

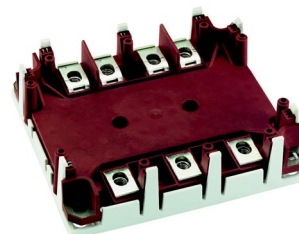
Absolute Maximum Ratings $T_h = 25\text{ }^{\circ}\text{C}$, unless otherwise specified			
Symbol	Conditions	Values	Units
IGBT			
V_{CES}		600	V
I_C	$T_S = 25\text{ (70)}\text{ }^{\circ}\text{C}$	236 (180)	A
I_{CRM}	$T_S = 25\text{ (70)}\text{ }^{\circ}\text{C}$, $t_p = 1\text{ ms}$	472 (360)	A
V_{GES}		± 20	V
$T_j, (T_{stg})$	$T_{OPERATION} \leq T_{stg}$	$-40 \dots +150\text{ (125)}$	$^{\circ}\text{C}$
V_{isol}	AC, 1 min.	2500	V
Inverse Diode			
$I_{FAV} = -I_C$	$T_S = 25\text{ (70)}\text{ }^{\circ}\text{C}$	244 (185)	A
$I_{FRM} = -I_{CM}$	$T_S = 25\text{ (70)}\text{ }^{\circ}\text{C}$, $t_p < 1\text{ ms}$	488 (370)	A
I_{FSM}	$t_p = 10\text{ ms}$; sin.; $T_j = 150\text{ }^{\circ}\text{C}$	2900	A

Characteristics $T_h = 25\text{ }^{\circ}\text{C}$, unless otherwise specified					
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(TO)}$	$V_{GE} = V_{CE}$, $I_C = 8\text{ mA}$	4,5	5,5	6,5	V
I_{CES}	$V_{GE} = 0$, $V_{CE} = V_{CES}$, $T_j = 25\text{ (125)}\text{ }^{\circ}\text{C}$		0,4 (24)		mA
$V_{CE(TO)}$			0,9 (0,8)		V
r_{CE}	$V_{GE} = 15\text{ V}$, $T_j = 25\text{ (125)}\text{ }^{\circ}\text{C}$		2,9 (3,9)		m Ω
$V_{CE(sat)}$	$I_C = 200\text{ A}$, $V_{GE} = 15\text{ V}$, $T_j = 25\text{ (125)}\text{ }^{\circ}\text{C}$ on chip level		1,5 (1,6)	1,7	V
C_{ies}			23		nF
C_{oes}	$V_{GE} = 0$, $V_{CE} = 25\text{ V}$, $f = 1\text{ MHz}$		2,5		nF
C_{res}			1,5		nF
L_{CE}				20	nH
$R_{CC'+EE'}$	resistance, terminal-chip $25\text{ (125)}\text{ }^{\circ}\text{C}$		1,15 (1,6)		m Ω
$t_{d(on)}$	$V_{CC} = 300\text{ V}$		130		ns
t_r	$I_C = 200\text{ A}$		75		ns
$t_{d(off)}$	$R_{Gon} = R_{Goff} = 8\text{ }\Omega$		700		ns
t_f	$T_j = 125\text{ }^{\circ}\text{C}$		50		ns
E_{on}	$V_{GE} \pm 15\text{ V}$		10		mJ
E_{off}			9		mJ
Inverse Diode					
$V_F = V_{EC}$	$I_F = 200\text{ A}$; $V_{GE} = 0\text{ V}$; $T_j = 25\text{ (125)}\text{ }^{\circ}\text{C}$ on chip level		1,25 (1,2)	1,4	V
V_{TO}	$T_j = 25\text{ (125)}\text{ }^{\circ}\text{C}$		(0,85)	(0,9)	V
r_T	$T_j = 25\text{ (125)}\text{ }^{\circ}\text{C}$		(1,6)	(2,75)	m Ω
I_{rrm}	$I_F = 300\text{ A}$; $T_j = 125\text{ }^{\circ}\text{C}$		204		A
Q_{rr}	$V_{GE} = 0\text{ V}$		27		μC
E_{rr}	$R_{Gon} = R_{Goff} = 8\text{ }\Omega$		3		mJ
Thermal Characteristics					
R_{thjh}	per IGBT			0,2	K/W
R_{thjh}	per FWD			0,285	K/W
Temperature Sensor					
R_{TS}	$T = 25\text{ }^{\circ}\text{C} / 100\text{ }^{\circ}\text{C}$		1,0 / 1,67		k Ω
tolerance	$T = 25\text{ }^{\circ}\text{C} / 100\text{ }^{\circ}\text{C}$		3,0 / 2,0		%
Mechanical Data					
M_1	to heatsink (M5)	2		3	Nm
M_2	for terminals (M6)	4		5	Nm
w				310	g

