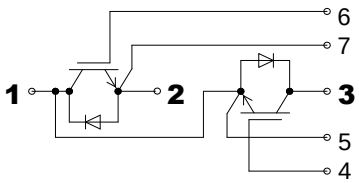
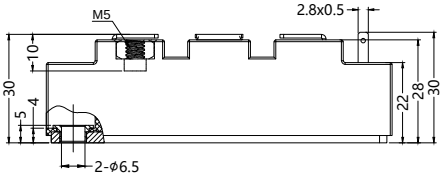
SGG100T60UC1

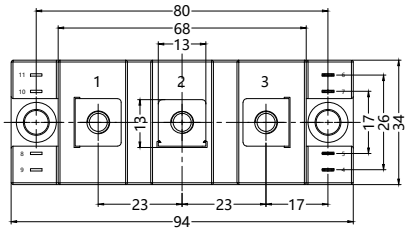
IGBT Modules

SGG100T60UC1
(Half Bridge)

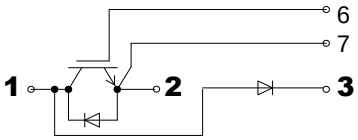


Dimensions in mm (1mm = 0.0394")

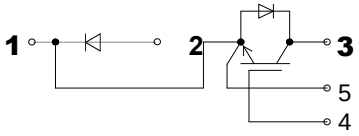




SGD100T60UC1
(Boost Chopper)



SDG100T60UC1
(Buck Chopper)



T_C=25°C, unless otherwise specified

Symbol	Conditions	Values	Units
IGBT			
V_{CES}		600	V
I_C	T_C=25(100)°C	200(100)	A
I_{CRM}	T_C=25°C,t_P=1ms	200	A
V_{GES}		±20	V
T_{Vj}		-40...+175	°C
Inverse Diode			
I_F = -I_C	T_C=25(100)°C	200(100)	A
I_{FRM}	T_C=25°C,t_P=1ms	200	A
I_{FSM}	t_P=10ms;sin180°;T_j=25°C	900	A
V_{RRM}		600	V
Module $I_{t(RMS)}$	$T_{terminal}$ =100°C	100	A
T_{stg}		-40~125	°C
V_{Isol}	AC,1min	4000	V

Features

- Trench FS IGBT technology
- Low switching losses
- Switching frequency up to 30kHz
- Square RBSOA, no latch up
- High short circuit capability
- Positive temperature coefficient for easy parallelling
- MOS input, voltage controlled
- Soft switching diode Technology
- Package with copper baseplate
- Isolation voltage 4000 V

Application

- Inverter welding Machines
- UPS
- AC inverter Drives

Advantages

- spaceand weight savings
- reduced protectioncircuits

RoHS Compliant

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SGG100T60UC1

IGBT Modules

Characteristics

T_C=25°C,unless otherwise specified

Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	V_{CE}=20 V, I_C=3mA	5.0	5.5	6.5	V
I_{CES}	V_{GE}=0;V_{CE}=V_{CES};T_j=25°C			0.20	mA
$V_{CE(TO)}$	T_j=25°C		0.8	0.9	V
r_{CE}	V_{GE}=15V,T_j=25(150)°C		3.2(4.5)	3.6(4.9)	mΩ
$V_{CE(sat)}$	I_C=100A;V_{GE}=15V;chip level		1.75	1.90	V
C_{ies} C_{oes} C_{res}	under following conditions V_{GE}=0,V_{CE}=25V,f=1MHz		8.20 1.10 0.15		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}=300V,I_C=100A R_{Gon}=R_{Goff}=33Ω,T_j =150°C V_{GE}=±15V		100 40 310 62		ns ns ns ns
E_{on}/E_{off}/E_{ts}			1.02/1.34/2.36		mJ
Inverse Diode under following conditions:I_F=100A;					
V_F = V_{EC}	V_{GE}=0V;T_j=25°C		1.70		V
$V_{(FO)}$	T_j=25(125)°C		1.2(0.90)	1.4(1.1)	V
r_F	T_j=25(125)°C		17(24)	21(27)	mΩ
I_{RM} Q_{rr} E_{rr}	I_F=100A;T_j=125°C di/dt=100A/us V_{GE}=±15V		5.6 0.15 0.9		A uC mJ
Thermal Characteristics					
$R_{th(j-c)}$	per IGBT			0.37	K/W
$R_{th(j-c)D}$	per Inverse Diode			0.89	K/W
$R_{th(c-s)}$	per module			0.26	K/W
Mechanical Data					
M_s	to heatsink M5	3		5	Nm
M_t	to terminals M5	2.5		5	Nm
Weight	typical			155	g

