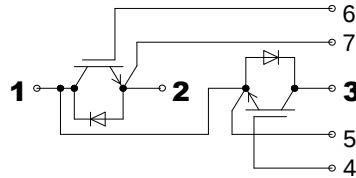


SGG150T170UC2

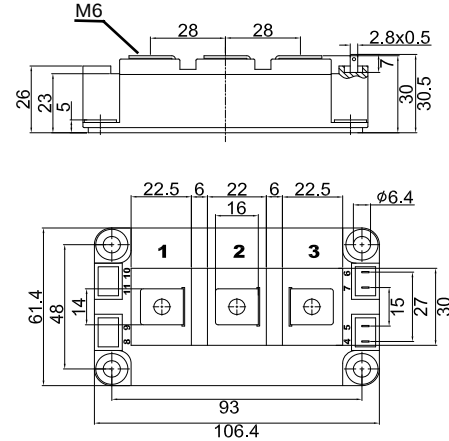
IGBT Modules



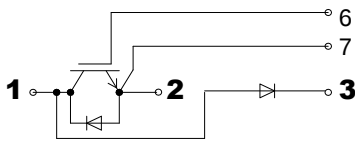
**SGG150T170UC2
(Half Bridge)**



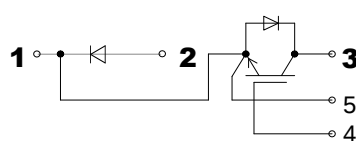
Dimensions in mm



**SGD150T170UC2
(Boost Chopper)**



**SDG150T170UC2
(Buck Chopper)**



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

Symbol	Conditions	Values	Units
IGBT			
V_{CES}		1700	V
I_C	$T_C=25(100)^{\circ}\text{C}$	300(150)	A
I_{CRM}	$T_C=25^{\circ}\text{C}$, $t_P=1\text{ms}$	300	A
V_{GES}		± 20	V
T_{vj}		$-40...+175$	$^{\circ}\text{C}$
Inverse Diode			
V_{RRM}	$T_C=25(100)^{\circ}\text{C}$	1700	V
$I_F=-I_C$		300(150)	A
I_{FRM}	$T_C=25^{\circ}\text{C}$, $t_P=1\text{ms}$	300	A
I_{FSM}	$t_P=10\text{ms}$; $\sin.$; $T_J=150^{\circ}\text{C}$	670	A
Module			
I_{CRM}	$t_P=1\text{ ms}$	300	A
T_{stg}		$-40\sim 125$	$^{\circ}\text{C}$
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 4000V
- RoHS Compliant

Application

- AC and DC motor control
- AC servo and robot drives
- Power supplies

Advantages

- space and weight savings
- reduced protection circuits

SGG150T170UC2

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	5.0	5.5	6.2	V
I _{CES}	V _{GE} =0; V _{CE} =V _{CES} ; T _J =25°C			2.0	mA
V _{CE(TO)}	T _J =25°C		0.86	0.96	V
r _{CE}	V _{GE} =15V, T _J =25(150)°C		7.2(10.5)	8.2(11.4)	mΩ
V _{CE(sat)}	I _C =150A; V _{GE} =15V; chip level		1.95	2.40	V
C _{ies}	under following conditions V _{GE} =0, V _{CE} =25V, f=1MHz		18.0		nF
C _{oes}			0.59		
C _{res}			0.49		
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: V _{CC} = 600V, I _C =150A R _{Gon} =R _{Goff} =1Ω, T _J =150°C V _{GE} = ± 15V		235		ns
t _r			62		ns
t _{d(off)}			500		ns
t _f			430		ns
E _{on} (E _{off})			44.7(38.1)		mJ
Inverse Diode					
V _{RRM}	under following conditions: I _F =150A; V _{GE} =0V; T _J =25°C	1700			V
V _F = V _{EC}			2.98	3.50	V
V _(FO)	T _J =25(150)°C		1.5(1.25)	1.9(1.55)	V
r _F	T _J =25(150)°C		6.3(8.8)	6.9(9.6)	mΩ
I _{RRM}	I _F =150A; T _J =150°C		110		A
Q _{rr}	di/dt=3100A/us		39		uC
E _{rr}	V _{GE} =±15V		22		mJ
Thermal Characteristics					
R _{th(j-c)}	per IGBT			0.14	K/W
R _{th(j-c)D}	per Inverse Diode			0.16	K/W
R _{th(c-s)}	per module			0.029	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

