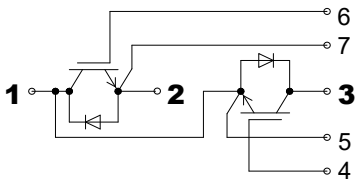
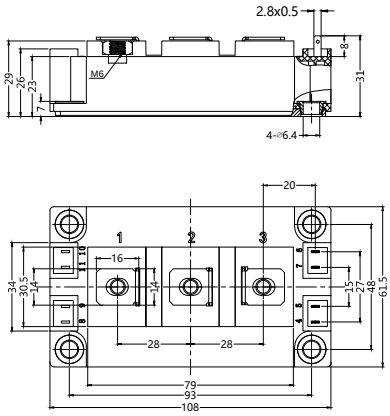
SGG400T170UC2

IGBT Modules

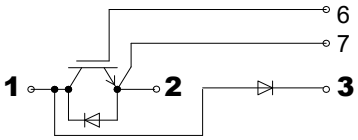
SGG400T170UC2



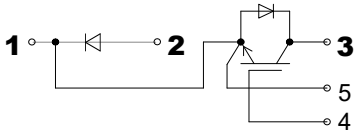
Dimensions in mm (1mm = 0.0394")



SGD400T170UC2



SDG400T170UC2



T_C=25°C,unless otherwise specified

Symbol	Conditions	Values	Units
IGBT			
V_{CES}		1700	V
I_C	T_C=25(100)°C	800(400)	A
I_{CRM}	T_C=25°C,t_P =1ms	800	A
V_{GES}		±20	V
T_{Vj}		-40...+175	°C
Inverse Diode			
V_{RRM} I_F = -I_C	T_C=25(80)°C	1700 800(400)	V A
I_{FRM}	T_C=25°C,t_P =1ms	800	A
I_{FSM}	t_P=10ms;sin.;T_j=150°C	400	A
Module			
$I_{t(RMS)}$	$T_{teminal}$=80°C	400	A
T_{stg}		-40~125	°C
V_{Isol}	AC,1min	4000	V

Features

- Trench FS technology
- Low switching losses
- Square RBSOA, no latch up
- High short circuit capability
- Positive temperature coefficient for easy parallelling
- Soft switching FWD Technology
- Package with copper base plate
- Isolation voltage 4000 V

Application

- AC and DC motor control
- AC servo and robot drives
- power supplies
- welding inverters

Advantages

- space and weight savings
- reduced protection circuits

www.sirectifier.com Tel: +86-519-86800000 Fax: +86-519-88019019 E-mail: sales@sirectifier.com

SGG400T170UC2

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=12mA	5.5	6.0	6.52	V
I_{CES}	V_{GE}=0;V_{CE}=V_{CES};T_j=25°C			1.0	mA
$V_{CE(TO)}$	T_j=25°C		0.86	0.96	V
r_{CE}	V_{GE}=15V,T_j=25(150)°C		7.0(10.1)	7.9(10.7)	mΩ
$V_{CE(sat)}$	I_C=400A;V_{GE}=15V;chip level		2.15	2.50	V
C_{ies}	under following conditions		101.0		
C_{oes}	V_{GE}=0,V_{CE}=25V,f=1MHz		3.19		nF
C_{res}			0.88		
L_{CE}				20	nH
$R_{CC'+EE'}$	res., terminal-chip T_C=25(125)°C		0.26(0.6)		mΩ
$t_{d(on)}$	under following conditions:		795		ns
t_r	V_{CC}=900V,I_C=400A		172		ns
$t_{d(off)}$	R_{Gon}=R_{Goff}=1Ω,T_j=150°C		700		ns
t_f	V_{GE}=± 15V		580		ns
E_{on}(E_{off})			84.7(88.1)		mJ
Inverse Diode					
V_{RRM}	under following conditions:	1700			V
V_F = V_{EC}	I_F =400A;V_{GE}=0V;T_j =25°C		2.68	3.30	V
$V_{(FO)}$	T_j=25(150)°C		1.4(1.15)	1.8(1.45)	V
r_F	T_j=25(150)°C		6.0(8.4)	6.6(9.0)	mΩ
I_{RRM}	I_F=400A;T_j=150°C		190		A
Q_{rr}	di/dt =3100A/us		19		uC
E_{rr}	V_{GE}=±15V		67		mJ
Thermal Characteristics					
$R_{th(j-c)}$	per IGBT			0.110	K/W
$R_{th(j-c)D}$	per Inverse Diode			0.190	K/W
$R_{th(c-s)}$	per module			0.069	K/W
Mechanical Data					
M_s	to heatsink M6	3		5	Nm
M_t	to terminals M6	2.5		5	Nm
Weight	typical			320	g

www.sirectifier.com Tel: +86-519-86800000 Fax: +86-519-88019019 E-mail: sales@sirectifier.com

