

SKM 200GB173D



SEMITRANS™ 3

IGBT Modules

SKM 200GB173D

SKM 200GB173D1

SKM 200GAL173D

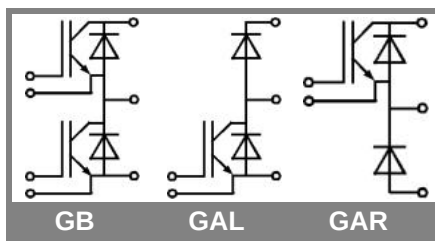
SKM 200GAR173D

Features

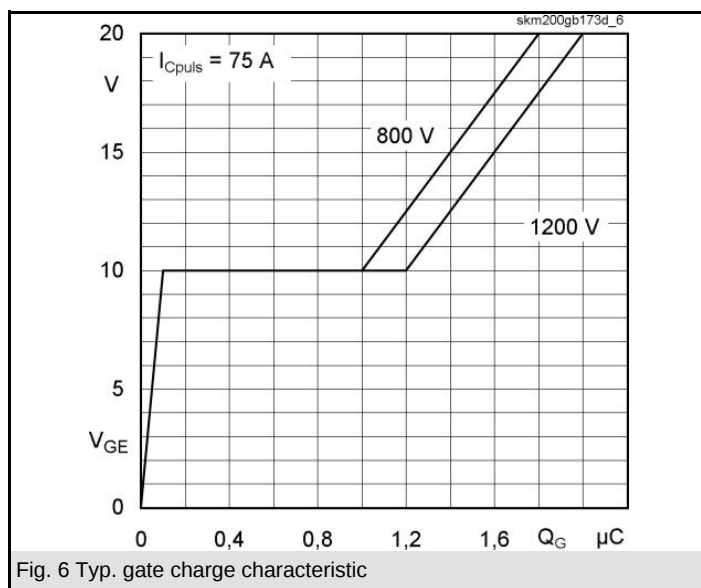
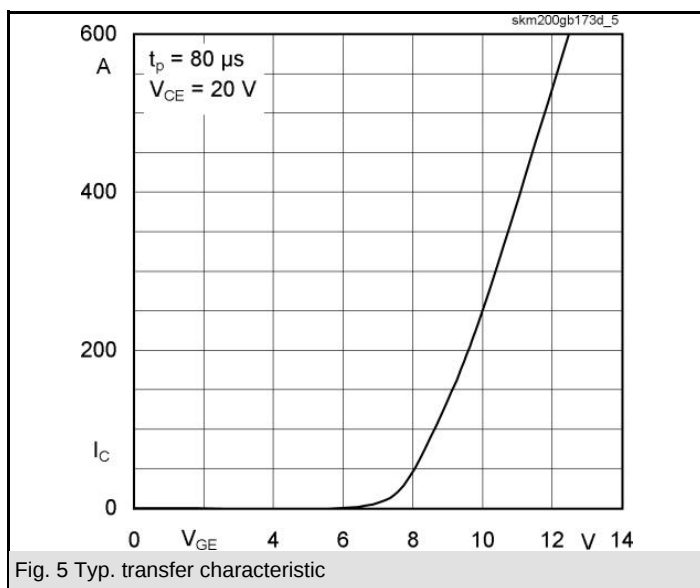
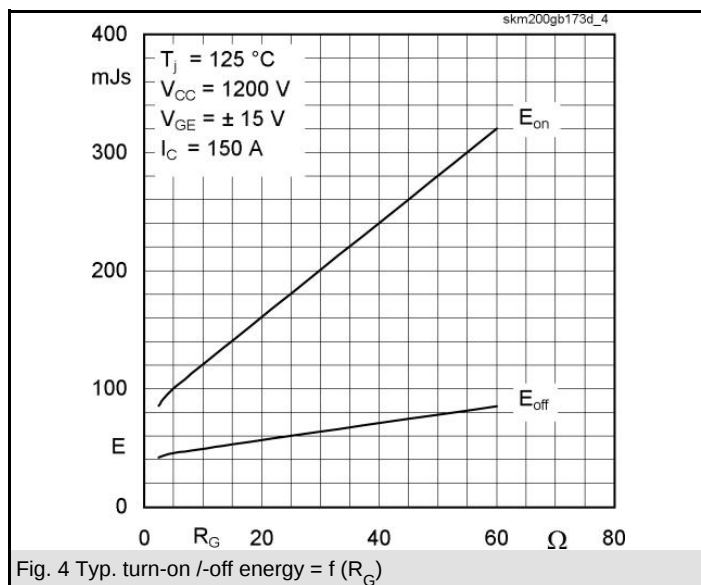
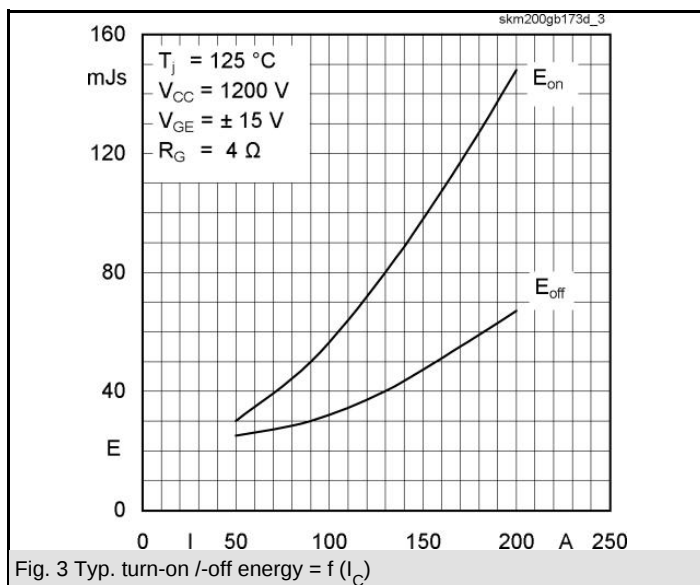
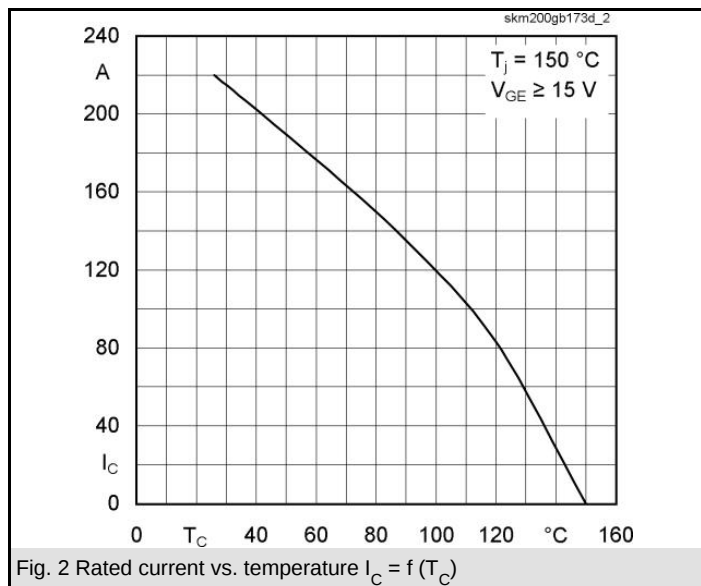
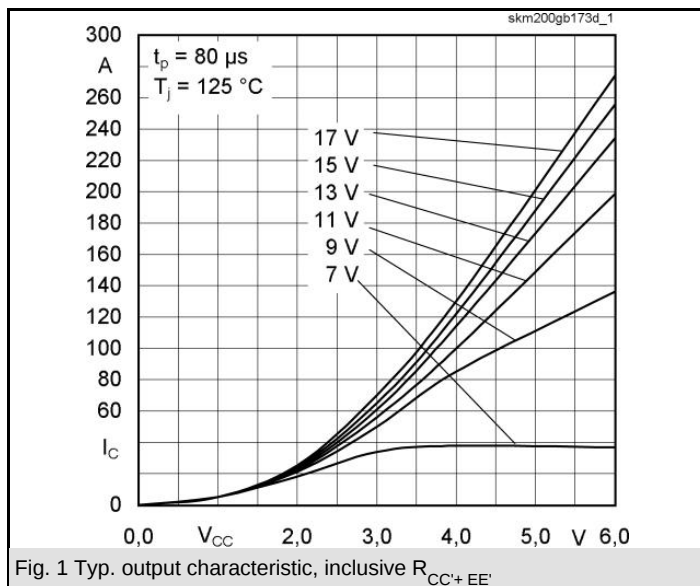
- MOS input (voltage controlled)
- N channel , Homogeneous Si
- Low inductance case
- Very low tail current with low temperature dependence
- High short circuit capability, self limiting to $6 \times I_{Cnom}$
- Latch-up free
- Fast & soft inverse CAL diodes
- Isolated copper baseplate using DCB Direct Copper Bonding Technology
- Large clearance (13 mm) and creepage distance (20 mm)