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IGBT Modules

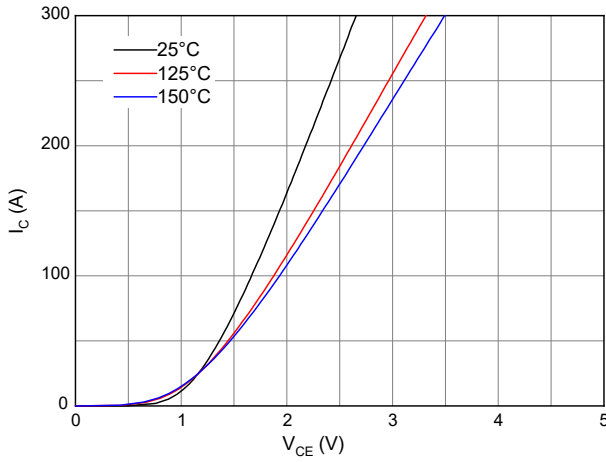


Figure 1. Typical output characteristics ($V_{GE}=15V$)

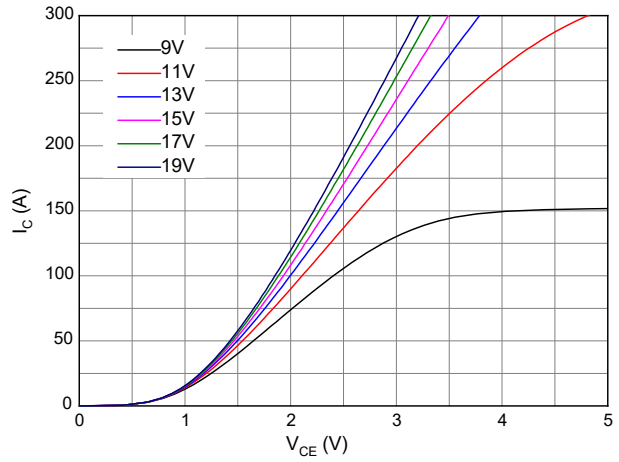


Figure 2. Typical output characteristics ($T_{vj}=150^{\circ}C$)

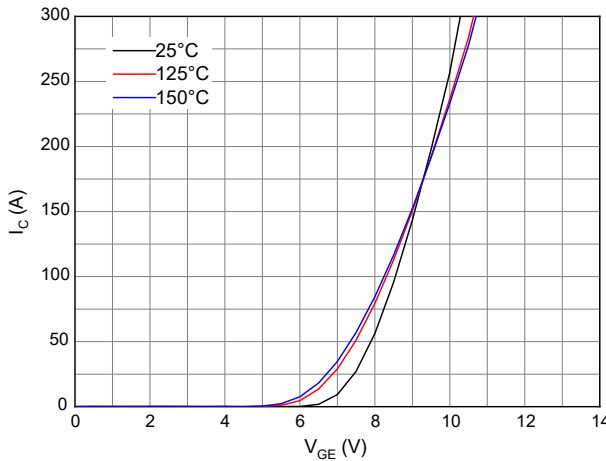


Figure 3. Typical transfer characteristic ($V_{CE}=20V$)

