

SKiM 270GD176D

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SKiM[®] 5

IGBT Modules

SKiM 270GD176D

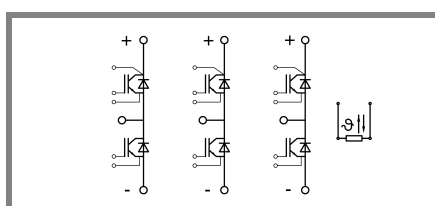
Preliminary Data

Features

- Homogenous Si
- Trench = Trenchgate Technology
- Low inductance case
- Isolated by Al₂O₃ DCB (Direct Copper Bonded) ceramic plate
- Pressure contact technology for thermal contacts
- V_{CEsat} with positive temperature coefficient
- High short circuit capability, self limiting to 6x I_C
- Integrated temperature sensor
- Spring contact system to attach driver PCB to the auxiliary terminals

Typical Applications

- AC inverter drives mains 575 - 750 V AC
- public transport (auxiliary syst.)

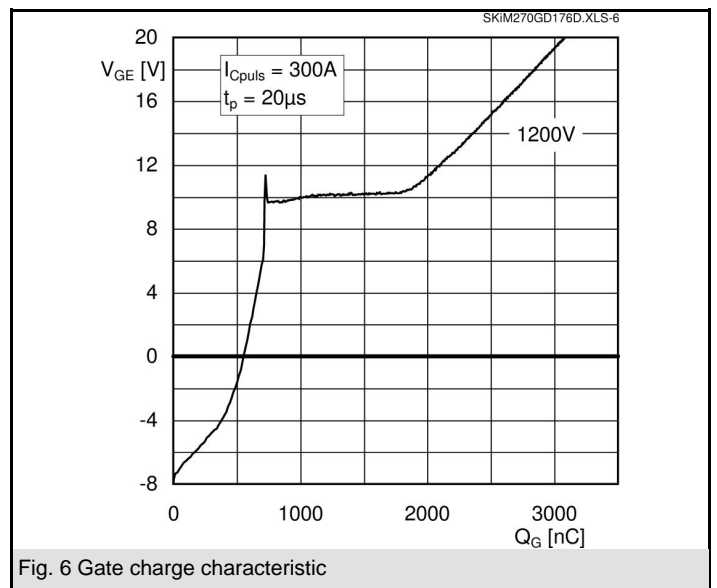
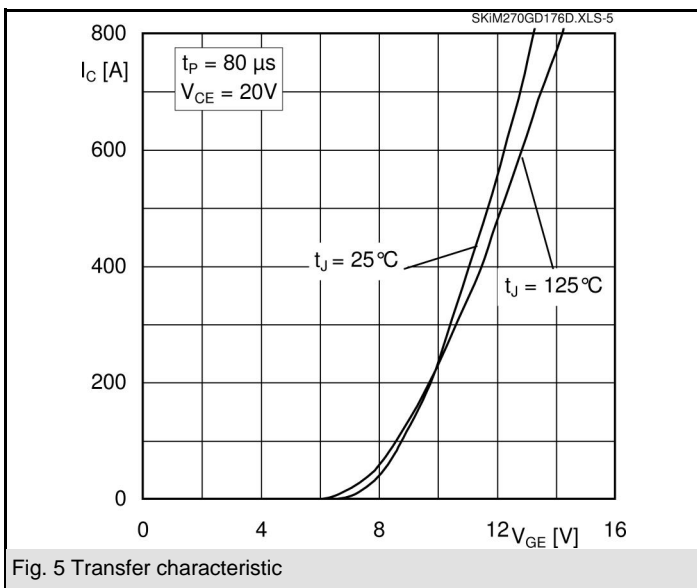
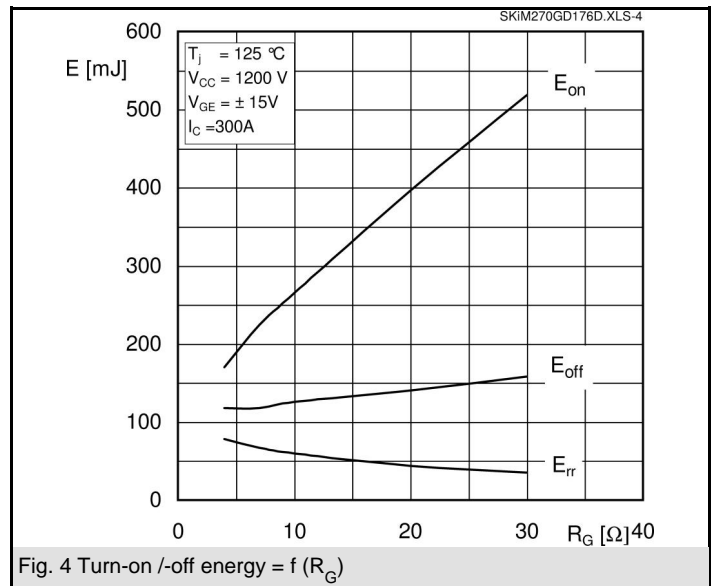
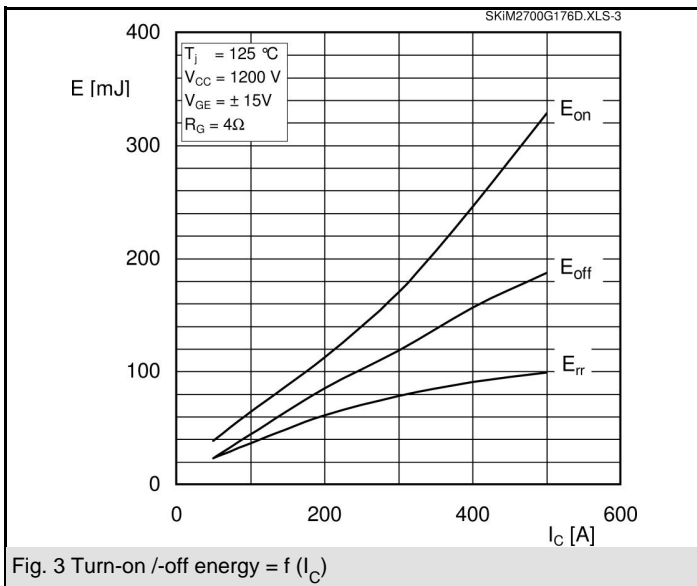
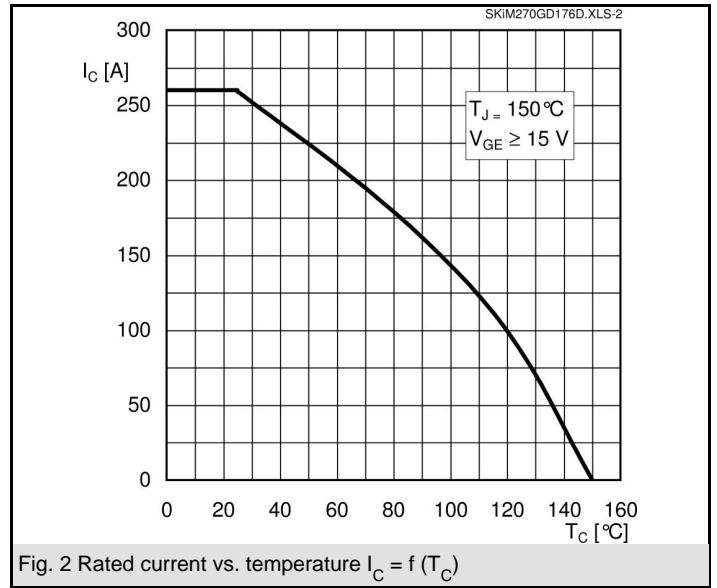
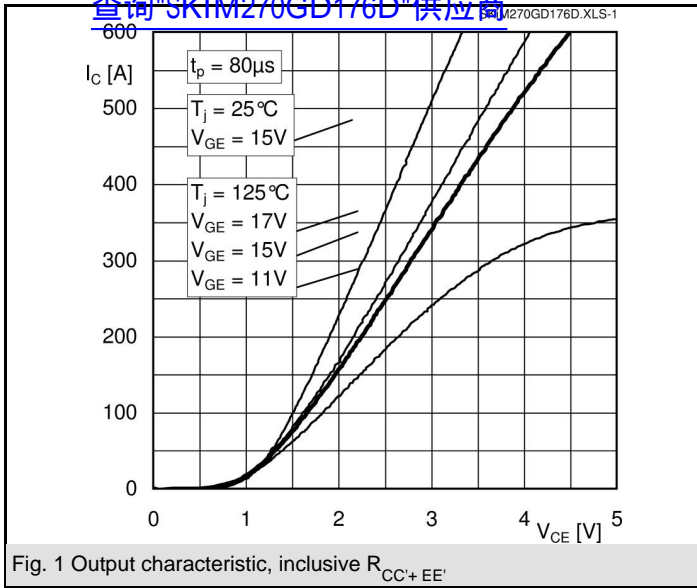


