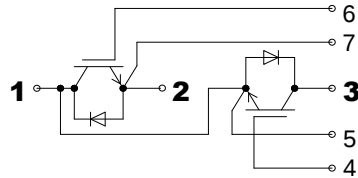


SGG100T60UC1

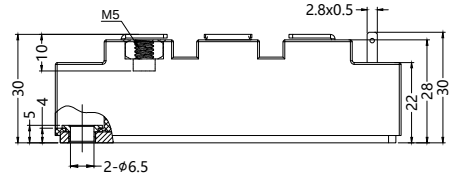
IGBT Modules



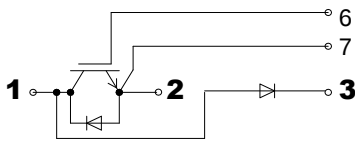
**SGG100T60UC1
(Half Bridge)**



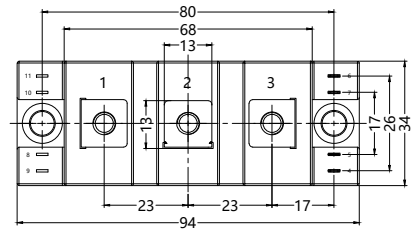
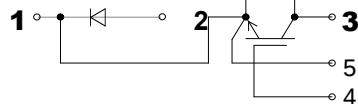
Dimensions in mm (1mm = 0.0394")



**SGD100T60UC1
(Boost Chopper)**



**SDG100T60UC1
(Buck Chopper)**



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

Symbol	Conditions	Values	Units
IGBT			
V_{CES}		600	V
I_C	$T_C=25(100)^{\circ}\text{C}$	200(100)	A
I_{CRM}	$T_C=25^{\circ}\text{C}, t_P=1\text{ms}$	200	A
V_{GES}		± 20	V
T_{Vj}		$-40...+175$	$^{\circ}\text{C}$
Inverse Diode			
$I_F = -I_C$	$T_C=25(100)^{\circ}\text{C}$	200(100)	A
I_{FRM}	$T_C=25^{\circ}\text{C}, t_P=1\text{ms}$	200	A
I_{FSM}	$t_P=10\text{ms}; \sin 180^{\circ}; T_j=25^{\circ}\text{C}$	900	A
V_{RRM}		600	V
Module			
$I_{t(RMS)}$	$T_{\text{terminal}}=100^{\circ}\text{C}$	100	A
T_{stg}		$-40\sim 125$	$^{\circ}\text{C}$
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 paralleling
- MOS input, voltage controlled
- Soft switching 4.0 generation diode Technology
- Package with copper baseplate
- Isolation voltage 4000 V

Application

- Inverter welding Machines
- UPS
- AC inverter Drives

Advantages

- space and weight savings
- reduced protection circuits



Sirectifier®

SGG100T60UC1

IGBT Modules

Characteristics

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

Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	$V_{CE}=20\text{ V}$, $I_C=3\text{mA}$	5.0	5.5	6.5	V
I_{CES}	$V_{GE}=0$; $V_{CE}=V_{CES}$; $T_j=25^{\circ}\text{C}$			0.20	mA
$V_{CE(TO)}$	$T_j=25^{\circ}\text{C}$		0.8	0.9	V
r_{CE}	$V_{GE}=15\text{V}$, $T_j=25(150)^{\circ}\text{C}$		3.2(4.5)	3.6(4.9)	m Ω
$V_{CE(sat)}$	$I_C=100\text{A}$; $V_{GE}=15\text{V}$; chip level		1.75	1.90	V
C_{ies}	under following conditions $V_{GE}=0$, $V_{CE}=25\text{V}$, $f=1\text{MHz}$		8.20		nF
C_{oes}			1.10		
C_{res}			0.15		
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: $V_{CC}=300\text{V}$, $I_C=100\text{A}$ $R_{Gon}=R_{Goff}=33\Omega$, $T_j=150^{\circ}\text{C}$ $V_{GE}=\pm 15\text{V}$		100		ns
t_r			40		ns
$t_{d(off)}$			310		ns
t_f			62		ns
$E_{on}/E_{off}/E_{ts}$			1.02/1.34/2.36		mJ
Inverse Diode under following conditions: $I_F=100\text{A}$;					
$V_F = V_{EC}$	$V_{GE}=0\text{V}$; $T_j=25^{\circ}\text{C}$		1.70		V
$V_{(FO)}$	$T_j=25(125)^{\circ}\text{C}$		1.2(0.90)	1.4(1.1)	V
r_F	$T_j=25(125)^{\circ}\text{C}$		17(24)	2 1 (27)	m Ω
I_{RM}	$I_F=100\text{A}$; $T_j=125^{\circ}\text{C}$		5.6		A
Q_{rr}	$di/dt=100\text{A/us}$		0.15		uC
E_{rr}	$V_{GE}=\pm 15\text{V}$		0.9		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

