

SKM 100GB123D



SEMITRANS™ 2

IGBT Modules

SKM 100GB123D

SKM 100GAL123D

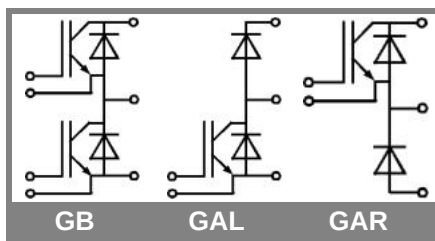
SKM 100GAR123D

Features

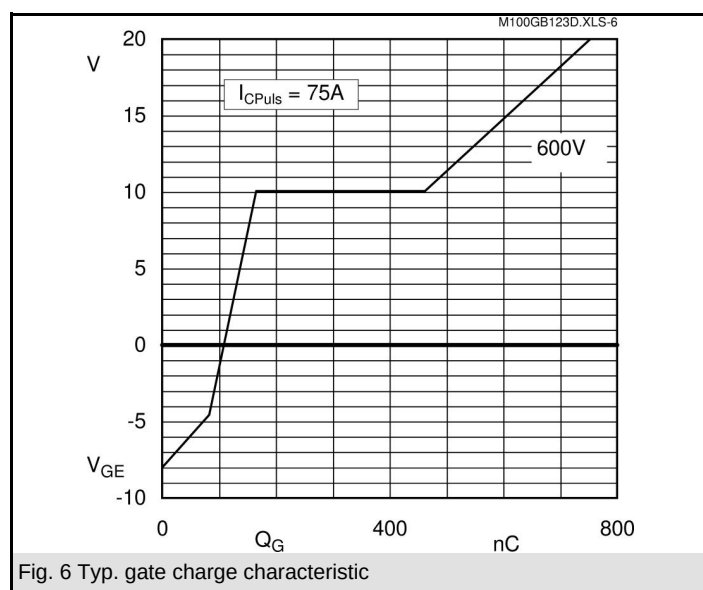
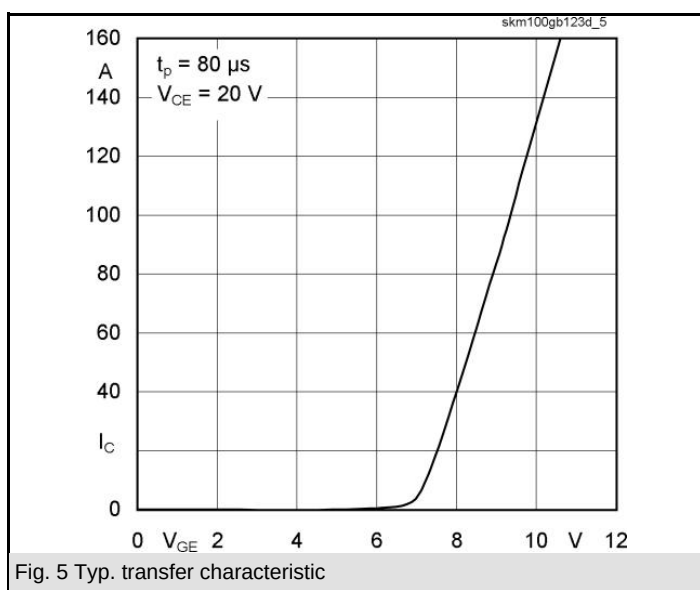
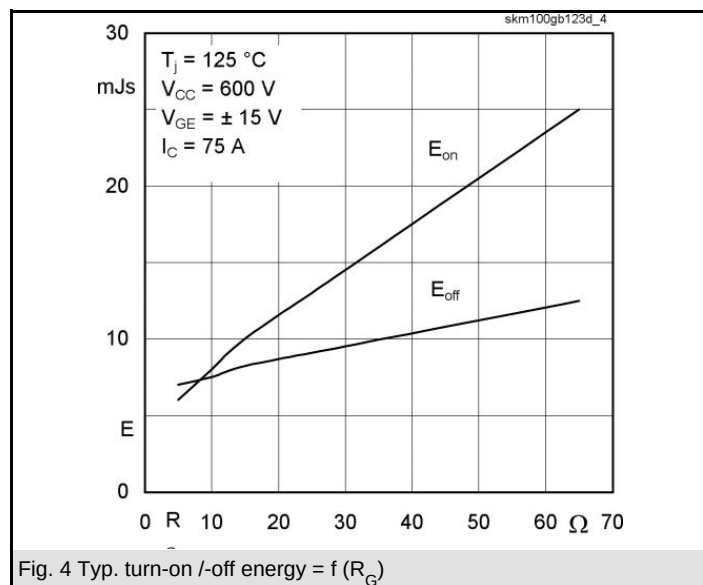
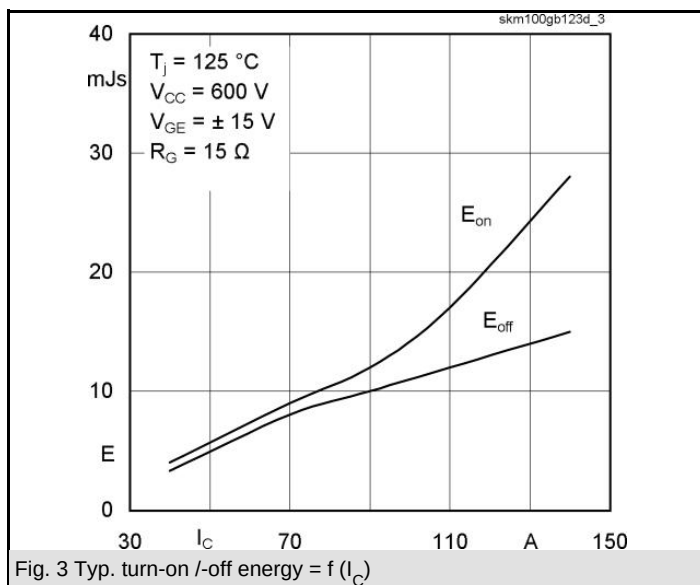
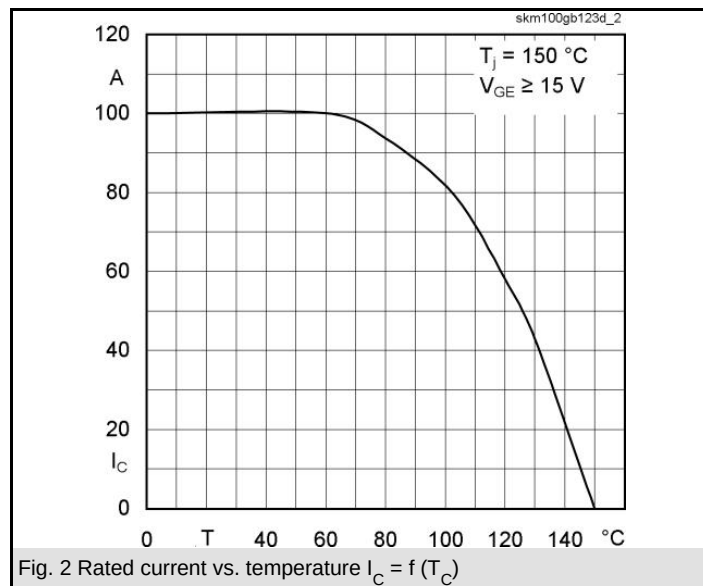
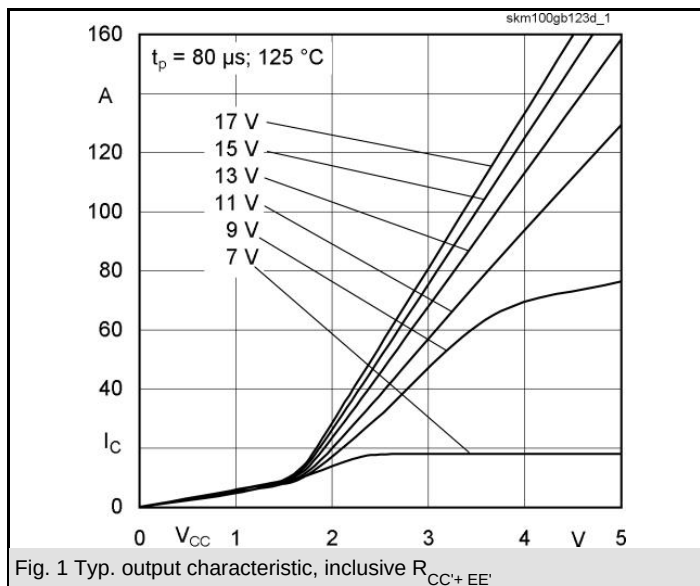
- MOS input (voltage controlled)
- N channel, Homogeneous Si
- Low inductance case
- Very low tail current with low temperature dependence
- High short circuit capability, self limiting to $6 \times I_{Cnom}$
- Latch-up free
- Fast & soft inverse CAL diodes
- Isolated copper baseplate using DCB Direct Copper Bonding Technology
- Large clearance (10 mm) and creepage distances (20 mm)

