



SKiM[®] 4

IGBT Modules

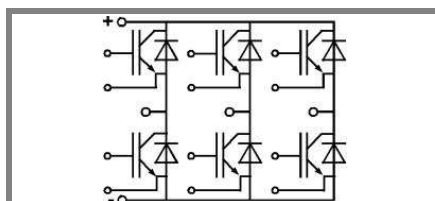
SKiM 300GD126DL

Features

- Trench gate IGBT with field stop layer
- Low inductance case
- Fast & soft inverse CAL diode
- Isolated by Al₂O₃ DCB (Direct Copper Bonded) ceramic plate
- Pressure contact technology for thermal contacts
- Spring contact system to attach driver PCB to the control terminals
- Integrated temperature sensor

Typical Applications*

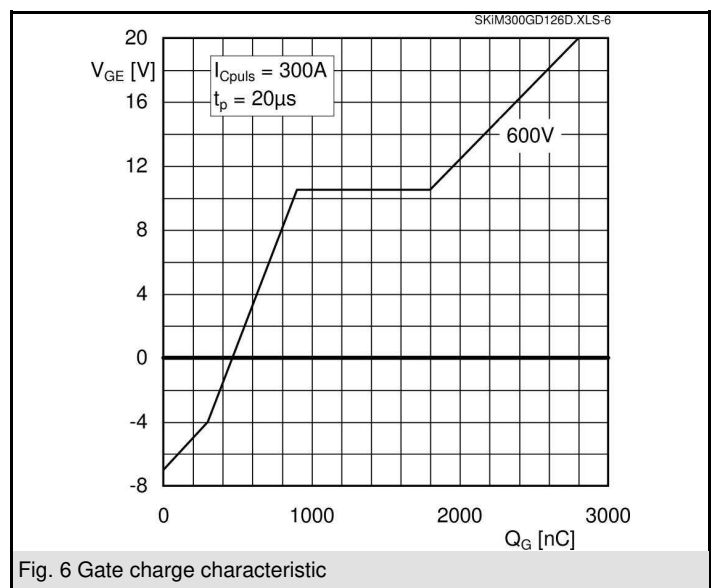
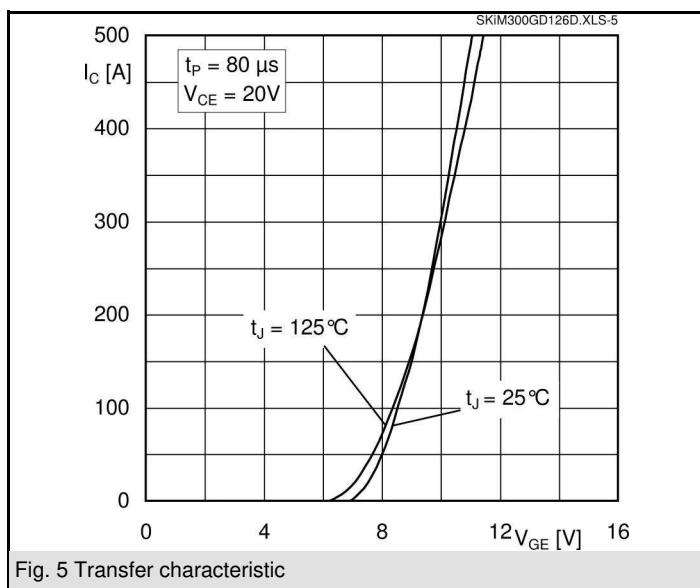
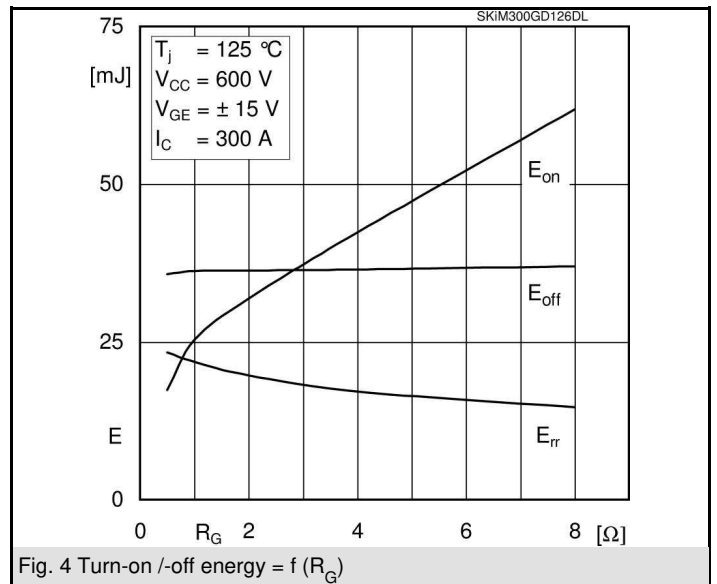
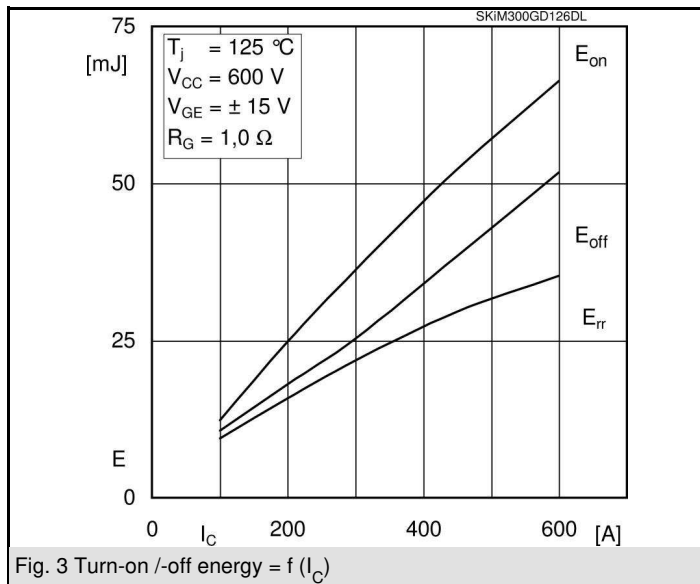
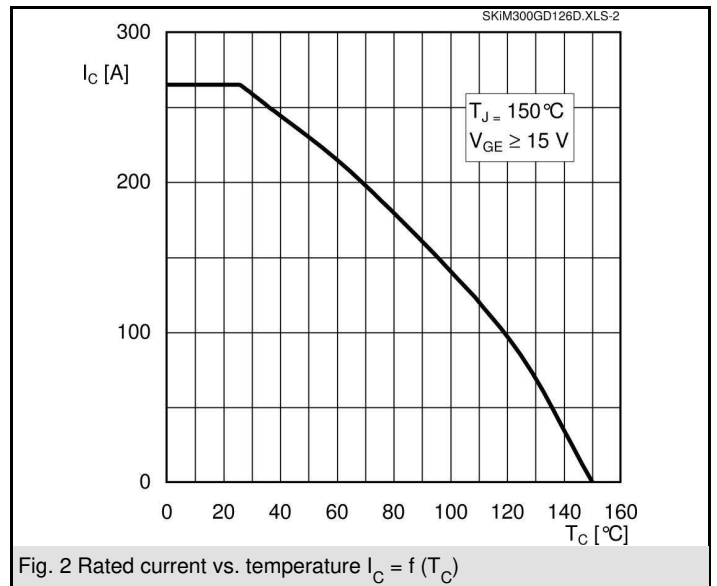
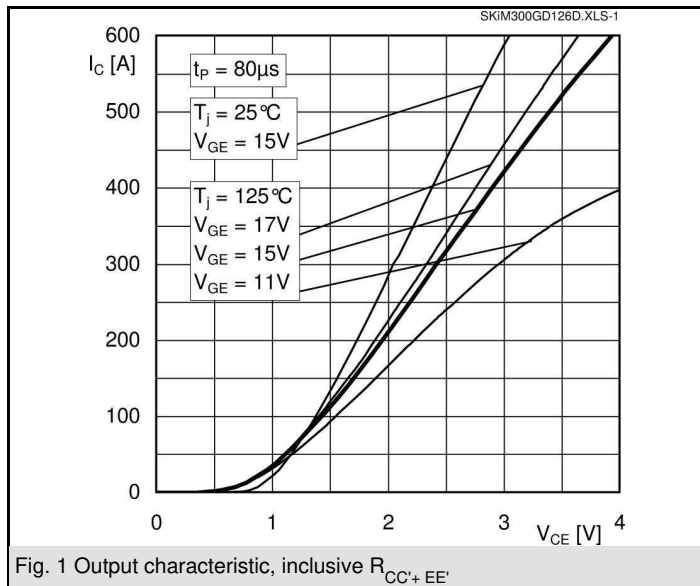
- Switched mode power supplies
- Three phase inverters for AC motor speed control
- Switching (not for linear use)