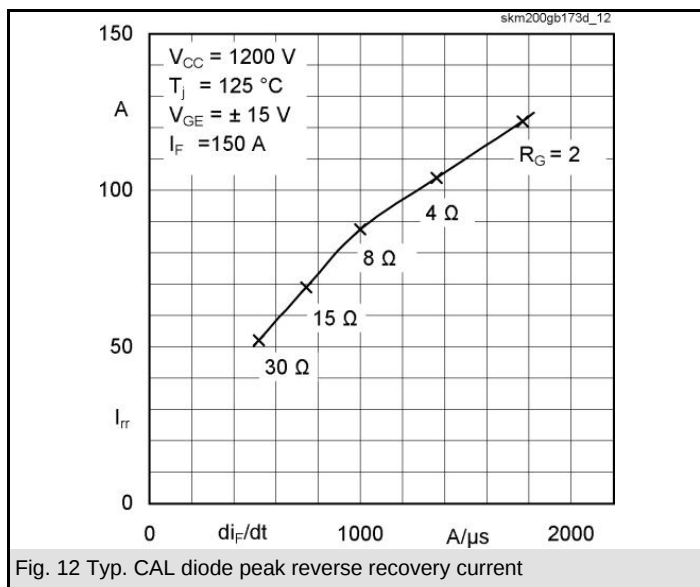
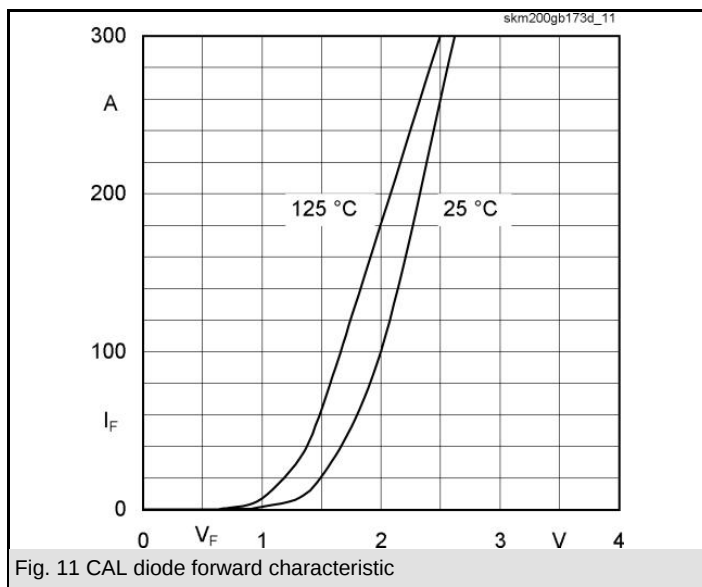
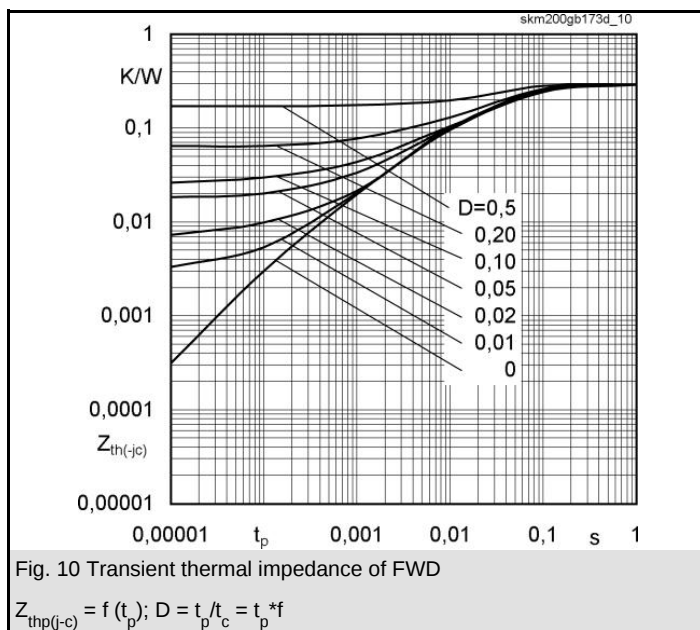
