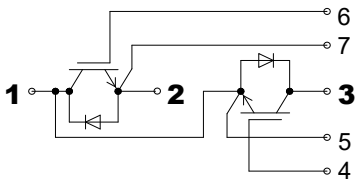
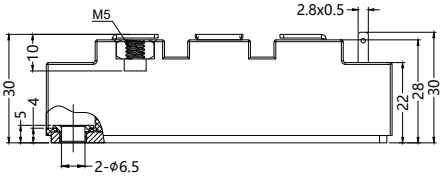
SGG75T60UC1

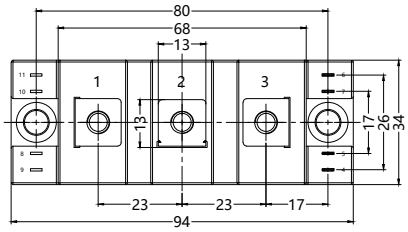
IGBT Modules

SGG75T60UC1
(Half Bridge)

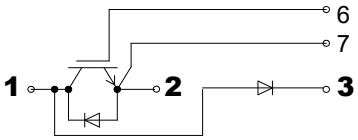


Dimensions in mm (1mm = 0.0394")

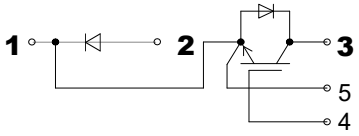




SGD75T60UC1
(Boost Chopper)



SDG75T60UC1
(Buck Chopper)



T_C = 25°C, unless otherwise specified

Symbol	Conditions	Values	Units
IGBT			
V_{CES}		600	V
I_C	T_C=25(100)°C	150(75)	A
I_{CRM}	T_C=25°C,t_P=1ms	150	A
V_{GES}		±20	V
T_{Vj}		-40...+175	°C
Inverse Diode			
I_F = -I_C	T_C=25(100)°C	150(75)	A
I_{FRM}	T_C=25°C,t_P =1ms	150	A
I_{FSM}	t_P=10ms;sin180°;T_j=25°C	150	A
V_{RRM}		600	V
Module $I_{t(RMS)}$	$T_{terminal}$=100°C	75	A
T_{stg}		-40~125	°C
V_{Isol}	AC,1min	4000	V

Features

- Trench FS IGBT technology
- Low switching losses
- Switching frequency up to 50kHz
- Square RBSOA, no latch up
- High short circuit capability
- Positive temperature coefficient for easy parallelling
- MOS input, voltage controlled
- Soft switching diode Technology
- Package with copper baseplate
- Isolation voltage 4000 V

Application

- Inverter welding Machines
- UPS
- AC inverter Drives

Advantages

- spaceand weight savings
- reduced protectioncircuits

RoHS Compliant

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SGG75T60UC1

IGBT Modules

Characteristics

T_C = 25°C, unless otherwise specified

Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	V_{CE}=15 V,I_C=0.8mA	5.0	5.8	6.5	V
I_{CES}	V_{GE}=0;V_{CE}=V_{CES};T_j=25°C			1.0	mA
$V_{CE(TO)}$	T_j=25°C		0.8	0.9	V
r_{CE}	V_{GE}=15V,T_j=25(150)°C		3.2(4.5)	3.6(4.9)	mΩ
$V_{CE(sat)}$	I_C=75A;V_{GE}=15V;chip level		1.55	1.90	V
C_{ies} C_{oes} C_{res}	under following conditions V_{GE}= 0,V_{CE}=25V,f=1MHz		3.20 1.00 0.09		nF
L_{CE}				30	nH
$R_{CC'+EE'}$	res.,terminal-chip T_C=25(125)°C		0.65(1.09)		mΩ
$t_{d(on)}$ t_r $t_{d(off)}$ t_f	under following conditions: V_{CC}=300V,I_C=75A R_{Gon}=R_{Goff}=33Ω, T_j=150°C V_{GE}=±15V		23 15 180 55		ns ns ns ns
E_{on}/E_{off}/E_{ts}			0.33/1.8/2.13		mJ
Inverse Diodeunder following conditions:I_F=75A;					
V_F = V_{EC}	V_{GE}=0V;T_j=25°C		1.70		V
$V_{(FO)}$	T_j=25(125)°C		1.3(0.95)	1.5(1.2)	V
r_F	T_j=25(125)°C		19(26)	23(29)	mΩ
I_{RM} Q_{rr} E_{rr}	I_F=75A;T_j=125°C di/dt=1200A/us V_{GE}=±15V		36 2.3 0.35		A uC mJ
Thermal Characteristics					
$R_{th(j-c)}$	per IGBT			0.57	K/W
$R_{th(j-c)D}$	per Inverse Diode			0.95	K/W
$R_{th(c-s)}$	per module			0.35	K/W
Mechanical Data					
M_s	to heatsink M5	3		5	Nm
M_t	to terminals M5	2.5		5	Nm
Weight	typical			155	g

