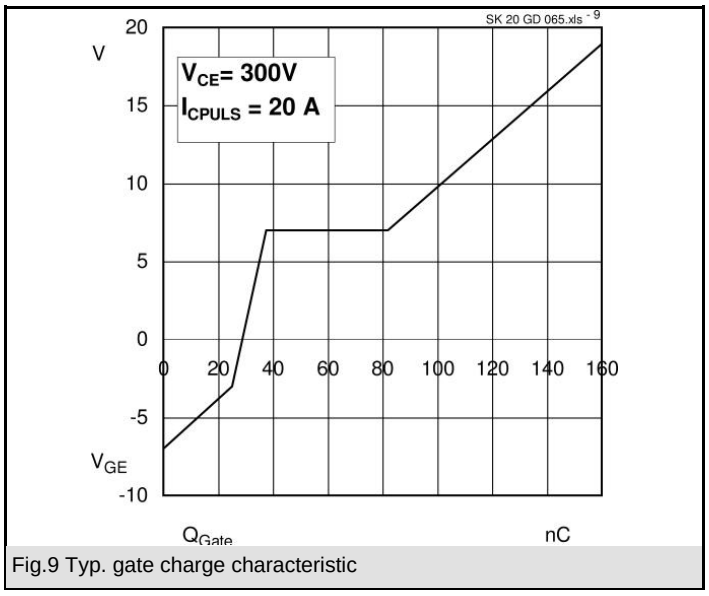


Fig.9 Typ. gate charge characteristic

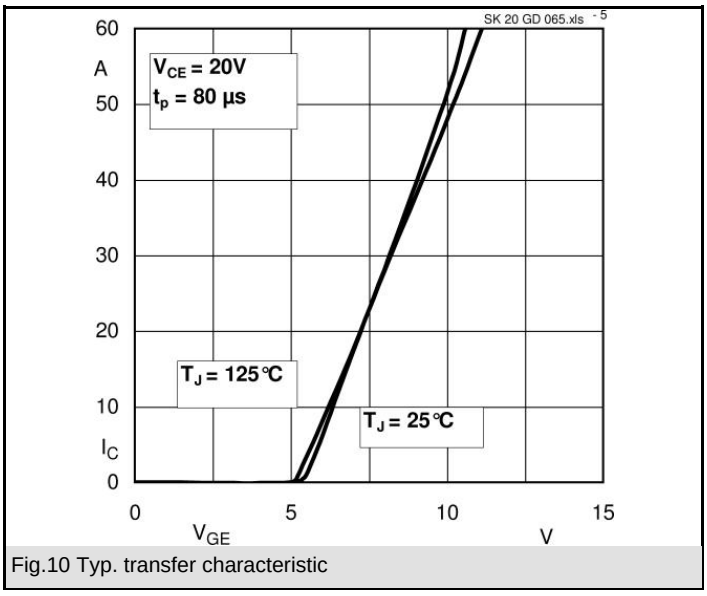


Fig.10 Typ. transfer characteristic

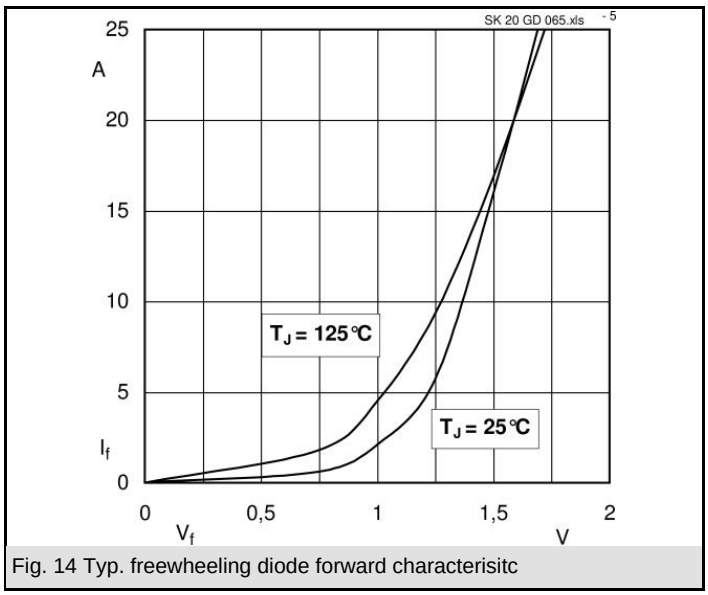


Fig. 14 Typ. freewheeling diode forward characterisitc

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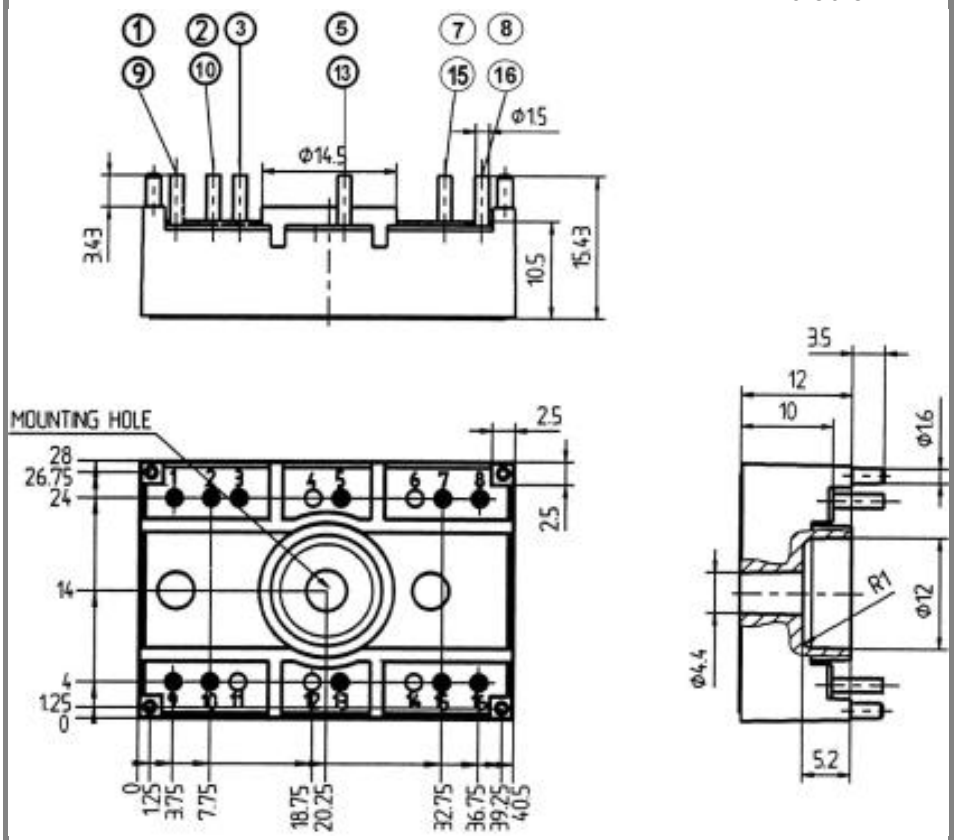
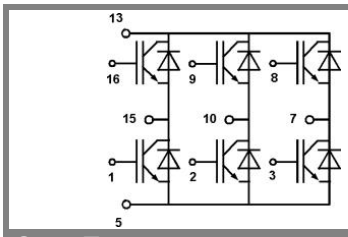
Dimensions in mm



Case T47



Case T 47 GD

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

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