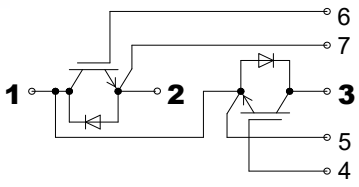
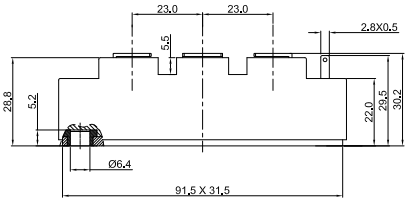
SGG100T170UC1

IGBT Modules

SGG100T170UC1



Dimensions in mm (1mm = 0.0394")



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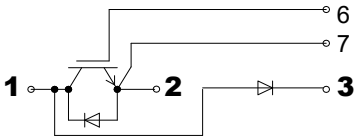

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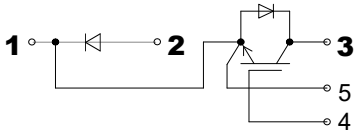

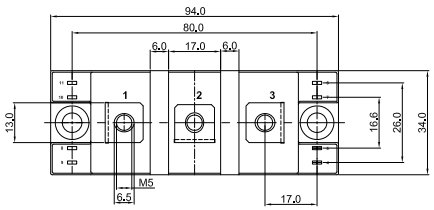

T_C = 25°C, unless otherwise specified

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 swithcing 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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SGG100T170UC1

IGBT Modules

Characteristics $T_C = 25^oC$, 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; $V_{CE} = V_{CES}$; $T_j = 25^oC$			1.0	mA
$V_{CE(TO)}$	$T_j = 25^oC$		0.85	0.95	V
r_{CE}	V_{GE} = 15V, T_j = 25(150)^oC		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		
C_{oes}	V_{GE} = 0, V_{CE} = 25V, f = 1MHz		0.560		nF
C_{res}			0.395		
L_{CE}				30	nH
$R_{CC'+EE'}$	res., terminal-chip T_C = 25(125)^oC		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^oC		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^oC		2.10	2.60	V
$V_{(FO)}$	T_j = 25(150)^oC		1.34(0.96)	1.57(1.14)	V
r_F	T_j = 25(150)^oC		9.2(12.9)	10.5(13.8)	mΩ
I_{RRM}	I_F = 100A; T_j = 150^oC		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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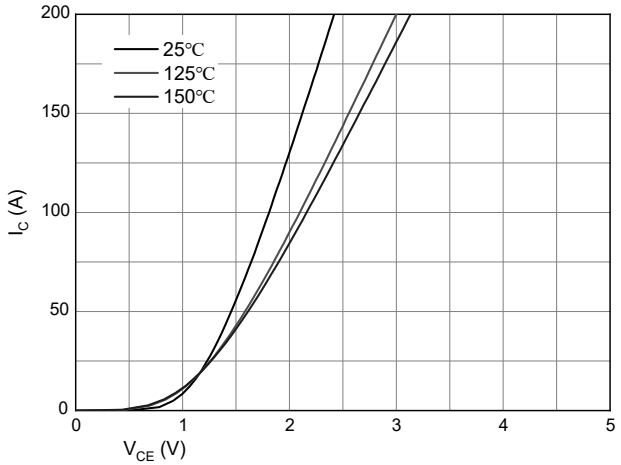

Figure 1. Typical output characteristics (V_{GE}=15V)

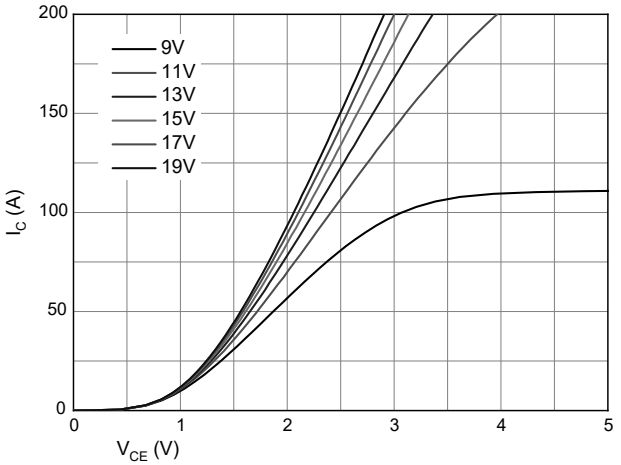

Figure 2. Typical output characteristics (T_{vj}=150℃)

