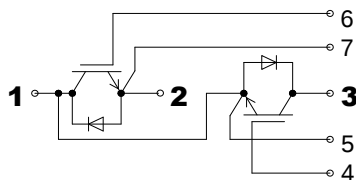


SGG150T170UC2

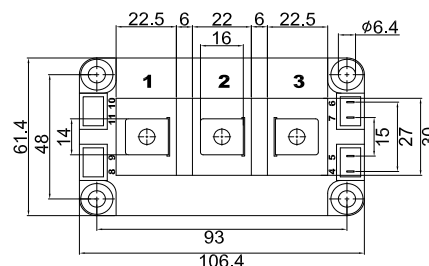
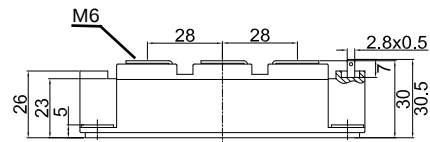
IGBT Modules



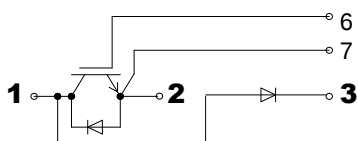
SGG150T170UC2



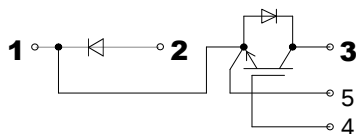
Dimensions in mm (1mm = 0.0394")



SGD150T170UC2



SDG150T170UC2



$T_C = 25^{\circ}\text{C}$, 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}		$-40 \dots +175$	$^{\circ}\text{C}$
Inverse Diode			
V_{RRM}	$T_C = 25(80)^{\circ}\text{C}$	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			
$I_{t(RMS)}$	$T_{terminal} = 80^{\circ}\text{C}$	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 paralleling
- Soft switching 4.0 generation FWD 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



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SGG150T170UC2

IGBT Modules

Characteristics

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

Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 6\text{mA}$	5.0	5.5	6.2	V
I_{CES}	$V_{GE} = 0$; $V_{CE} = V_{CES}$; $T_j = 25^{\circ}\text{C}$			2.0	mA
$V_{CE(TO)}$	$T_j = 25^{\circ}\text{C}$		0.86	0.96	V
r_{CE}	$V_{GE} = 15\text{V}$, $T_j = 25(150)^{\circ}\text{C}$		7.2(10.5)	8.2(11.4)	$\text{m}\Omega$
$V_{CE(sat)}$	$I_C = 150\text{A}$; $V_{GE} = 15\text{V}$; chip level		1.95	2.40	V
C_{ies}	under following conditions $V_{GE} = 0$, $V_{CE} = 25\text{V}$, $f = 1\text{MHz}$		18.0		nF
C_{oes}			0.59		
C_{res}			0.49		
L_{CE}				20	nH
$R_{CC'+EE'}$	res., terminal-chip $T_C = 25(125)^{\circ}\text{C}$		0.26(0.6)		$\text{m}\Omega$
$t_{d(on)}$	under following conditions: $V_{CC} = 600\text{V}$, $I_C = 150\text{A}$ $R_{Gon} = R_{Goff} = 1\Omega$, $T_j = 150^{\circ}\text{C}$ $V_{GE} = \pm 15\text{V}$		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: $I_F = 150\text{A}$; $V_{GE} = 0\text{V}$; $T_j = 25^{\circ}\text{C}$	1700			V
$V_F = V_{EC}$			2.98	3.50	V
$V_{(FO)}$	$T_j = 25(150)^{\circ}\text{C}$		1.5(1.25)	1.9(1.55)	V
r_F	$T_j = 25(150)^{\circ}\text{C}$		6.3(8.8)	6.9(9.6)	$\text{m}\Omega$
I_{RRM}	$I_F = 150\text{A}$; $T_j = 150^{\circ}\text{C}$		110		A
Q_{rr}	$di/dt = 3100\text{A/us}$		39		μC
E_{rr}	$V_{GE} = \pm 15\text{V}$		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