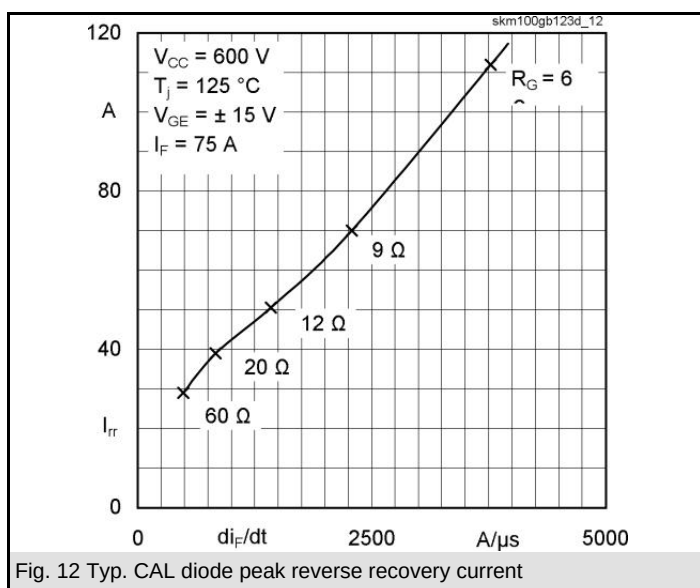
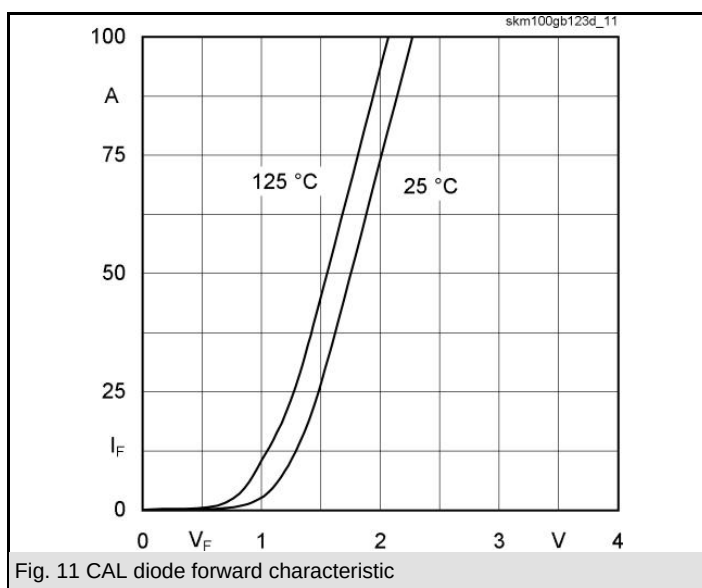
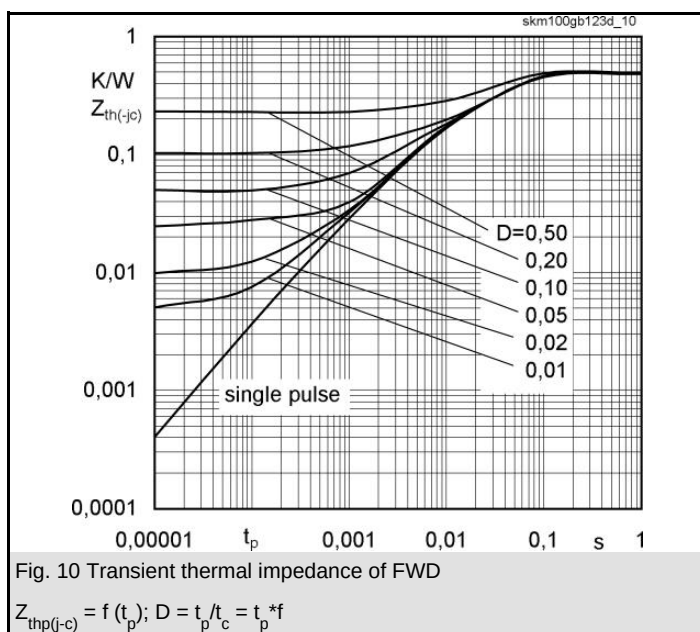