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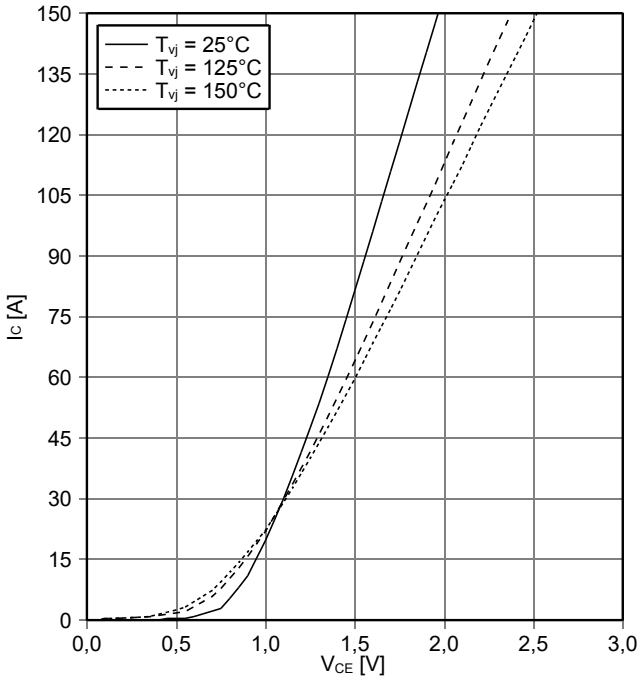
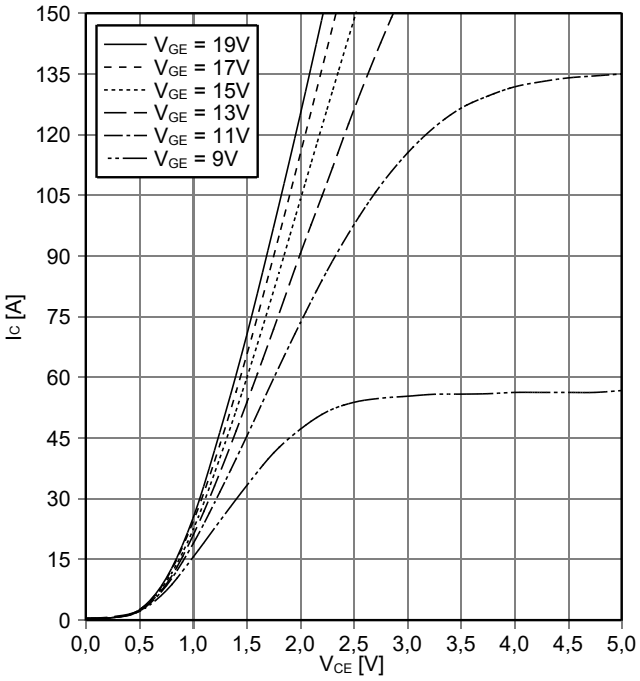
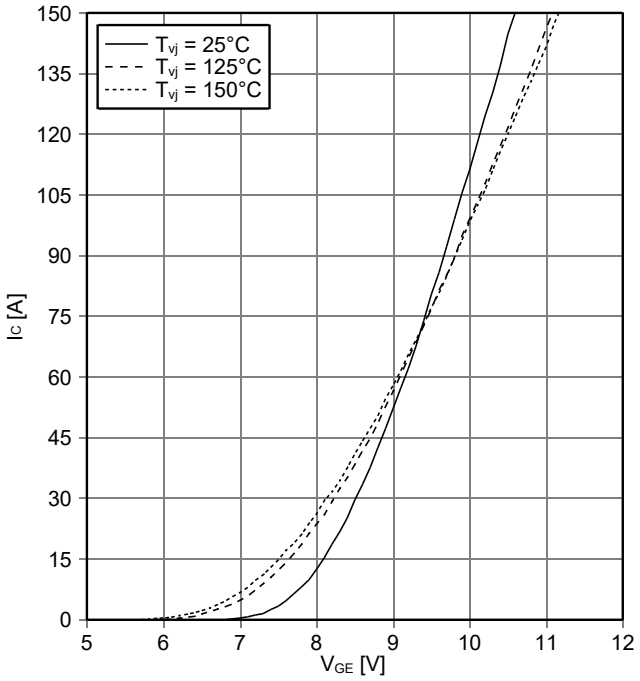


