

General Description

SXG60N10S use advanced SGT MOSFET technology to provide low RDS(ON), low gate charge, fast switching and excellent avalanche characteristics.

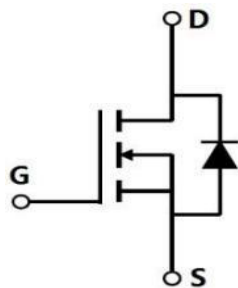
This device is specially designed to get better ruggedness and suitable to use in

Features

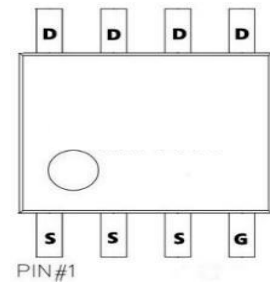
Low RDS(on) & FOM
Extremely low switching loss
Excellent stability and uniformity or Invertors

Applications

Consumer electronic power supply
Motor control
Synchronous-rectification
Isolated DC
Synchronous-rectification applications



SOP-8



Absolute Maximum Ratings (T_c=25°C unless otherwise noted)

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	100	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _A =25°C	Continuous Drain Current ¹	60	A
I _D @T _A =70°C	Continuous Drain Current ¹	42	A
I _{DM}	Pulsed Drain Current ²	180	A
EAS	Single Pulse Avalanche Energy ³	12	mJ
I _{AS}	Avalanche Current	9	A
P _D @T _A =25°C	Total Power Dissipation ⁴	100	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C
R _{θJA}	Thermal Resistance Junction-Ambient ¹ (t≤10s)	40	°C/W
R _{θJA}	Thermal Resistance Junction-Ambient ¹	75	°C/W
R _{θJC}	Thermal Resistance Junction-Case ¹	24	°C/W

Electrical Characteristics (T_A=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =250uA	100	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =10V , I _D =11.5A	---	8	12	mΩ
	Static Drain-Source On-Resistance ²	V _{GS} =4.5V , I _D =9.5A	---	12	15.5	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	1.2	---	2.5	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =80V , V _{GS} =0V , T _J =25°C	---	---	1	uA
		V _{DS} =80V , V _{GS} =0V , T _J =55°C	---	---	5	
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V , V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =5V , I _D =11.5A	---	45	---	S
Q _g	Total Gate Charge (10V)	V _{DS} =50V , V _{GS} =10V , I _D =11.5A	---	35	---	nC
Q _g	Total Gate Charge (4.5V)		---	16	---	
Q _{gs}	Gate-Source Charge		---	8	---	
Q _{gd}	Gate-Drain Charge		---	4	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =50V , V _{GS} =10V , R _G =3Ω , I _D =11.5A	---	9	---	ns
T _r	Rise Time		---	4.5	---	
T _{d(off)}	Turn-Off Delay Time		---	35	---	
T _f	Fall Time		---	5.5	---	
C _{iss}	Input Capacitance	V _{DS} =50V , V _{GS} =0V , f=1MHz	---	2550	---	pF
C _{oss}	Output Capacitance		---	305	---	
C _{rss}	Reverse Transfer Capacitance		---	12	---	
I _S	Continuous Source Current ^{1,5}	V _G =V _D =0V , Force Current	---	---	4	A
V _{SD}	Diode Forward Voltage ²	V _{GS} =0V , I _S =1A , T _J =25°C	---	---	1.1	V
t _{rr}	Reverse Recovery Time	I _F =11.5A , di/dt=100A/μs , T _J =25°C	---	28	---	nS
Q _{rr}	Reverse Recovery Charge		---	120	---	nC

Note :

- 1.The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 2.The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%
- 3.The EAS data shows Max. rating . The test condition is V_{DD}=25V,V_{GS}=10V,L=0.3mH,I_{AS}=9A
- 4.The power dissipation is limited by 150°C junction temperature
- 5.The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

