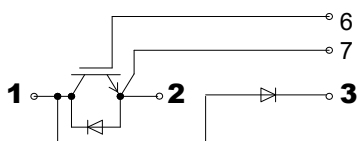


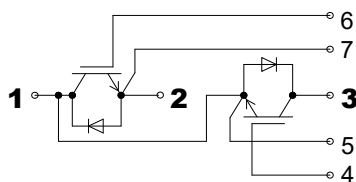
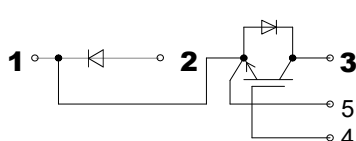
IGBT Modules



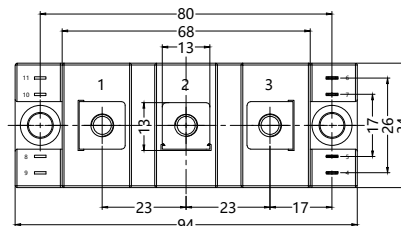
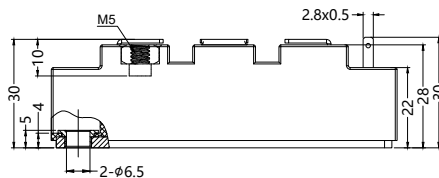
SGD75T60UC1
(Boost Chopper)



SGG75T60UC1
(Half Bridge)

SDG75T60UC1
(Buck Chopper)

Dimensions in mm (1mm = 0.0394")



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

Symbol	Conditions	Values	Units
IGBT			
V_{CES}		600	V
I_C	$T_C=25(100)^{\circ}C$	150(75)	A
I_{CRM}	$T_C=25^{\circ}C, t_P=1ms$	150	A
V_{GES}		± 20	V
T_{Vj}		-40...+175	$^{\circ}C$
Inverse Diode			
$I_F = -I_C$	$T_C=25(100)^{\circ}C$	150(75)	A
I_{FRM}	$T_C=25^{\circ}C, t_P = 1ms$	150	A
I_{FSM}	$t_P=10ms; \sin 180^{\circ}; T_j=25^{\circ}C$	150	A
V_{RRM}		600	V
Module $I_t(RMS)$	$T_{terminal}=100^{\circ}C$	75	A
T_{stg}		-40~125	$^{\circ}C$
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 swithcing 4.0 generation diode Technology
- Package with copper baseplate
- Isolation voltage 4000 V