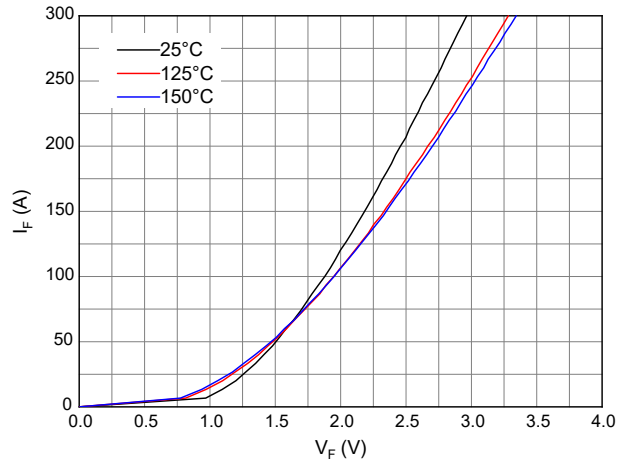


Figure 4. Forward characteristic of Diode

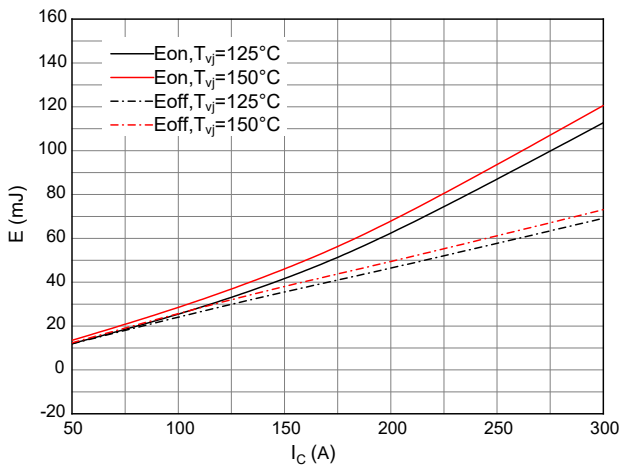


Figure 5. Switching losses of IGBT

$V_{GE}=\pm 15V$, $R_{Gon}=4.8\Omega$, $R_{Goff}=4.8\Omega$, $V_{CE}=900V$

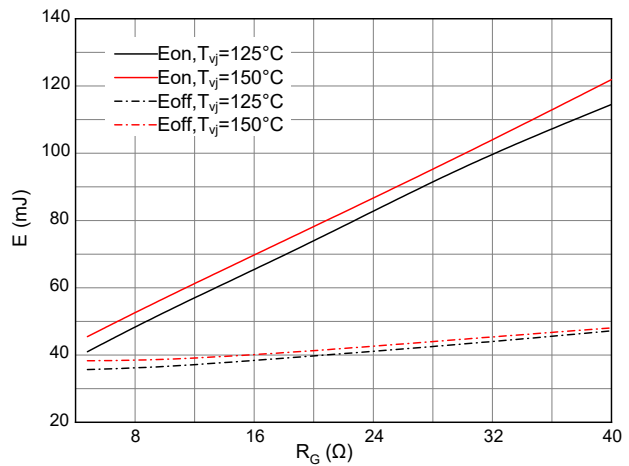


Figure 6. Switching losses of IGBT

$V_{GE}=\pm 15V$, $I_C=150A$, $V_{CE}=900V$

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IGBT Modules

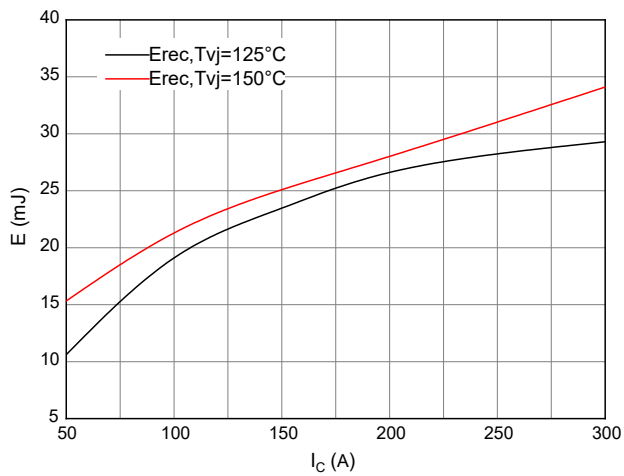


Figure 7. Switching losses of Diode

$R_{Gon}=4.8\Omega$, $V_{CE}=900V$

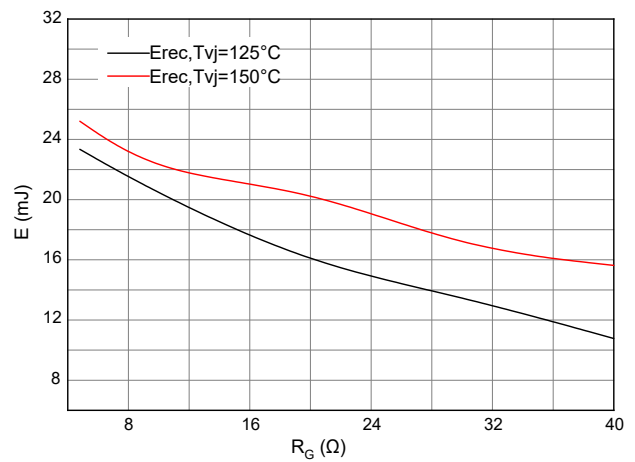


Figure 8. Switching losses of Diode

$I_F=150A$, $V_{CE}=900V$

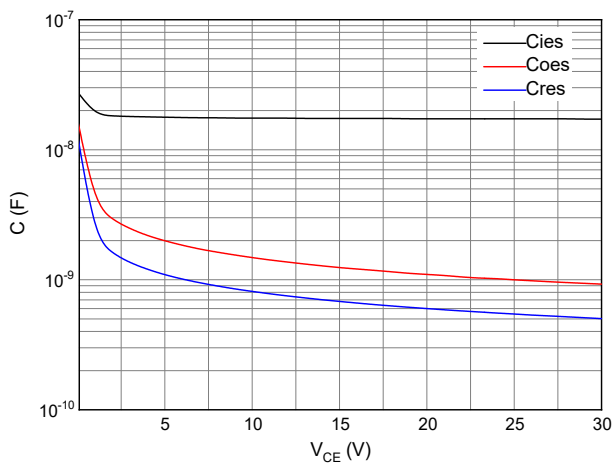


Figure 9. Capacitance characteristic