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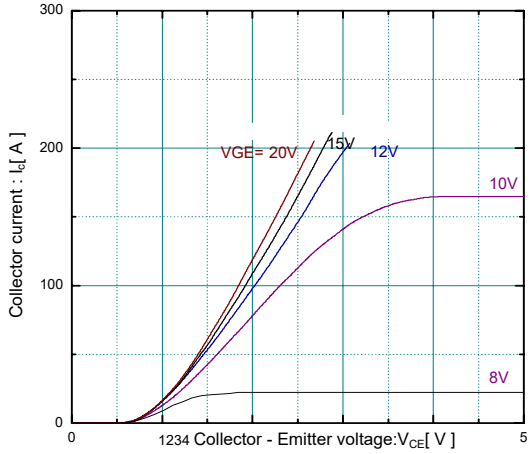

Fig.1 Collector current vs. Collector-Emitter voltage
T_j= 25°C(typ.)

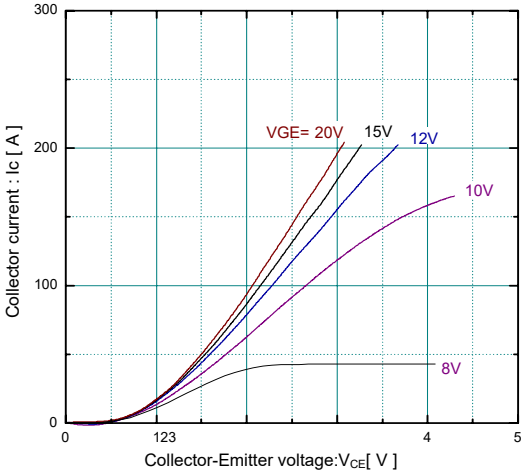

Fig.2 Collector current vs. Collector-Emitter voltage T_j=125°C(typ.)

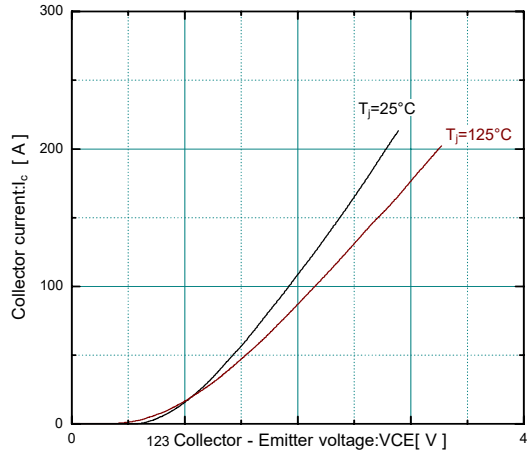

Fig.3 Collector current vs. Collector-Emitter voltage
V_{GE}=15V(typ.)

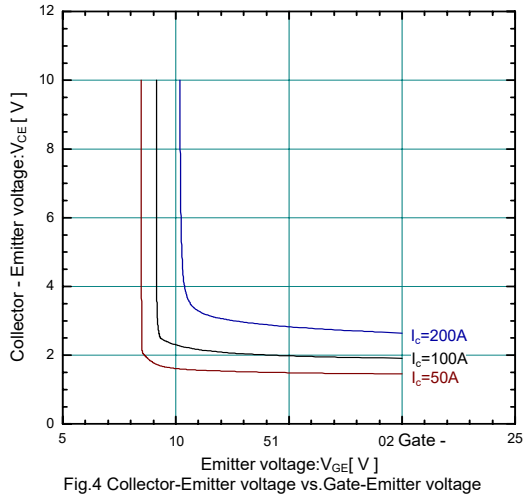

Fig.4 Collector-Emitter voltage vs.Gate-Emitter voltage
T_j=25°C(typ.)

