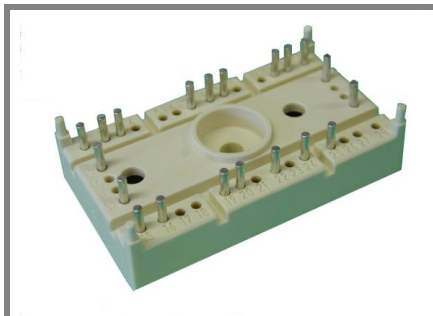


SK 25 DGD 065 ET



SEMITOP[®] 3

3-phase bridge rectifier +
3-phase bridge inverter

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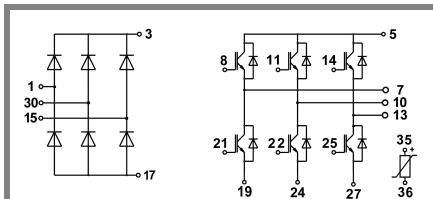
Target Data

Features

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

Typical Applications

- Inverter



DGD - 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	30 (22)	A
I _{CM}	T _s = 25 (80) °C, tp ≤ 1 ms	60 (44)	A
V _{GES}		±20	V
T _j		-40 ... +150	°C
Diode - Inverter, Chopper			
I _F	T _s = 25 (80) °C	36 (24)	A
I _{FM} = -I _{CM}	T _s = 25 (80) °C, tp ≤ 1 ms	72 (48)	A
T _j		-40 ... +150	°C
Rectifier			
V _{RRM}		800	V
I _{FAV} / I _{TAV}	T _s = 80 °C	25	A
I _{FSM} / I _{TSM}	t _p = 10 ms, sin 180°, T _j = 25 °C	370	A
I _t ²	t _p = 10 ms, sin 180°, T _j = 25 °C	685	A ² s
T _j		-40 ... +150	°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 = 20 A, T _j = 25 (125) °C		1,8 (2,1)	2 (2,2)	V
V _{GE(th)}	V _{GE} = V _{CE} , I _C = 0,5 mA	3	4	5	V
V _{CE(TO)}	T _j = 25 °C (125) °C		1,2 (1,1)	1,3	V
r _T	T _j = 25 °C (125) °C		40 (55)	60	mΩ
C _{ies}	V _{CE} = V _{GE} = 0 V, f = 1 MHz		1,6		nF
C _{oes}	V _{CE} = V _{GE} = 0 V, f = 1 MHz		-		nF
C _{res}	V _{CE} = V _{GE} = 0 V, f = 1 MHz		-		nF
R _{th(j-s)}	per IGBT			1,4	K/W
t _{d(on)}	under following conditions		30		ns
t _r	V _{CC} = 300 V, V _{GE} = ± 15 V		25		ns
t _{d(off)}	I _C = 25 A, T _j = 125 °C		250		ns
t _f	R _{Gon} = R _{Goff} = 33 Ω		15		ns
E _{on}	inductive load		0,8		mJ
E _{off}			0,55		mJ
Diode - Inverter, Chopper					
V _F = V _{EC}	I _F = 25 A, T _j = 25 (125) °C		1,45 (1,4)	1,7 (1,75)	V
V _(TO)	T _j = 25 °C (125) °C		(0,85)	(0,9)	V
r _T	T _j = 25 °C (125) °C		(22)	(32)	mΩ
R _{th(j-s)}	per diode			1,7	K/W
I _{RRM}	under following conditions		-		A
Q _{rr}	I _F = A, V _R = V		-		μC
E _{rr}	V _{GE} = 0 V, T _j = 125 °C		-		mJ
	di _F /dt = - A/μs				
Diode rectifier					
V _F	I _F = 15 A, T _j = 25 °C		1,1		V
V _(TO)	T _j = 150 °C		0,8		V
r _T	T _j = 150 °C		15		mΩ
R _{th(j-s)}	per diode			1,7	K/W
Temperatur sensor					
R _{ts}	5 %, T _r = 25 (100) °C		5000(493)		Ω
Mechanical data					
w			30		g
M _s	Mounting torque	2,3		2,5	Nm