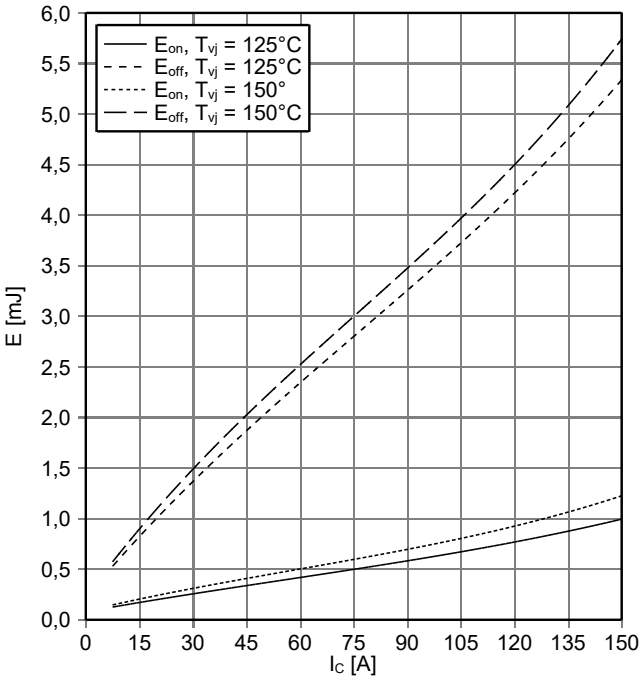
Output characteristic IGBT,Inverter (typical)
$I_C=f(V_{CE})$, V_{GE}=15 V



Output characteristic IGBT,Inverter(typical)
$I_C=f(V_{CE})$,T_{vj}=150°C



Transfer characteristic
IGBT,Inverter(typical) I_C= f(V_{GE}),V_{CE}=20 V



Switching losses IGBT,Inverter(typical)
$E_{on}=f(I_C)$, $E_{off}=f(I_C)$
V_{GE}=±15V, R_{Gon} =5.1Ω, R_{Goff}=5.1Ω,V_{CE} =300 V

