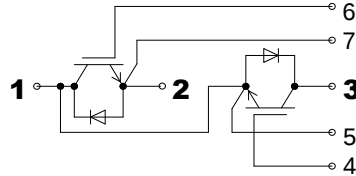


SGG75T120UC1

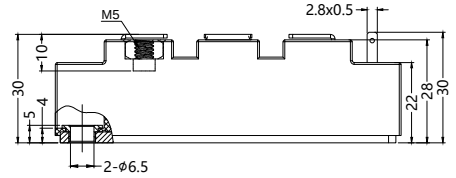
IGBT Modules



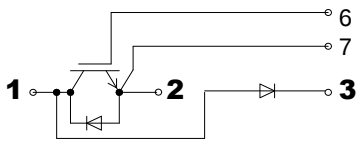
**SGG75T120UC1
(Half Bridge)**



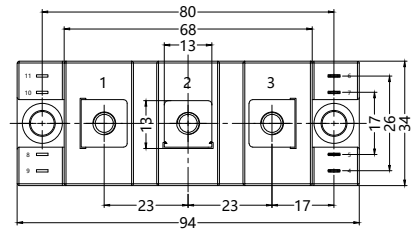
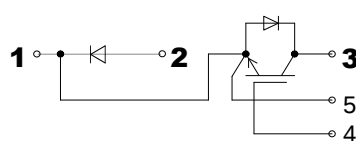
Dimensions in mm (1mm = 0.0394")



**SGD75T120UC1
(Boost Chopper)**



**SDG75T120UC1
(Buck Chopper)**



$T_C=25^{\circ}\text{C}$, unless otherwise specified

Symbol	Conditions	Values	Units
IGBT			
V_{CES}		1200	V
I_C	$T_C=25(80)^{\circ}\text{C}$	115(88)	A
I_{CRM}	$T_C=25^{\circ}\text{C}, t_P=1\text{ms}$	225	A
V_{GES}		± 20	V
T_{Vj}		$-40 \dots +175$	$^{\circ}\text{C}$
Inverse Diode			
$I_F = -I_C$	$T_C=25(80)^{\circ}\text{C}$	97(75)	A
I_{FRM}	$T_C=25^{\circ}\text{C}, t_P=1\text{ms}$	150	A
I_{FSM}	$t_P=10\text{ms}; \sin 180^{\circ}; T_j=25^{\circ}\text{C}$	430	A
V_{RRM}		1200	V
Module			
$I_{t(RMS)}$	$T_{terminal}=80^{\circ}\text{C}$	200	A
T_{stg}		$-40 \sim 125$	$^{\circ}\text{C}$
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 paralleling
- 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



Sirectifier®

SGG75T120UC1

IGBT Modules

Characteristics

$T_c = 25^{\circ}\text{C}$, unless otherwise specified

Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	$V_{GE}=V_{CE}, I_C=3\text{mA}$	5.0	5.8	6.5	V
I_{CES}	$V_{GE} = 0; V_{CE}=V_{CES}; T_j=25^{\circ}\text{C}$			1.0	mA
$V_{CE(TO)}$	$T_j=25^{\circ}\text{C}$		0.8	0.9	V
r_{CE}	$V_{GE}=15\text{V}, T_j=25(150)^{\circ}\text{C}$		14.0(21)	16(22)	m Ω
$V_{CE(sat)}$	$I_C=75\text{A}; V_{GE}=15\text{V}; \text{chip level}$		1.85	2.10	V
C_{ies}	under following conditions $V_{GE}=0, V_{CE}=25\text{V}, f=1\text{MHz}$		4.4		nF
C_{oes}			0.29		
C_{res}			0.24		
L_{CE}				30	nH
$R_{CC'+EE'}$	res., terminal-chip $T_c=25(125)^{\circ}\text{C}$		0.65(1.09)		m Ω
$t_{d(on)}$	under following conditions: $V_{CC}=600\text{V}, I_C=75\text{A}$ $R_{Gon}=R_{Goff}=1\Omega, T_j=150^{\circ}\text{C}$ $V_{GE}=\pm 15\text{V}$		150		ns
t_r			39		ns
$t_{d(off)}$			370		ns
t_f			66		ns
$E_{on}(E_{off})$			11(6.9)		mJ
Inverse Diode under following conditions:					
$V_F = V_{EC}$	$I_F=75\text{A}; V_{GE}=0\text{V}; T_j=25^{\circ}\text{C}$		2.17	2.49	V
$V_{(FO)}$	$T_j=25(150)^{\circ}\text{C}$		1.3(0.90)	1.5(1.1)	V
r_F	$T_j=25(150)^{\circ}\text{C}$		12(16)	13(18)	m Ω
I_{RRM}	$I_F=75\text{A}; T_j=150^{\circ}\text{C}$		37		A
Q_{rr}	$di/dt=990\text{A/us}$		12.6		μC
E_{rr}	$V_{GE}=\pm 15\text{V}$		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

