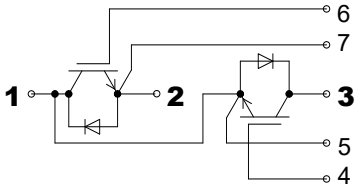
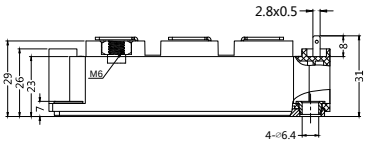
SGG200T120UC2

IGBT Modules

SGG200T120UC2



Dimensions in mm (1mm = 0.0394")



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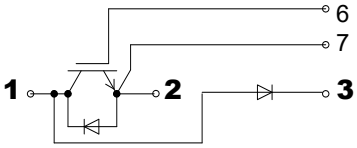

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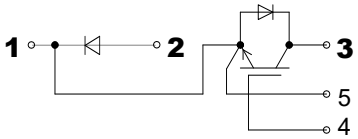

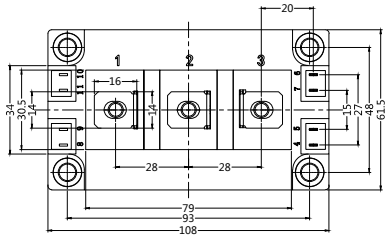

T_C = 25°C, unless otherwise specified

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

RoHS Compliant

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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}	under following conditions		12.3		nF
C_{oes}	V_{GE}=0,V_{CE}=25V,f=1MHz		0.81		
C_{res}			0.69		
L_{CE}				20	nH
$R_{CC'+EE'}$	res.,terminal-chip T_C=25(125)°C		0.25(0.5)		mΩ
$t_{d(on)}$	under following conditions:		185		ns
t_r	V_{CC}=600V,I_C=200A		40		ns
$t_{d(off)}$	R_{Gon}=R_{Goff}=5Ω,T_j=150°C		425		ns
t_f	V_{GE}=±15V		82		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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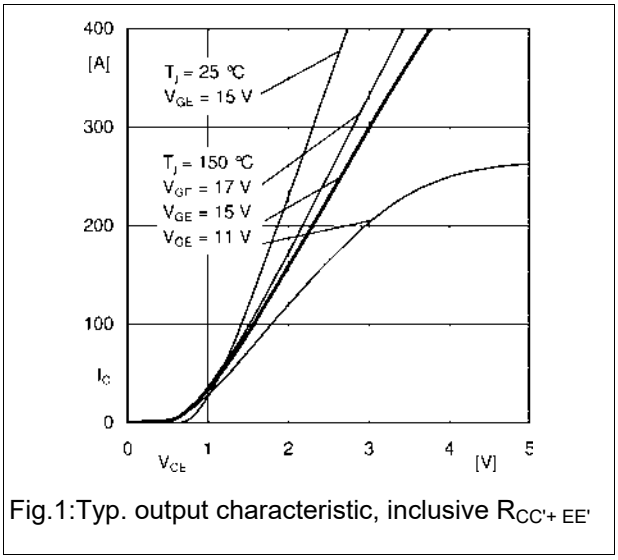

Fig.1:Typ. output characteristic, inclusive $R_{CC'+EE'}$

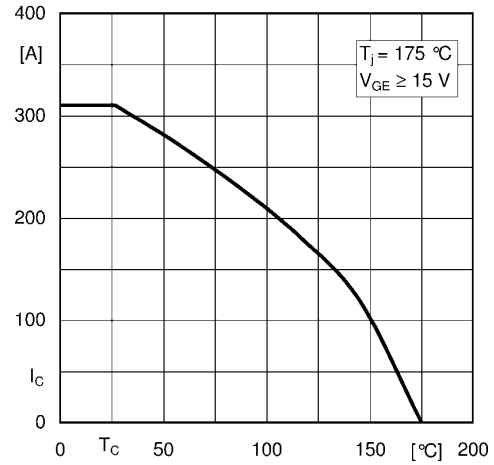

Fig.2:Rated current vs. temperature $I_C=f(T_C)$

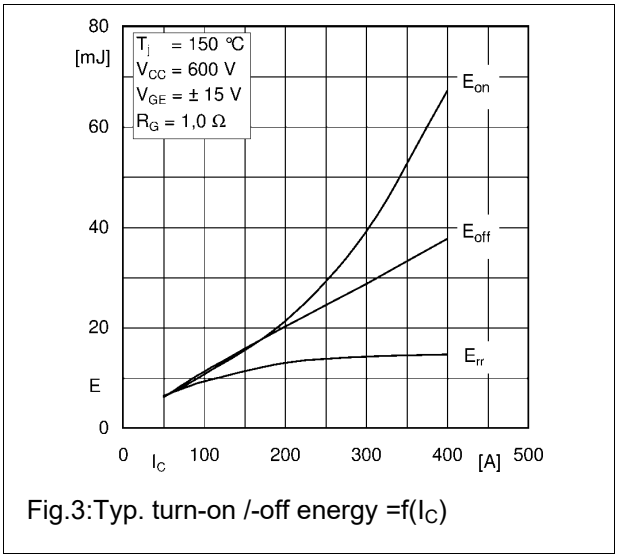

Fig.3:Typ. turn-on /-off energy =f(I_C)