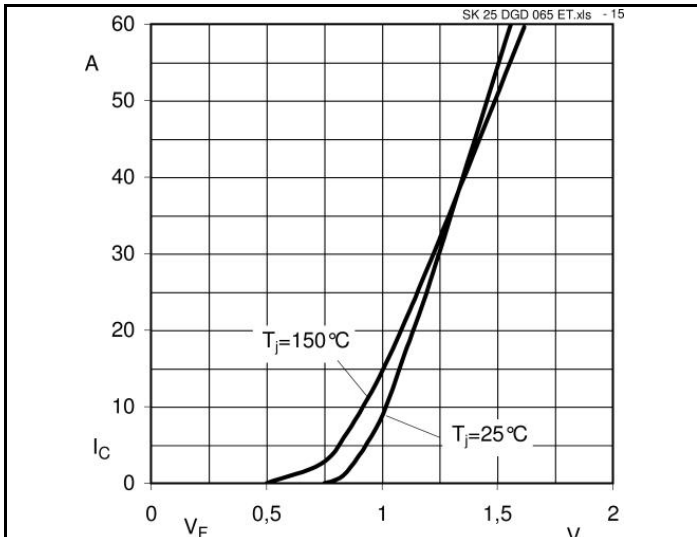


Fig. 15 Typ. Input Bridge Diode forward characteristic

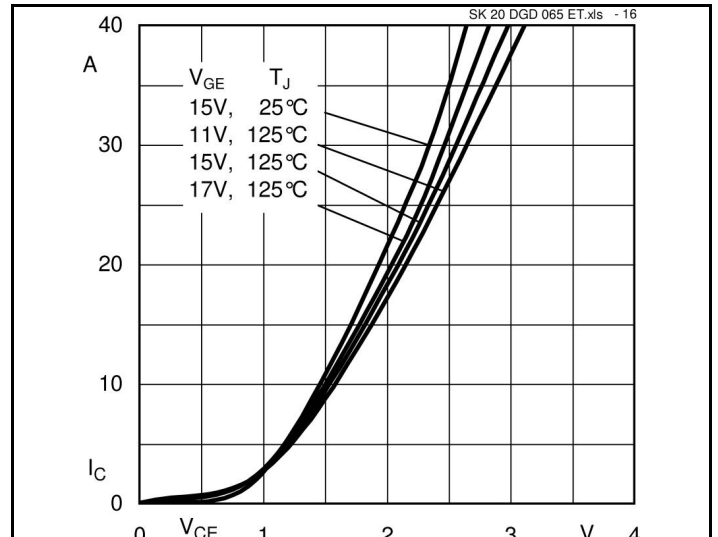


Fig. 16 Typical Output Characteristic

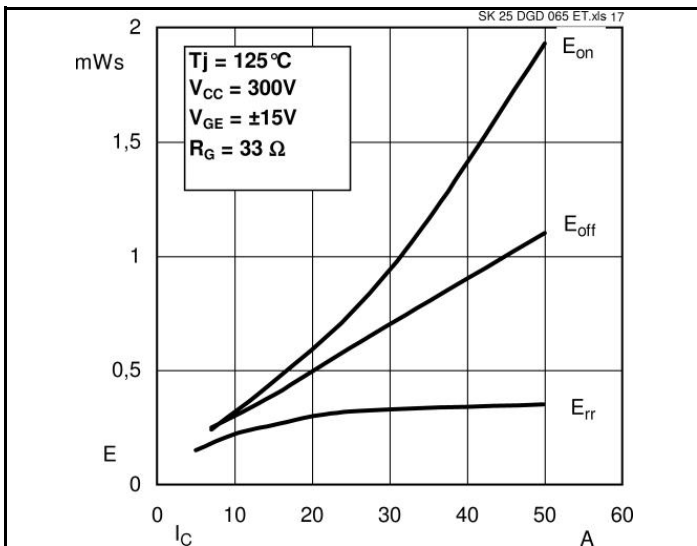


Fig. 17 Turn-On/Off Energy = $f(I_C)$

