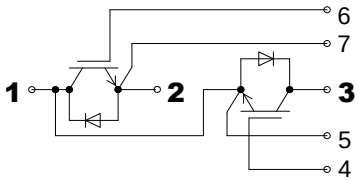
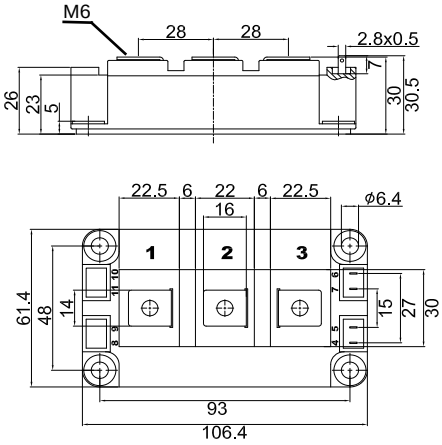
SGG150T60UC2

IGBT Modules

SGG150T60UC2



Dimensions in mm (1mm = 0.0394")



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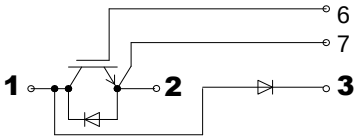

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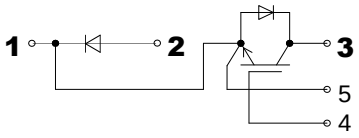

Absolute Maximum Ratings

T_C = 25°C, unless otherwise specified

Symbol	Conditions	Values	Units
IGBT			
V_{CES}		600	V
I_C	T_C=25(80)°C	300(150	A
I_{CRM}	T_C=25°C,t_P =1ms	300	A
V_{GES}		±20	V
T_{Vj}		-40...+175	°C
Inverse Diode			
I_F = -I_C	T_C=25(80)°C	300(150	A
I_{FRM}	T_C=25°C, t_P =1ms	300	A
I_{FSM}	t_P=10ms;sin.;T_j=150°C	800	A
Module			
$I_{t(RMS)}$	$T_{teminal}$ =80°C	300	A
T_{stg}		-40~125	°C
V_{Isol}	AC,1min	4000	V

Features

- Trench Field Stop Technology
- Low switching losses
- Switching frequency up to 30kHz
- Square RBSOA, no latch up
- High short circuit capability
- Positive temperature coefficient for easy parallelling
- MOS input, voltage controlled
- Soft switching FWD 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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SGG150T60UC2

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=1.5mA	4.3	5.2	6.1	V
I_{CES}	V_{GE} = 0;V_{CE}=V_{CES};T_j=25°C			2.0	mA
$V_{CE(TO)}$	T_j=25°C		0.8	0.9	V
r_{CE}	V_{GE}=15V,T_j=25(125)°C		7.0(10.3)	8.0(11.0)	mΩ
$V_{CE(sat)}$	I_C =150A;V_{GE}=15V;chip level		1.65	2.10	V
C_{ies}	under following conditions V_{GE}=0,V_{CE}=25V,f=1MHz		8.80		nF
C_{oes}			0.28		nF
C_{res}			0.27		nF
L_{CE}				20	nH
$R_{CC'+EE'}$	res., terminal-chip T_C=25(125)°C		0.25(0.5)		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		68		ns
t_r			163		ns
$t_{d(off)}$			208		ns
t_f			73		ns
E_{on}(E_{off})	T_C=150°C		8.4(2.4)		mJ
Inverse Diode	under following conditions:				
V_F = V_{EC}	I_F=150A;V_{GE}=0V;T_j=25°C		1.48	2.00	V
$V_{(FO)}$	T_j=25(150)°C		1.3(0.95)	1.5(1.1)	V
r_F	T_j=25(150)°C		5.8(8.0)	6.4(8.8)	mΩ
I_{RRM}	I_F=150A;T_j=150°C di/dt=3100A/us V_{GE}=±15V		17		A
Q_{rr}			7.4		uC
E_{rr}			1.8		mJ
Thermal Characteristics					
$R_{th(j-c)}$	per IGBT			0.19	K/W
$R_{th(j-c)D}$	per Inverse Diode			0.30	K/W
$R_{th(c-s)}$	per module			0.116	K/W
Mechanical Data					
M_s	to heatsink M5	3		5	Nm
M_t	to terminals M5	2.5		5	Nm
Weight	typical			320	g