Application

- Inverter welding Machines
- UPS
- AC inverter Drives



Advantages

- space and weight savings
- reduced protection circuits

SGG75T60UC1

IGBT Modules

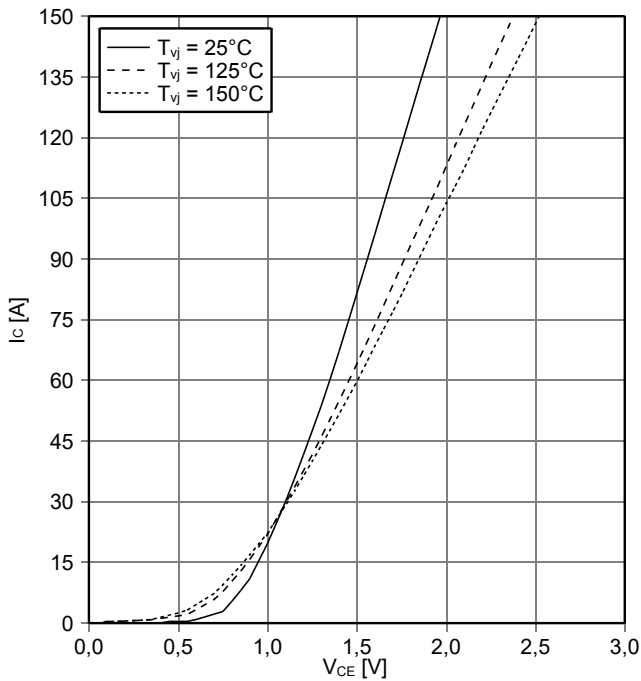
Characteristics

T_C = 25°C, unless otherwise specified

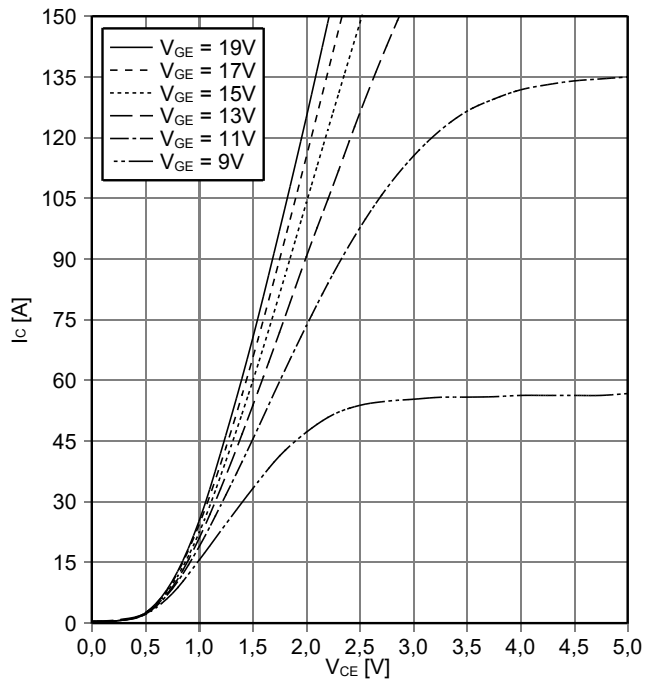
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
V _{GE(th)}	V _{CE} =15 V, I _C =0.8mA	5.0	5.8	6.5	V
I _{CES}	V _{GE} =0; V _{CE} =V _{CES} ; T _J =25°C			1.0	mA
V _{CE(TO)}	T _J =25°C		0.8	0.9	V
I _{CE}	V _{GE} =15V, T _J =25(150)°C		3.2(4.5)	3.6(4.9)	mΩ
V _{CE(sat)}	I _C =75A; V _{GE} =15V; chip level		1.55	1.90	V
C _{ies}	under following conditions		3.20		nF
C _{oes}	V _{GE} = 0, V _{CE} =25V, f=1MHz		1.00		
C _{res}			0.09		
L _{CE}				30	nH
R _{CC'+EE'}	res., terminal-chip T _C =25(125)°C		0.65(1.09)		mΩ
t _{d(on)}	under following conditions:		23		ns
t _r	V _{CC} =300V, I _C =75A		15		ns
t _{d(off)}	R _{Gon} =R _{Goff} =33Ω, T _J =150°C		180		ns
t _f	V _{GE} =±15V		55		ns
E _{on} /E _{off} /E _{ts}			0.33/1.8/2.13		mJ
Inverse Diode under 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}	I _F =75A; T _J =125°C		36		A
Q _{rr}	di/dt=1200A/us		2.3		uC
E _{rr}	V _{GE} =±15V		0.35		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

