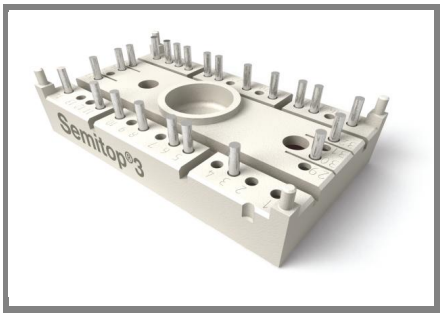
SK 15 GD 065 ET



SEMITOP® 3

3-phase bridge inverter

SK 15 GD 065 ET

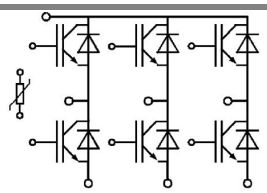
Preliminary Data

Features

- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded alumium 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 - Inverter, Chopper			
V_{CES}		600	V
I_C	T_s = 25 (80) °C	20 (14)	A
I_{CRM}	, t_p = 1 ms	40	A
V_{GES}		±20	V
T_j		-40 ... +150	°C
Diode - Inverter, Chopper			
I_F	T_s = 25 (80) °C	22 (15)	A
I_{FRM}	I_{FRM} = 2xI_{Fnom}, t_p = 1 ms	44	A
T_j		-40 ... +150	°C
Rectifier			
V_{RRM}			V
I_F	T_s = °C		A
I_{FSM} / I_{TSM}	t_p = ms , sin ° ,T_j = °C		A
I^2t	t_p = ms , sin ° ,T_j = °C		A^2s
T_j			°C
T_{sol}	Terminals, 10s	260	°C
T_{stg}		-40, ... +125	°C
V_{isol}	AC, 1 min. / 1s	2500 / 3000	V

Characteristics		T_s= 25°C, unless otherwise specified			
Symbol	**Conditions**	**min.**	**typ.**	**max.**	**Units**
IGBT - Inverter, Chopper					
V_{CEsat}	I_C = 10 A, T_j = 25 (125) °C		2 (2,2)	2,5	V
$V_{GE(th)}$	V_{GE} = V_{CE}, I_C = 0,5 mA	3	4	5	V
$V_{CE(TO)}$	T_j = 25 °C (150) °C		1,2 (1,1)	1,3	V
r_T	T_j = 25 °C (125) °C		80 (110)	120	mΩ
C_{ies}	V_{CE} = 25 V_{GE} = 0 V, f = 1 MHz		0,8		nF
C_{oes}	V_{CE} = 25 V_{GE} = 0 V, f = 1 MHz		0,2		nF
C_{res}	V_{CE} = 25 V_{GE} = 0 V, f = 1 MHz		0,2		nF
$R_{th(j-s)}$	per IGBT			1,9	K/W
$t_{d(on)}$	under following conditions		45		ns
t_r	V_{CC} = 300 V, V_{GE} = ± 15 V		40		ns
$t_{d(off)}$	I_C = 10 A, T_j = 125 °C		340		ns
t_f	R_{Gon} = R_{Goff} = 125 Ω		90		ns
E_{on}	inductive load		0,3		mJ
E_{off}			0,22		mJ
Diode - Inverter, Chopper					
V_F = V_{EC}	I_F = 10 A, T_j = 25 (125) °C		1,4 (1,4)	1,7	V
$V_{(TO)}$	T_j = 25 °C (125) °C		1 (0,9)	1,1	V
r_T	T_j = 25 °C (125) °C		45 (50)	60	mΩ
$R_{th(j-s)}$	per diode			2,3	K/W
I_{RRM}	under following conditions		11		A
Q_{rr}	I_F = 10 A, V_R = 300 V		1,1		µC
E_{rr}	V_{GE} = 0 V, T_j = 125 °C		0,24		mJ
	$di_{F/dt}$ = 290 A/µs				
Diode rectifier					
V_F	I_F = A, T_j = 25 °C				V
$V_{(TO)}$	T_j = °C				V
r_T	T_j = °C				mΩ
$R_{th(j-s)}$	per diode				K/W
Temperatur sensor					
R_{ts}	5 %, T_r = 25 (100) °C		5000(493)		Ω
Mechanical data					
w			30		g
M_s	Mounting torque			2,5	Nm

