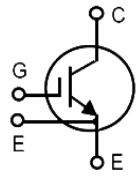
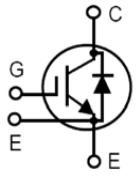
SG100T60S SG100T60DS

Discrete IGBTs

SG100T60S

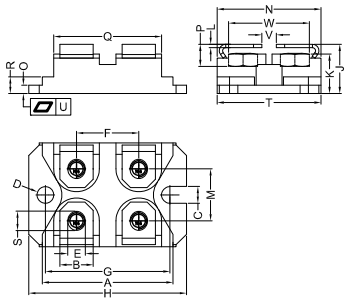


SG100T60DS



G=Gate
C=Collector
E=Emitter

Dimensions SOT-227



Dim.	Millimeter		Dim.	Millimeter	
	Min.	Max.		Min.	Max.
A	31.30	31.65	M	12.00	13.00
B	7.80	8.40	N	25.15	25.65
C	4.00	4.30	O	1.95	2.15
D	Ø4.00	Ø4.30	P	5.60	6.60
E	4.00	4.30	Q	25.30	26.30
F	14.90	15.20	R	3.90	4.30
G	30.10	30.30	S	4.45	4.85
H	38.00	38.50	T	24.50	25.10
J	12.10	12.90	U	0.05	0.10
K	9.00	9.60	V	3.00	4.80
L	0.75	0.85	W	19.30	20.50

T_C = 25°C, unless otherwise specified

Symbol	Conditions	Values	Units
IGBT			
V_{CES}		600	V
I_C	T_C= 25(100)°C	200(100)	A
I_{CRM}	T_C= 25°C, t_P =1ms	200	A
V_{GES}		±20	V
T_{Vj}		-40...+175	°C
InverseDiode			
I_F = -I_C	T_C= 25(100)°C	200(100)	A
I_{FRM}	T_C= 25°C, t_P =1ms	200	A
I_{FSM}	t_P =10ms; sin180° ; T_j=25°C	200	A
V_{RRM}		600	V
Module $I_{t(RMS)}$	$T_{terminal}$ = 100°C	100	A
T_{stg}		-40~125	°C
V_{Isol}	AC, 1min	4000	V

Features

- Trench Gate Field Stop IGBT technology
- Standard SOT-227 package style
- 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 diode Technology
- Package with copper baseplate
- Isolation voltage 4000 V

Application

- Inverter welding Machines
- UPS
- AC inverter Drives

Advantages

- Spaceand weight savings
- Reduced protection circuits

RoHS Compliant

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Characteristics T_C = 25°C, unless otherwise specified

Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	V_{CE} =20 V, I_C =3mA	5.0	5.5	6.5	V
I_{CES}	V_{GE} = 0; V_{CE} = V_{CES}; T_j = 25°C			0.20	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 =100A; V_{GE} = 15V; chip level		2.05	2.50	V
C_{ies}	under following conditions		11.00		nF
C_{oes}	V_{GE} = 0, V_{CE} = 25V, f = 1MHz		1.00		
C_{res}			0.15		
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: V_{CC} = 300V,		105		ns
t_r	I_C = 100A		35		ns
$t_{d(off)}$	R_{Gon} = R_{Goff} = 33Ω, T_j = 150°C		270		ns
t_f	V_{GE} = ± 15V		48		ns
$E_{on}/E_{off}/E_{ts}$			1.00/1.24/2.24		mJ
Inverse Diode	under following conditions: I_F =100A;				
V_F = V_{EC}	V_{GE} = 0V; T_j = 25°C		2.00		V
$V_{(FO)}$	T_j = 25(125)°C		1.3(0.95)	1.5(1.2)	V
r_F	T_j = 25(125)°C		18(25)	22(28)	mΩ
I_{RM}	I_F = 100A; T_j = 125°C		5.6		A
Q_{rr}	di/dt = 100A/us		0.15		uC
E_{rr}	V_{GE} =±15V		0.9		mJ
Thermal Characteristics					
$R_{th(j-c)}$	per IGBT			0.38	K/W
$R_{th(j-c)D}$	per Inverse Diode			0.92	K/W
$R_{th(c-s)}$	per module			0.27	K/W
Mechanical Data					
M_s	to heatsink M4		1.5		Nm
M_t	to terminals M4		1.5		Nm
Weight	typical		30		g