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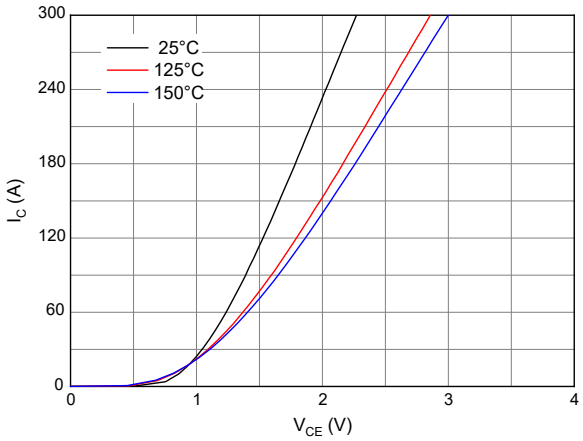

Fig.1. Typical output characteristics (V_{GE}=15V)

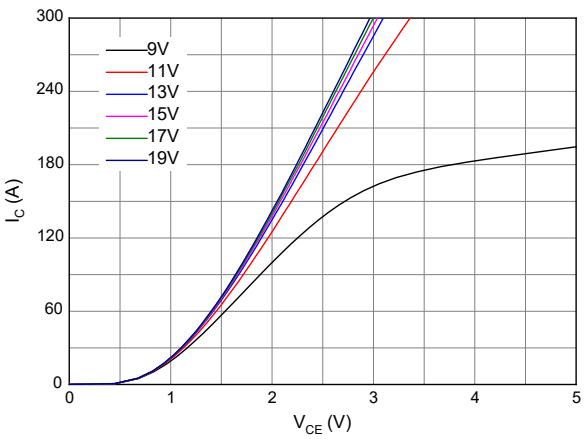

Fig.2. Typical output characteristics (T_{vj}=150°C)

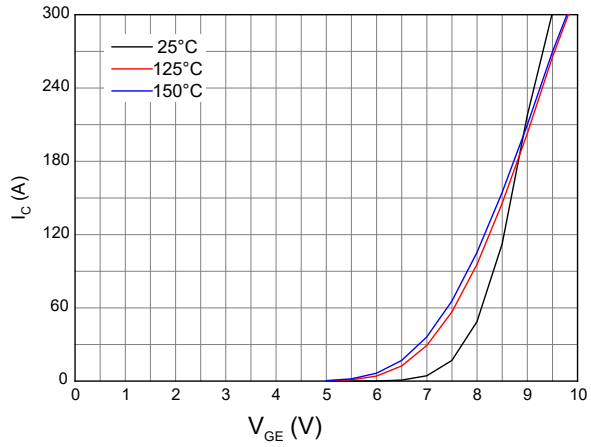

Fig.3. Typical transfer characteristic(V_{CE}=20V)