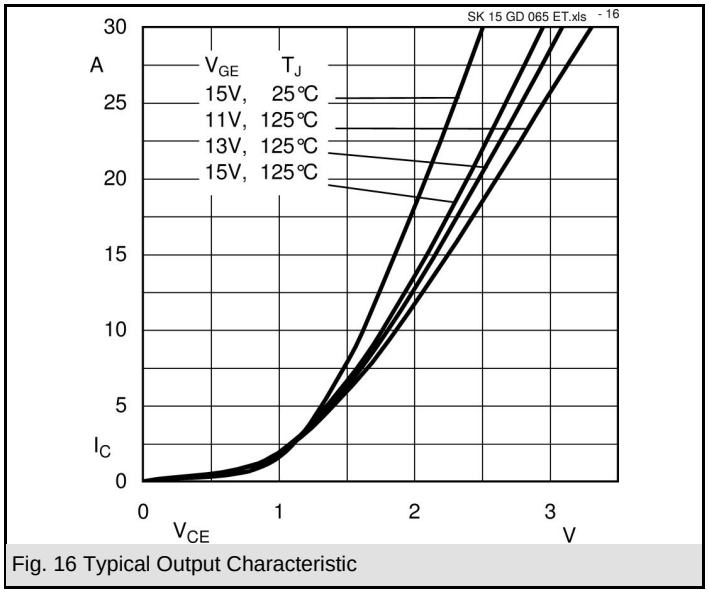


Fig. 16 Typical Output Characteristic

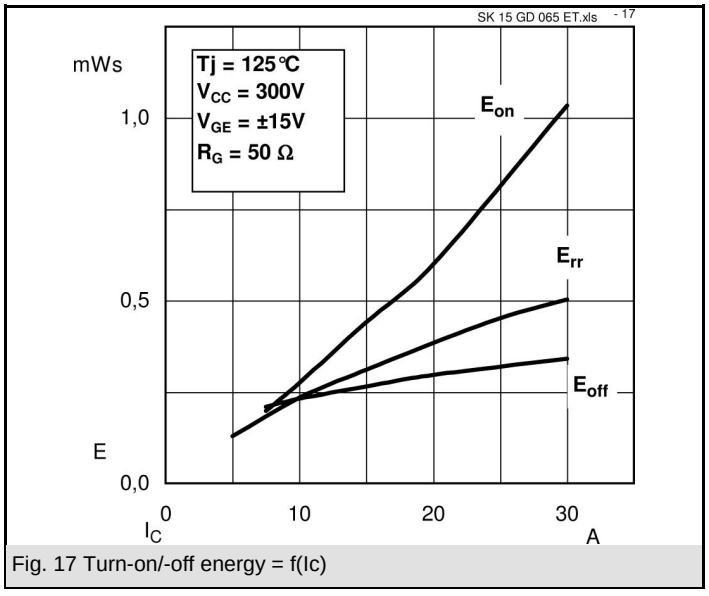


Fig. 17 Turn-on/-off energy = f(Ic)

