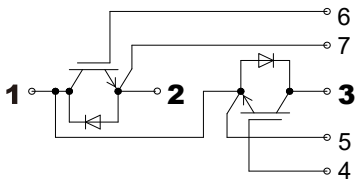
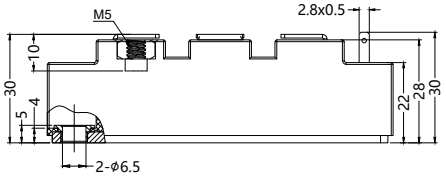
SGG100T170UC1

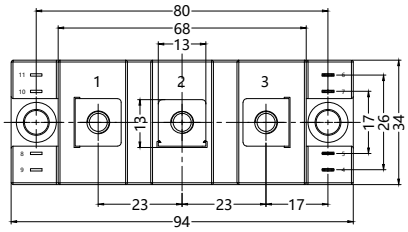
IGBT Modules

SGG100T170UC1



Dimensions in mm (1mm = 0.0394")





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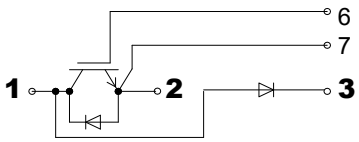

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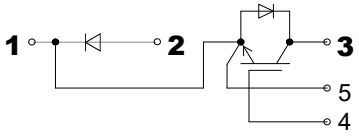

T_C = 25°C, unless otherwise specified

Symbol	Conditions	Values	Units
IGBT			
V_{CES}		1700	V
I_C	T_C=25(100)°C	150(100)	A
I_{CRM}	T_C=25°C,t_P =1ms	200	A
V_{GES}		±20	V
T_{Vj}		-40...+175	°C
Inverse Diode V_{RRM}		1700	V
I_F = -I_C	T_C=25(100)°C	120(100)	A
I_{FRM}	T_C=25°C,t_P =1ms	200	A
I_{FSM}	t_P=10ms;sin.;T_j=150°C	500	A
Module $I_{t(RMS)}$	$T_{teminal}$=80°C	200	A
T_{stg}		-40~125	°C
V_{Isol}	AC,1min	4000	V

Features

- Trench Field Stop IGBT technology
- Low switching losses
- High short circuit capability
- Positive temperature coefficient for easy parallelling
- MOS input, voltage controlled
- Soft switching FRD 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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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=6mA	5.1	5.7	6.4	V
I_{CES}	V_{GE}=0;V_{CE}=V_{CES};T_j=25°C			1.0	mA
$V_{CE(TO)}$	T_j=25°C		0.85	0.95	V
r_{CE}	V_{GE}=15V,T_j=25(150)°C		10.3(15.2)	11.8(16.3)	mΩ
$V_{CE(sat)}$	I_C=100A;V_{GE}=15V;chip level		1.85	2.35	V
C_{ies}	under following conditions		13.55		nF
C_{oes}	V_{GE}=0,V_{CE}=25V,f=1MHz		0.560		
C_{res}			0.395		
L_{CE}				30	nH
$R_{CC'+EE'}$	res.,terminal-chip T_C=25(125)°C		0.68(1.2)		mΩ
$t_{d(on)}$	under following conditions:		168		ns
t_r	V_{CC}=900V, I_C=100A		40		ns
$t_{d(off)}$	R_{Gon}=R_{Goff}=1Ω T_j=150°C		340		ns
t_f	V_{GE} =±15V		225		ns
E_{on}(E_{off})			15.22(20.12)		mJ
Inverse Diode	under following conditions:				
V_F = V_{EC}	I_F=100A;V_{GE}=0V;T_j=25°C		2.10	2.60	V
$V_{(FO)}$	T_j=25(150)°C		1.34(0.96)	1.57(1.14)	V
r_F	T_j=25(150)°C		9.2(12.9)	10.5(13.8)	mΩ
I_{RRM}	I_F =100A;T_j =150°C		74		A
Q_{rr}	di/dt=1900A/us		20.7		uC
E_{rr}	V_{GE}=±15V		20.9		mJ
Thermal Characteristics					
$R_{th(j-c)}$	per IGBT			0.37	K/W
$R_{th(j-c)D}$	per Inverse Diode			0.58	K/W
$R_{th(c-s)}$	per module			0.06	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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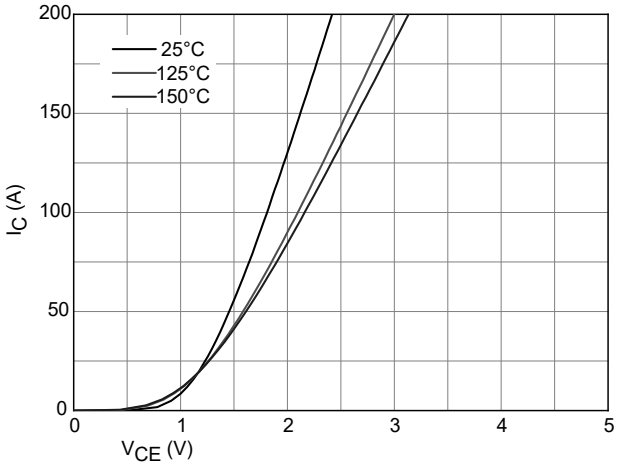