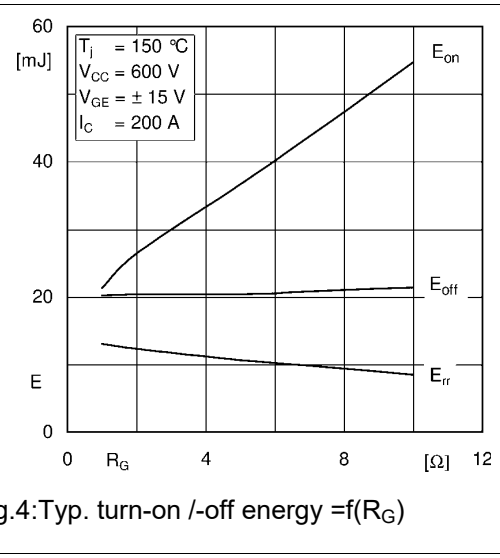

Fig.4:Typ. turn-on /-off energy =f(R_G)

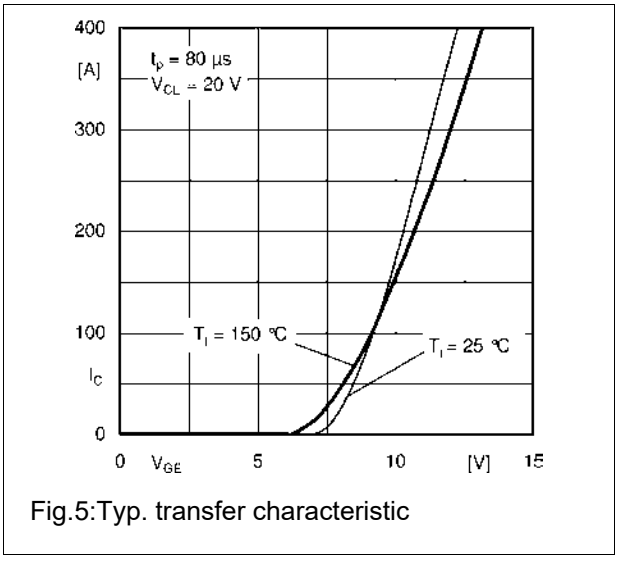

Fig.5:Typ. transfer characteristic

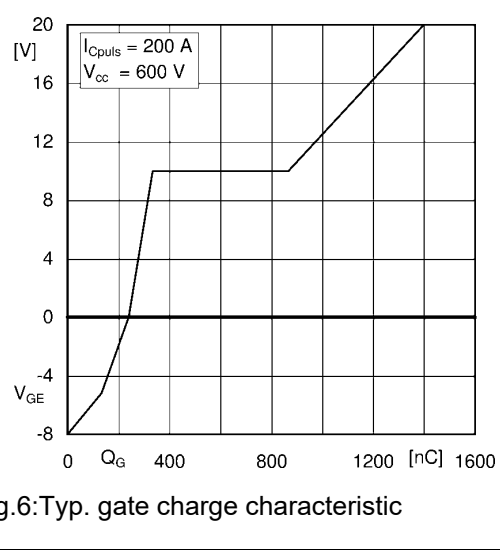

Fig.6:Typ. gate charge characteristic

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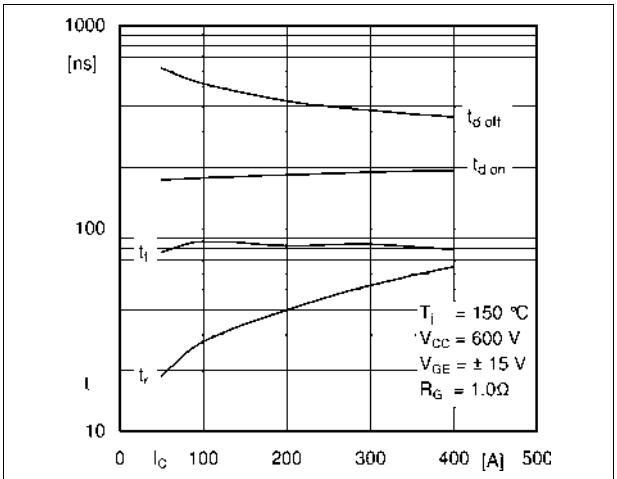

