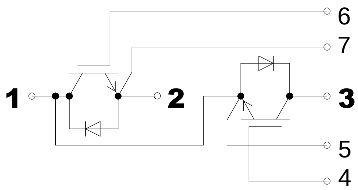
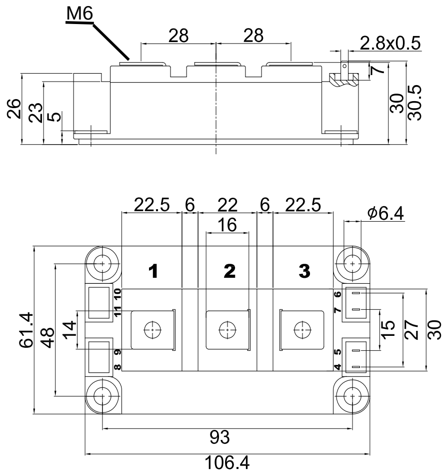
SGG200T120UC2

IGBT Modules

SGG200T120UC2



Dimensions in mm (1mm = 0.0394")



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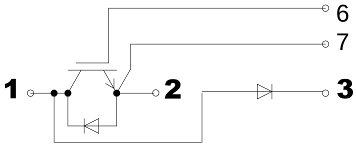
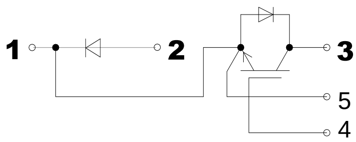


SDG200T120UC2



T_C = 25^{o}C, unless otherwise specified

Symbol	Conditions	Values	Units
IGBT			
V_{CES}		1200	V
I_{Cnom}		200	A
I_{CRM}	T_C= 25^{o}C, t_P =1ms	400	A
V_{GES}		±20	V
T_{Vj}		-40...+175	^{o}C
Inverse Diode			
I_F	T_C= 25(80)^{o}C	230(200)	A
I_{FRM}	T_C= 25^{o}C, t_P =1ms	400	A
I_{FSM}	t_P =10ms; sin.;T_j=150^{o}C	990	A
Module			
$I_{t(RMS)}$	$T_{teminal}$ = 80^{o}C	400	A
T_{stg}		-40~125	^{o}C
V_{Isol}	AC, 1min	4000	V

Features
- Trench Field Stop IGBT4 technology
- Low switching losses
- Switching frequency up to 20kHz
- Square RBSOA, no latch up
- High short circuit capability
- Positive temperature coefficient for easy parallelling
- MOS input, voltage controlled
- Soft swithcing 4.0 generation free wheeling diode Technology
- Package with copper base plate
- Isolation voltage 4000V

Application
- AC and DC motor control
- AC servo and robot drives
- power supplies
- welding inverters

Advantages
- space and weight savings
- reduced protection circuits

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SGG200T120UC2

IGBT Modules

Characteristics T_C = 25°C, unless otherwise specified

Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	V_{GE} = V_{CE}, I_C =8mA	5.0	5.8	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°C		0.8	0.9	V
r_{CE}	V_{GE} = 15V, T_j = 25(150°C)		5.0(7.5)	5.8(8.0)	mΩ
$V_{CE(sat)}$	I_C =200A; V_{GE} = 15V; chip level		1.80	2.15	V
C_{ies} C_{oes} C_{res}	under following conditions V_{GE} = 0, V_{CE} = 25V, f = 1MHz		12.3 0.81 0.69		nF
L_{CE}				20	nH
$R_{CC'+EE'}$	res., terminal-chip T_C = 25(125)°C		0.25(0.5)		mΩ
$t_{d(on)}$ t_r $t_{d(off)}$ t_f	under following conditions: V_{CC} = 600V, I_C = 200A R_{Gon} = R_{Goff} = 5 Ω, T_j = 150°C V_{GE} = ± 15V		185 40 425 82		ns ns ns ns
$E_{on}(E_{off})$			21(20)		mJ
Inverse Diode	under following conditions:				
V_F = V_{EC}	I_F =200A; V_{GE} = 0V; T_j = 25(150)°C		2.20(2.15)	2.52(2.47)	V
$V_{(FO)}$	T_j = 25(150)°C		1.30(0.90)	1.50(1.10)	V
r_F	T_j = 25(150)°C		4.5(6.3)	5.1(6.8)	mΩ
I_{RRM}	I_F = 200A; T_j = 150°C		174		A
Q_{rr}	di/dt = 4450A/us		33		uC
E_{rr}	V_{GE} = 15V		13		mJ
FWD under following conditions:					
V_F = V_{EC}	I_F = 200A; V_{GE} = 0V; T_j = 25(150)°C		2.20(2.15)	2.52(2.47)	V
$V_{(FO}$	T_j = 25(150)°C		1.30(0.90)	1.50(1.10)	V
r_F	T_j = 25(150)°C		4.5(6.3)	5.1(6.8)	mΩ
I_{RRM}	I_F = 200A; T_j = 25(150)°C		174		A
Q_{rr}	di/dt = 4450A/us		33		uC
E_{rr}	V_{GE} =15V		13		mJ
Thermal Characteristics					
$R_{th(j-c)}$	per IGBT			0.14	K/W
$R_{th(j-c)D}$	per Inverse Diode			0.26	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	2.5		5	Nm
Weight	typical			325	g