Typical Characteristics

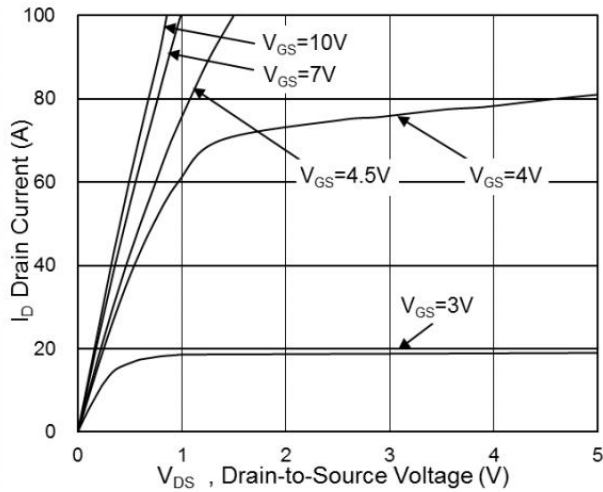


Fig.1 Typical Output Characteristics

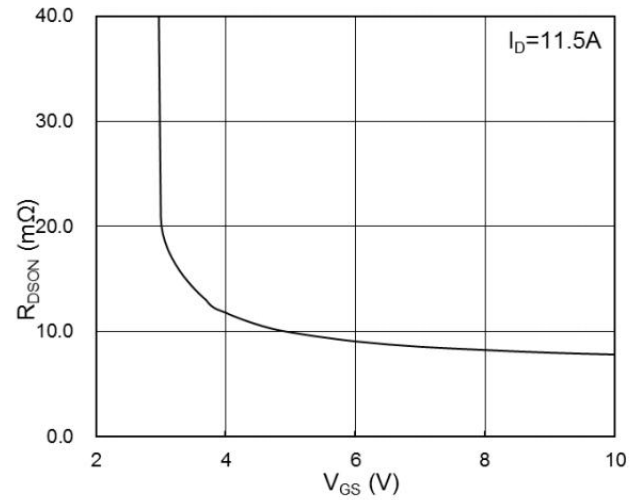


Fig.2 On-Resistance vs. G-S Voltage