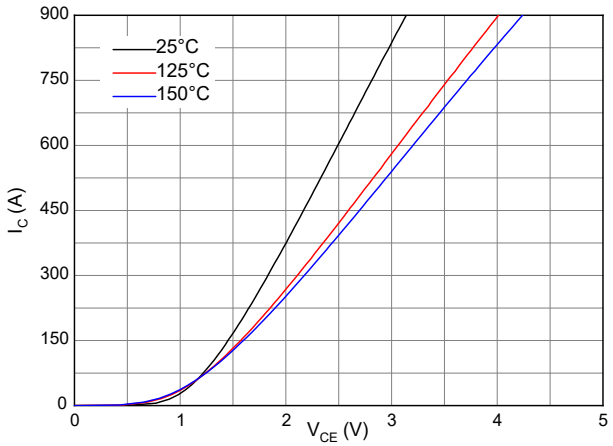


Figure 1. Typical output characteristics (V_{GE}=15V)

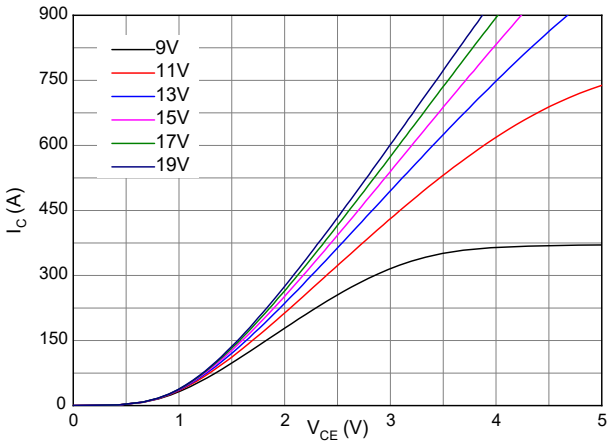


Figure 2. Typical output characteristics (T_{vj}=150℃)

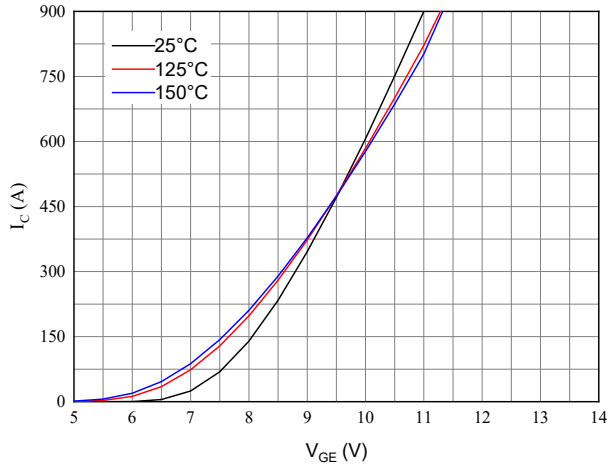


Figure 3. Typical transfer characteristic(V_{CE}=20V)