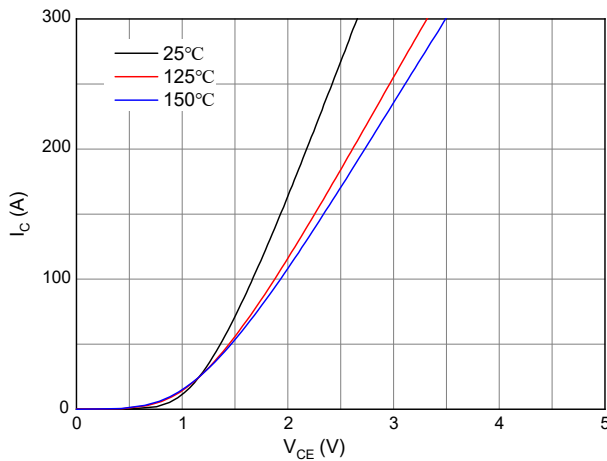


Figure 1. Typical output characteristics ($V_{GE}=15V$)

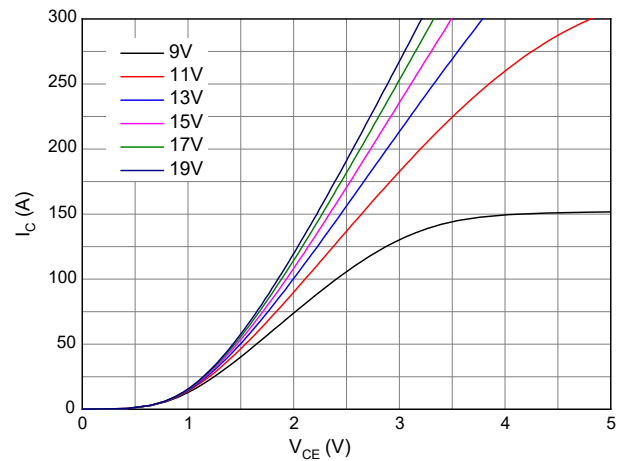


Figure 2. Typical output characteristics ($T_{vj}=150^{\circ}C$)

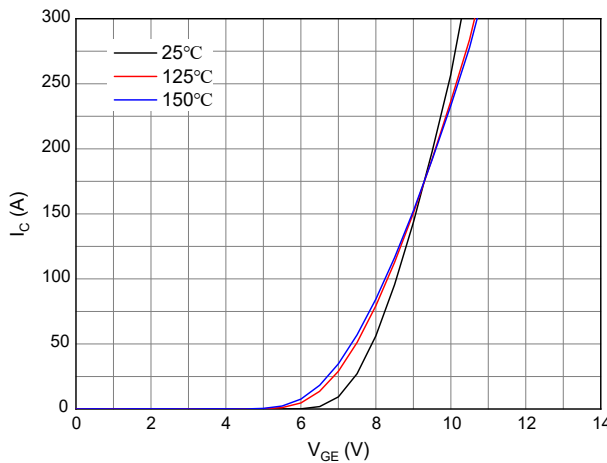


Figure 3. Typical transfer characteristic ($V_{CE}=20V$)

