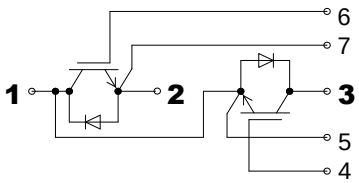
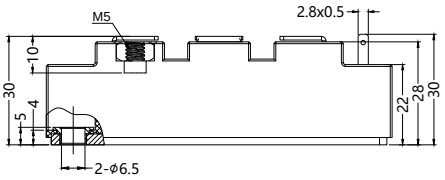
SGG75T120UC1

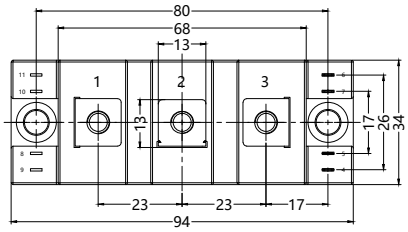
IGBT Modules

SGG75T120UC1
(Half Bridge)

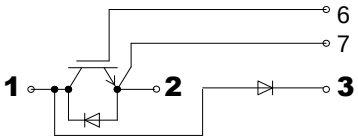


Dimensions in mm (1mm = 0.0394")

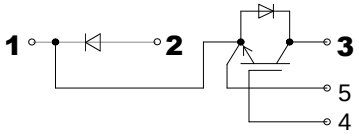




SGD75T120UC1
(Boost Chopper)



SDG75T120UC1
(Buck Chopper)



T_C=25°C,unless otherwise specified

Symbol	Conditions	Values	Units
IGBT			
V_{CES}		1200	V
I_C	T_C=25(80)°C	115(88)	A
I_{CRM}	T_C=25°C,t_P =1ms	225	A
V_{GES}		±20	V
T_{Vj}		-40...+175	°C
Inverse Diode			
I_F = -I_C	T_C=25(80)°C	97(75)	A
I_{FRM}	T_C=25°C,t_P=1ms	150	A
I_{FSM}	t_P=10ms;sin180°;T_j=25°C	430	A
V_{RRM}		1200	V
Module $I_{t(RMS)}$	$T_{teminal}$=80°C	200	A
T_{stg}		-40~125	°C
V_{Isol}	AC,1min	2500	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 switching 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

Sirectifier®

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SGG75T120UC1

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=3mA	5.0	5.8	6.5	V
I_{CES}	V_{GE} = 0;V_{CE}=V_{CES};T_j=25°C			1.0	mA
$V_{CE(TO)}$	T_j=25°C		0.8	0.9	V
r_{CE}	V_{GE}=15V,T_j=25(150)°C		14.0(21)	16(22)	mΩ
$V_{CE(sat)}$	I_C=75A;V_{GE}=15V;chip level		1.85	2.10	V
C_{ies} C_{oes} C_{res}	under following conditions V_{GE}=0,V_{CE}=25V,f=1MHz		4.4 0.29 0.24		nF
L_{CE}				30	nH
$R_{CC'+EE'}$	res.,terminal-chip T_C=25(125)°C		0.65(1.09)		mΩ
$t_{d(on)}$ t_r $t_{d(off)}$ t_f	under following conditions: V_{CC}=600V,I_C=75A R_{Gon}=R_{Goff}=1Ω,T_j=150°C V_{GE}=± 15V		150 39 370 66		ns ns ns ns
E_{on}(E_{off})			11(6.9)		mJ
Inverse Diode	under following conditions:				
V_F = V_{EC}	I_F=75A;V_{GE}=0V;T_j=25°C		2.17	2.49	V
$V_{(FO)}$	T_j=25(150)°C		1.3(0.90)	1.5(1.1)	V
r_F	T_j=25(150)°C		12(16)	13(18)	mΩ
I_{RRM} Q_{rr}	I_F=75A;T_j=150°C di/dt=990A/us		37 12.6		A uC
E_{rr}	V_{GE}=±15V		4.7		mJ
Thermal Characteristics					
$R_{th(j-c)}$	per IGBT			0.38	K/W
$R_{th(j-c)D}$	per Inverse Diode			0.58	K/W
$R_{th(c-s)}$	per module			0.05	K/W
Mechanical Data					
M_s	to heatsink M5	3		5	Nm
M_t	to terminals M5	2.5		5	Nm
Weight	typical			160	g

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IGBT Modules

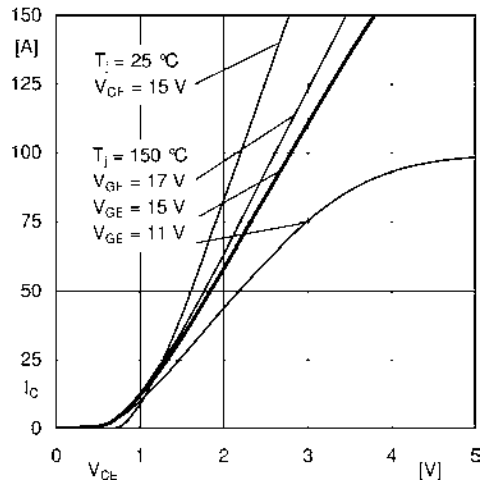

Fig.1:Typ. output characteristic, inclusive RCC'+ EE'