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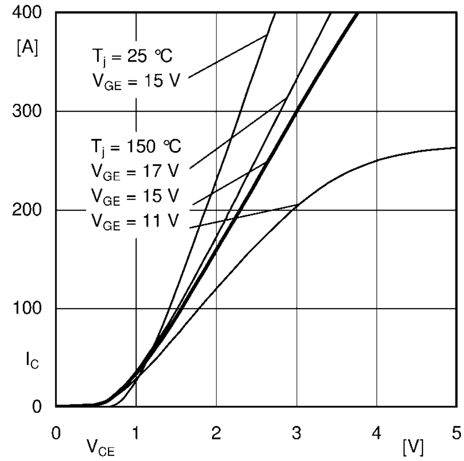

Fig. 1: Typ. output characteristic, inclusive $R_{CC'+EE'}$

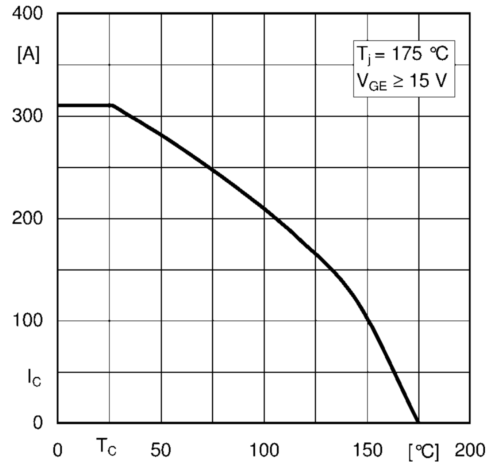

Fig. 2: Rated current vs. temperature I_C = f (T_C)

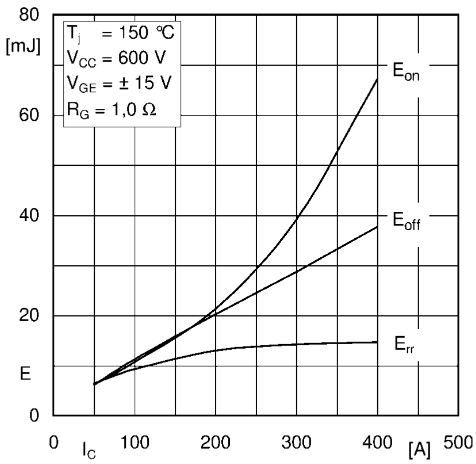

Fig. 3: Typ. turn-on /-off energy = f (I_C)

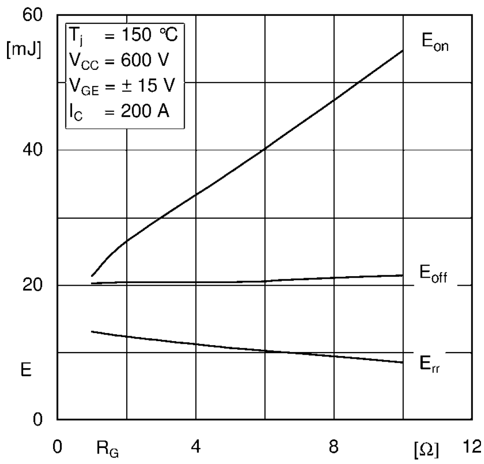

Fig. 4: Typ. turn-on /-off energy = f (R_G)