SGG75T60UC1

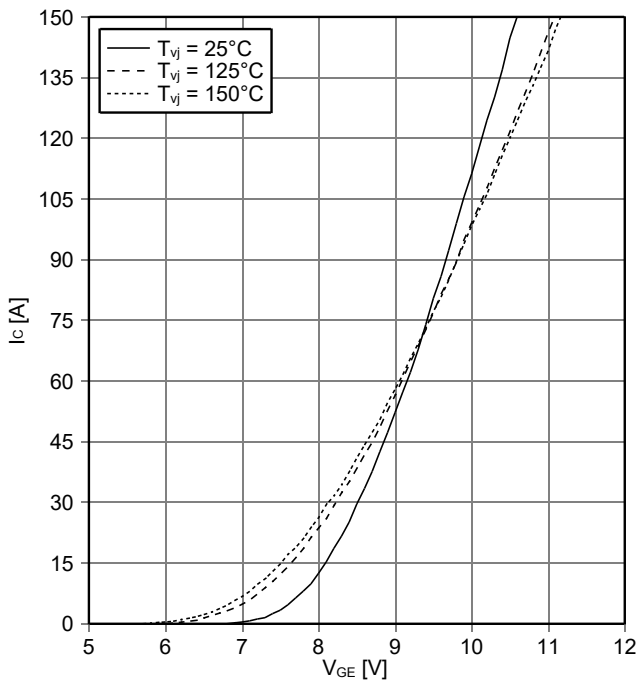
IGBT Modules



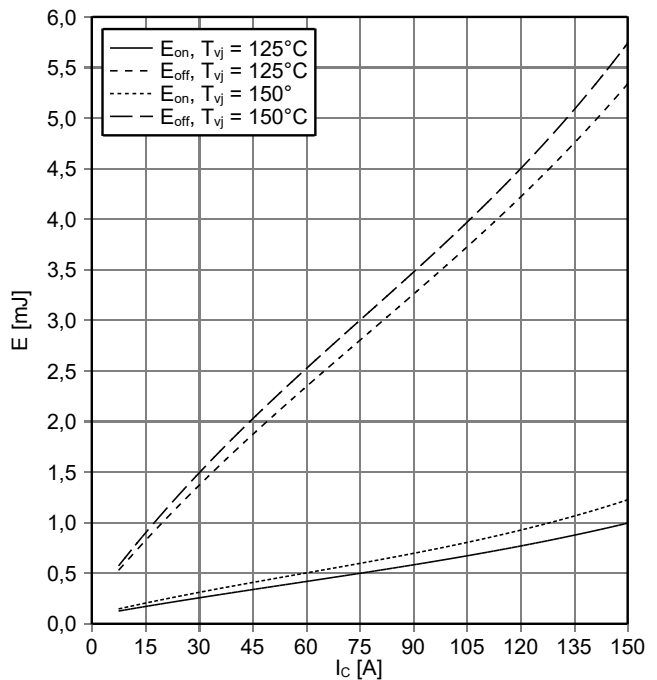
Output characteristic IGBT, Inverter (typical)
 $I_C = f(V_{CE}), V_{GE} = 15\text{ V}$