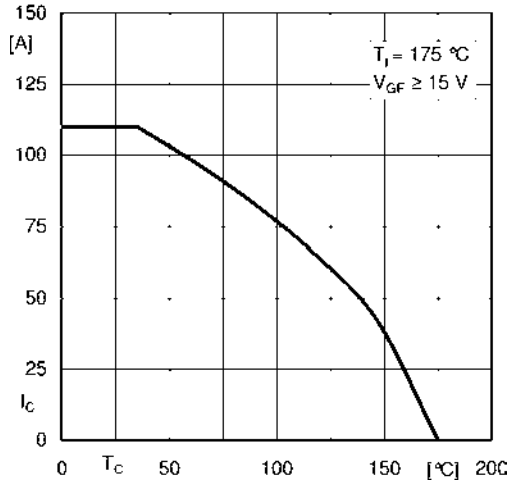

Fig.2:Rated current vs. temperature $I_C = f_{(TC)}$

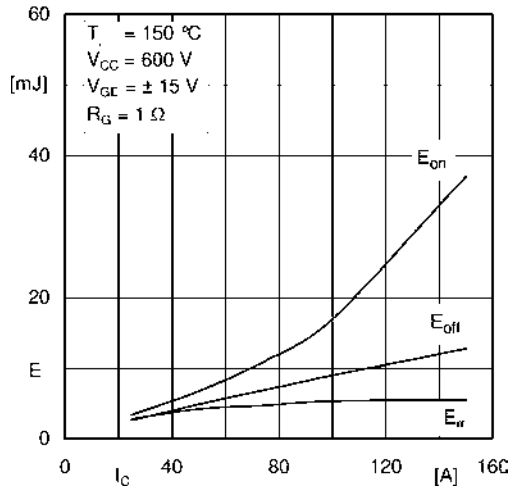

Fig.3:Typ. turn-on /-off energy = $f_{(IC)}$

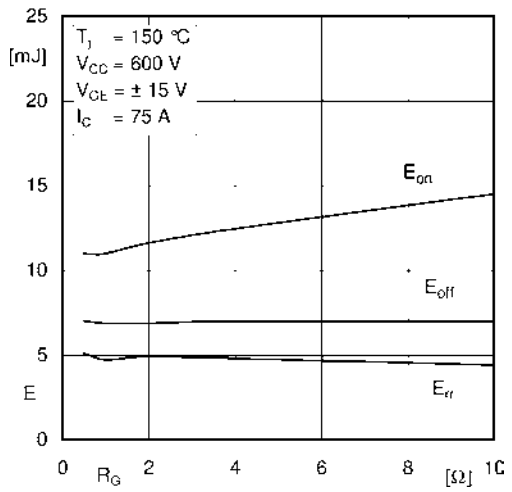

Fig.4:Typ. turn-on /-off energy = $f_{(RG)}$

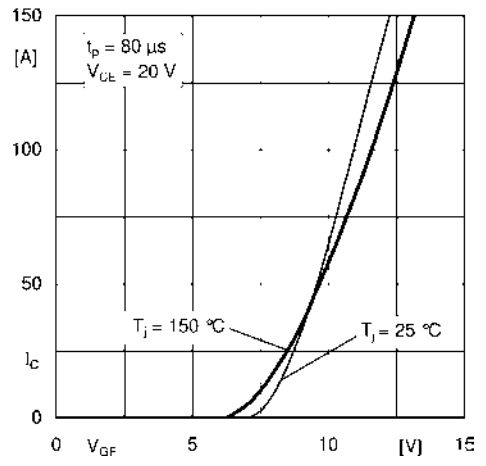

Fig.5:Typ. transfer characteristic

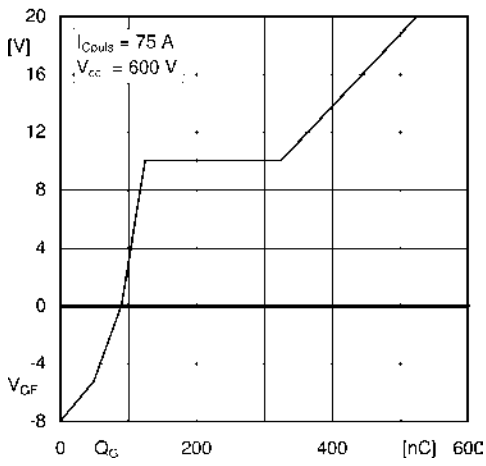

Fig.6:Typ. gate charge characteristic

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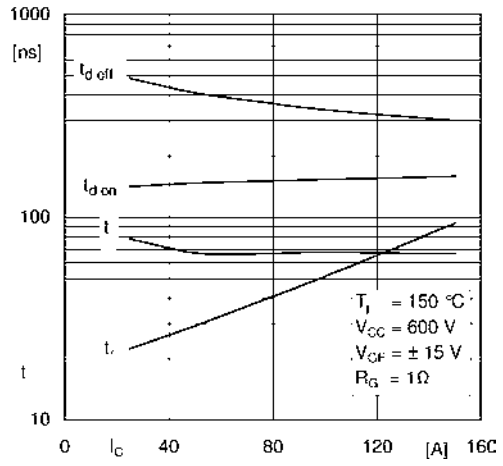