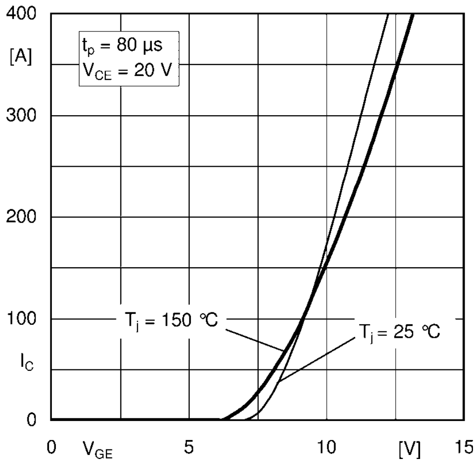

Fig. 5: Typ. transfer characteristic

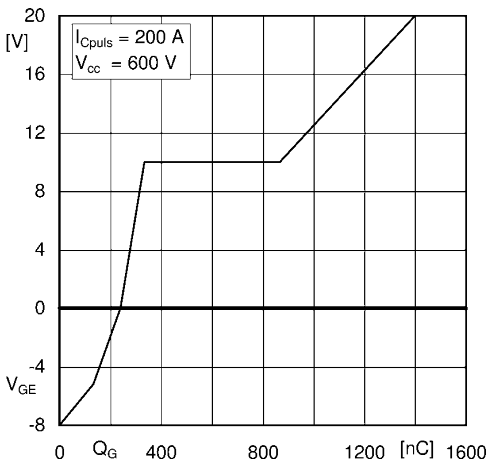

Fig. 6: Typ. gate charge characteristic

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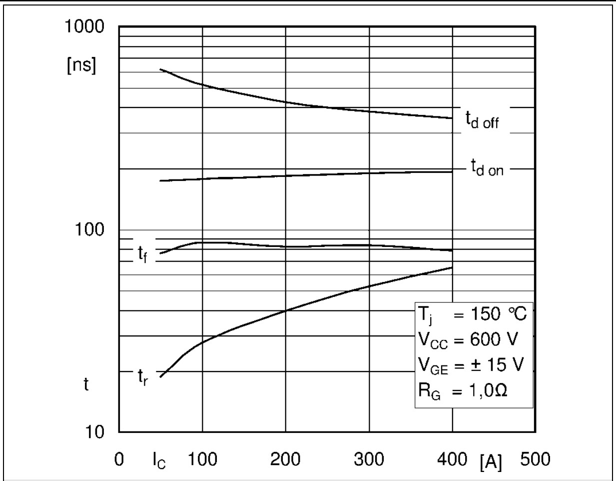