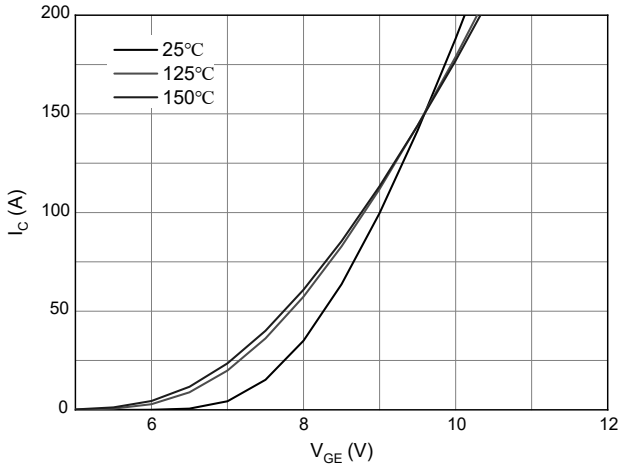

Figure 3. Typical transfer characteristic(V_{CE}=20V)

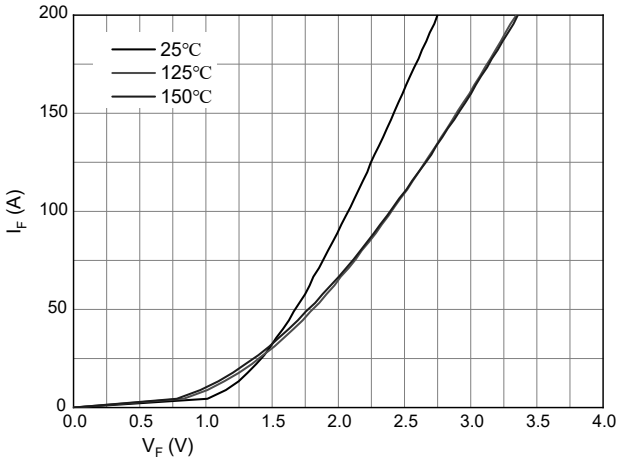

Figure 4. Forward characteristic of Diode

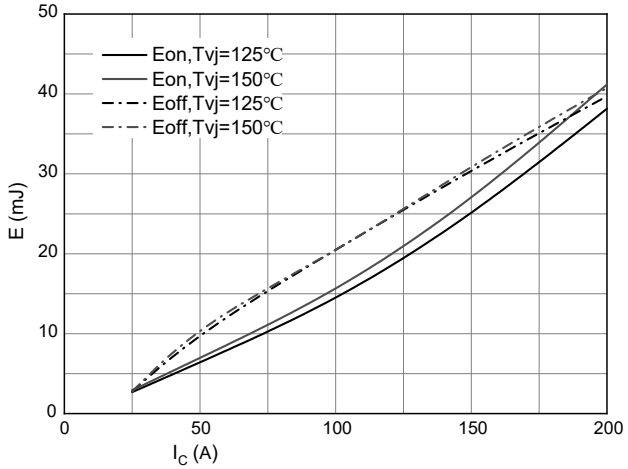

Figure 5. Switching losses of IGBT

VGE=±15V, RGon=1Ω, RGoff=1Ω, VCE=900V

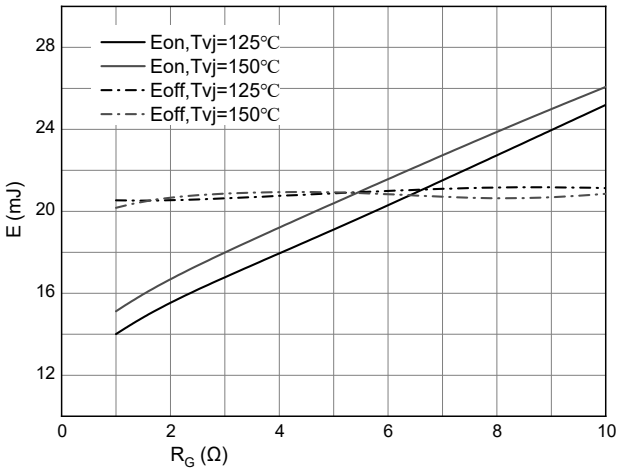

Figure 6. Switching losses of IGBT