Figure1. Typical output characteristics (VGE=15V)

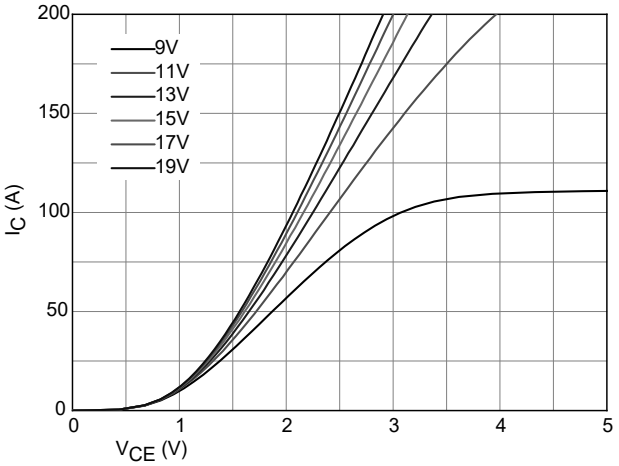

Figure2. Typical output characteristics (Tvj=150℃)

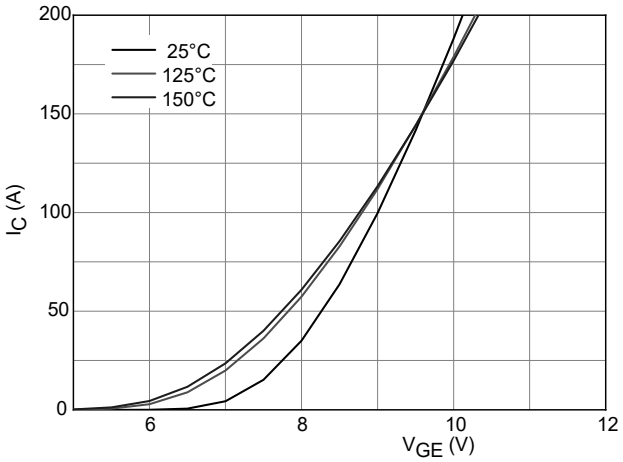

Figure3. Typical transfer characteristic(VCE=20V)

