

SKiM 500GD063DM



SKiM 5[®]

IGBT Modules

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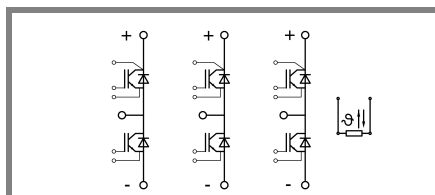
Preliminary Data

Features

- NPT-IGBT with positive temperature coefficient of V_{CEsat}
- Short circuit, self limiting to $6 \times I_C$
- DBC substrate : AlN
- Corresponds to standards IEC 60721-3-3 (humidity) class 3K7IE32 and IEC 68T.1 (climate) 40/125/56

Typical Applications

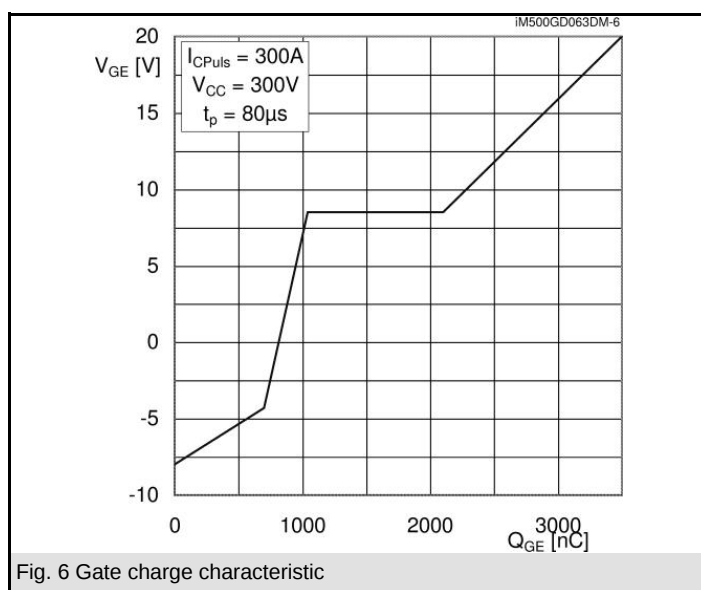
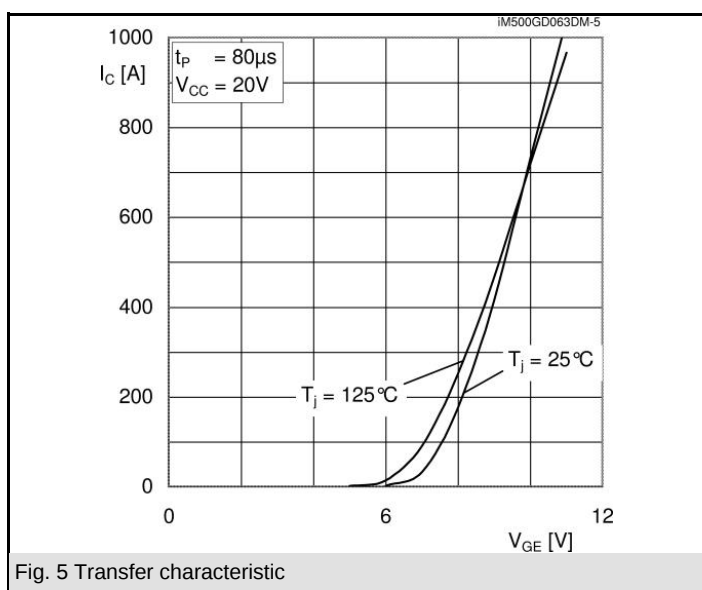
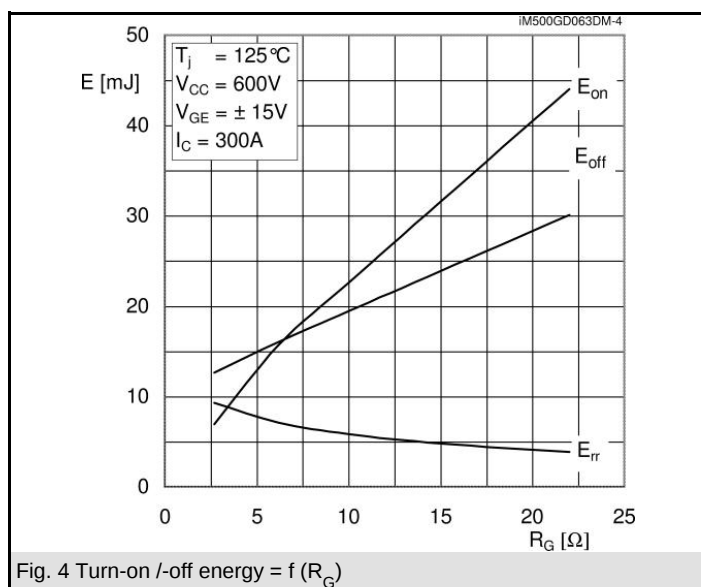
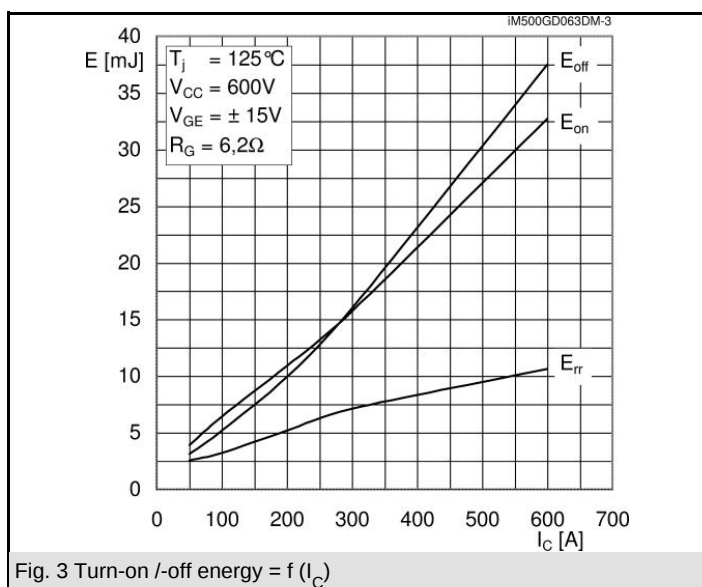
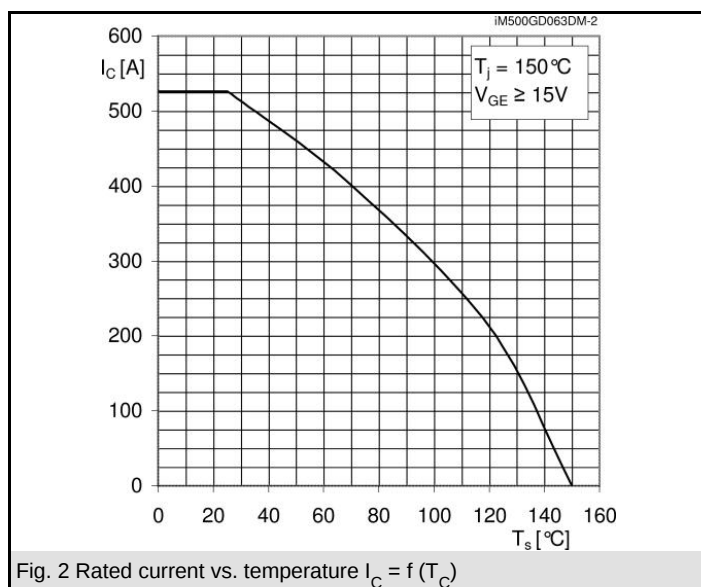
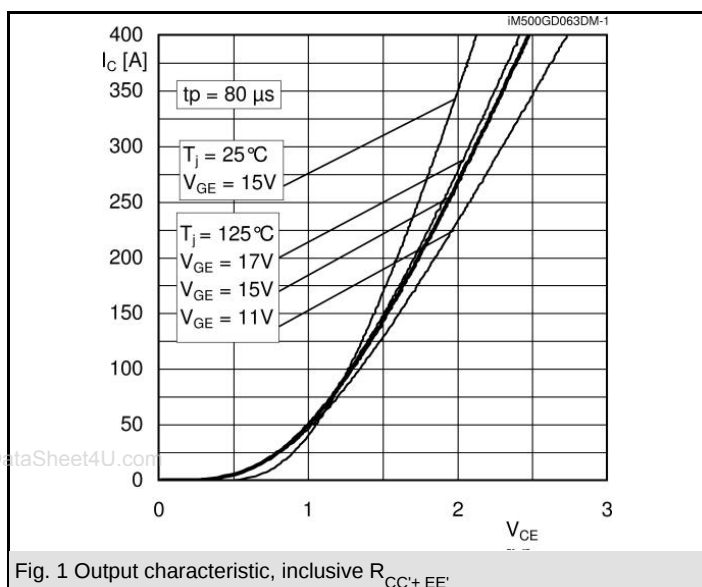
- Resonant inverters up to 100 kHz
- Inductive heating
- Electronic welders at f_{SW} up to 20 kHz