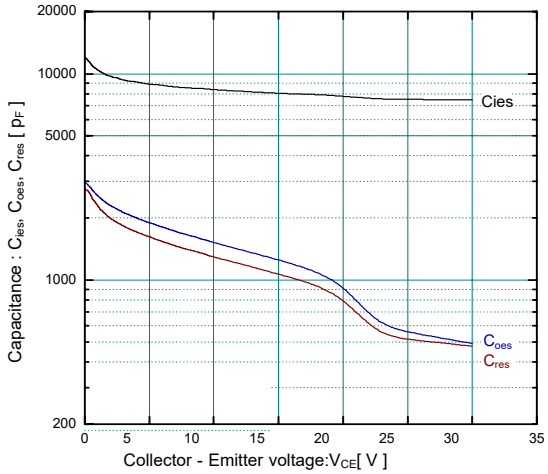

Fig.5 Capacitance vs. Collector-Emitter voltage (typ.)
V_{GE}=0V,f=1MHz,T_j=25°C

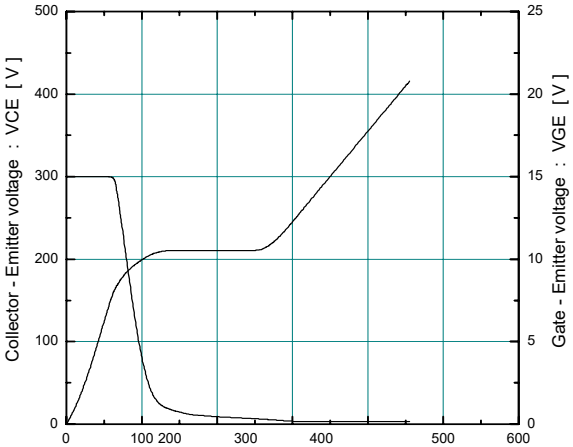

Fig.6 Dynamic Gate charge(typ.)
V_{cc}=300V,I_c=100A,T_j=25°C

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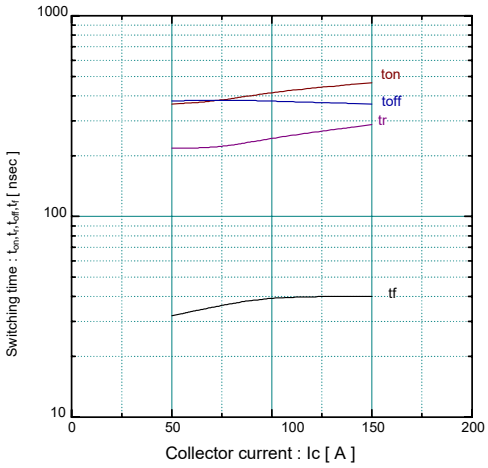

Fig.7 Switching time vs. Collector current (typ.)
Vcc=300V,VGE=±15V,Rg=33Ω,Tj= 25℃

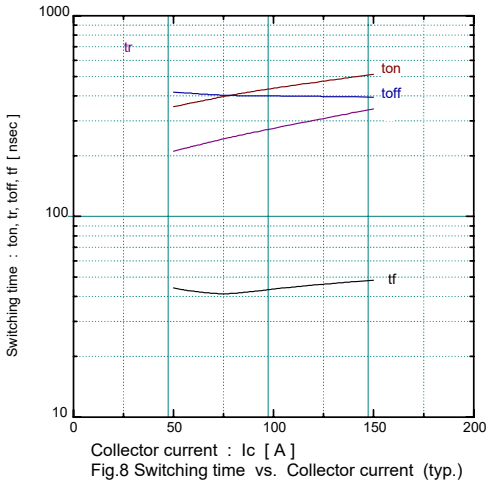

Fig.8 Switching time vs. Collector current (typ.)
Vcc=300V, VGE=±15V, Rg= 33Ω, Tj= 125℃

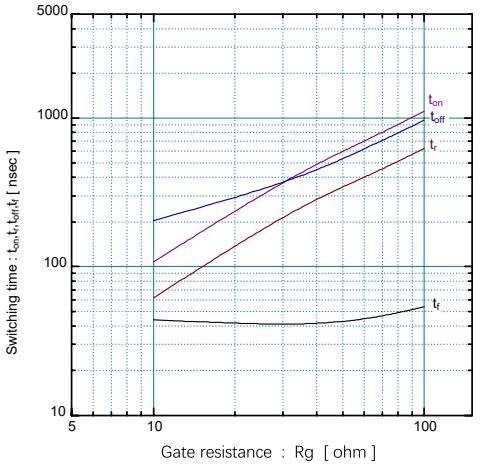

Fig.9 Switching time vs.Gate resistance
(typ.)V_{cc}=300V,I_c=100A,V_{GE}=±15V,T_j=25°C