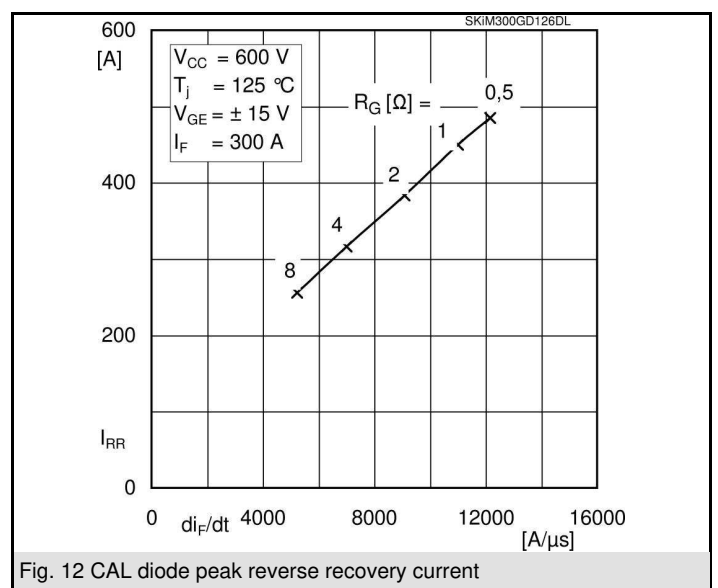
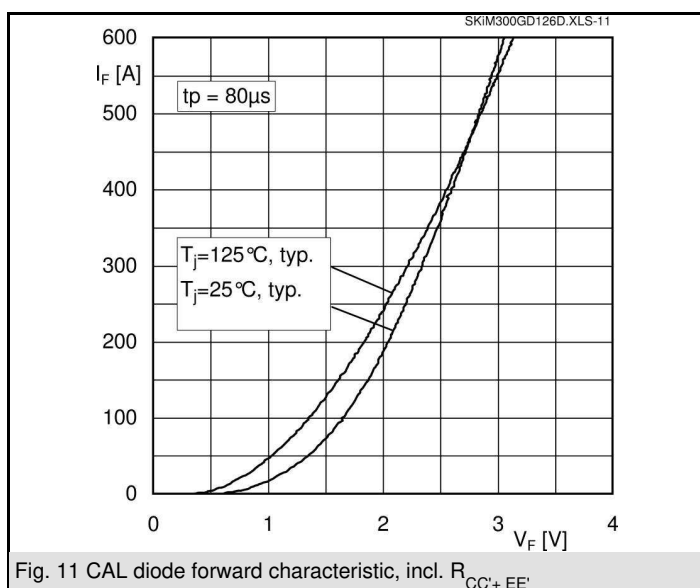
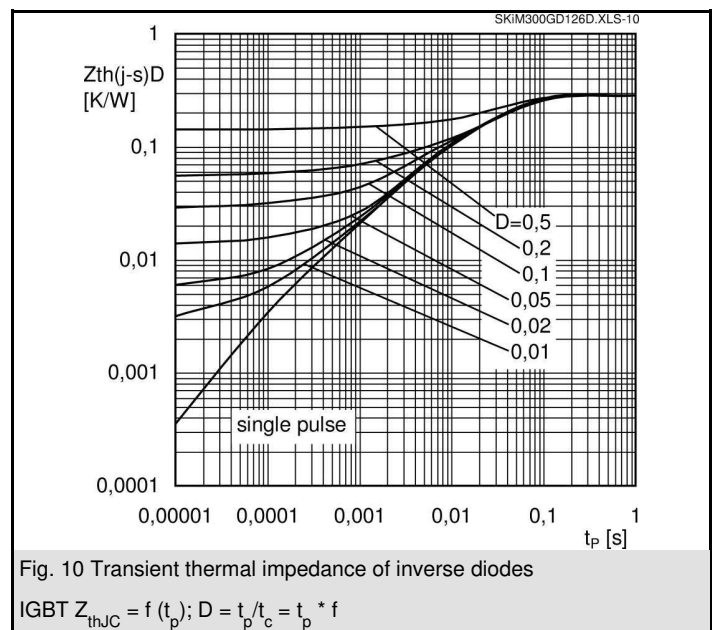