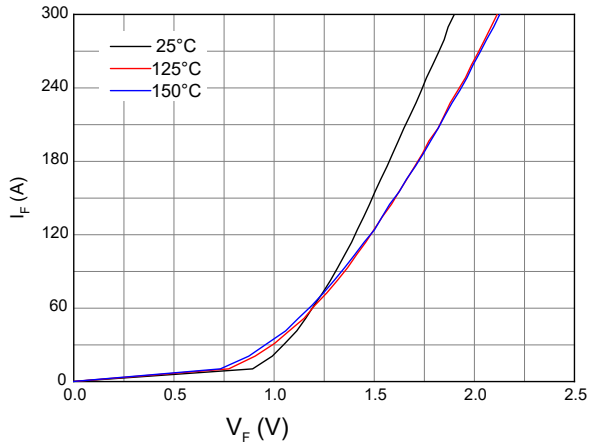

Fig.4. Forward characteristic of Diode

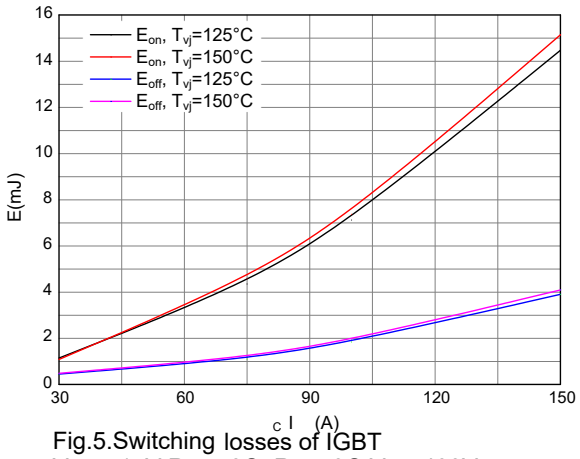

Fig.5.Switching losses of IGBT
V_{GE}=±15V,R_{Gon}=8Ω, R_{goff}=8Ω,V_{CE}=400V

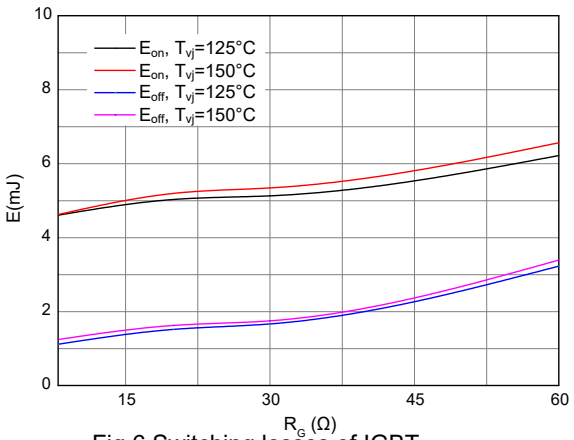

Fig.6.Switching losses of IGBT
V_{GE}=±15V,I_C=75A,V_{CE}=400V

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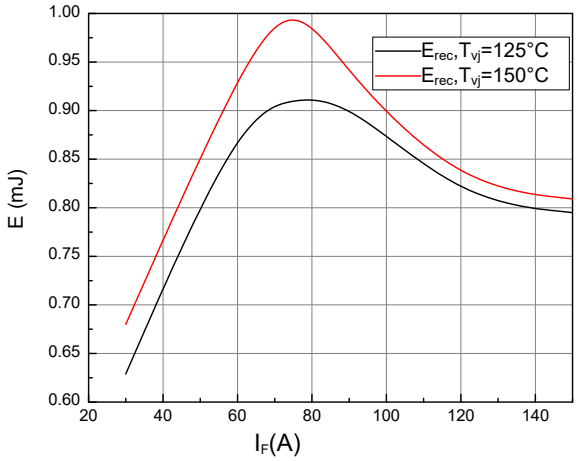

Fig.7. Switching losses of Diode

$R_g$on=8Ω,V_{CE}=400V

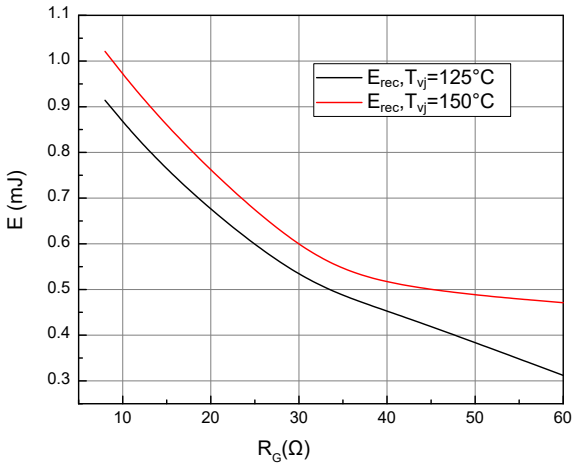

Fig. 8. Switching losses of Diode

I_F=75A, V_{CE}=400V

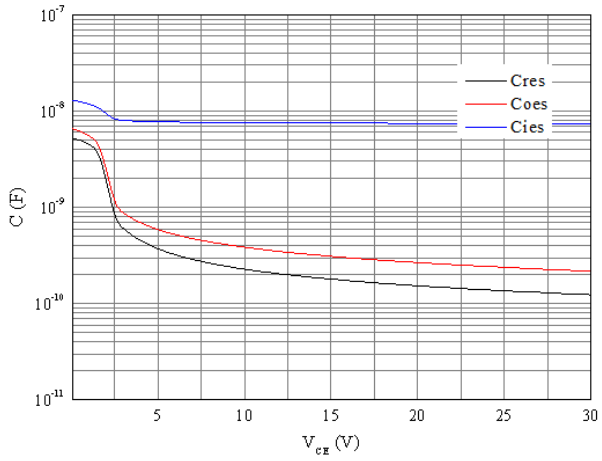

Fig.9. Capacitance characteristic

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