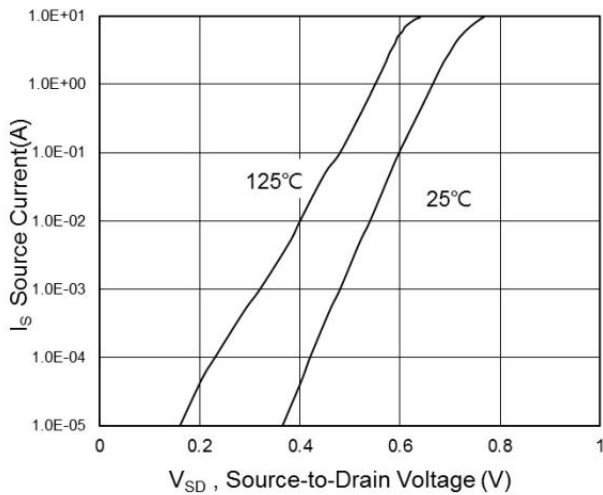


Fig.3 Source-Drain Forward Characteristics

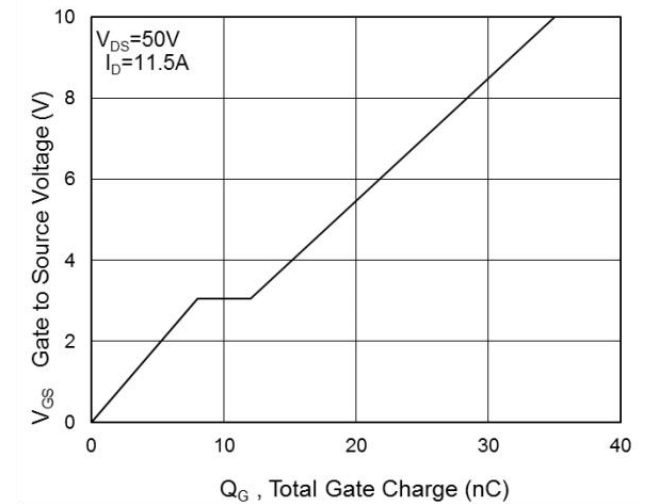
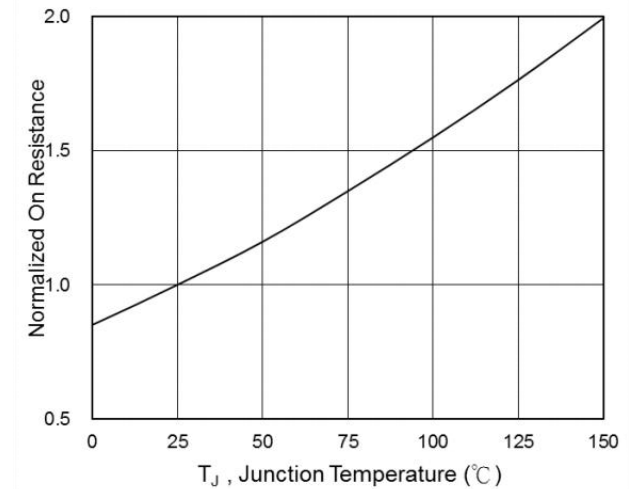
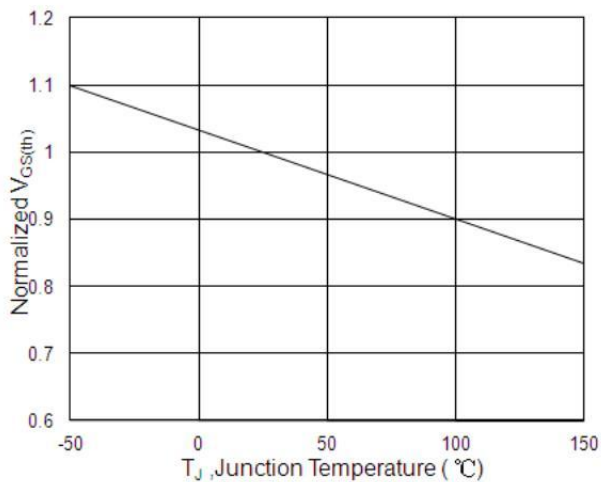