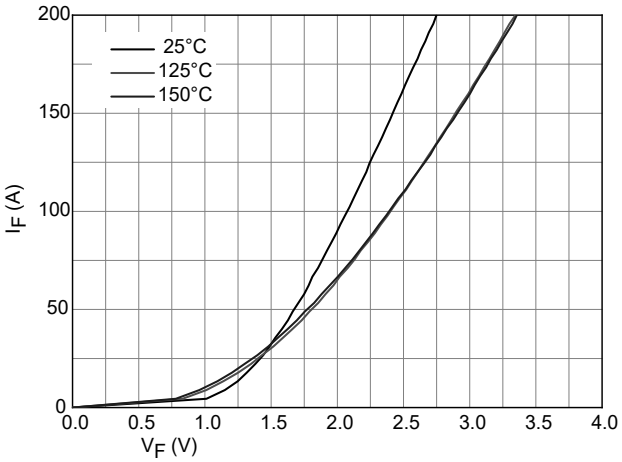

Figure4.Forward characteristic of Diode

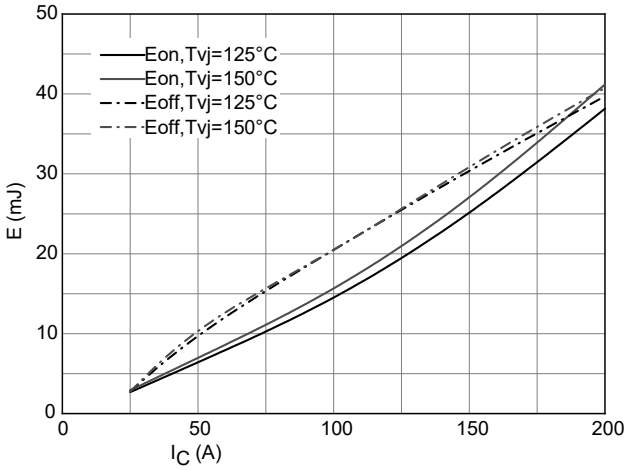

Figure5. Switching losses of IGBT
VGE=±15V, RGon=1Ω RGoff=1Ω,VCE=900V

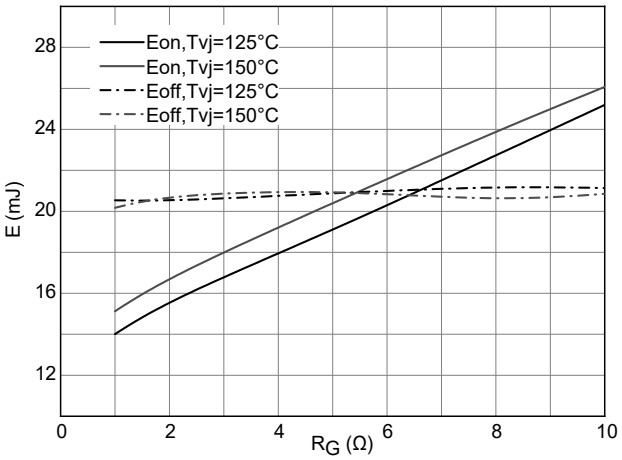

Figure 6. Switching losses of IGBT
VGE=±15V, IC=100A, VCE=900V

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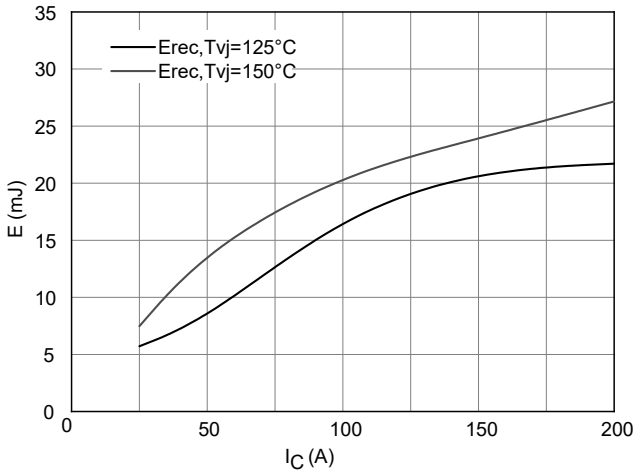

Figure 7. Switching losses of Diode R_{Gon}=1Ω,V_{CE}=900V

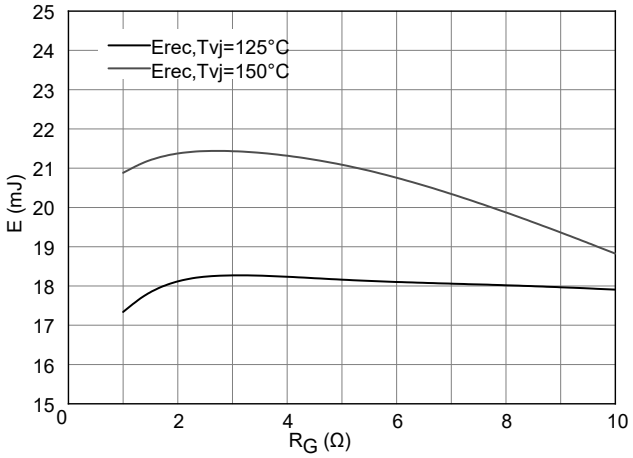

Figure8. Switching lossesof Diode I_F=100A, V_{CE}=900V

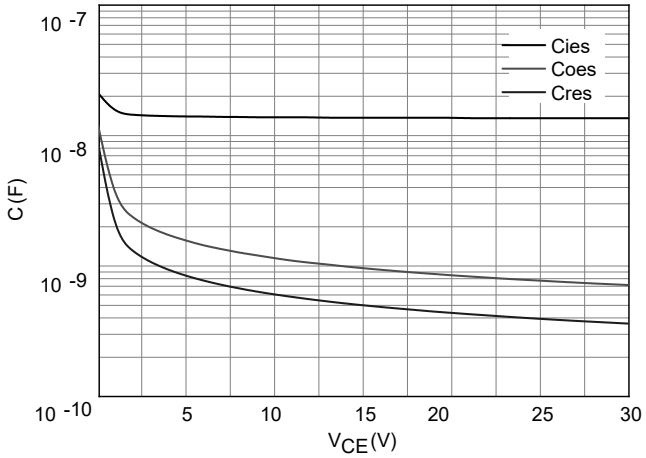

Figure9. Capacitancecharacteristic

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