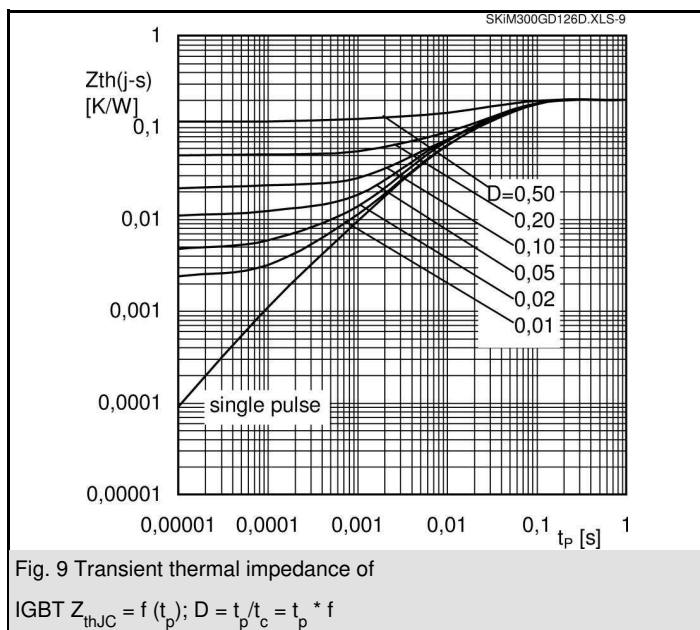
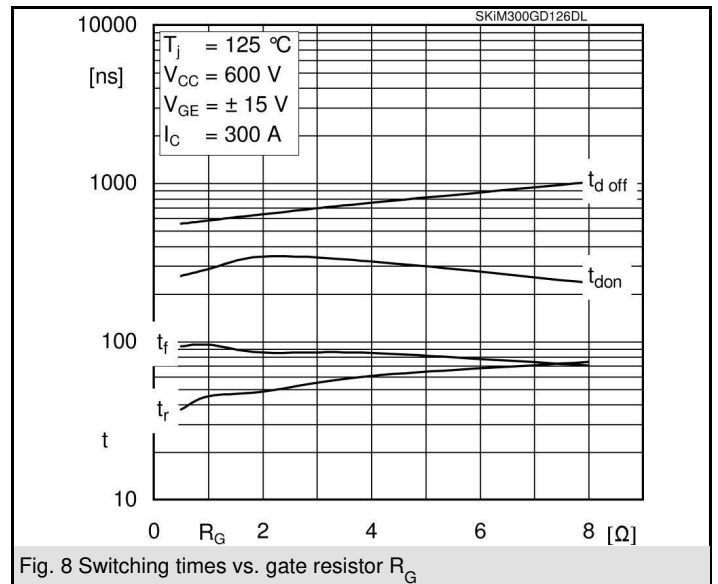
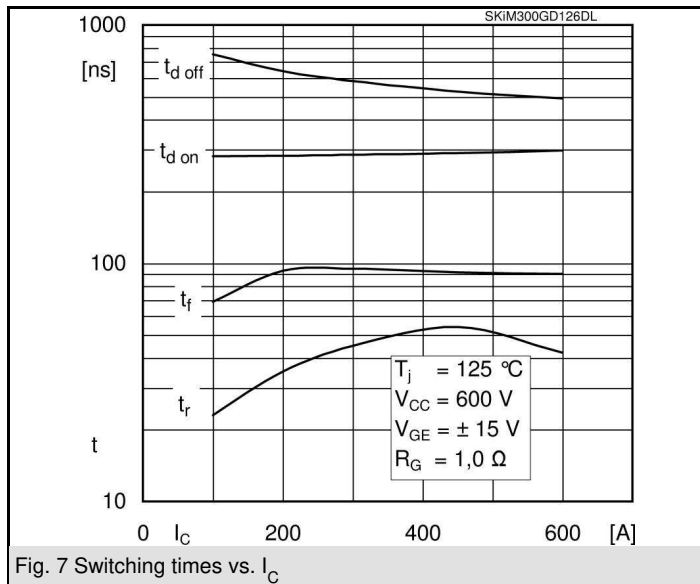