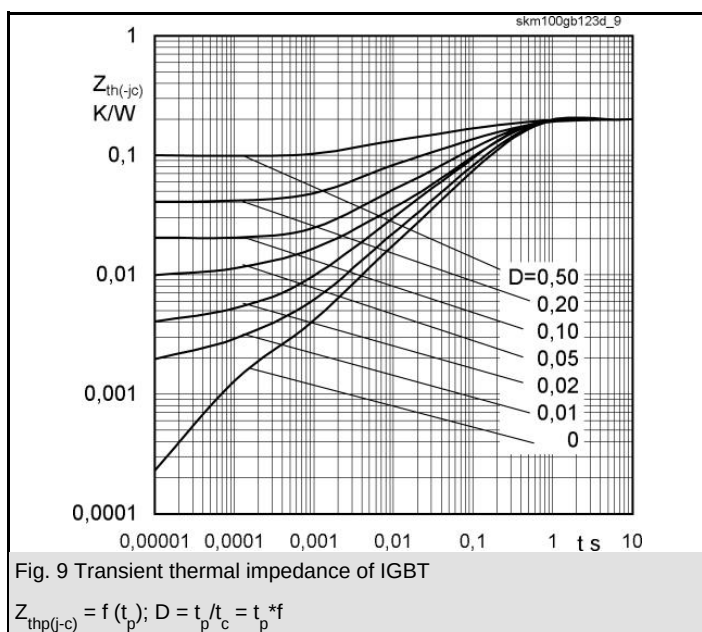
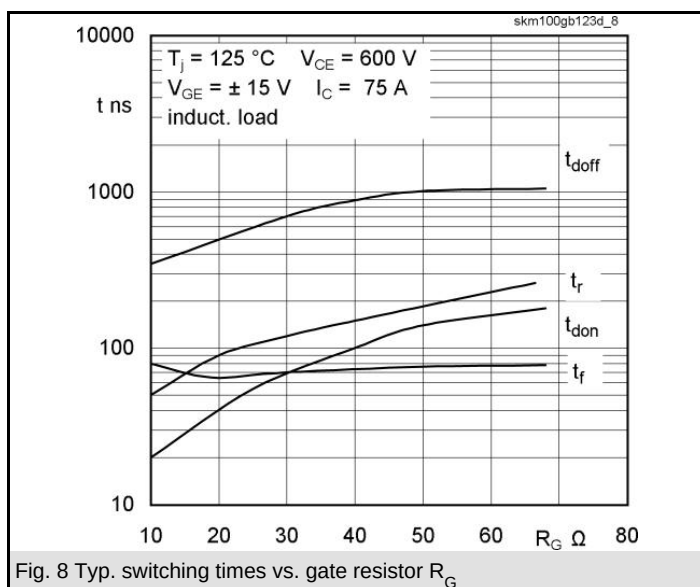
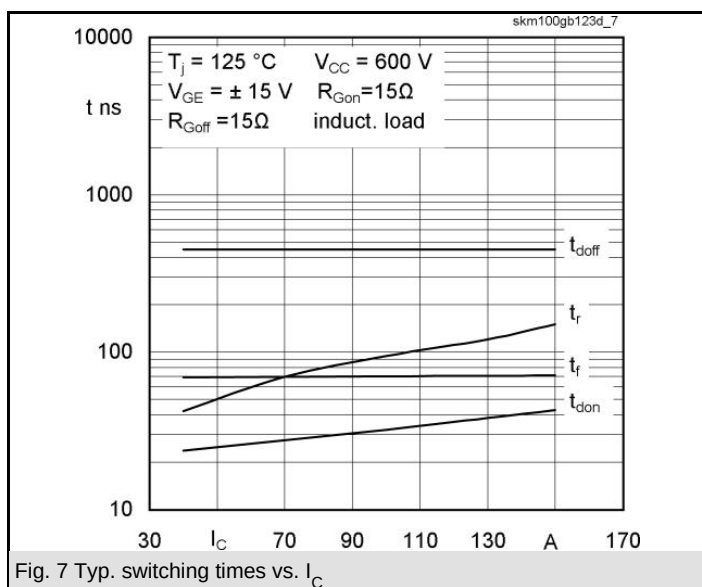
Typical Applications