Fig.4 Gate-Charge Characteristics



Typical Characteristics

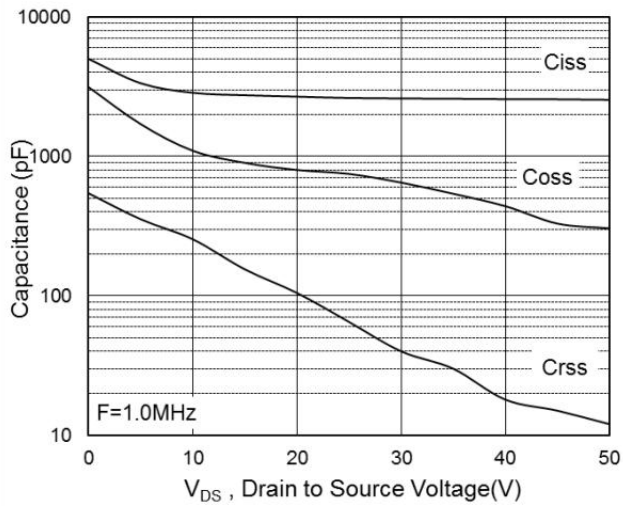


Fig.7 Capacitance

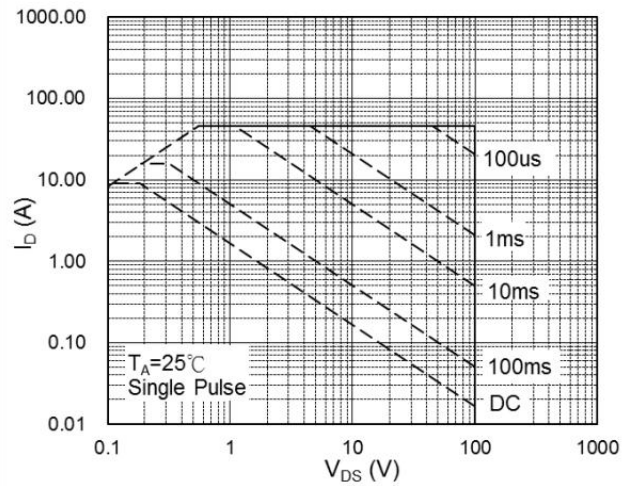


Fig.8 Safe Operating Area

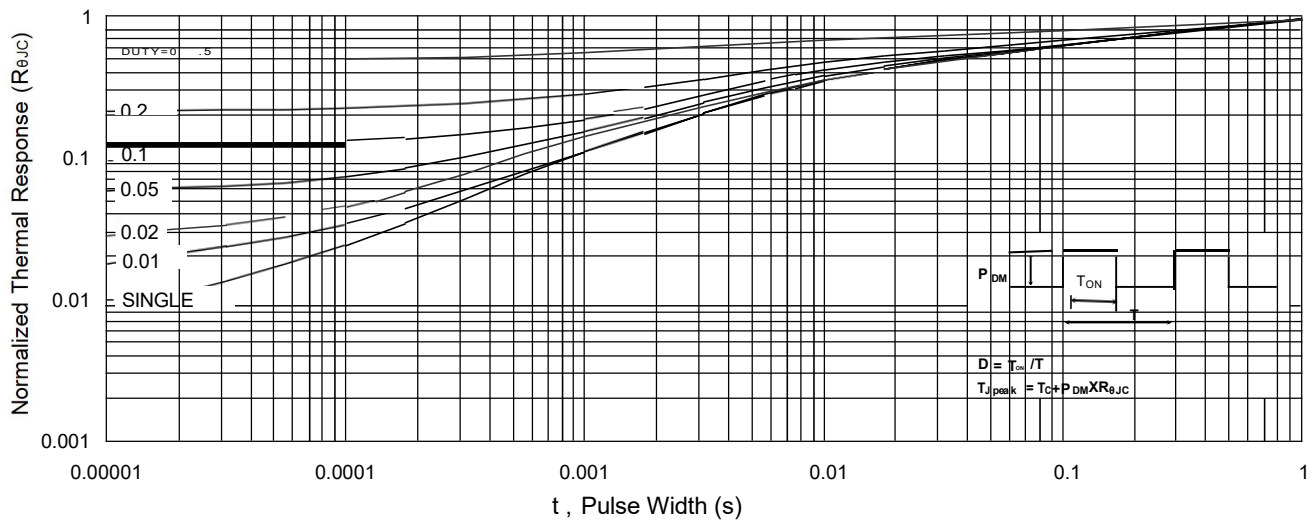


Fig.9 Normalized Maximum Transient Thermal Impedance

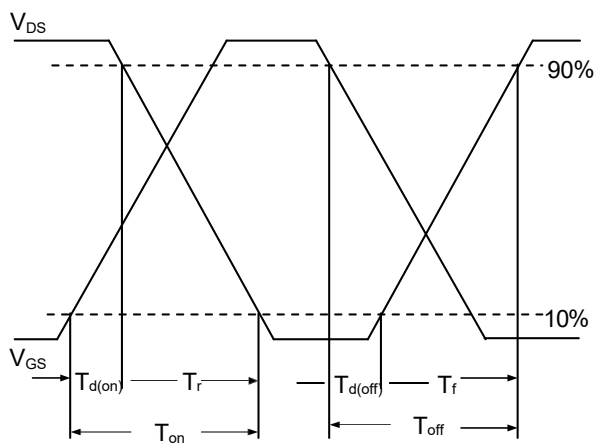


Fig.10 Switching Time Waveform

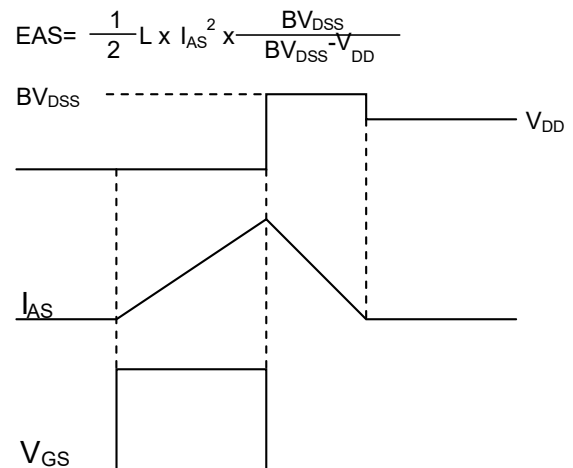