Fig. 7: Typ. switching times vs. I_C

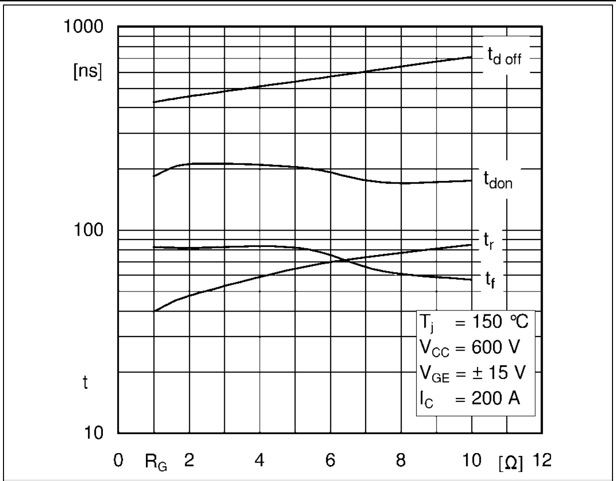

Fig. 8: Typ. switching times vs. gate resistor R_G

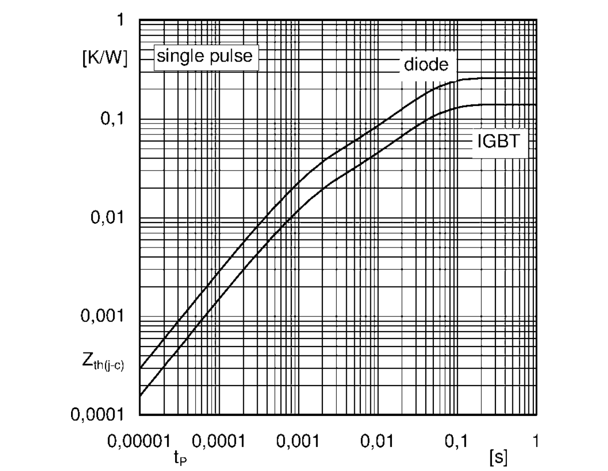

Fig. 9: Transient thermal impedance

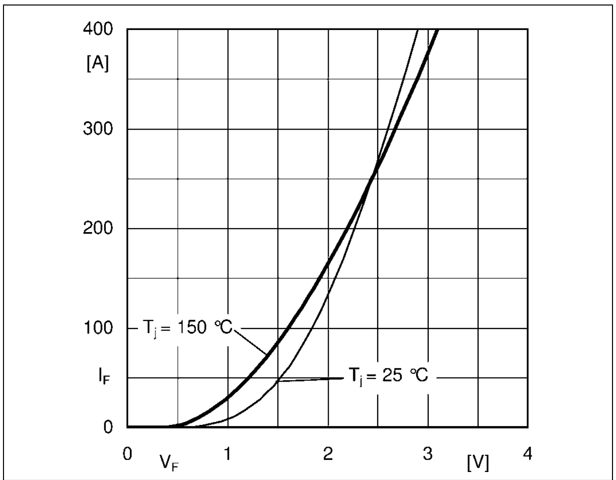

Fig. 10: FWD diode forward characteristic

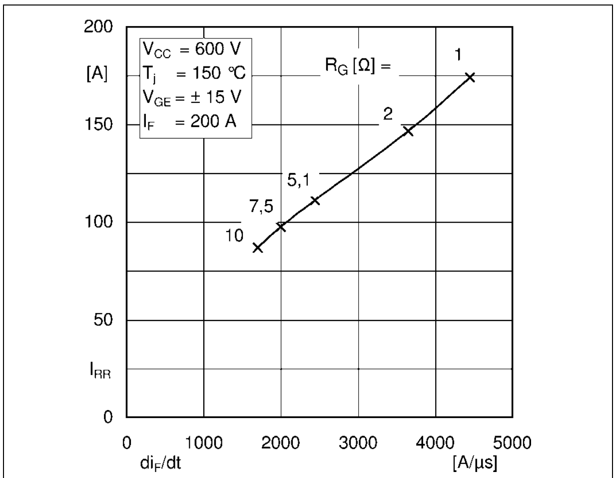

Fig. 11: FWD diode peak reverse recovery current

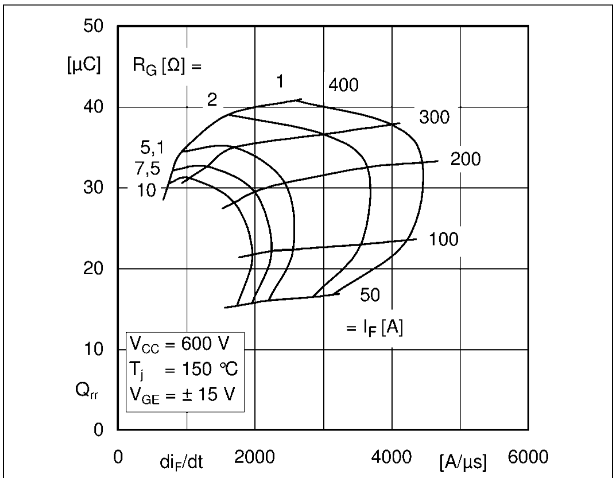

Fig. 12: Typ. FWD diode peak reverse recovery charge

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