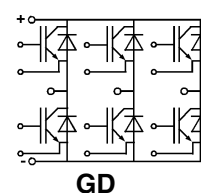
SKiM® 4 IGBT Module

SKiM 300 GD 063 D

Preliminary Data



SKiM 4



Features

- NPT-IGBT with positive temperature coefficient of V_{CEsat}
- Short circuit, self limiting to $6 \times I_C$
- Corresponds to standards IEC 60721-3-3 (humidity) class 3K7/IE32 and IEC 68T.1 (climate) 40/125/56

Typical Applications

- Resonant inverters up to 100 kHz
- Inductive heating
- Electronic welders at $f_{sw} > 20\text{ kHz}$

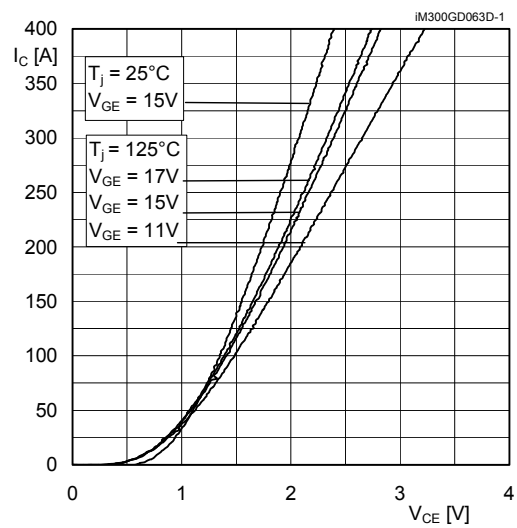


Fig. 1 Typ. output characteristic, inclusive $R_{CC} + EE'$

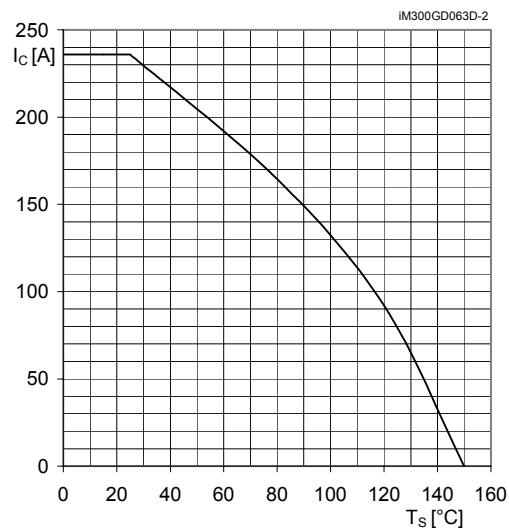


Fig. 2 Rated current vs. temperature $I_C = f(T_S)$

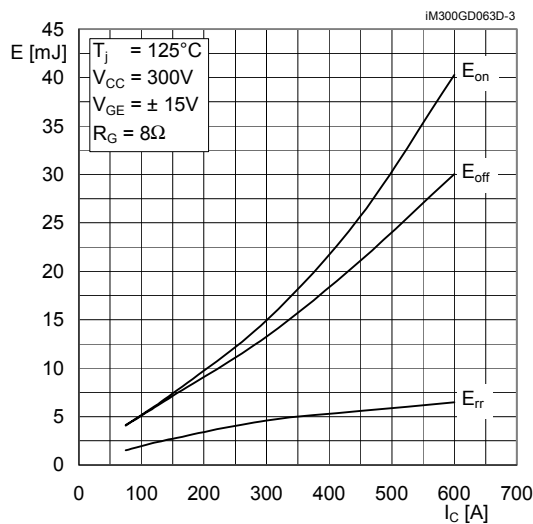


Fig. 3 Typ. turn-on /-off energy = $f(I_C)$

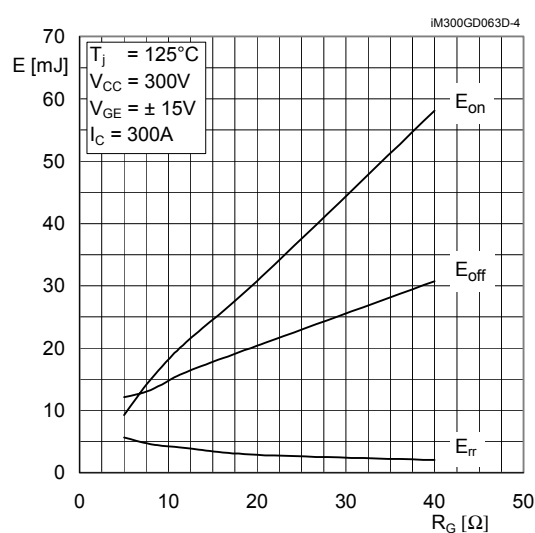


Fig. 4 Typ. turn-on /-off energy = $f(R_G)$