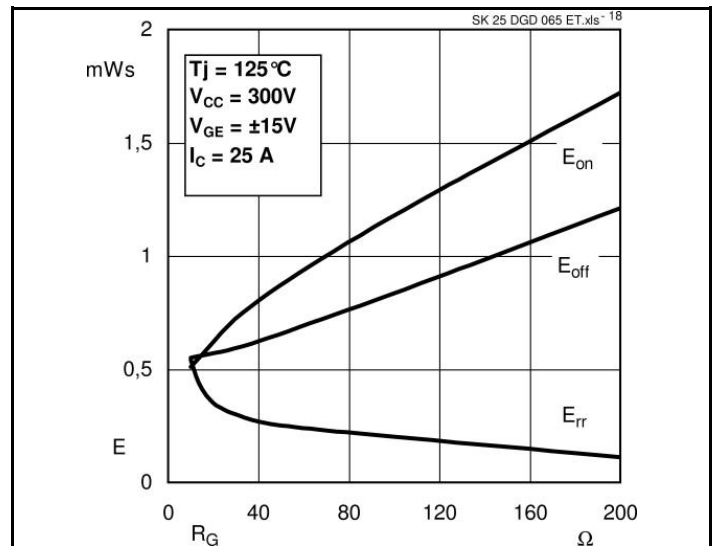


Fig. 18 Turn-On/Off Energy = $f(R_G)$

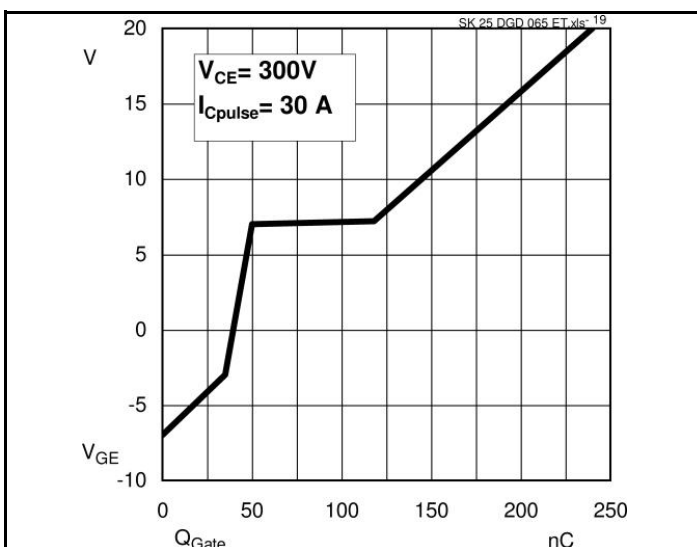


Fig. 19 Typical Gate Charge Characteristic

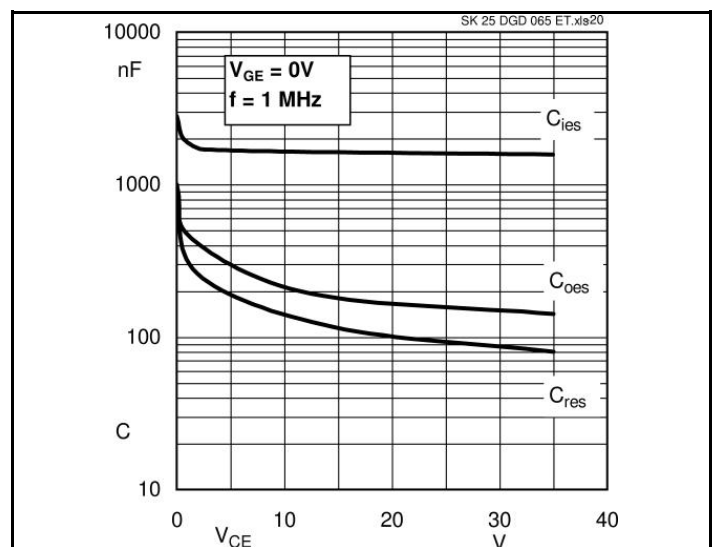
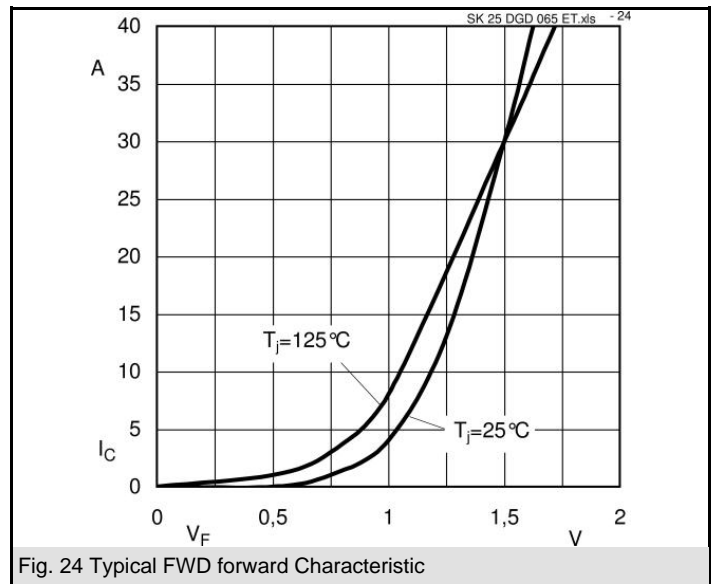