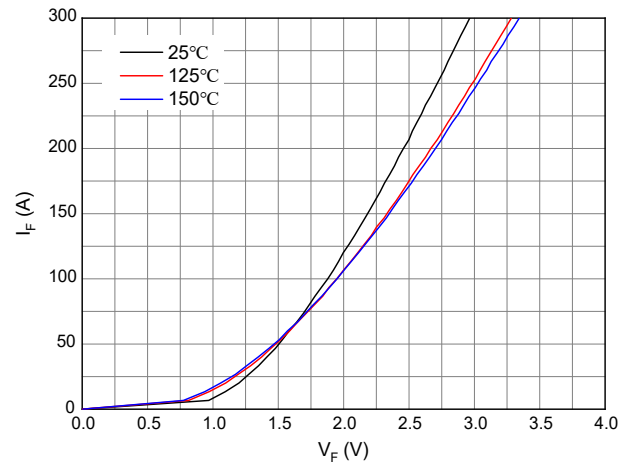


Figure 4. Forward characteristic of Diode

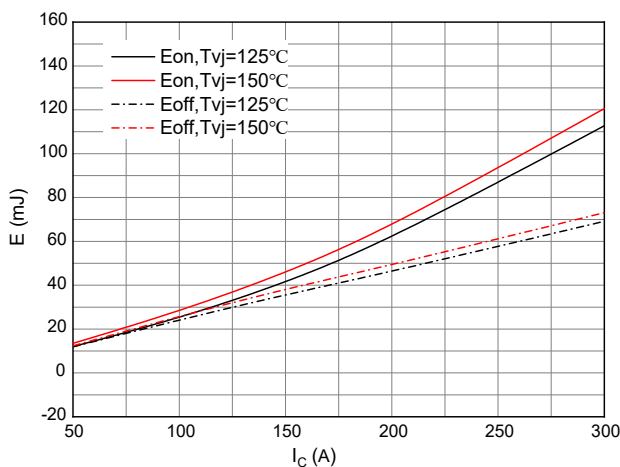


Figure 5. Switching losses of IGBT

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

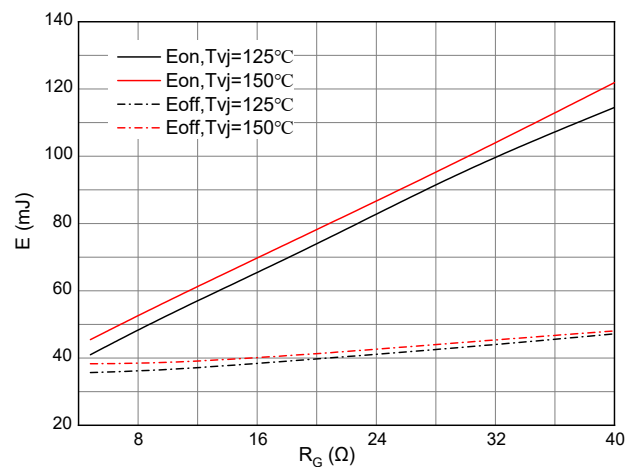


Figure 6. Switching losses of IGBT

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

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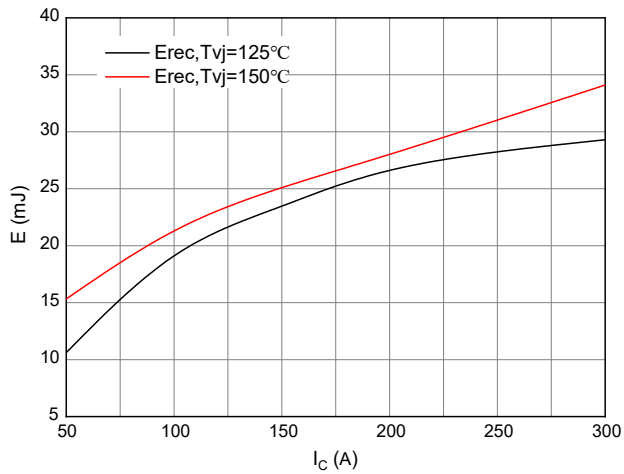


Figure 7. Switching losses of Diode

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

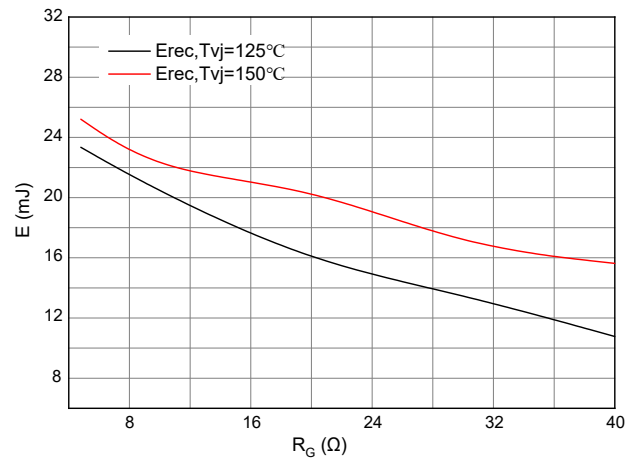


Figure 8. Switching losses of Diode

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

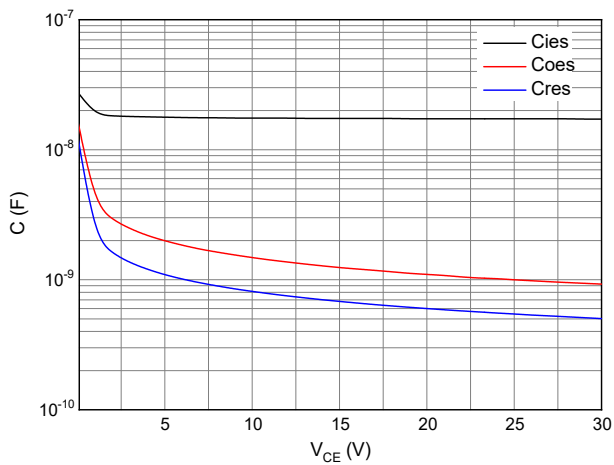


Figure 9. Capacitance characteristic