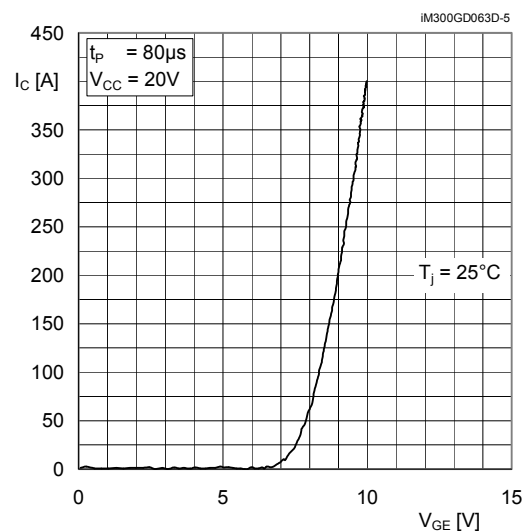


Fig. 5 Typ. transfer characteristic

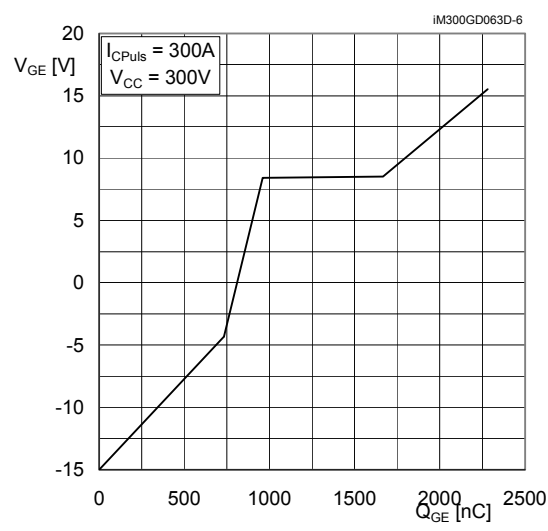
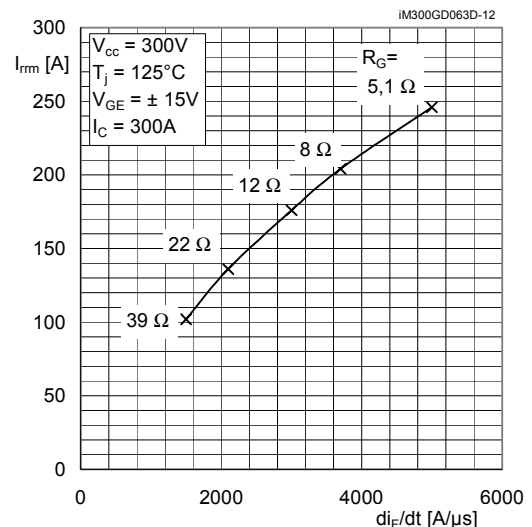
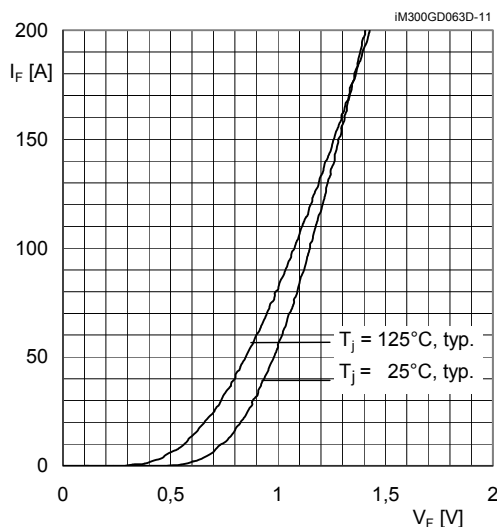
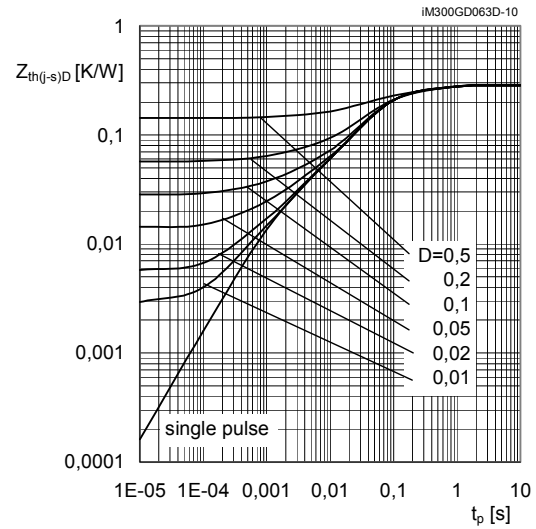
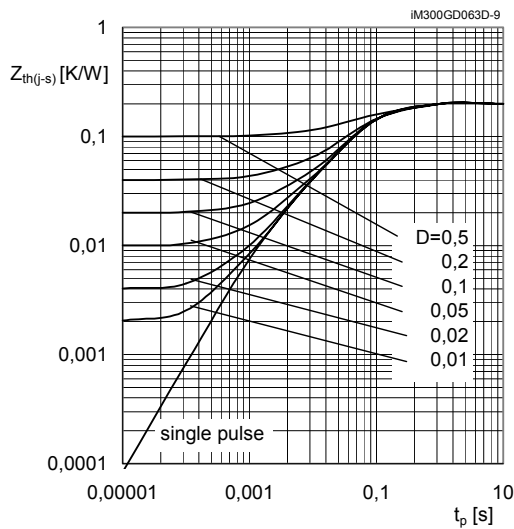
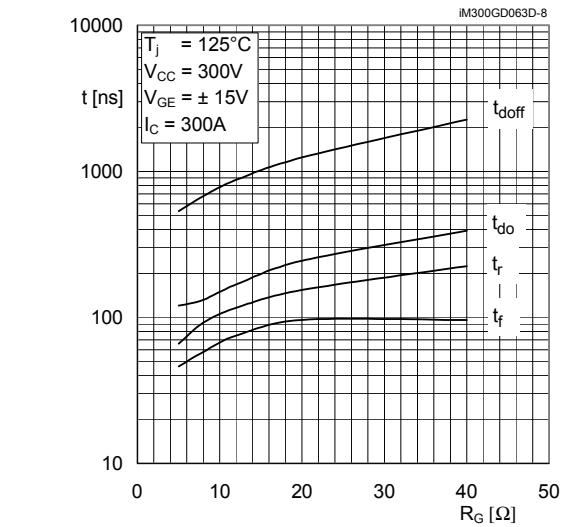
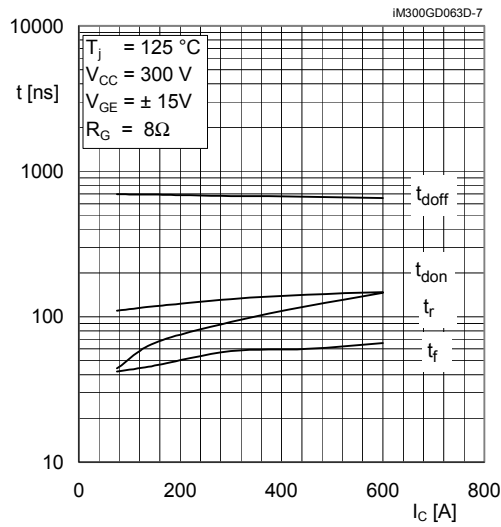
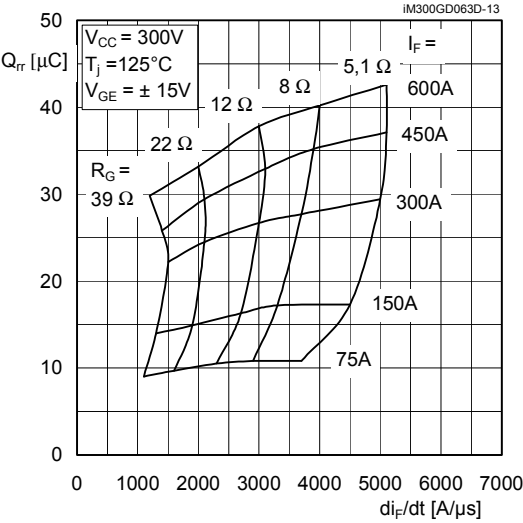