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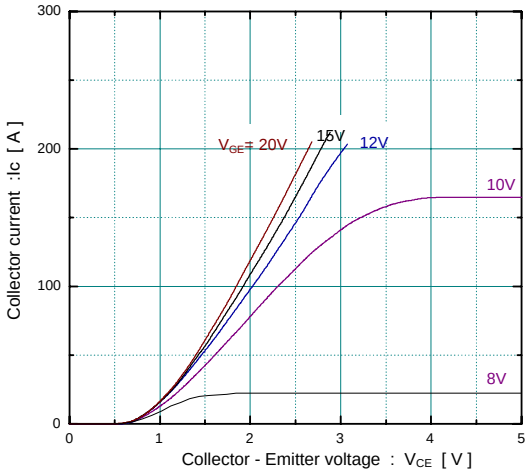

Fig.1 Collector current vs. Collector-Emitter voltage
Tj= 25°C (typ.)

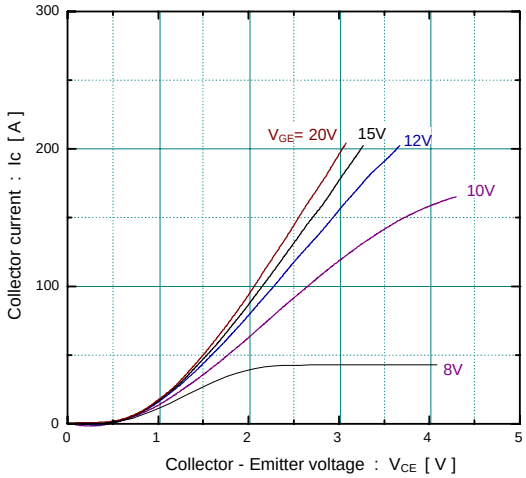

Fig.2 Collector current vs. Collector-Emitter
voltage Tj= 125°C (typ.)

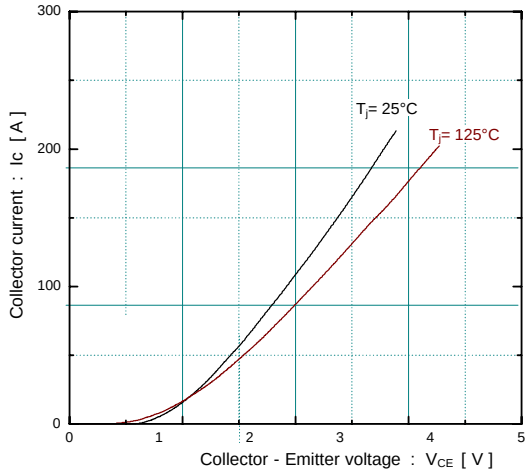

Fig.3 Collector current vs. Collector-Emitter voltage
VGE=15V (typ.)

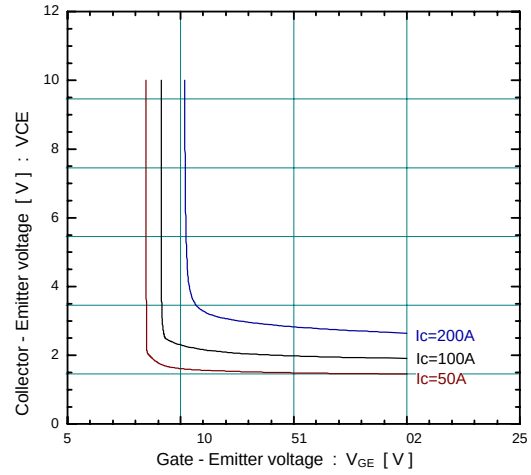

Fig.4 Collector-Emitter voltage vs. Gate-Emitter voltage
Tj= 25°C (typ.)