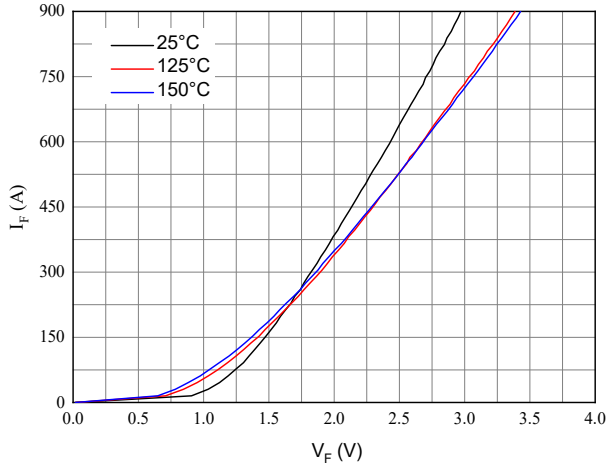


Figure 4. Forward characteristic of Diode

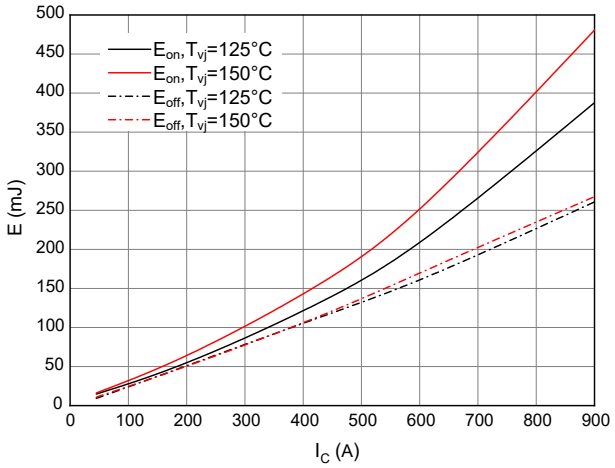


Figure 5. Switching losses of IGBT

VGE=±15V, RGon=2.5Ω, RGoff=2.5Ω, VCE=900V

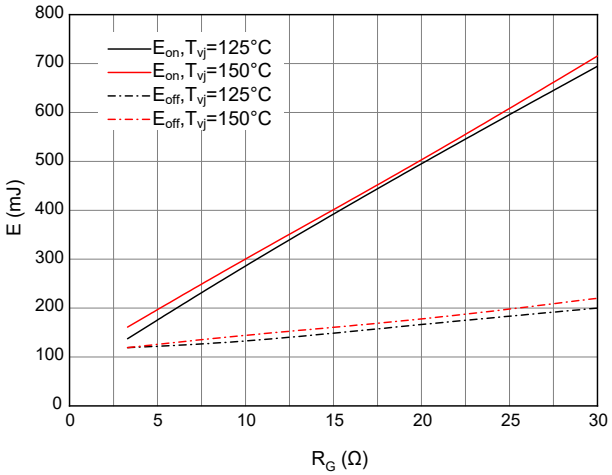


Figure 6. Switching losses of IGBT

VGE=±15V, IC=400A, VCE=900V

www.sirectifier.com Tel: +86-519-86800000 Fax: +86-519-88019019 E-mail: sales@sirectifier.com

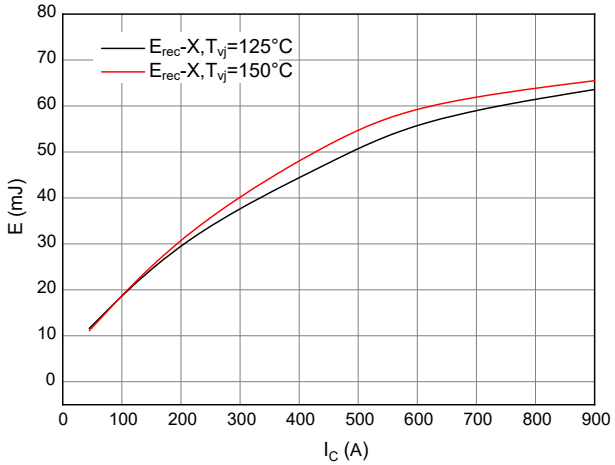


Figure 7. Switching losses of Diode

R_{Gon}=2.5Ω, V_{CE}=900V

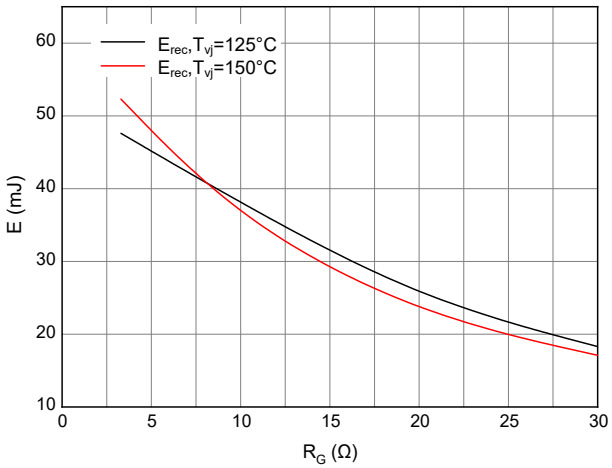


Figure 8. Switching losses of Diode

I_F=300A, V_{CE}=900V

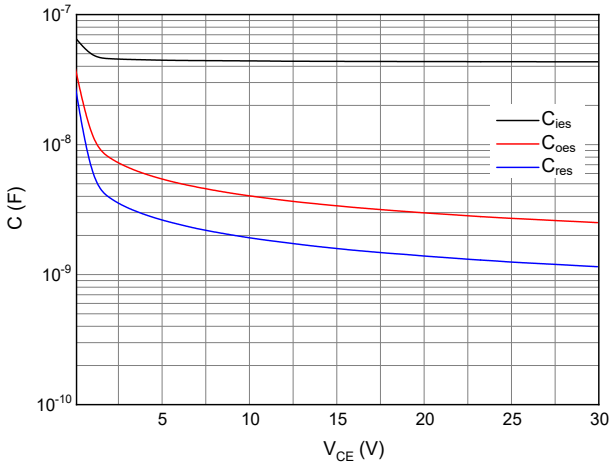


Figure 9. Capacitance characteristic

www.sirectifier.com Tel: +86-519-86800000 Fax: +86-519-88019019 E-mail: sales@sirectifier.com