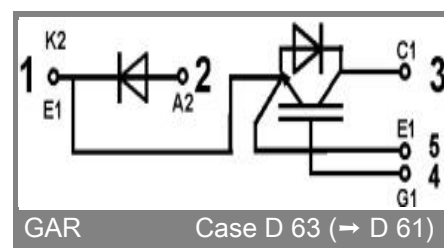
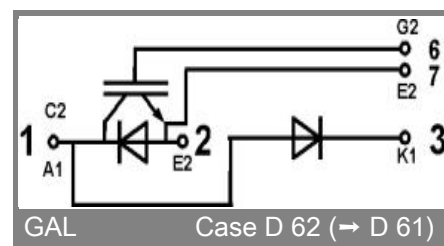
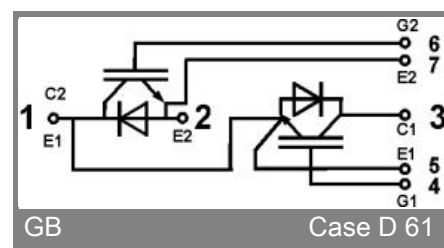
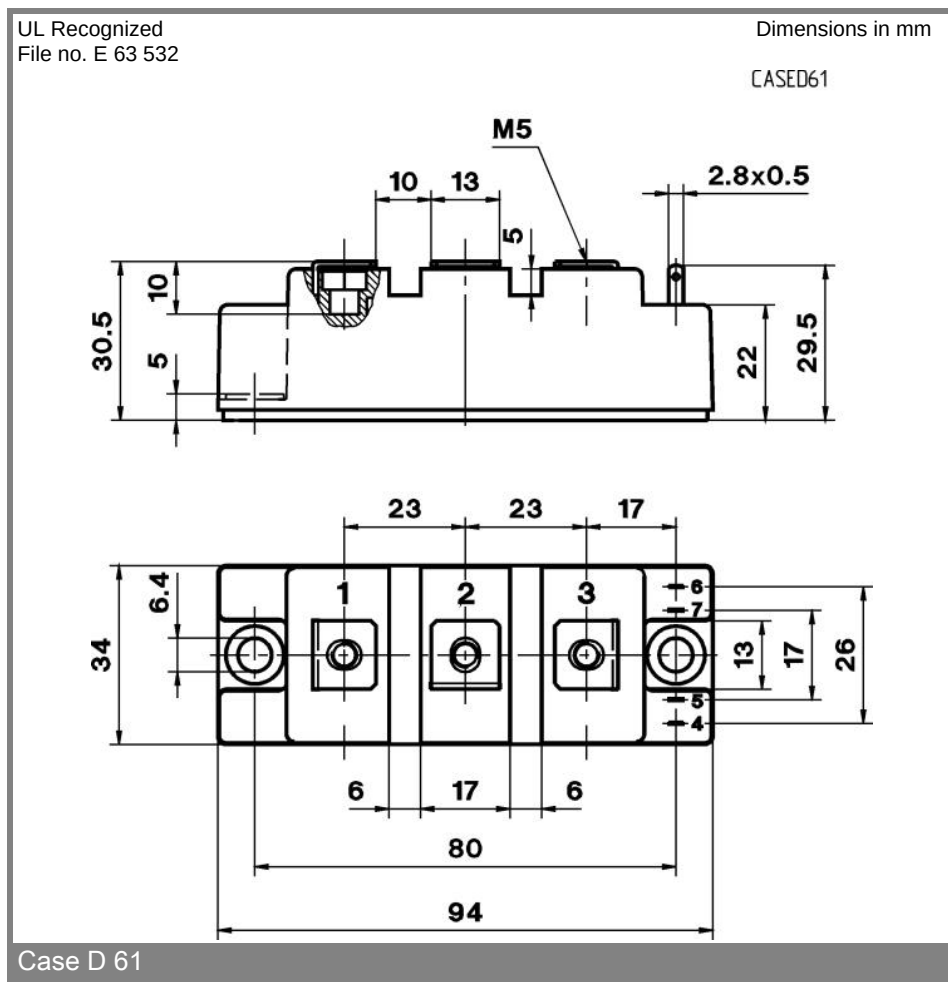
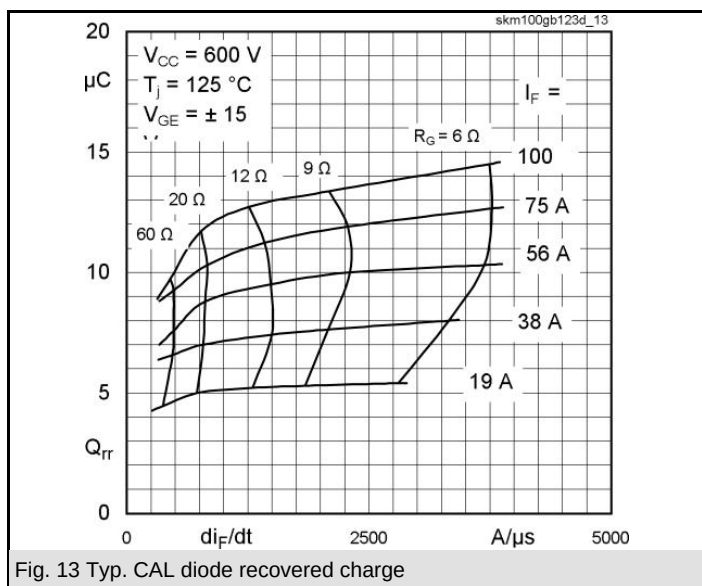
- Switching (not for linear use)