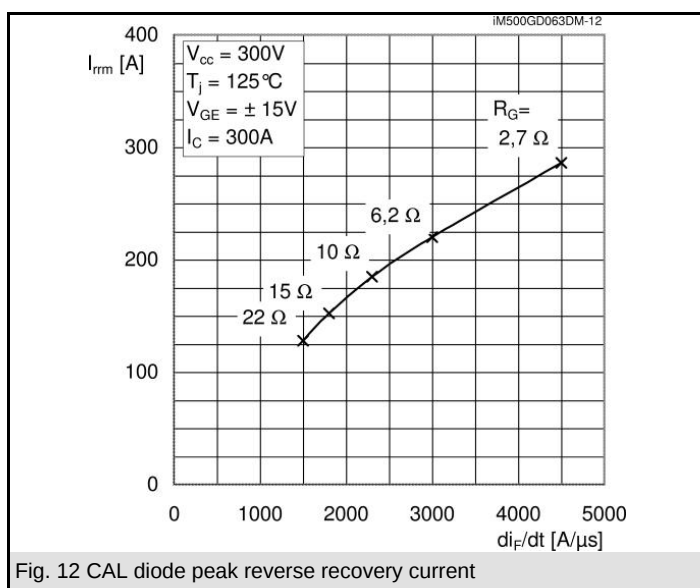
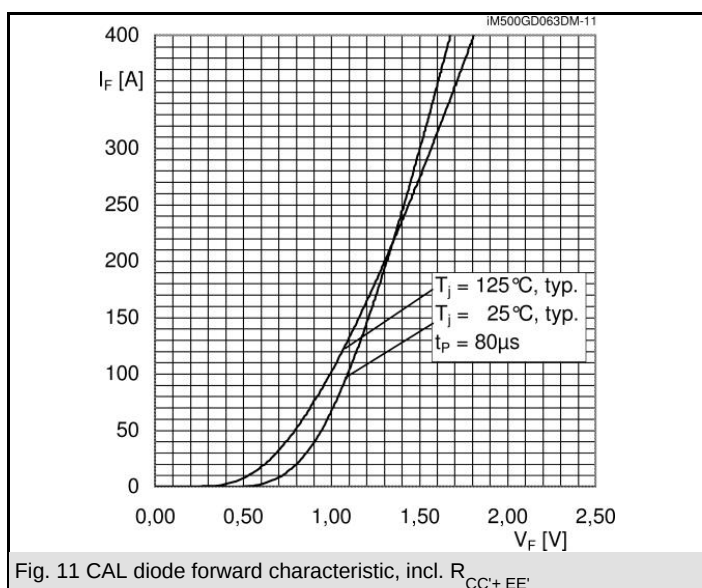
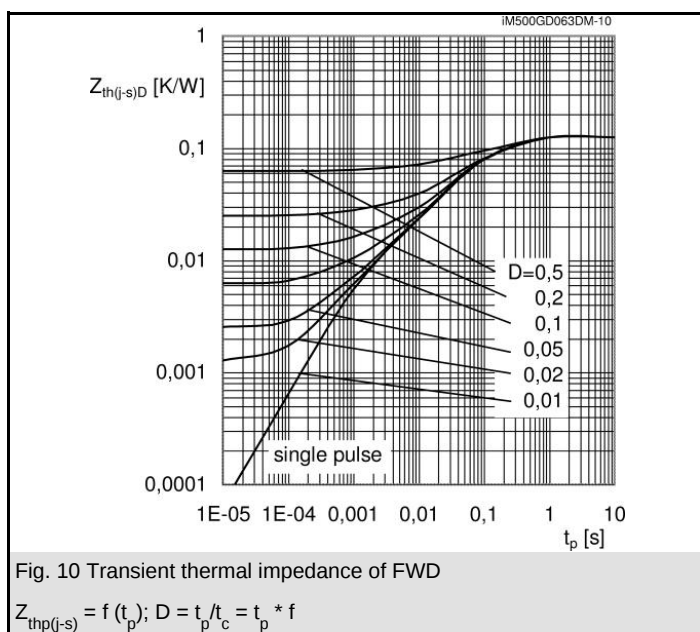