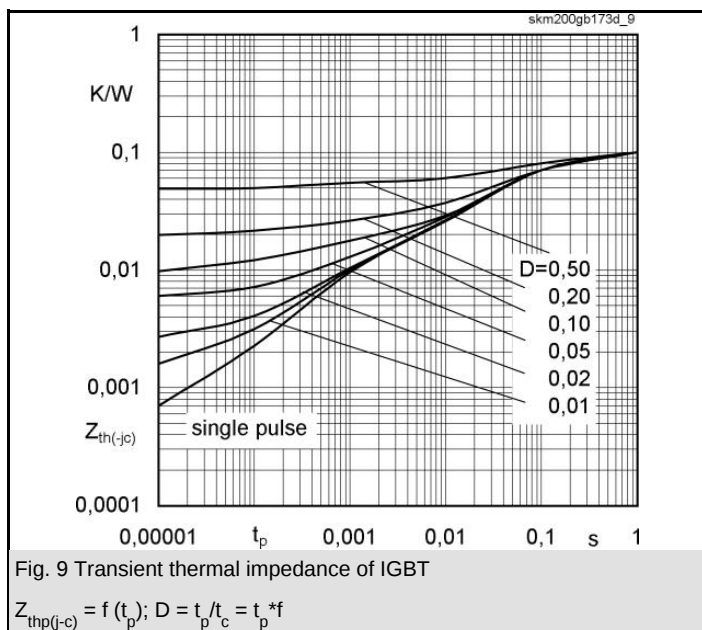
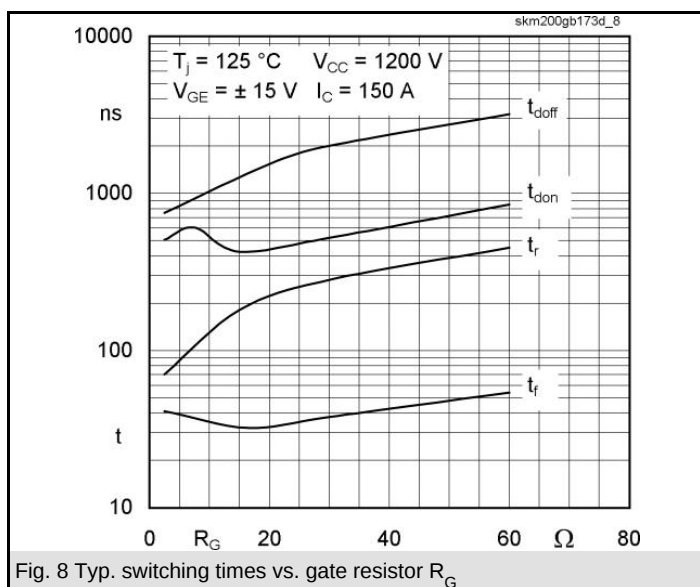
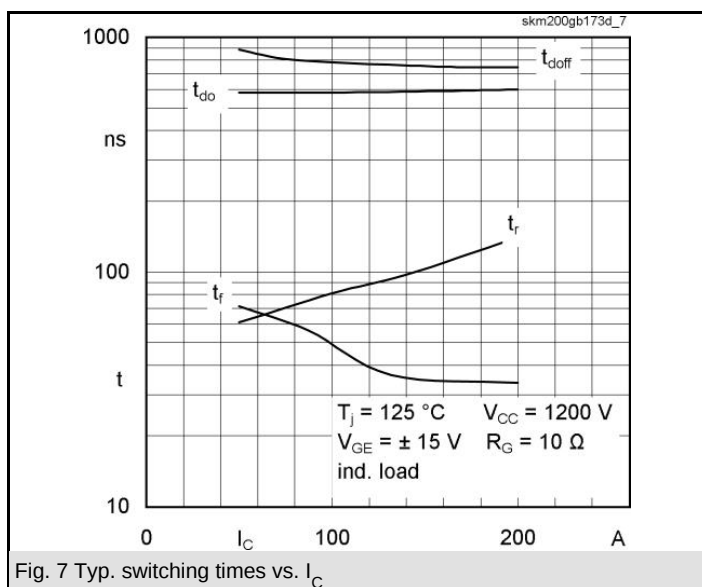
Typical Applications