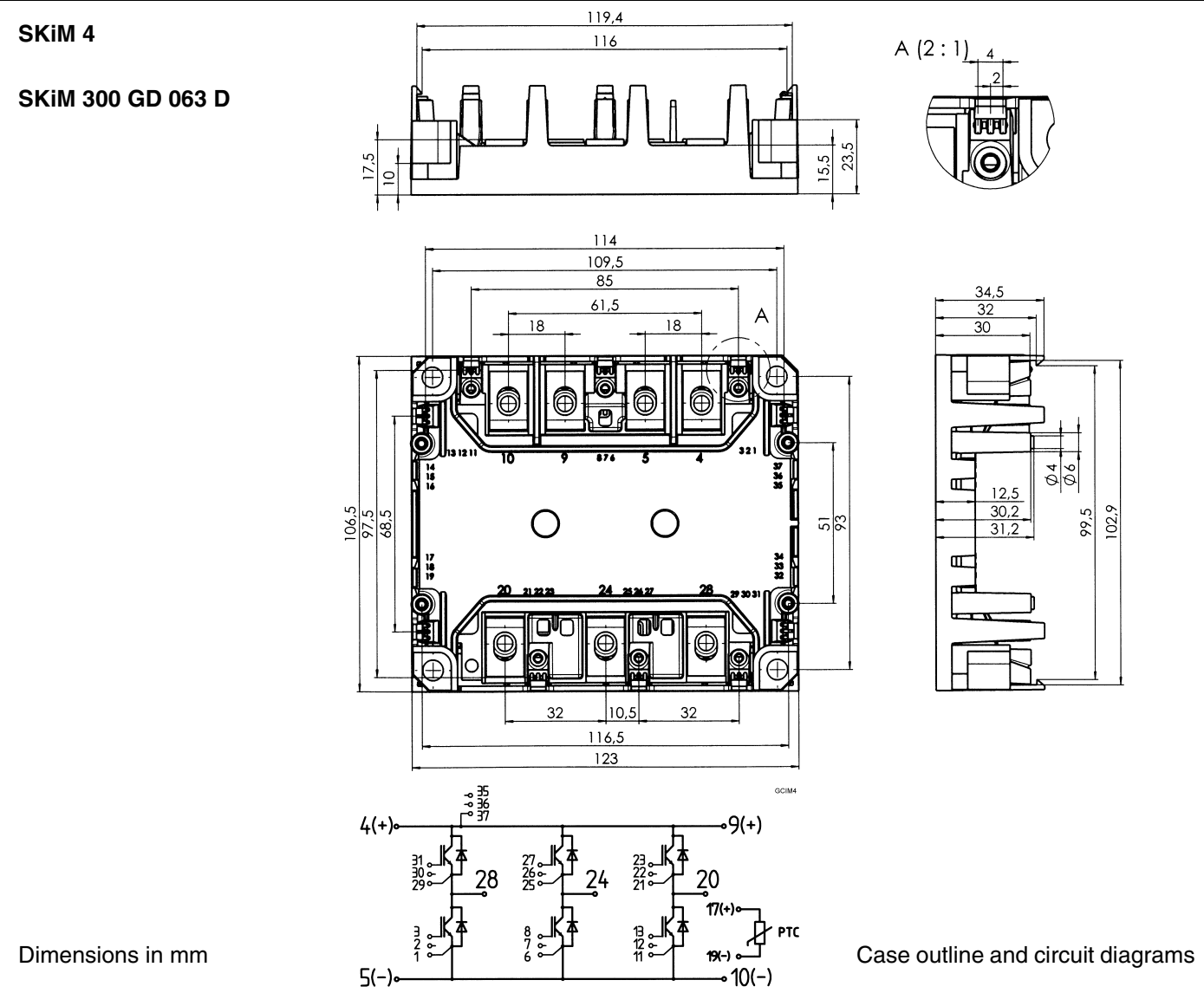
Fig. 6 Typ. gate charge characteristic





This is an electrostatic discharge sensitive device (ESDS).
Please observe the international standard IEC 747-1, Chapter IX.

Fig. 13 Typ. CAL diode recovered charge



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