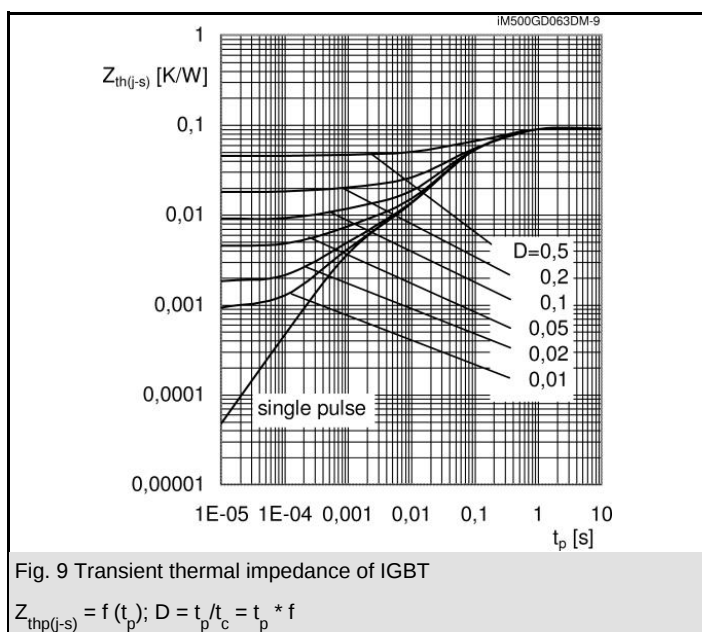
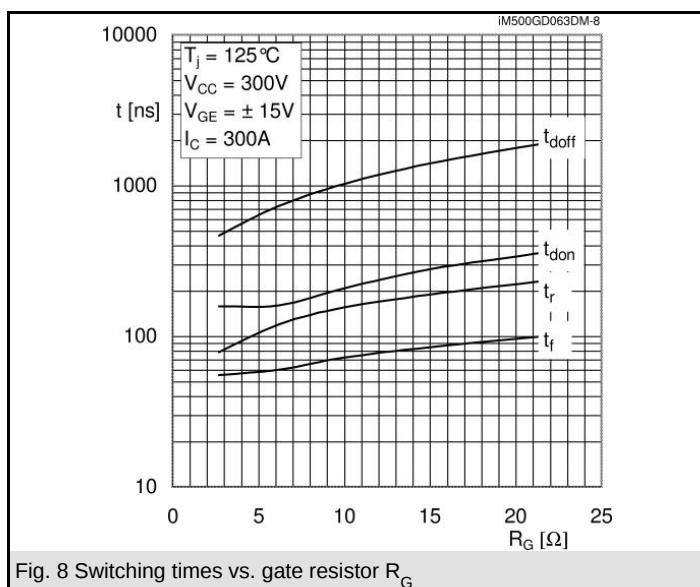
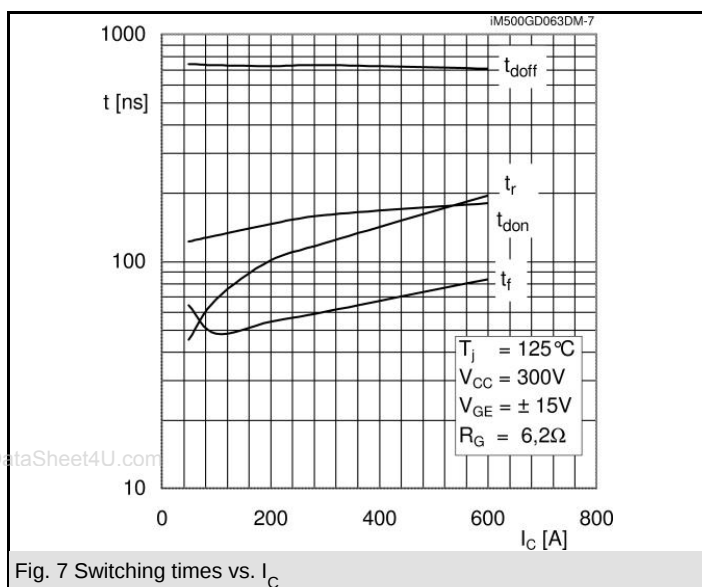