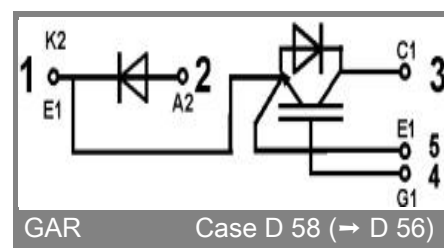
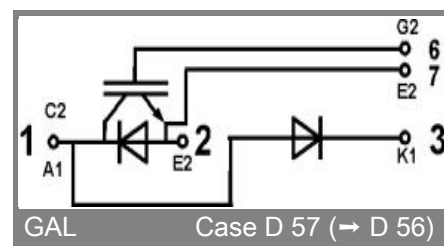
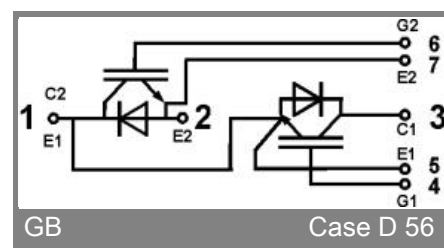
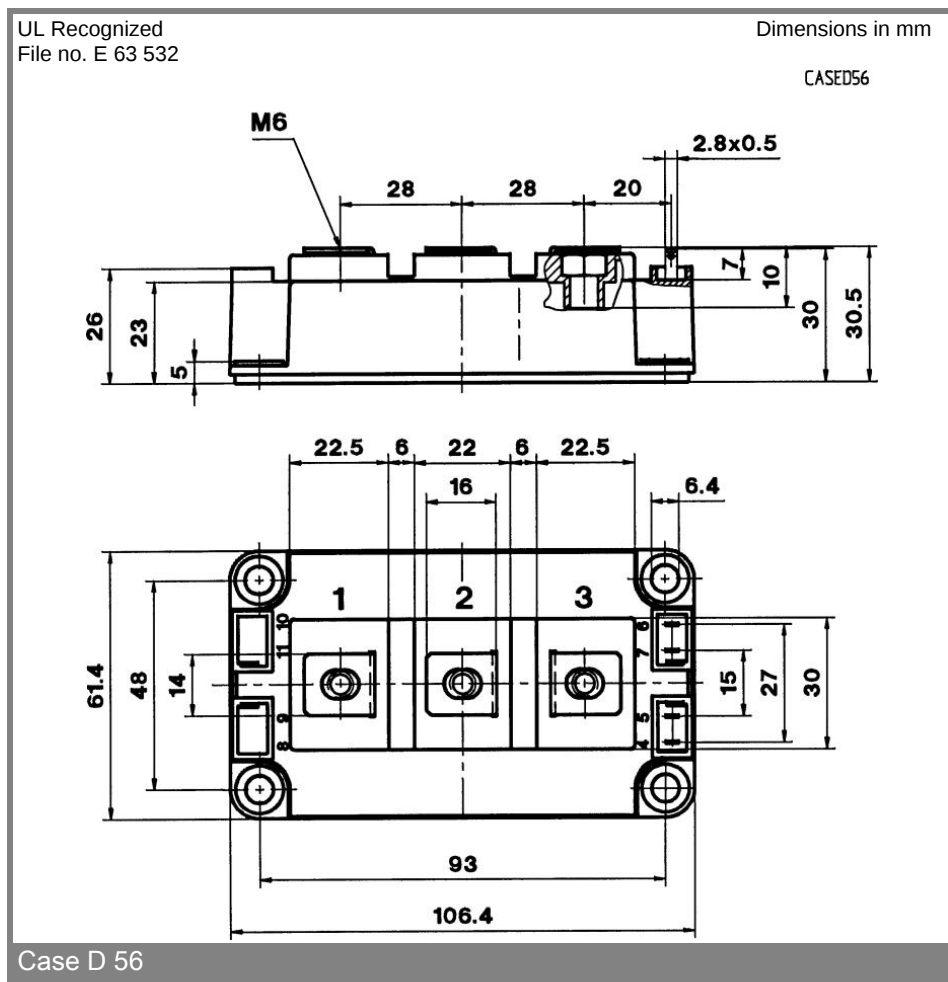