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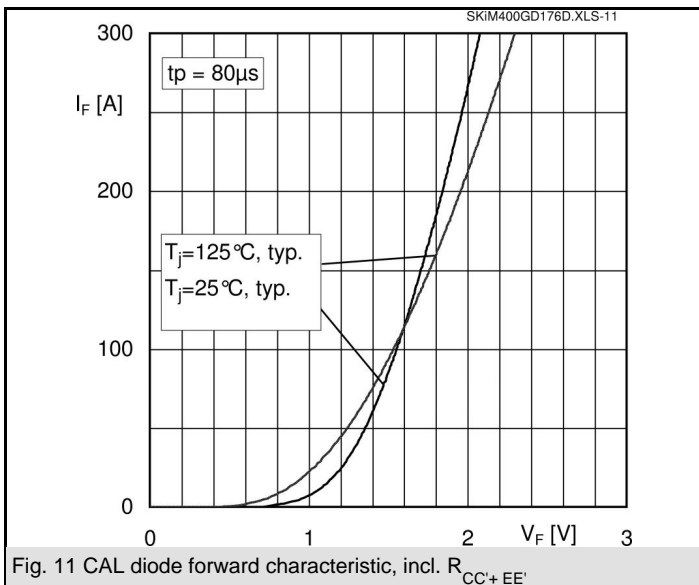
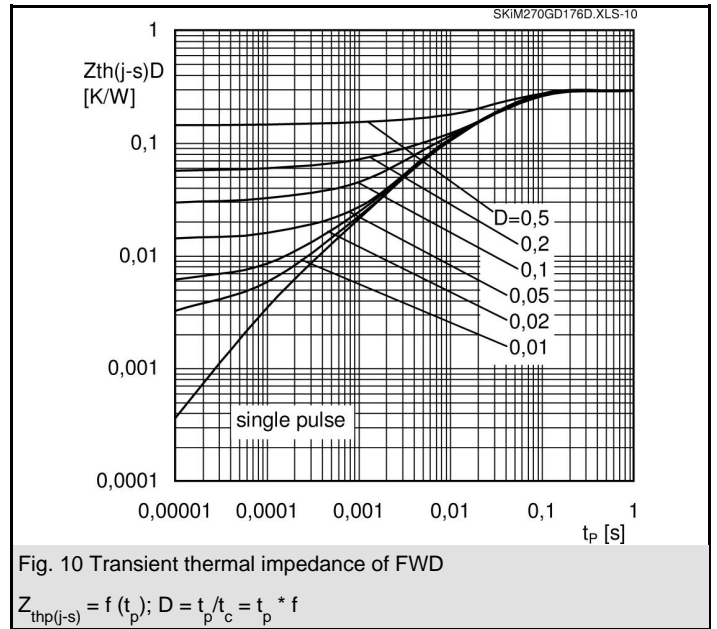
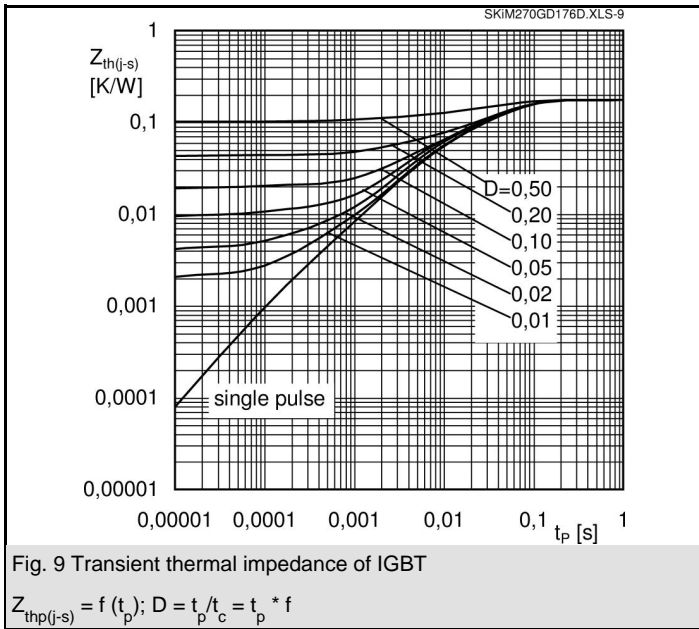
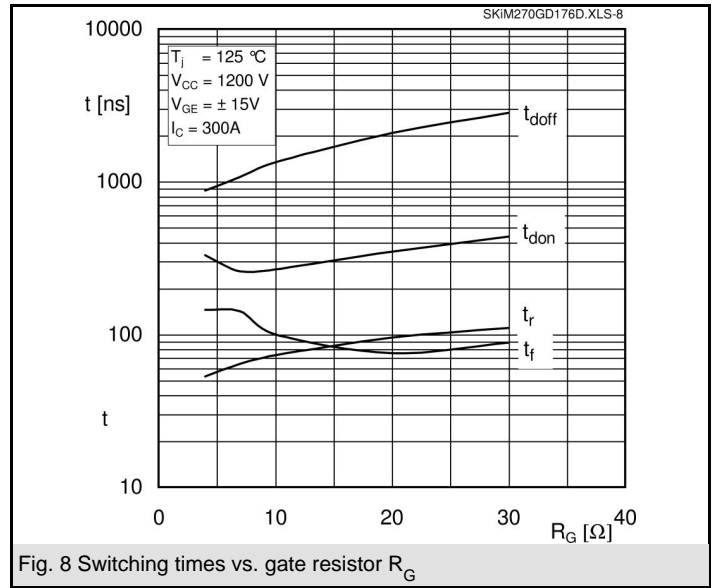
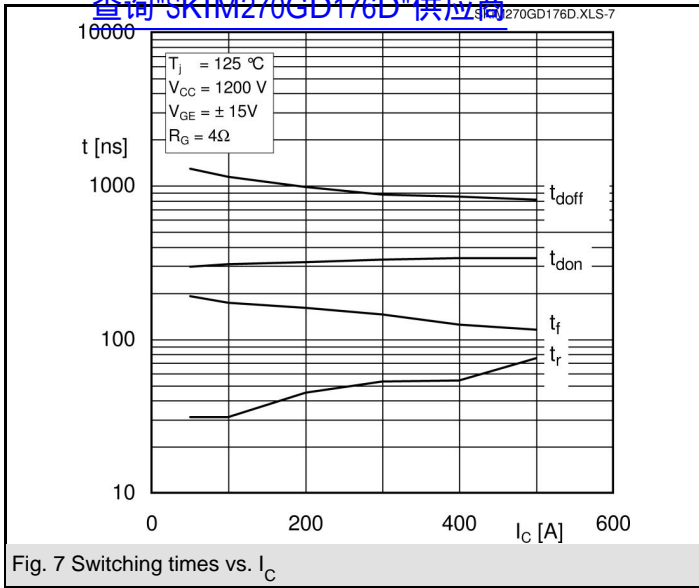
Absolute Maximum Ratings		T _c = 25 °C, unless otherwise specified	
Symbol	Conditions	Values	Units
IGBT			
V _{CES}		1700	V
I _C	T _s = 25 (70) °C	260 (180)	A
I _{CRM}	t _p = 1 ms	600	A
V _{GES}		± 20	V
T _j (T _{stg})		- 40 ... 150 (125)	°C
T _{cop}	max. case operating temperature	125	°C
V _{isol}	AC, 1 min.	3300	V
Inverse diode			
I _F	T _s = 25 (70) °C	215 (155)	A
I _{FRM}	t _p = 1 ms	540	A
I _{FSM}	t _p = 10 ms; sin.; T _j = 150 °C	2200	A