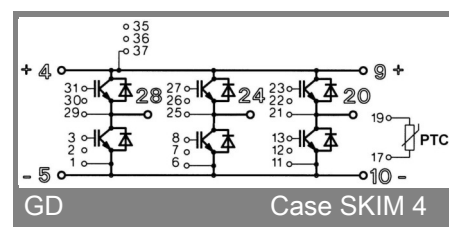
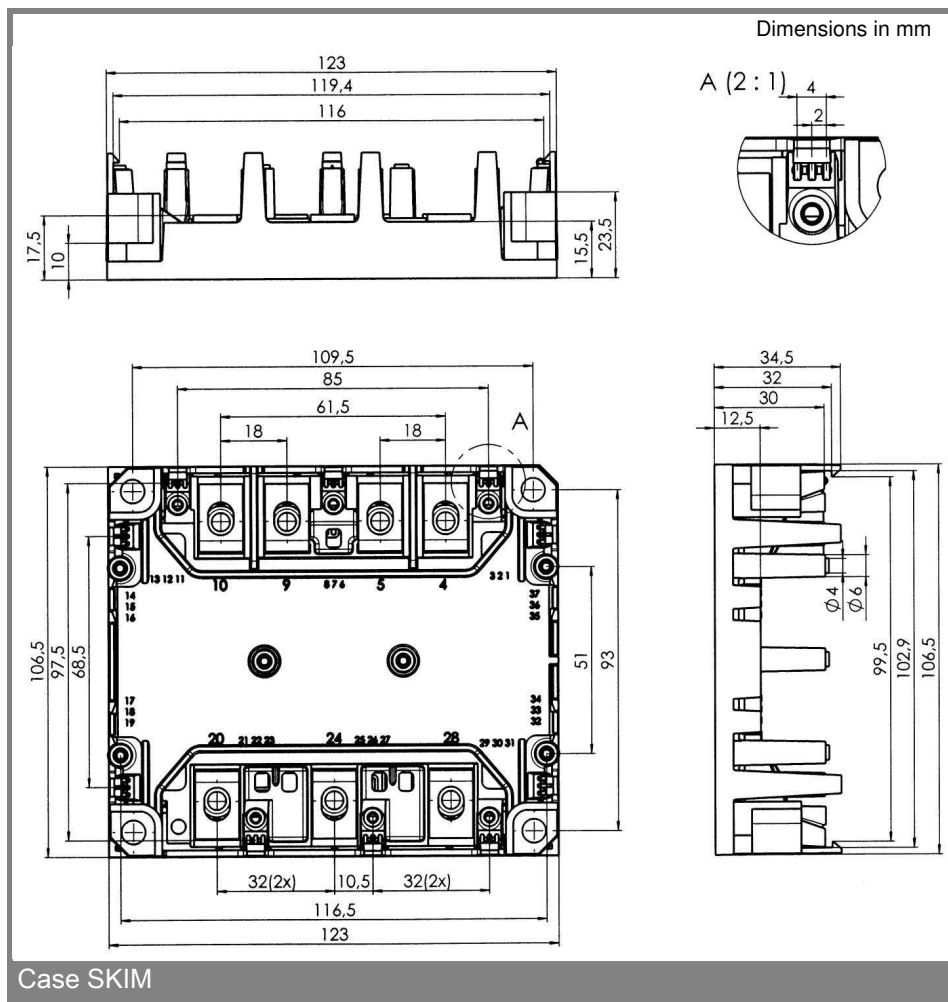
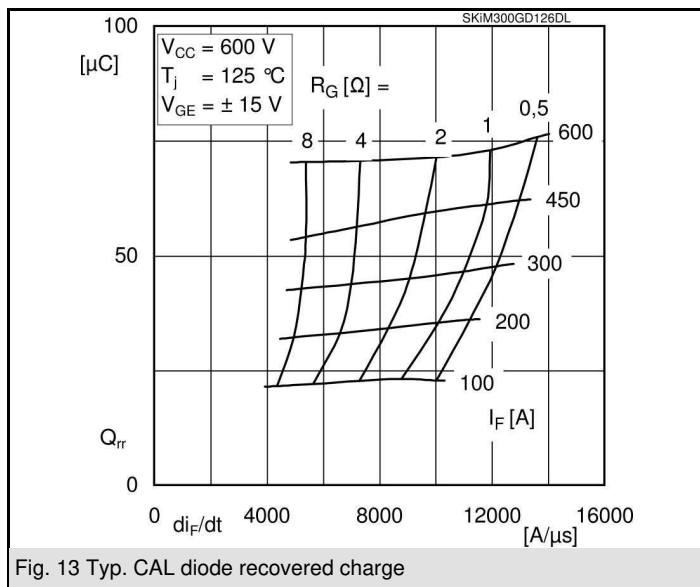
GD