Fig.7:Typ. switching times vs. I_C

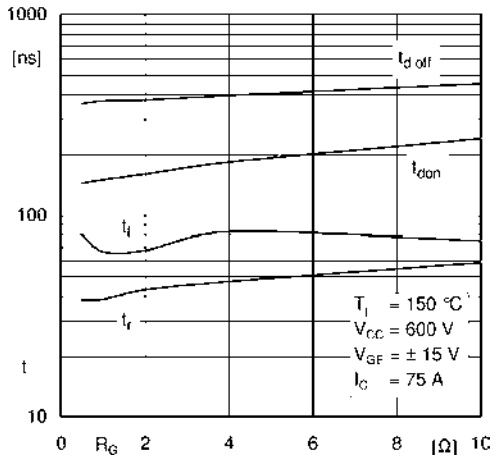

Fig.8:Typ. switching times vs. gate resistor R_G

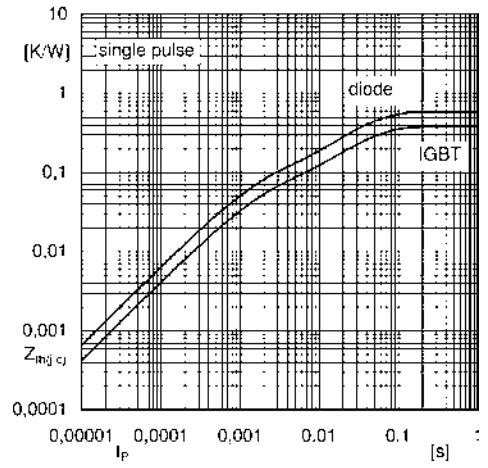

Fig.9:Transient thermal impedance

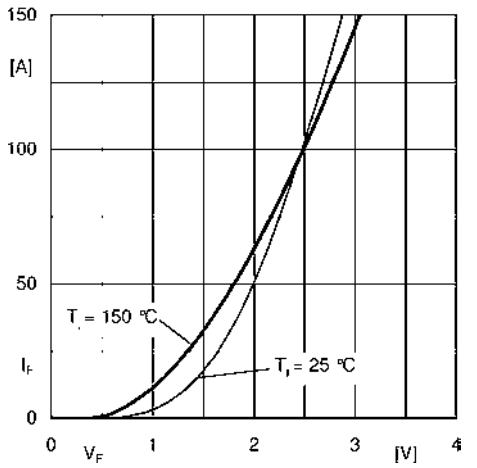

Fig.10:Typ. FRD diode forward charact., incl. $R_{CC'+EE'}$

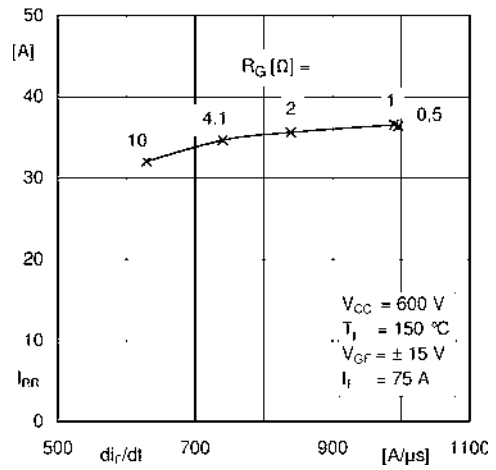

Fig.11:FRD diode peak reverse recovery current

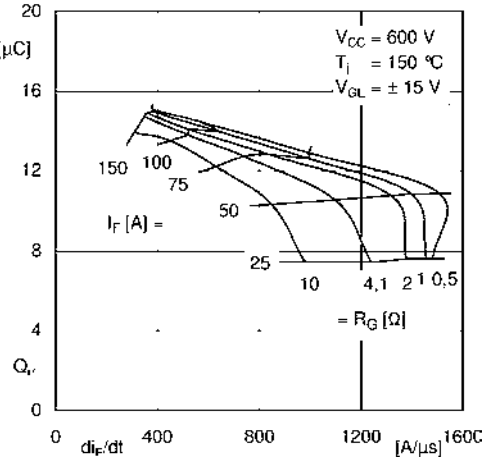

Fig.12:Typ. FRD diode peak reverse recovery charge

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