Characteristics		T _c = 25 °C, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
V _{GE(th)}	V _{GE} = V _{CE} ; I _C = 12 mA	5,15	5,8	6,45	V
I _{CES}	V _{GE} = 0; V _{CE} = V _{CES} ; T _j = 25 °C		0,1	0,3	mA
V _{CEO}	T _j = 25 (125) °C		1 (0,9)	1,2 (1,1)	V
r _{CE}	T _j = 25 (125) °C		3,3 (5)	4,2 (6)	mΩ
V _{CEsat}	I _{Cnom} = 300 A; V _{GE} = 15 V; T _j = 25 (125) °C on chip level		2 (2,4)	2,45 (2,9)	V
C _{ies}	V _{GE} = 0; V _{CE} = 25 V; f = 1 MHz		21,3		nF
C _{oes}	V _{GE} = 0; V _{CE} = 25 V; f = 1 MHz		1,1		nF
C _{res}	V _{GE} = 0; V _{CE} = 25 V; f = 1 MHz		0,9		nF
L _{CE}				20	nH
R _{CC'+EE'}	resistance, terminal-chip T _c = 25 (125) °C		0,9 (1,1)		mΩ
t _{d(on)}	V _{CC} = 1200 V				ns
t _r	I _{Cnom} = 300 A				ns
t _{d(off)}	R _{Gon} = R _{Goff} = 4 Ω				ns
t _f	T _j = 125 °C				ns
E _{on} (E _{off})	V _{GE} ± 15 V		170 (120)		mJ
E _{on} (E _{off})	with SKHI 65; T _j = 125 °C V _{CC} = 1200 V; I _C = 300 A				mJ
Inverse diode					
V _F = V _{EC}	I _{Fnom} = 225 A; V _{GE} = 0 V; T _j = 25 (125) °C		1,7 (1,8)	1,9 (2)	V
V _{TO}	T _j = 25 (125) °C		1,2 (0,9)	1,4 (1,1)	V
r _T	T _j = 25 (125) °C		2,2 (4)	2,2 (4)	mΩ
I _{RRM}	I _F = 225 A; T _j = 125 °C				A
Q _{rr}	V _{GE} = 1200 V di/dt = A/μs				μC
E _{rr}	R _{Gon} = R _{Goff} = 4 Ω				mJ
Thermal characteristics					
R _{th(j-s)}	per IGBT			0,175	K/W
R _{th(j-s)}	per FWD			0,29	K/W
Temperature Sensor					
R _{TS}	T = 25 (100) °C		1 (1,67)		kΩ
tolerance	T = 25 (100) °C		3 (2)		%
Mechanical data					
M ₁	to heatsink (M5)	2		3	Nm
M ₂	for terminals (M6)	4		5	Nm
w				460	g