VGE=±15V, IC=100A, VCE=900V

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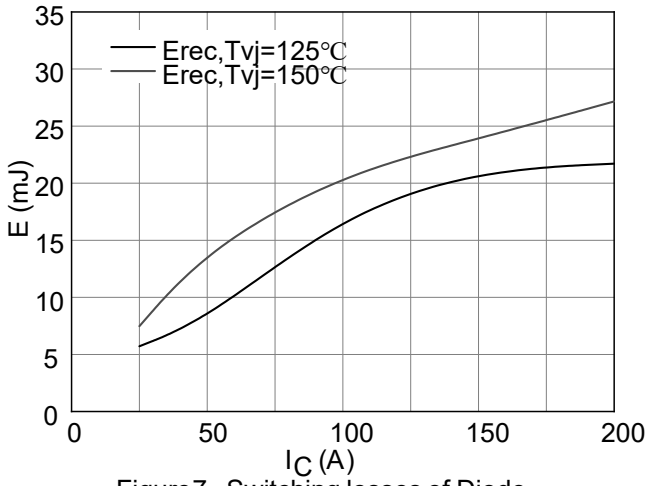

Figure7. Switching losses of Diode
RGon=1Ω,VCE=900V

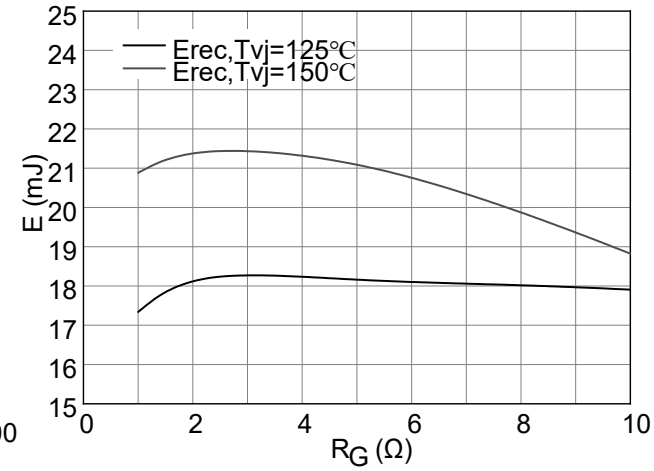

Figure8. Switching losses of Diode
IF=100A, VCE=900V

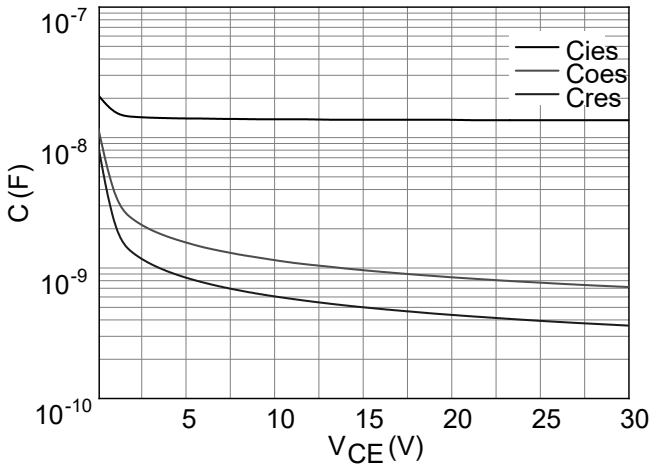

Figure9. Capacitance characteristic

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