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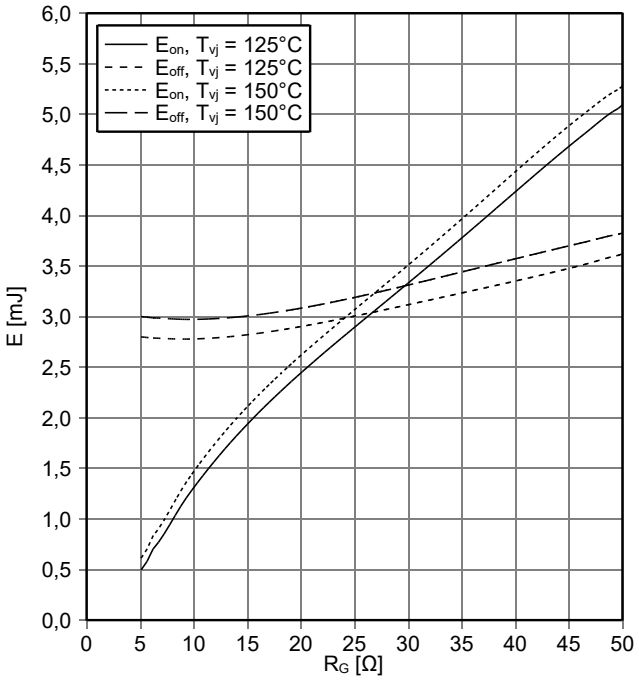
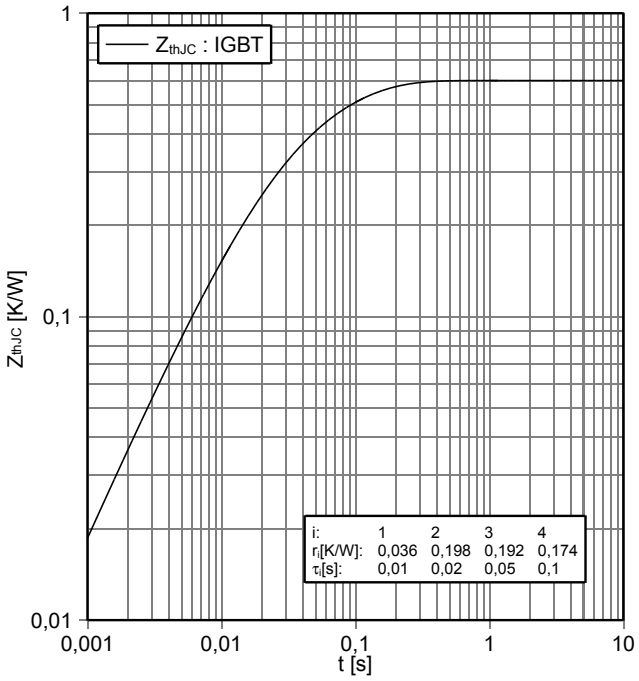
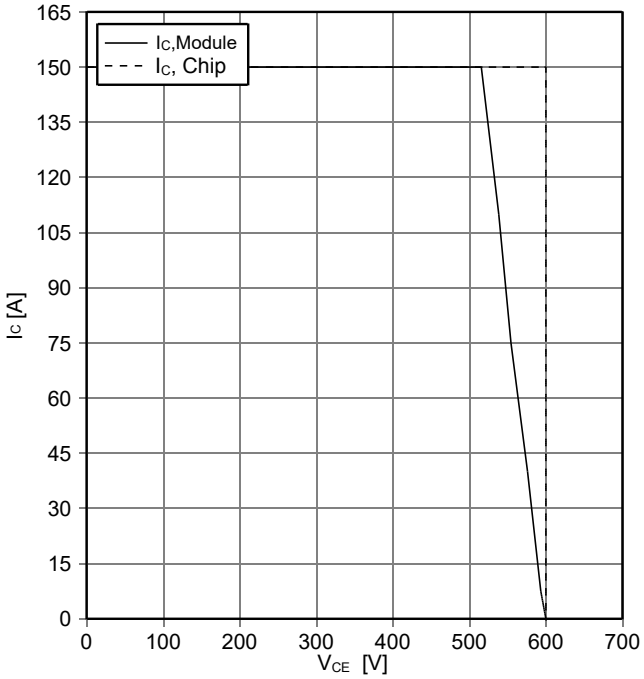


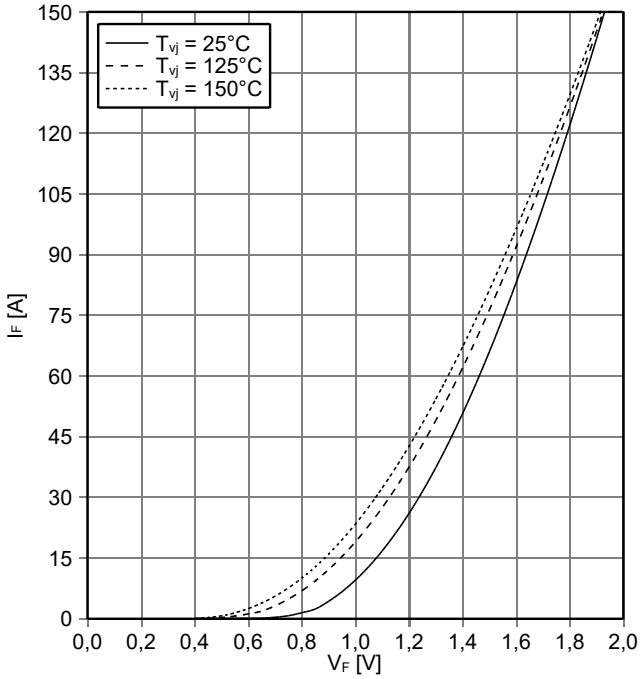
Switching losses IGBT,Inverter
(typical) $E_{on}=f_(R_G)$, $E_{off}=f(R_G)$
V_{GE}=±15 V, I_C = 75A,V_{CE} =300 V