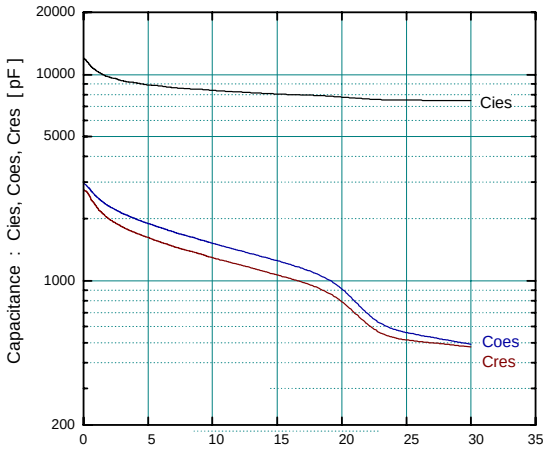

Fig.5 Capacitance vs. Collector-Emitter
voltage (typ.) VGE=0V, f= 1MHz, Tj= 25°C

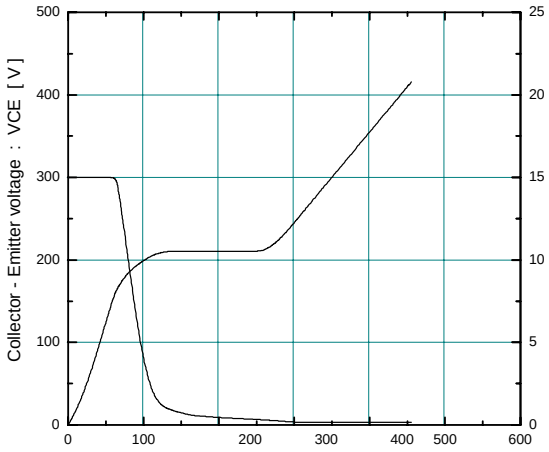

Fig.6 Dynamic Gate charge (typ.)
Vcc=300V, Ic=100A, Tj= 25°C

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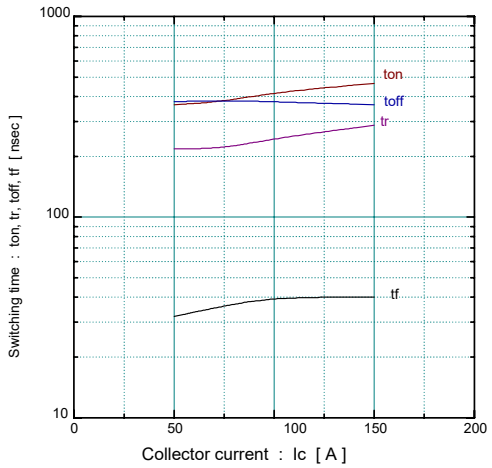

Fig.7 Switching time vs. Collector current
(typ.) Vcc=300V, V_{GE}=±15V, R_g=33Ω, T_j= 25°C

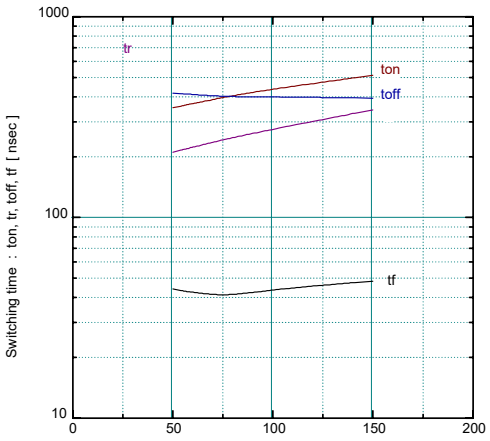

Fig.8 Switching time vs. Collector current
(typ.) Vcc=300V, V_{GE}=±15V, Rg= 33Ω, Tj= 125° C

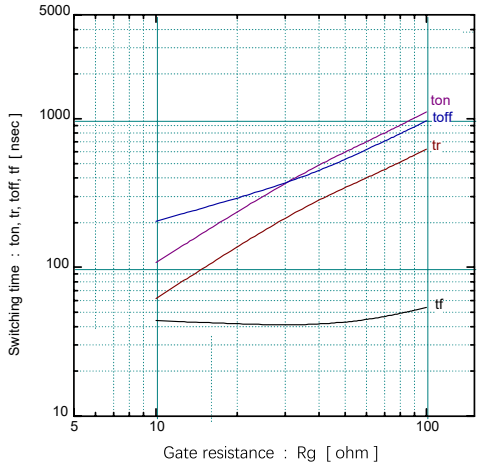

Fig.9 Switching time vs. Gate resistance (typ.)
Vcc=300V, Ic=100A, V_{GE}=±15V, T_j= 25°C