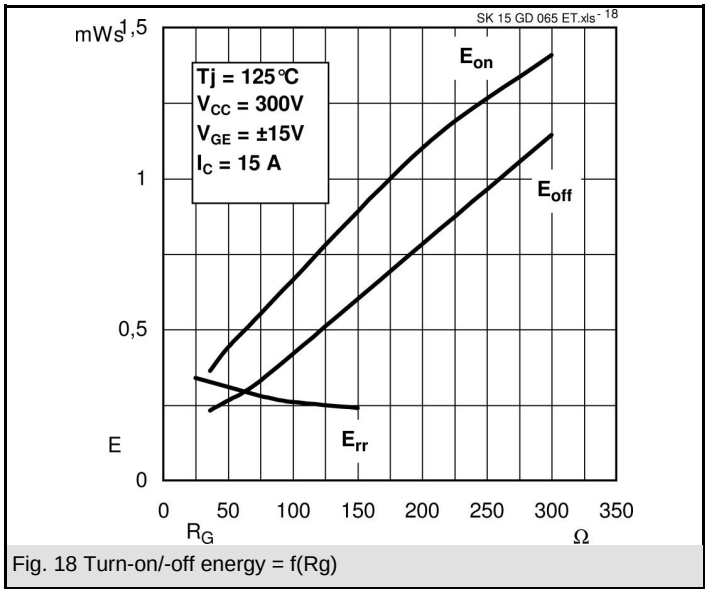


Fig. 18 Turn-on/-off energy = f(Rg)