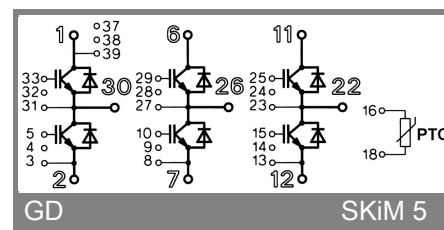
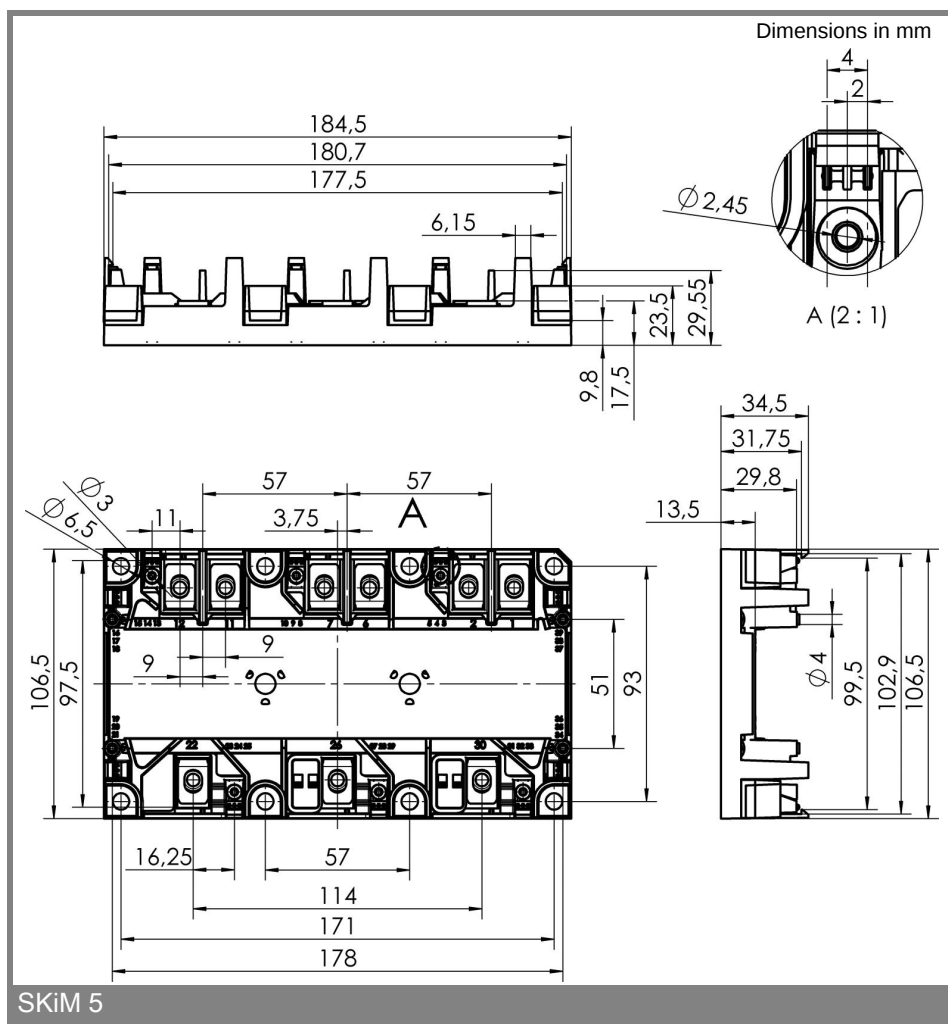
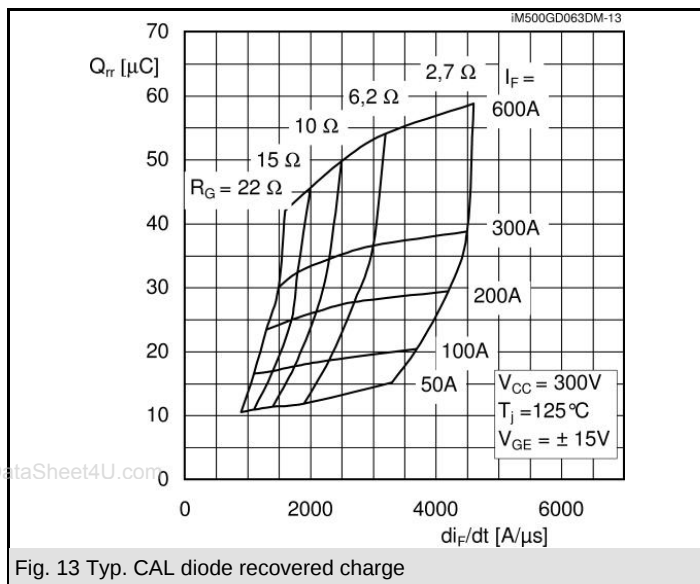
GD