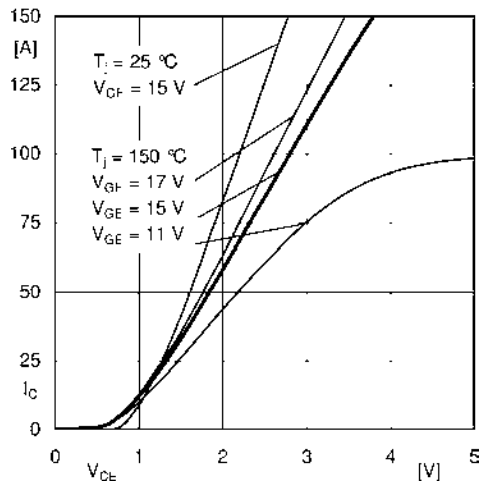


Fig.1:Typ. output characteristic, inclusive RCC'+ EE'

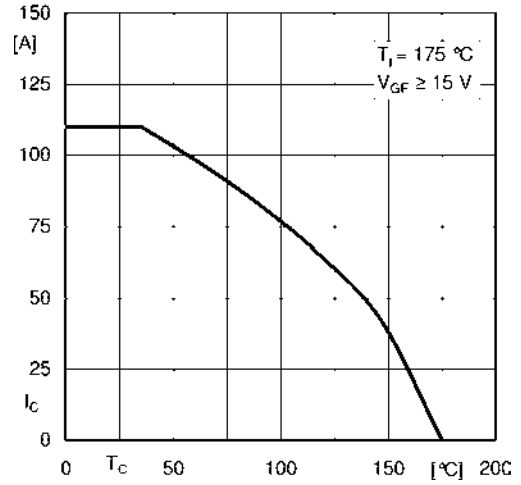


Fig.2:Rated current vs. temperature $I_C = f(T_C)$

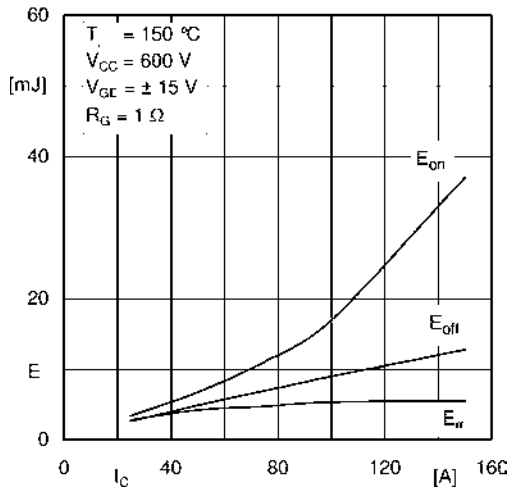


Fig.3:Typ. turn-on /-off energy = $f(I_C)$

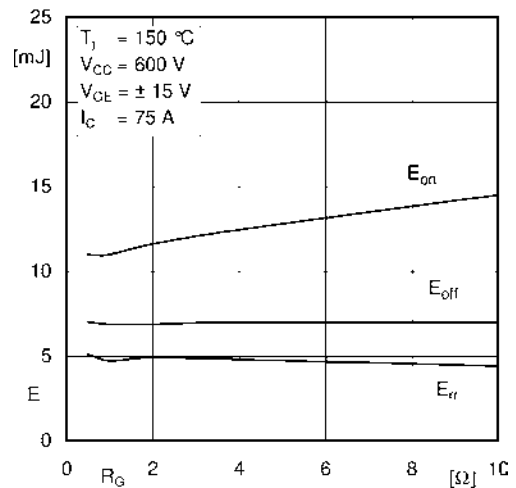


Fig.4:Typ. turn-on /-off energy = $f(R_G)$

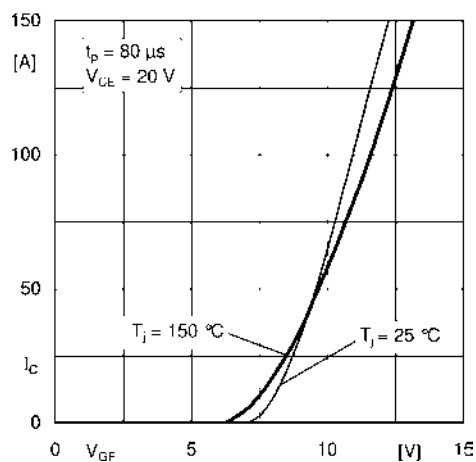


Fig.5:Typ. transfer characteristic

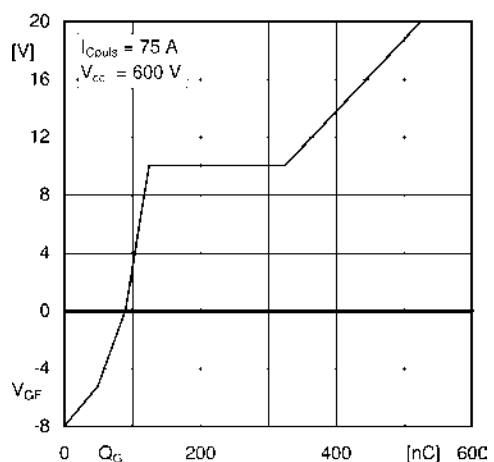


Fig.6:Typ. gate charge characteristic

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IGBT Modules