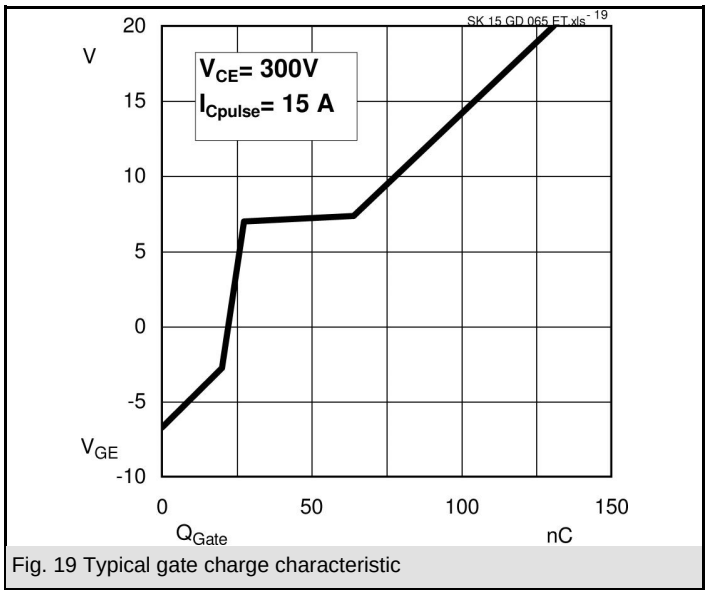


Fig. 19 Typical gate charge characteristic

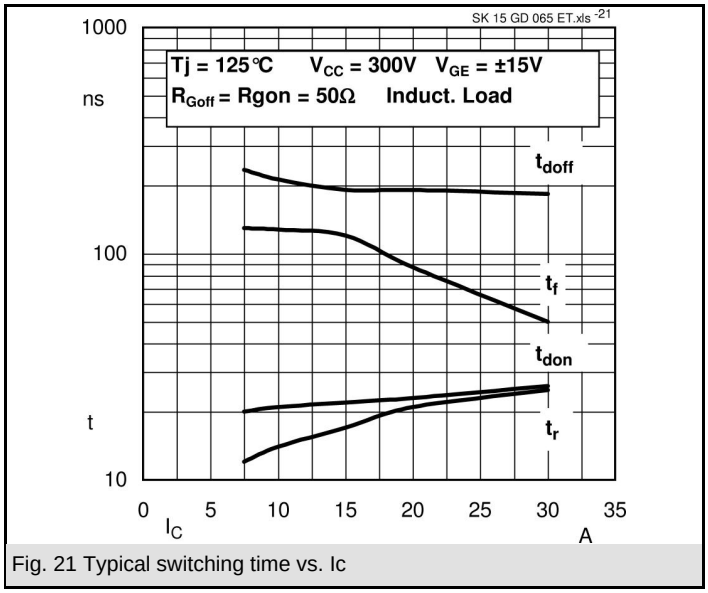


Fig. 21 Typical switching time vs. Ic

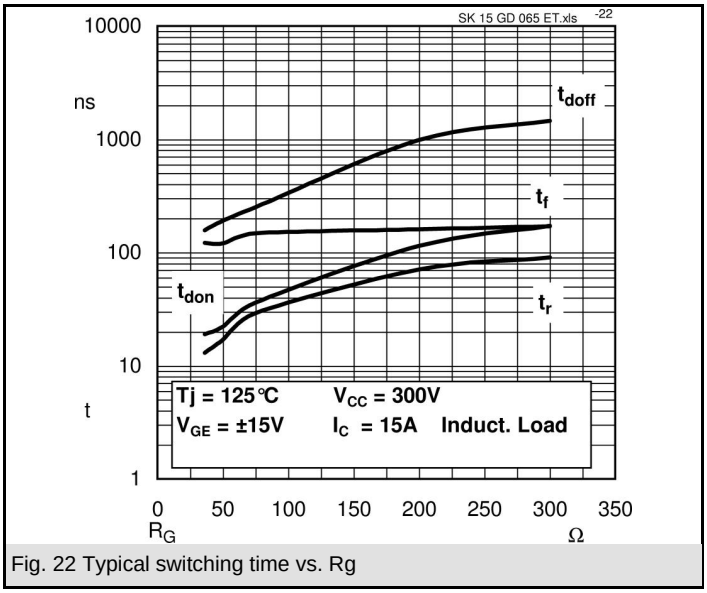


Fig. 22 Typical switching time vs. Rg

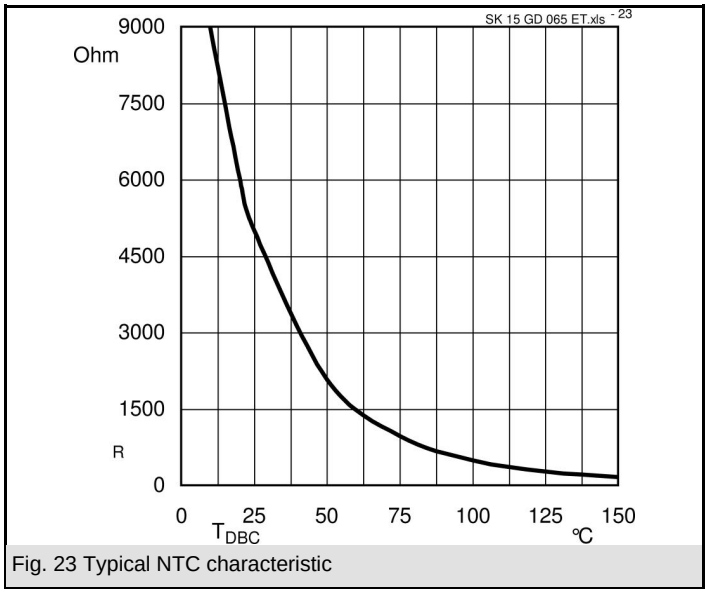


Fig. 23 Typical NTC characteristic

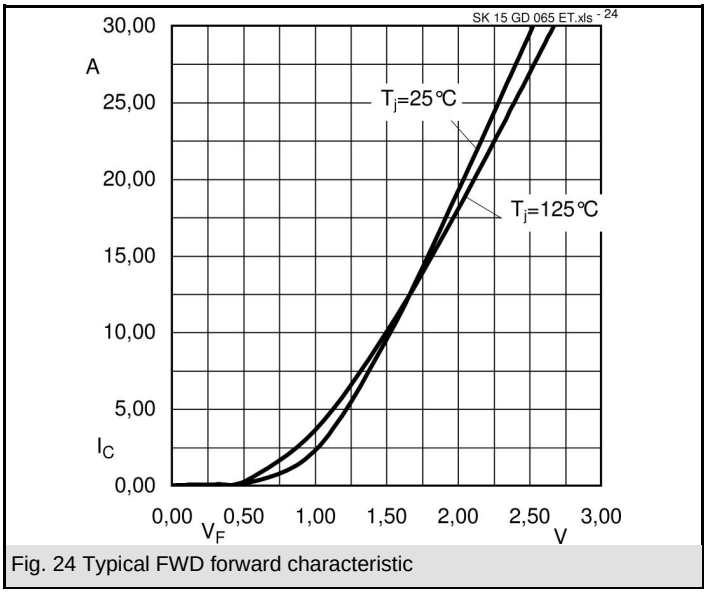