SGG100T60UC1

IGBT Modules

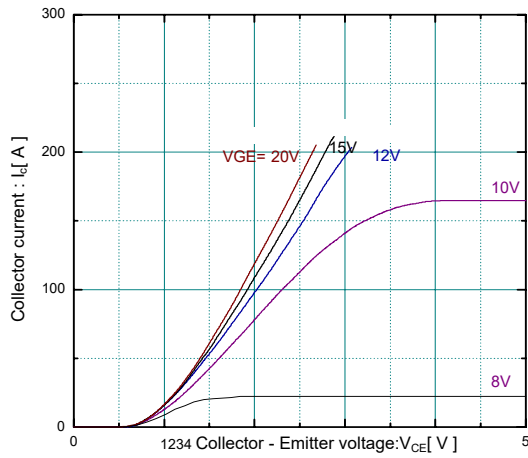


Fig.1 Collector current vs. Collector-Emitter voltage
 $T_j = 25^\circ\text{C}$ (typ.)

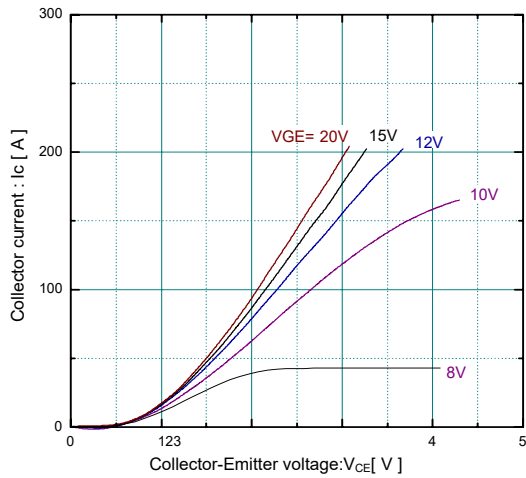


Fig.2 Collector current vs. Collector-Emitter voltage
 $T_j = 125^\circ\text{C}$ (typ.)

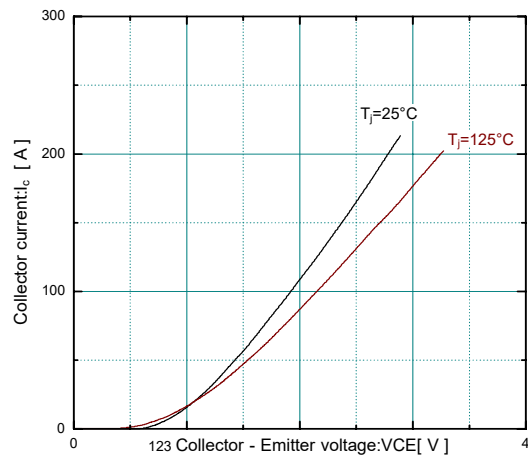


Fig.3 Collector current vs. Collector-Emitter voltage
 $V_{GE} = 15\text{V}$ (typ.)