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



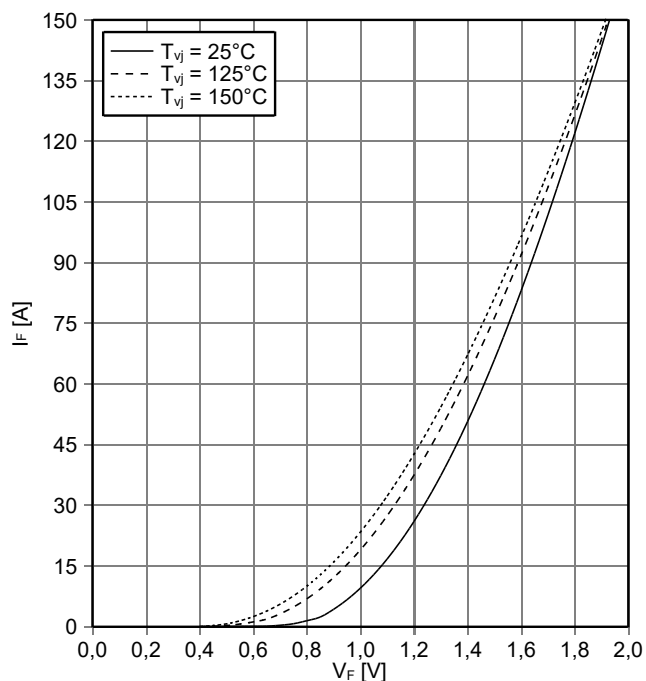
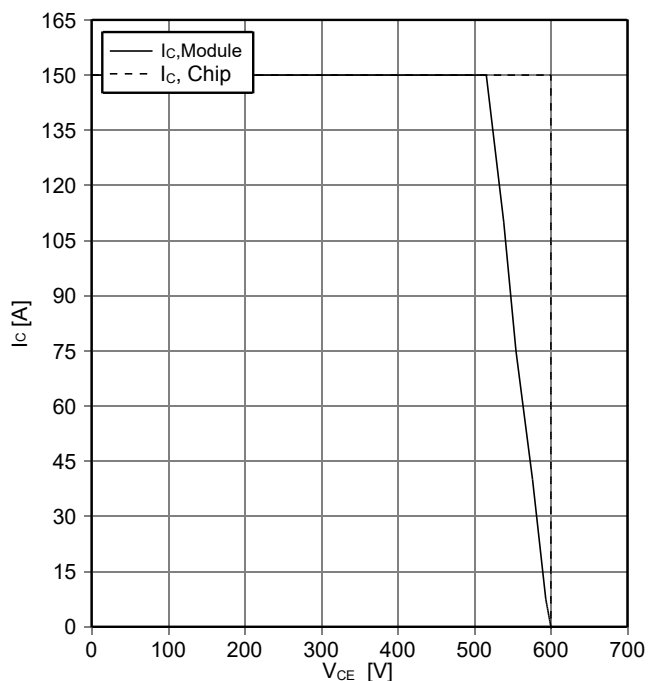
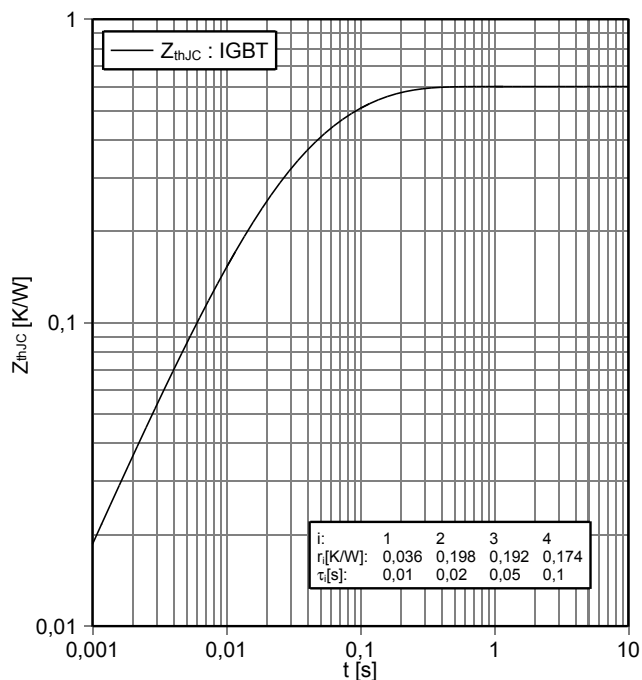
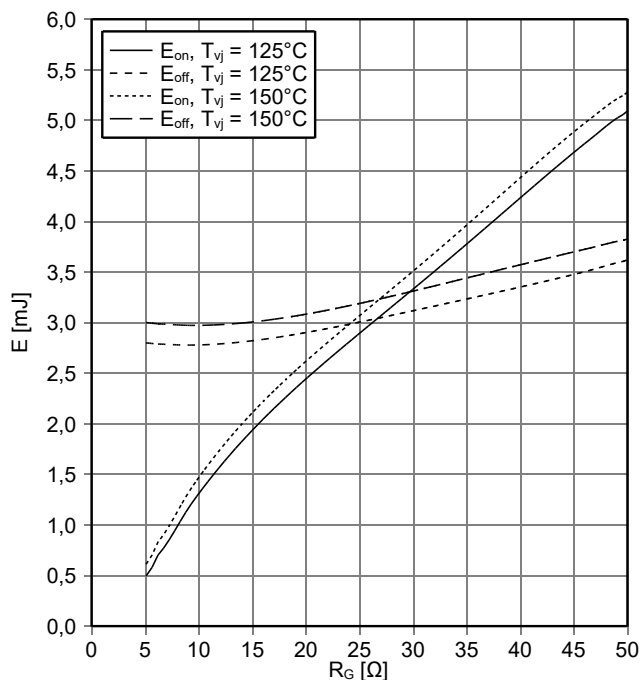
Transfer characteristic
 IGBT, Inverter (typical) $I_C = f(V_{GE}), V_{CE} = 20\text{ V}$