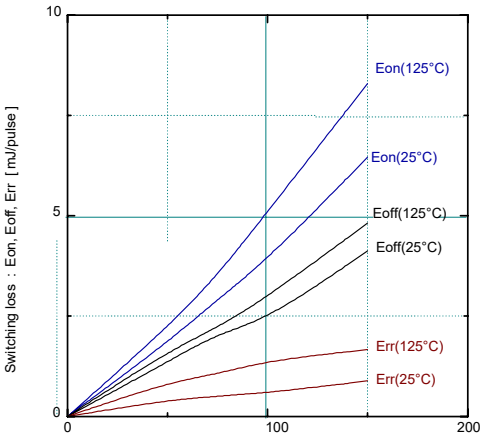

Fig.10 Switching loss vs. Collector current (typ.)
Vcc=300V, V_{GE}=±15V, Rg=33Ω

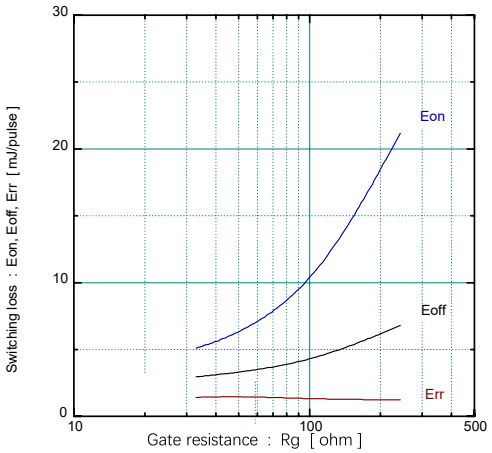

Fig.11 Switching loss vs. Gate resistance (typ.)
Vcc=300V, Ic=100A, V_{GE}=±15V, T_j= 125°C

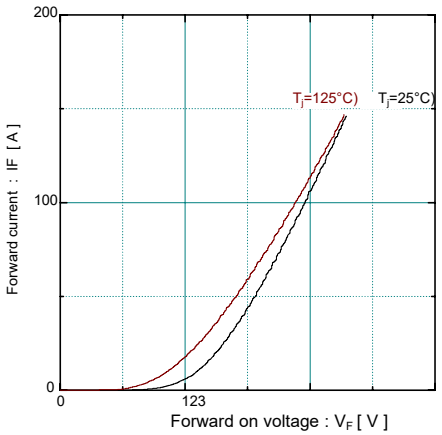

Fig.12 Forward current vs. Forward on voltage (typ.)

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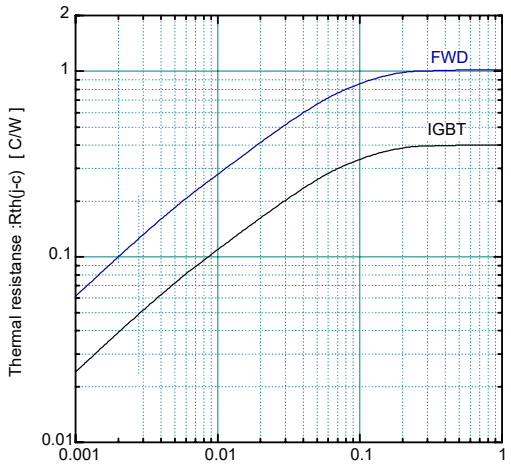

Fig.13 Transient Thermal resistance

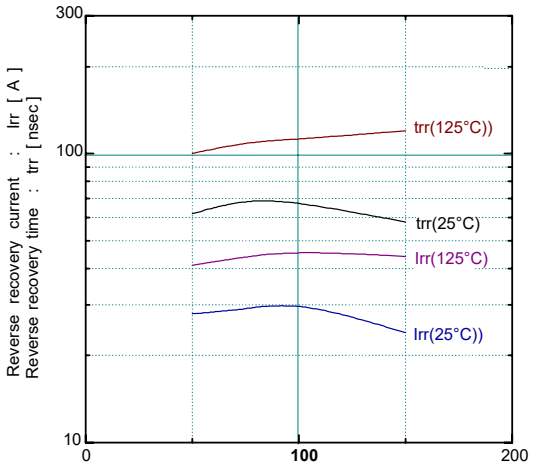

Fig.14 Reverse recovery characteristics (typ.)
Vcc=300V, V_{GE}=±15V, Rg=33Ω

ORDERING INFORMATION

Part Number	Package	Shipping	Marking Code
SG100T60S	SOT-227	10pcs / Tube	SG100T60S
SG100T60DS	SOT-227	10pcs / Tube	SG100T60DS

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