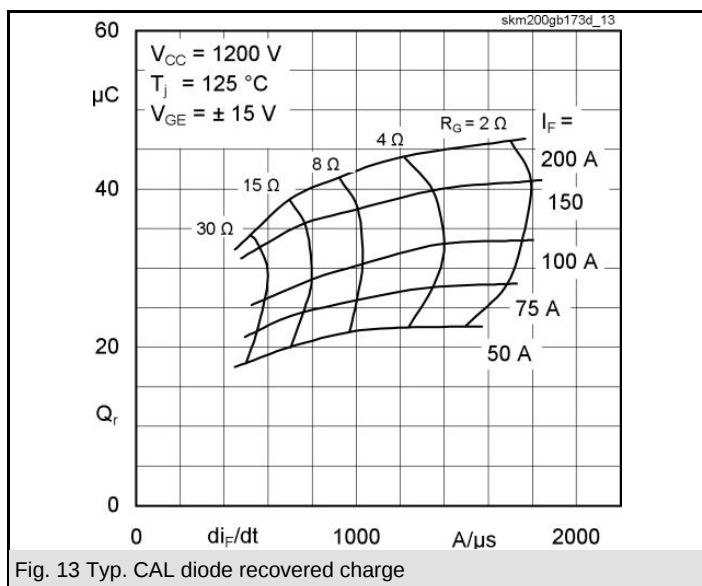
- AC inverter drives on mains 575 - 750 V_{AC}
- DC bus voltage 750 - 1200 V_{DC}
- Public transport (auxiliary syst.)
- Switching (not for linear use)