Absolute Maximum Ratings		$T_{case} = 25^{\circ}C$, unless otherwise specified	
Symbol	Conditions	Values	Units
IGBT			
V_{CES}		600	V
I_C	$T_s = 25 (70)^{\circ}C$	530 (400)	A
I_{CRM}	$t_p = 1 \text{ ms}$	600	A
V_{GES}		± 20	V
$T_j (T_{stg})$		- 40 ... + 125 $^{\circ}C$ (125)	$^{\circ}C$
T_{cop}	max. case operating temperature		$^{\circ}C$
V_{isol}	AC, 1 min.	2500	V
Inverse diode			
I_F	$T_s = 25 (70)^{\circ}C$	490 (370)	A
I_{FRM}	$t_p = 1 \text{ ms}$	600	A
I_{FSM}	$t_p = 10 \text{ ms}$; sin.; $T_j = 150^{\circ}C$	4300	A

Characteristics		$T_{case} = 25^{\circ}C$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	$V_{GE} = V_{CE}$; $I_C = 12 \text{ mA}$	4,5	5,5	6,5	V
I_{CES}	$V_{GE} = 0$; $V_{CE} = V_{CES}$; $T_j = 25^{\circ}C$			0,3	mA
V_{CEO}	$T_j = 25 (125)^{\circ}C$		0,9 (0,8)	1	V
r_{CE}	$T_j = 25 (125)^{\circ}C$		2 (2,9)	2,7	m Ω
V_{CEsat}	$I_{Cnom} = 300 \text{ A}$; $V_{GE} = 15 \text{ V}$; $T_j = 25 (125)^{\circ}C$ on chip level		1,5 (1,7)	1,8	V
C_{ies}	$V_{GE} = 0$; $V_{CE} = 25 \text{ V}$; $f = 1 \text{ MHz}$		26,2		nF
C_{oes}	$V_{GE} = 0$; $V_{CE} = 25 \text{ V}$; $f = 1 \text{ MHz}$		3,7		nF
C_{res}	$V_{GE} = 0$; $V_{CE} = 25 \text{ V}$; $f = 1 \text{ MHz}$		3,6		nF
L_{CE}				20	nH
$R_{CC'+EE'}$	resistance, terminal-chip $T_c = 25 (125)^{\circ}C$		0,9 (1,1)		m Ω
$t_{d(on)}$	$V_{CC} = 300 \text{ V}$		160		ns
t_r	$I_{Cnom} = 300 \text{ A}$		120		ns
$t_{d(off)}$	$R_{Gon} = R_{Goff} = 6,2 \Omega$		730		ns
t_f	$T_j = 125^{\circ}C$		60		ns
$E_{on} (E_{off})$	$V_{GE} \pm 15 \text{ V}$		16 (16)		mJ
$E_{on} (E_{off})$	with SKHI 6; $T_j = ^{\circ}C$; $V_{CC} = V$; $I_C = A$				mJ
Inverse diode					
$V_F = V_{EC}$	$I_{Fnom} = 300 \text{ A}$; $V_{GE} = 0 \text{ V}$; $T_j = 25 (125)^{\circ}C$		1,25 (1,2)	1,5	V
V_{TO}	$T_j = 25 (125)^{\circ}C$		0,85	0,9	V
r_T	$T_j = 25 (125)^{\circ}C$		1,3	2	m Ω
I_{RRM}	$I_F = 300 \text{ A}$; $T_j = 125^{\circ}C$		220		A
Q_{rr}	$V_{GE} = 0 \text{ V}$ di/dt = 3000 A/ μ s		36,5		μ C
E_{rr}	$R_{Gon} = R_{Goff} = 6,2 \Omega$		7,3		mJ
Thermal characteristics					
$R_{th(j-s)}$	per IGBT			0,09	K/W
$R_{th(j-s)}$	per FWD			0,125	K/W
Temperature Sensor					
R_{TS}	$T = 25 (100)^{\circ}C$		1 (1,67)		k Ω
tolerance	$T = 25 (100)^{\circ}C$		3 (2)		%
Mechanical data					
M_1	to heatsink (M5)	2	3		Nm
M_2	for terminals (M6)	4	5		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.