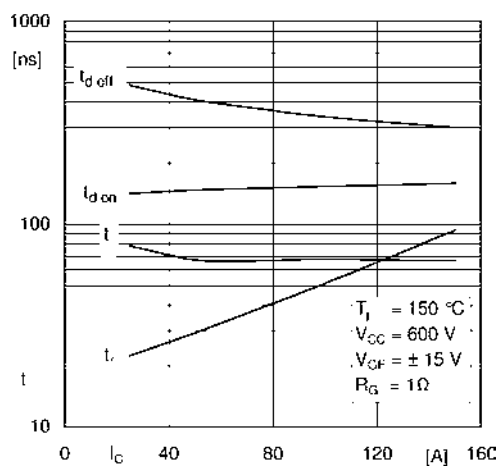


Fig.7:Typ. switching times vs. I_C

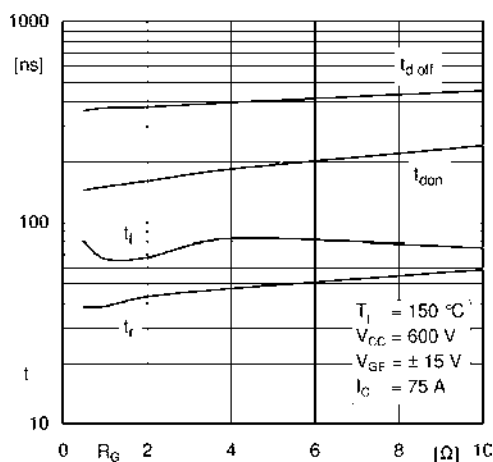


Fig.8:Typ. switching times vs. gate resistor R_G

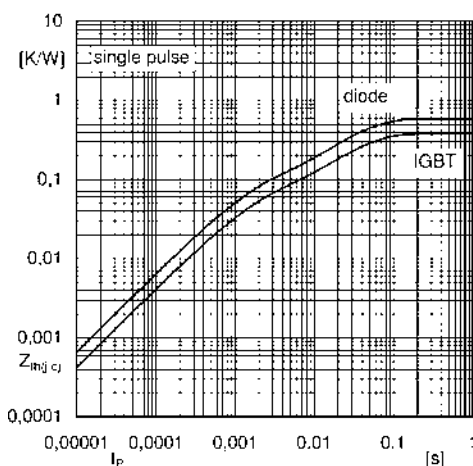


Fig.9:Transient thermal impedance

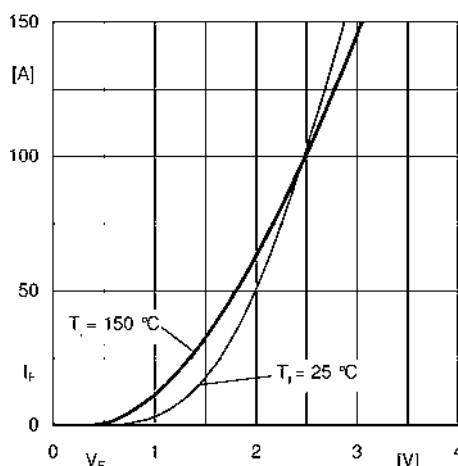


Fig.10:Typ. FRD diode forward charact., incl. $R_{CC} + EE'$

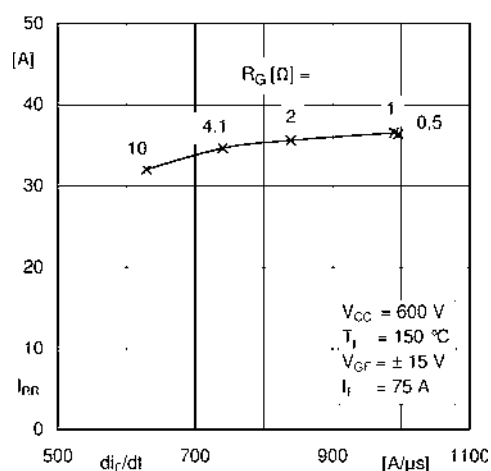


Fig.11:FRD diode peak reverse recovery current

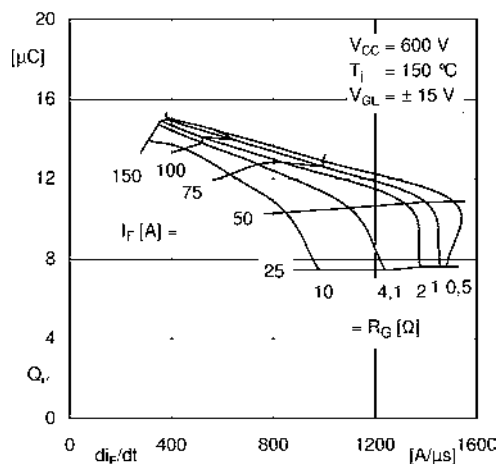


Fig.12:Typ. FRD diode peak reverse recovery charge