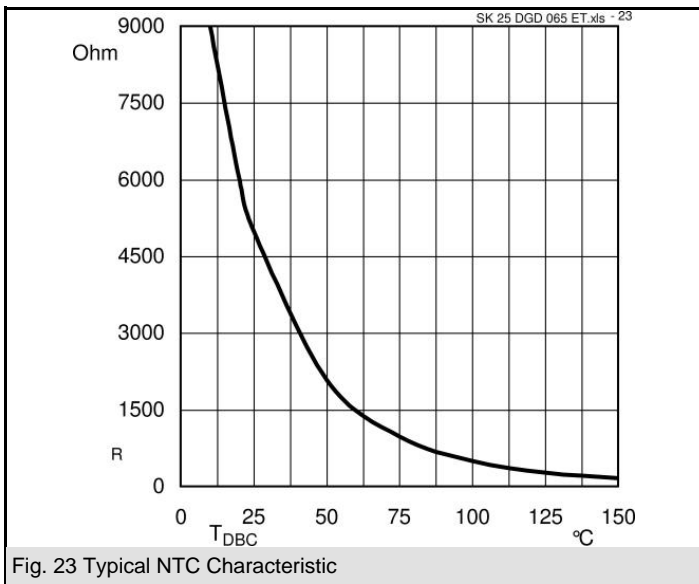
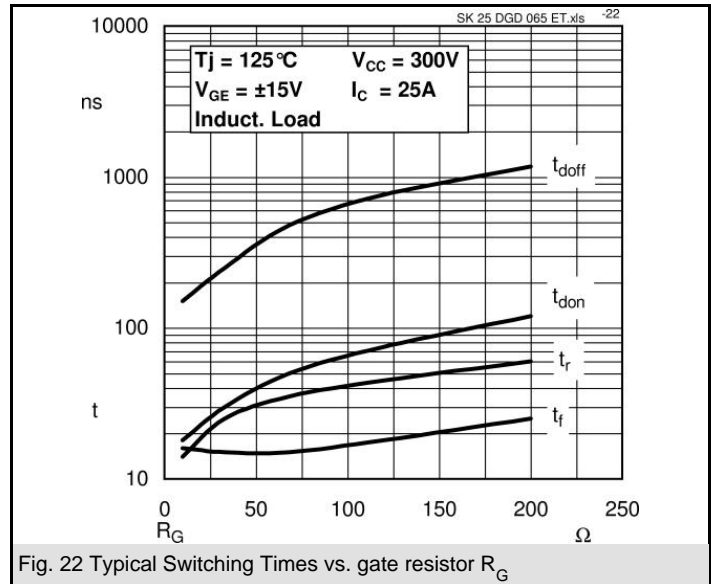
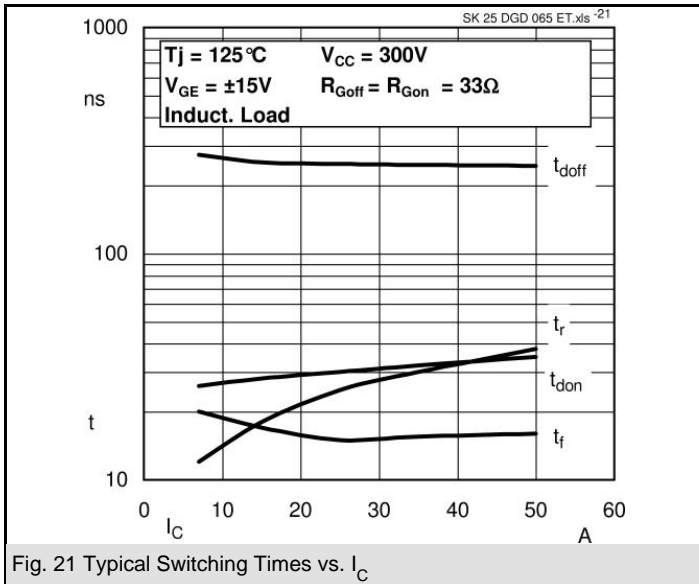
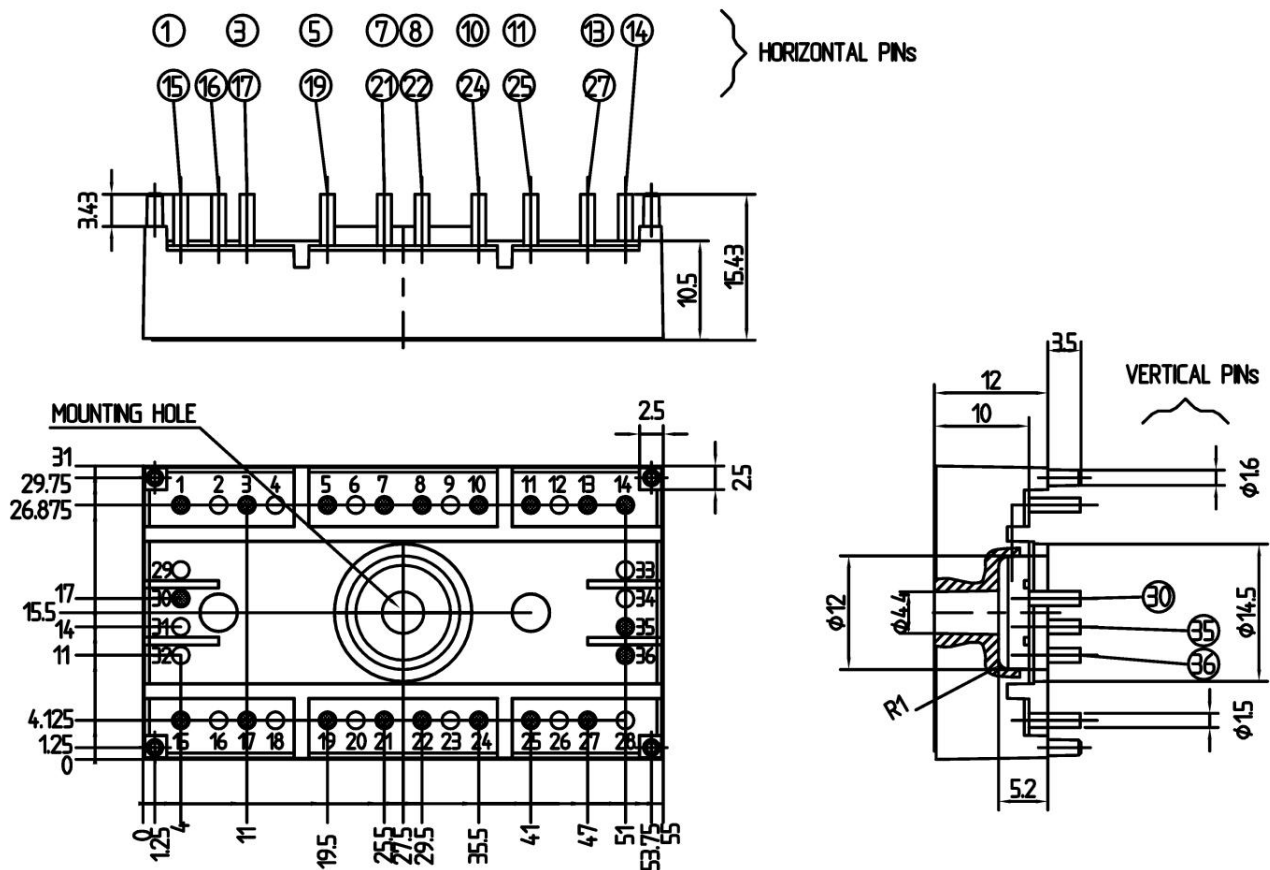


Fig. 20 Typical Capacitances vs. V_{CE}

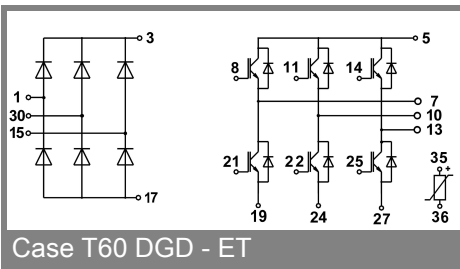


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Dimensions in mm



Case T60 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)



Case T60 DGD - ET

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

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