Absolute Maximum Ratings		T _c = 25 °C, unless otherwise specified			
Symbol	Conditions	Values		Units	
IGBT					
V _{CES}		1700		V	
I _C	T _c = 25 (80) °C	220 (150)		A	
I _{CRM}	t _p = 1 ms	300		A	
V _{GES}		± 20		V	
T _{vj} , (T _{stg})	T _{OPERATION} ≤ T _{stg}	- 40 ... + 150 (125)		°C	
V _{isol}	AC, 1 min.	4000		V	
Inverse diode					
I _F	T _c = 25 (80) °C	150 (100)		A	
I _{FRM}	t _p = 1 ms	300		A	
I _{FSM}	t _p = 10 ms; sin.; T _j = 150 °C	1450		A	
Freewheeling diode					
I _F	T _c = 25 (80) °C	230 (150)		A	
I _{FRM}	t _p = 1 ms	400		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 = 10 mA	4,8	5,5	6,2	V
I _{CES}	V _{GE} = 0, V _{CE} = V _{CES} , T _j = 25 (125) °C		0,1	0,3	mA
V _{CE(TO)}	T _j = 25 (125) °C		1,65 (1,9)	1,9 (2,15)	V
r _{CE}	V _{GE} = 15 V, T _j = 25 (125) °C		11,7 (17,3)	13,3 (19)	mΩ
V _{CE(sat)}	I _{Cnom} = 150 A, V _{GE} = 15 V, chip level		3,4 (4,5)	3,9 (5)	V
C _{ies}	under following conditions		20		nF
C _{oes}	V _{GE} = 0, V _{CE} = 25 V, f = 1 MHz		2		nF
C _{res}			0,55		nF
L _{CE}				20	nH
R _{CC'+EE'}	res., terminal-chip T _c = 25 (125) °C		0,35 (0,5)		mΩ
t _{d(on)}	V _{CC} = 1200 V, I _{Cnom} = 150 A		580		ns
t _r	R _{Gon} = R _{Goff} = 4 Ω, T _j = 125 °C		100		ns
t _{d(off)}	V _{GE} = ± 15 V		750		ns
t _f			40		ns
E _{on} (E _{off})			95 (45)		mJ
Inverse diode					
V _F = V _{EC}	I _{Fnom} = 150 A; V _{GE} = 0 V; T _j = 25 (125) °C		2,2 (1,9)	2,7	V
V _(TO)	T _j = 125 () °C		1,3	1,5	V
r _T	T _j = 125 () °C		4,5	6,2	mΩ
I _{RRM}	I _{Fnom} = 150 A; T _j = 25 (125) °C		60 (85)		A
Q _{rr}	di/dt = 1000 A/μs		15 (38)		μC
E _{rr}	V _{GE} = 0 V				mJ
FWD					
V _F = V _{EC}	I _F = 150 A; V _{GE} = 0 V, T _j = 25 (125) °C		2 (1,8)	2,4	V
V _(TO)	T _j = 125 () °C		1,3	1,5	V
r _T	T _j = 125 () °C		3,5	4,5	mΩ
I _{RRM}	I _F = 150 A; T _j = 25 (125) °C		75 (110)		A
Q _{rr}	di/dt = A/μs		20 (50)		μC
E _{rr}	V _{GE} = V				mJ
Thermal characteristics					
R _{th(j-c)}	per IGBT			0,1	K/W
R _{th(j-c)D}	per Inverse Diode			0,32	K/W
R _{th(j-c)FD}	per FWD			0,21	K/W
R _{th(c-s)}	per module			0,038	K/W
Mechanical data					
M _s	to heatsink M6	3		5	Nm
M _t	to terminals M6				Nm
w				325	g







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

This technical information specifies semiconductor devices but promises no characteristics. No warranty or guarantee expressed or implied is made regarding delivery, performance or suitability.