Fig.7:Typ. switching times vs. I_C

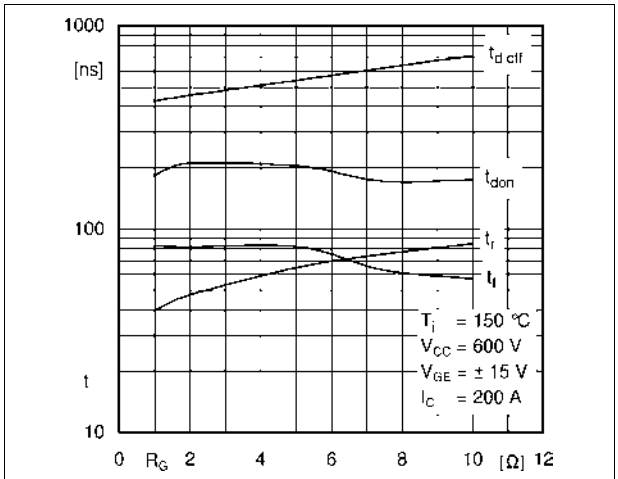

Fig.8:Typ. switching times vs. gate resistor R_G

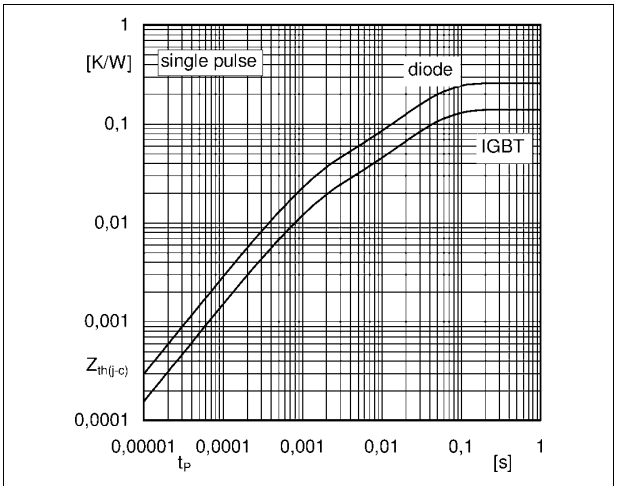

Fig.9:Transient thermal impedance

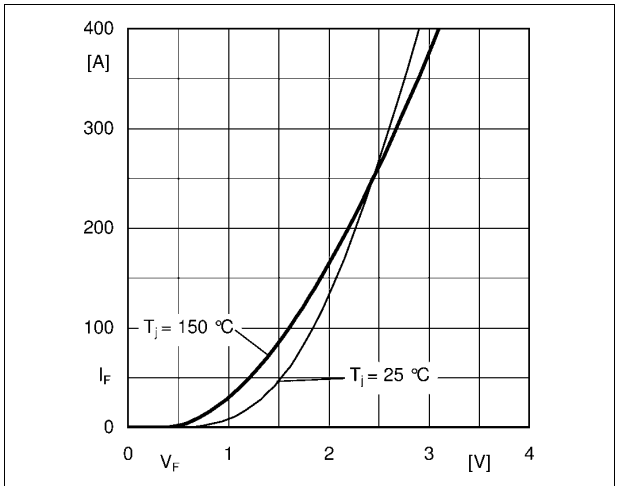

Fig.10:FWD diode forward characteristic

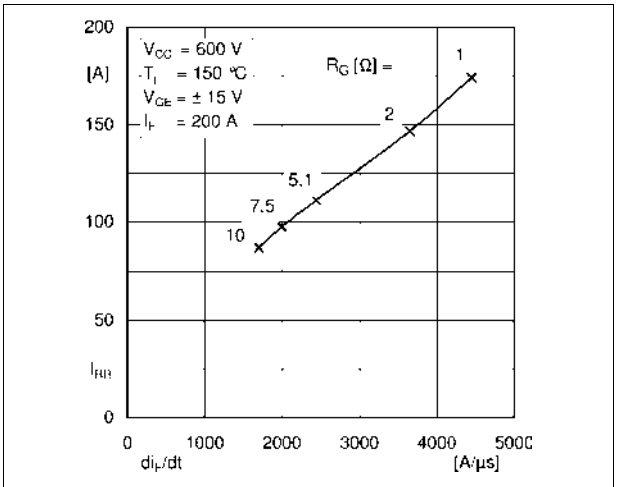

Fig.11:FWD diode peak reverse recovery current

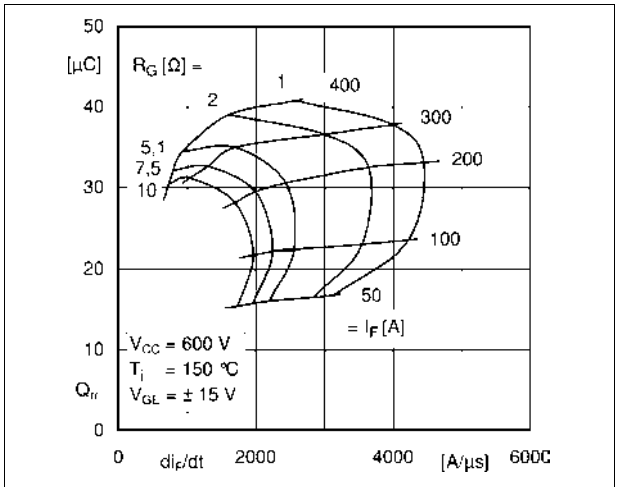

Fig.12:Typ. FWD diode peak reverse recovery charge

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