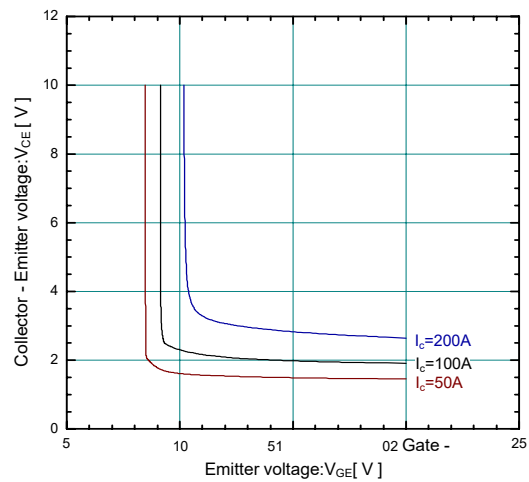


Fig.4 Collector-Emitter voltage vs. Gate-Emitter voltage
 $T_j = 25^\circ\text{C}$ (typ.)

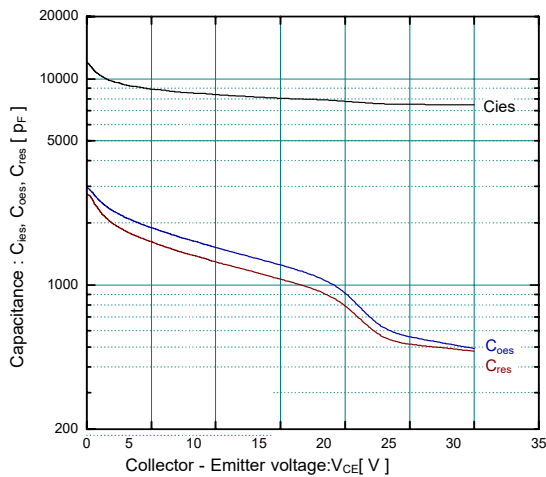


Fig.5 Capacitance vs. Collector-Emitter voltage (typ.)
 $V_{GE} = 0\text{V}, f = 1\text{MHz}, T_j = 25^\circ\text{C}$

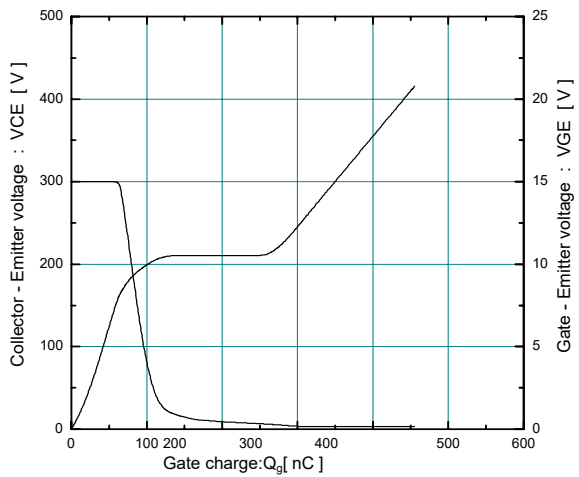


Fig.6 Dynamic Gate charge (typ.)
 $V_{cc} = 300\text{V}, I_c = 100\text{A}, T_j = 25^\circ\text{C}$

SGG100T60UC1

IGBT Modules

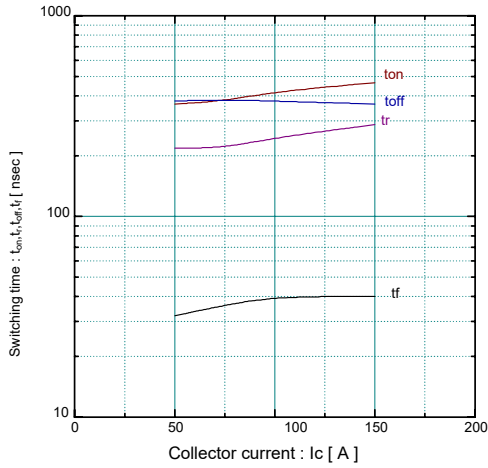


Fig.7 Switching time vs. Collector current (typ.)
 $V_{cc}=300V, V_{GE}=\pm 15V, R_g=33\Omega, T_j=25^\circ C$