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

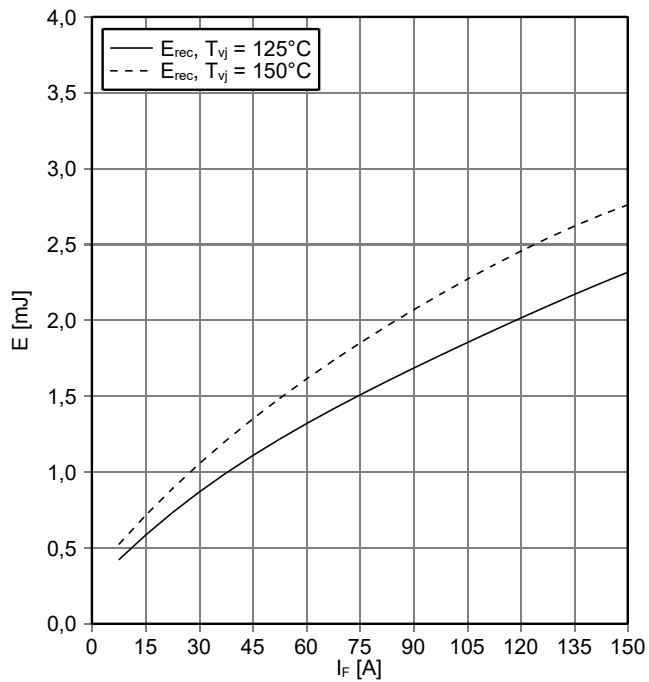
SGG75T60UC1

IGBT Modules



SGG75T60UC1

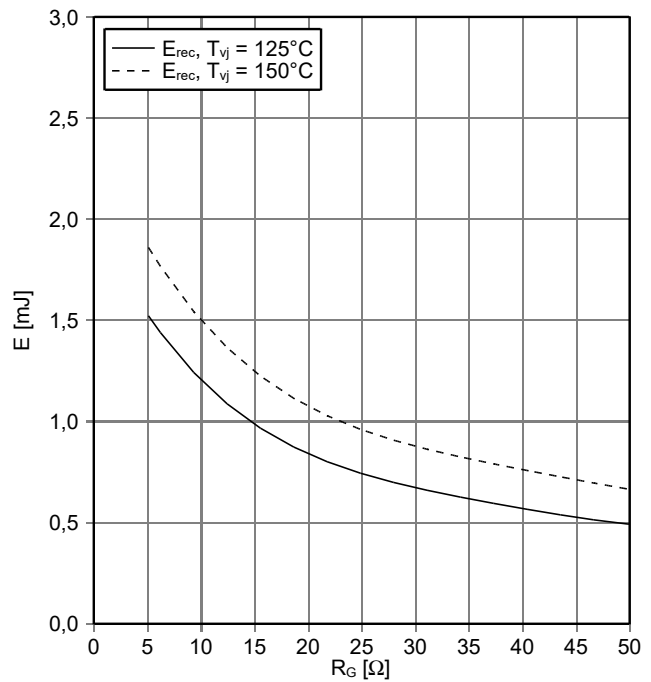
IGBT Modules



Switching losses Diode, Inverter (typical)

$E_{rec}=f(I_F)$

$R_{Gon}=5.1\Omega$, $V_{CE}=300\text{ V}$



Switching losses Diode, Inverter (typical)

$E_{rec}=f(R_G)$

$I_F=75\text{ A}$, $V_{CE}=300\text{ V}$