Transient thermal impedance IGBT,Inverter $Z_{thJC}=f(t)$



Reverse bias safe operating area IGBT,Inverter (RBSOA)
$I_C=f(V_{CE})$,V_{GE} =±15V,R_{Goff}=5.1Ω,T_{vj}=150°C



Forward characteristic of Diode, Inverter (typical)
$I_F=f(V_F)$

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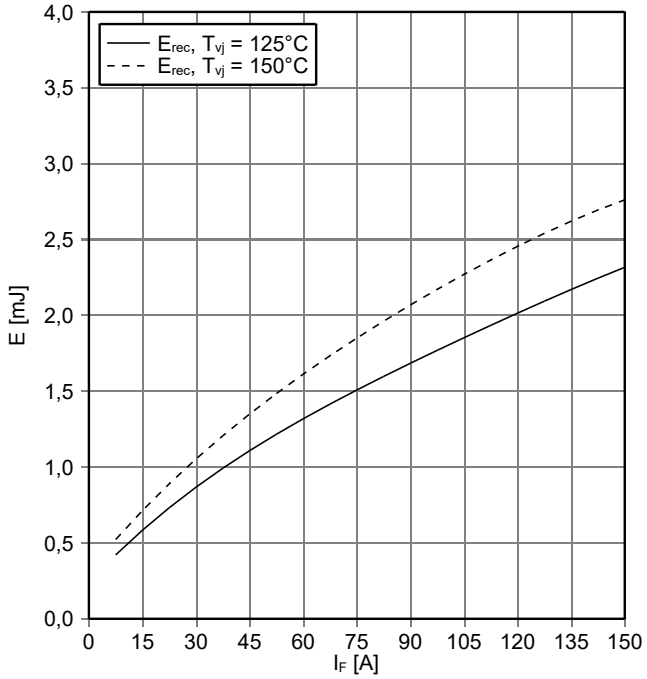
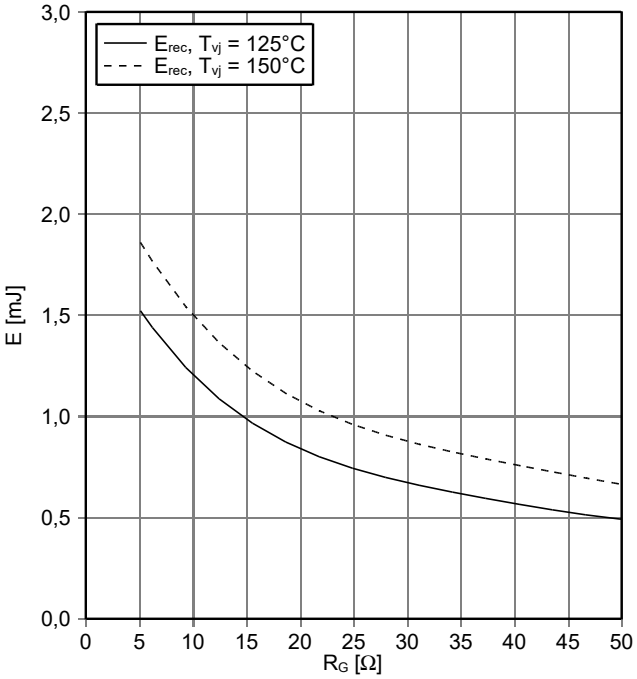


Switching losses Diode, Inverter (typical)
$E_{rec}=f(I_F)$
$R_{Gon}=5.1\Omega$, $V_{CE}=300$ V



Switching losses Diode, Inverter (typical)
$Er_{ec}=f(R_G)$
$I_F=75A, V_{CE}=300$ V

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