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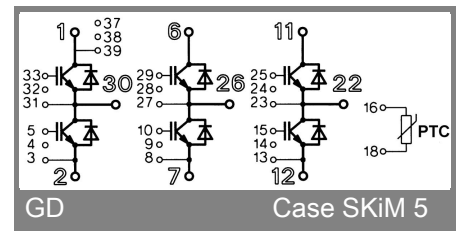
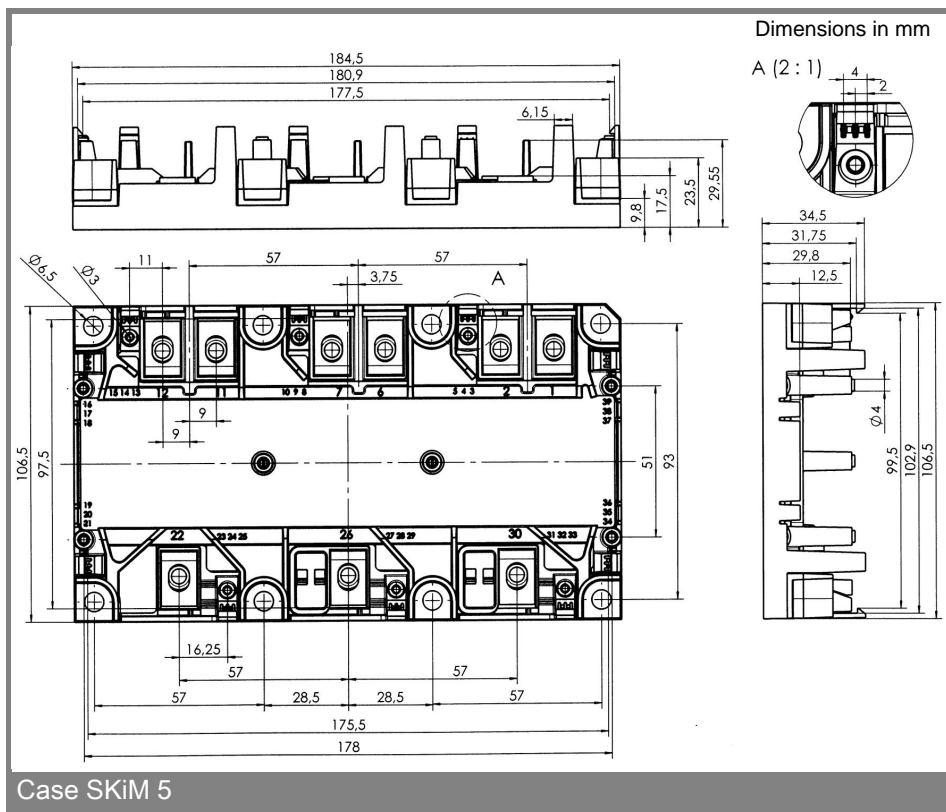


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This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

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