Absolute Maximum Ratings		T _c = 25 °C, unless otherwise specified			
Symbol	Conditions	Values			Units
IGBT					
V _{CES}	T _c = 25 (80) °C t _p = 1 ms	1200			V
I _C		100 (90)			A
I _{CRM}		150			A
V _{GES}		± 20			V
T _{vj} , (T _{stg})	T _{OPERATION} ≤ T _{stg}	- 40 ... + 150 (125)			°C
V _{isol}	AC, 1 min.	2500			V
Inverse diode					
I _F	T _c = 25 (80) °C	95 (65)			A
I _{FRM}	t _p = 1 ms	150			A
I _{FSM}	t _p = 10 ms; sin.; T _j = 150 °C	720			A
Freewheeling diode					
I _F	T _c = 25 (80) °C	130 (90)			A
I _{FRM}	t _p = 1 ms	200			A
I _{FSM}	t _p = 10 ms; sin.; T _j = 150 °C	1100			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 = 2 mA	4,5	5,5	6,5	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		1,4 (1,6)	1,6 (1,8)	V
r _{CE}	V _{GE} = 15 V, T _j = 25 (125) °C		14,6 (20)	18,6 (25,3)	mΩ
V _{CE(sat)}	I _{Cnom} = 75 A, V _{GE} = 15 V, chip level		2,5 (3,1)	3 (3,7)	V
C _{ies}	under following conditions		5	6,6	nF
C _{oes}	V _{GE} = 0, V _{CE} = 25 V, f = 1 MHz		0,72	0,9	nF
C _{res}			0,38	0,5	nF
L _{CE}				30	nH
R _{CC'+EE'}	res., terminal-chip T _c = 25 (125) °C		0,75 (1)		mΩ
t _{d(on)}	V _{CC} = 600 V, I _{Cnom} = 75 A R _{Gon} = R _{Goff} = 15 Ω, T _j = 125 °C V _{GE} = ± 15 V		30	60	ns
t _r			70	140	ns
t _{d(off)}			450	600	ns
t _f			70	90	ns
E _{on} (E _{off})				10 (8)	mJ
Inverse diode					
V _F = V _{EC}	I _{Fnom} = 75 A; V _{GE} = 0 V; T _j = 25 (125) °C		2 (1,8)	2,5	V
V _(TO)	T _j = 125 () °C			1,2	V
r _T	T _j = 125 () °C		12	15	mΩ
I _{RRM}	I _{Fnom} = 75 A; T _j = 125 () °C		27 (40)		A
Q _{rr}	di/dt = 800 A/μs		3 (10)		μC
E _{rr}	V _{GE} = 0 V		3		mJ
FWD					
V _F = V _{EC}	I _F = 100 A; V _{GE} = 0 V, T _j = 25 (125) °C		2 (1,8)	2,2	V
V _(TO)	T _j = 125 () °C			1,2	V
r _T	T _j = 125 () °C		8	11	mΩ
I _{RRM}	I _F = 100 A; T _j = 25 (125) °C		35 (50)		A
Q _{rr}	di/dt = 1000 A/μs		5 (14)		μC
E _{rr}	V _{GE} = 0 V				mJ
Thermal characteristics					
R _{th(j-c)}	per IGBT			0,18	K/W
R _{th(j-c)D}	per Inverse Diode			0,5	K/W
R _{th(j-c)FD}	per FWD			0,36	K/W
R _{th(c-s)}	per module			0,05	K/W
Mechanical data					
M _s	to heatsink M6	3		5	Nm
M _t	to terminals M5	2,5		5	Nm
w				160	g







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

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