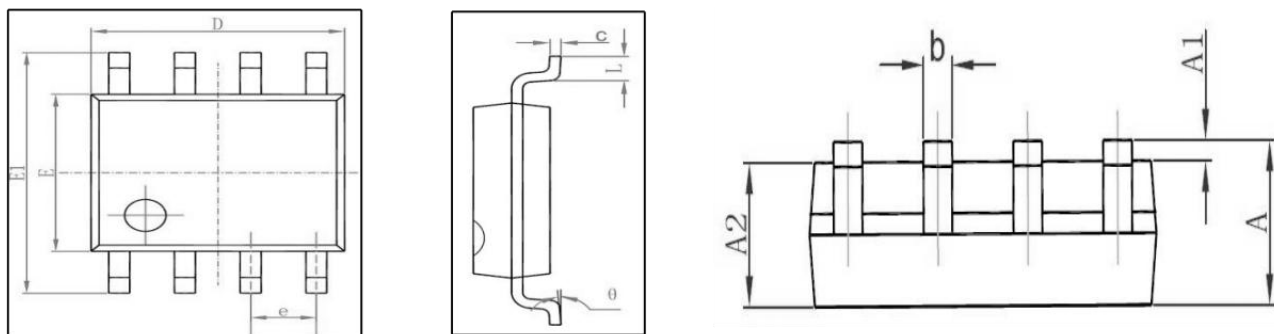
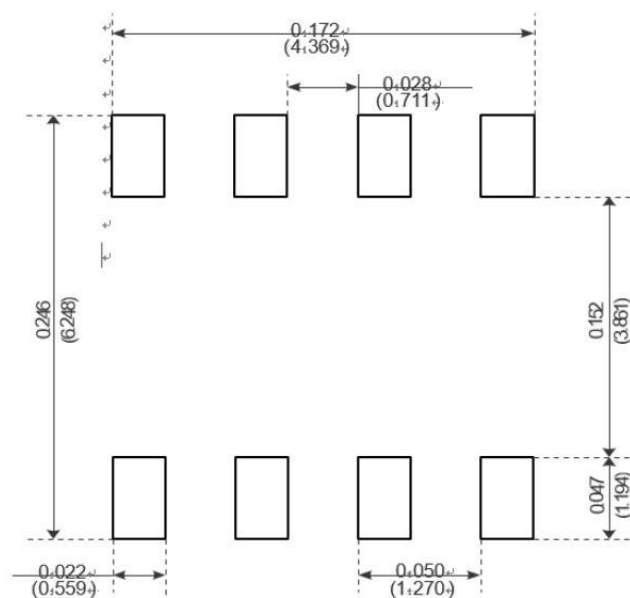


Fig.11 Unclamped Inductive Switching Waveform

Package Mechanical Data-SOP-8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270 (BSC)		0.050 (BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°



Recommended Minimum Pads

Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
TAPING	SOP-8		3000