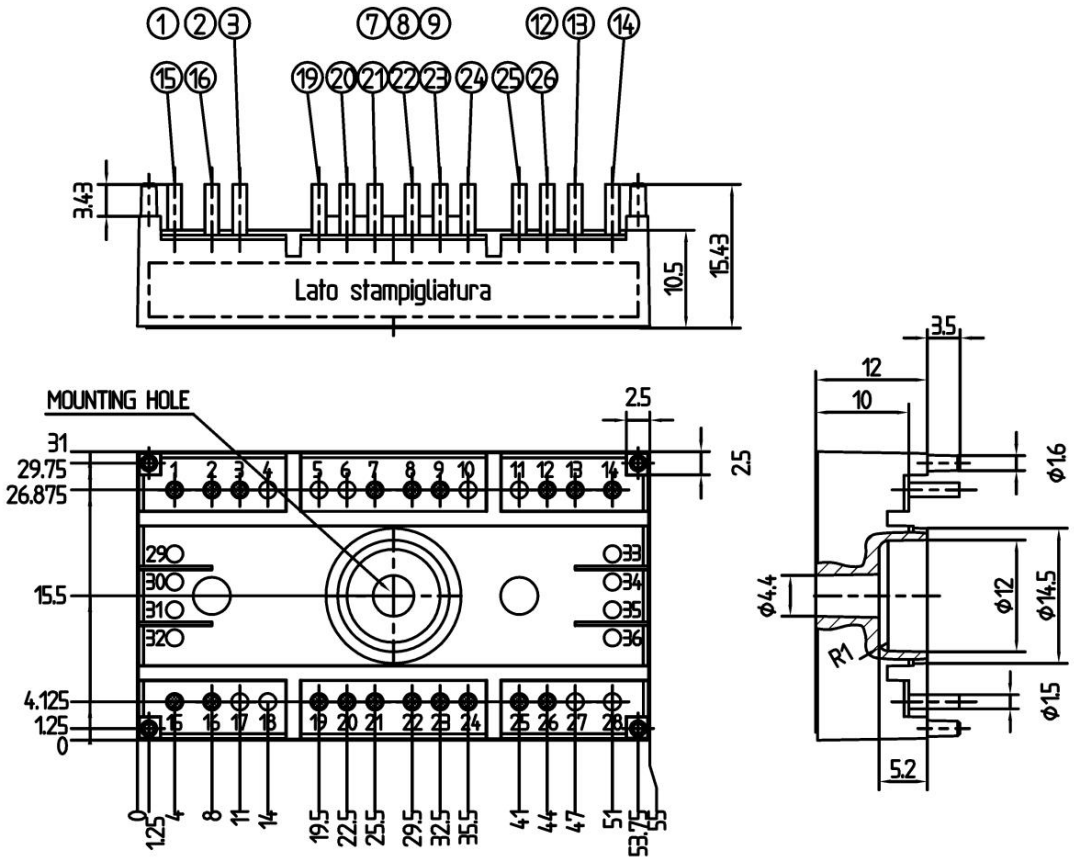
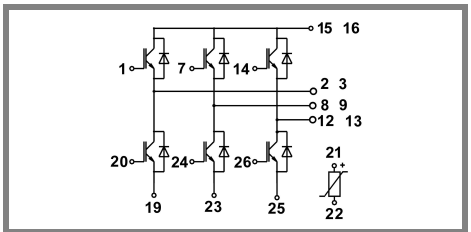


Fig. 24 Typical FWD forward characteristic

Dimensions in mm



Case T 52 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)



Case T 52

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

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