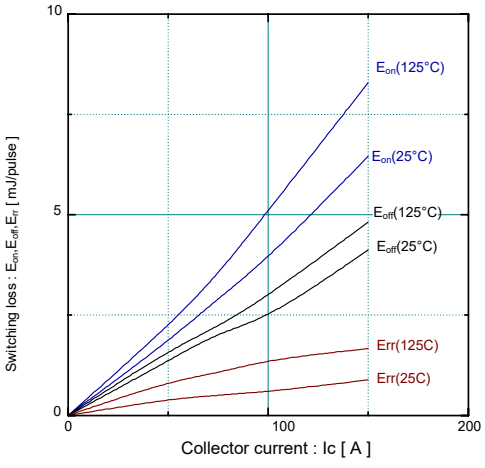

Fig.10 Switching loss vs. Collector current (typ.)
V_{cc}=300V,V_{GE}=±15V,R_g=33Ω

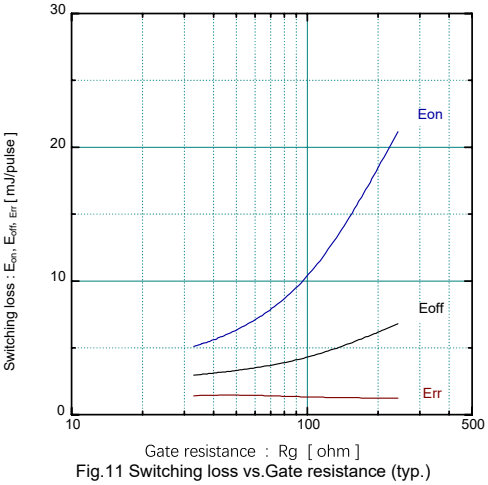

Fig.11 Switching loss vs.Gate resistance (typ.)
V_{cc}=300V,I_c=100A,V_{GE}=±15V,T_j=125°C

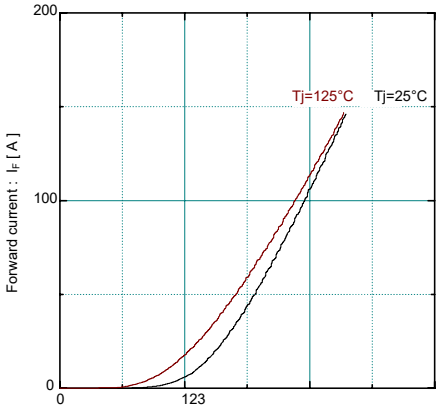

Fig.12 Forward current vs. Forward on voltage (typ.)

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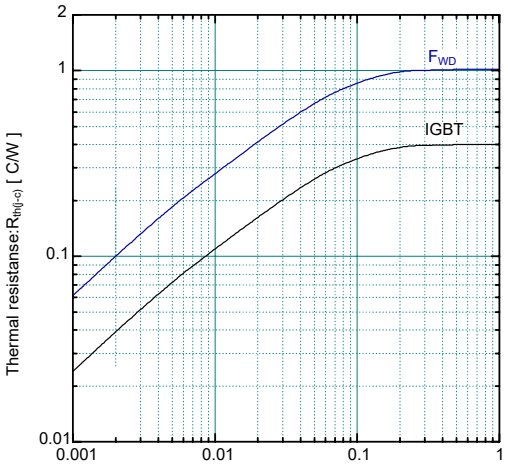

Fig.13 Transient Thermal resistance

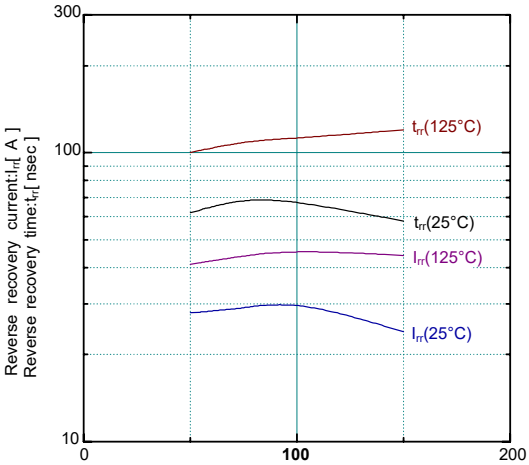

Fig.14 Reverse recovery characteristics
(typ.) V_{cc}=300V,V_{GE}=±15V,R_g=33Ω

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