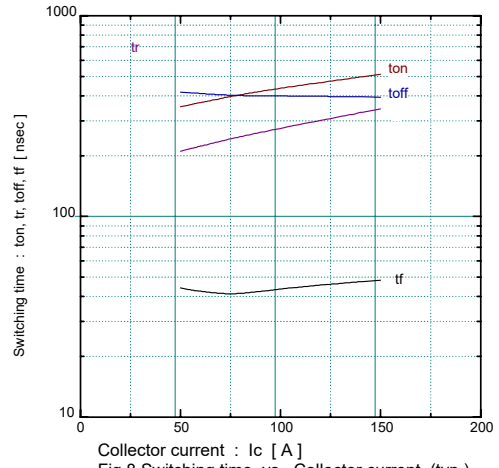


Fig.8 Switching time vs. Collector current (typ.)
 $V_{cc}=300V, V_{GE}=\pm 15V, R_g=33\Omega, T_j=125^\circ C$

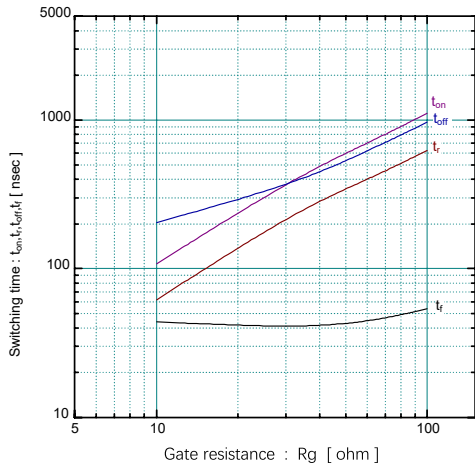


Fig.9 Switching time vs. Gate resistance (typ.)
 $V_{cc}=300V, I_c=100A, V_{GE}=\pm 15V, T_j=25^\circ C$

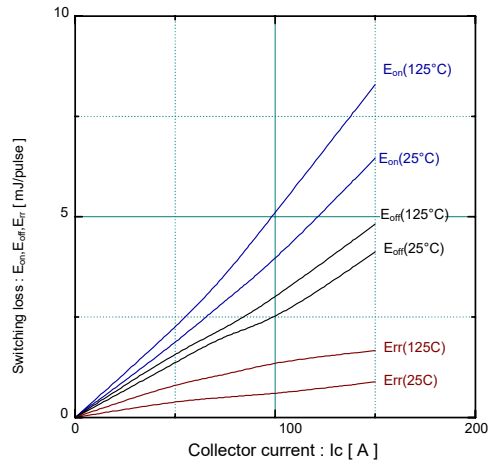


Fig.10 Switching loss vs. Collector current (typ.)
 $V_{cc}=300V, V_{GE}=\pm 15V, R_g=33\Omega$

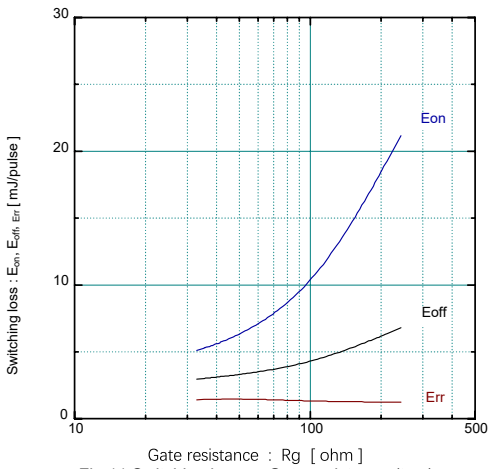


Fig.11 Switching loss vs. Gate resistance (typ.)
 $V_{cc}=300V, I_c=100A, V_{GE}=\pm 15V, T_j=125^\circ C$

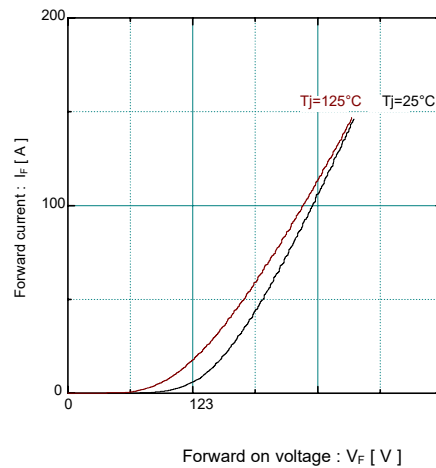


Fig.12 Forward current vs. Forward on voltage (typ.)

SGG100T60UC1

IGBT Modules