Absolute Maximum Ratings $T_{case} = 25^{\circ}\text{C}$, unless otherwise specified			
Symbol	Conditions	Values	Units
IGBT			
V_{CES}	$T_s = 25\ (70)^{\circ}\text{C}$	1200	V
I_C	$t_p = 1\ \text{ms}$	270 (200)	A
I_{CRM}		600	A
V_{GES}		± 20	V
$T_j\ (T_{stg})$		- 40 ... + 150 (125)	$^{\circ}\text{C}$
T_{cop}	max. case operating temperature	125	$^{\circ}\text{C}$
V_{isol}	AC, 1 min.	2500	V
Inverse diode			
I_F	$T_s = 25\ (70)^{\circ}\text{C}$	200 (145)	A
I_{FRM}	$t_p = 1\ \text{ms}$	400	A
I_{FSM}	$t_p = 10\ \text{ms}$; sin.; $T_j = 150^{\circ}\text{C}$	2200	A

Characteristics $T_{case} = 25^{\circ}\text{C}$, unless otherwise specified					
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	$V_{GE} = V_{CE}$; $I_C = 12\ \text{mA}$	5	5,8	6,5	V
I_{CES}	$V_{GE} = 0$; $V_{CE} = V_{CES}$; $T_j = 25^{\circ}\text{C}$			3,6	mA
V_{CEO}	$T_j = 25\ (125)^{\circ}\text{C}$		1 (0,9)	1,2 (1,1)	V
r_{CE}	$T_j = 25\ (125)^{\circ}\text{C}$		2,2 (3,5)	3 (4,3)	m Ω
V_{CEsat}	$I_{Cnom} = 300\ \text{A}$; $V_{GE} = 15\ \text{V}$; $T_j = 25\ (125)^{\circ}\text{C}$ on chip level		1,65 (1,95)	2,1 (2,4)	V
C_{ies}	$V_{GE} = 0$; $V_{CE} = 25\ \text{V}$; $f = 1\ \text{MHz}$		22,5		nF
C_{oes}	$V_{GE} = 0$; $V_{CE} = 25\ \text{V}$; $f = 1\ \text{MHz}$		1,8		nF
C_{res}	$V_{GE} = 0$; $V_{CE} = 25\ \text{V}$; $f = 1\ \text{MHz}$		1,65		nF
L_{CE}			10	15	nH
$R_{CC'+EE'}$	resistance, terminal-chip $T_c = 25\ (125)^{\circ}\text{C}$		1,35 (1,75)		m Ω
$t_{d(on)}$	$V_{CC} = 600\ \text{V}$		285		ns
t_r	$I_{Cnom} = 300\ \text{A}$		45		ns
$t_{d(off)}$	$R_{Gon} = R_{Goff} = 1\ \Omega$		580		ns
t_f	$T_j = 125^{\circ}\text{C}$		95		ns
$E_{on}\ (E_{off})$	$V_{GE} \pm 15\ \text{V}$		25 (36)		mJ
$E_{on}\ (E_{off})$	with SKHI 6; $T_j = ^{\circ}\text{C}$; $V_{CC} = V$; $I_C = A$				mJ
Inverse diode					
$V_F = V_{EC}$	$I_{Fnom} = 200\ \text{A}$; $V_{GE} = 0\ \text{V}$; $T_j = 25\ (125)^{\circ}\text{C}$		2 (1,8)	2,5 (2,3)	V
V_{TO}	$T_j = 25\ (125)^{\circ}\text{C}$		1,1 (0,85)	1,45 (1,2)	V
r_T	$T_j = 25\ (125)^{\circ}\text{C}$		4,5 (4,8)	5,3 (5,5)	m Ω
I_{RRM}	$I_F = 300\ \text{A}$; $T_j = 125^{\circ}\text{C}$		450		A
Q_{rr}	$V_{GE} = 0\ \text{V}$ di/dt = 11000 A/ μs		47		μC
E_{rr}	$R_{Gon} = R_{Goff} = 1\ \Omega$		22		mJ
Thermal characteristics					
$R_{th(j-s)}$	per IGBT			0,2	K/W
$R_{th(j-s)}$	per FWD			0,285	K/W
Temperature Sensor					
R_{TS}	$T = 25\ (100)^{\circ}\text{C}$		1 (1,67)		k Ω
tolerance	$T = 25\ (100)^{\circ}\text{C}$		3 (2)		%
Mechanical data					
M_1	to heatsink (M5)	2		3	Nm
M_2	for terminals (M6)	4		5	Nm
w				310	g







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

*IMPORTANT INFORMATION AND WARNINGS

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