

General Description

SXG110N06NF use advanced SGT MOSFET technology to provide low $R_{DS(ON)}$, 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 $R_{DS(on)}$ & FOM

Extremely low switching loss

Excellent stability and uniformity or Invertors

Applications

Consumer electronic power supply

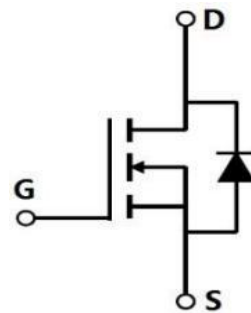
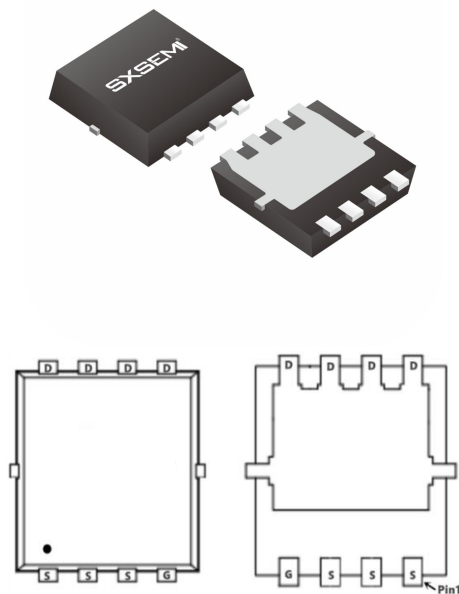
Motor control

Synchronous-rectification

Isolated DC

Synchronous-rectification applications

PDFN5*6-8L



Absolute Maximum Ratings at $T_j=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Rating	Units
VDS	Drain-Source Voltage	60	V
VGS	Gate-Source Voltage	± 20	V
$I_D@T_c=25^\circ\text{C}$	Continuous Drain Current ^{1,6}	110	A
$I_D@T_c=100^\circ\text{C}$	Continuous Drain Current ^{1,6}	66	A
IDM	Pulsed Drain Current ²	240	A
EAS	Single Pulse Avalanche Energy ³	101	mJ
IAS	Avalanche Current	45	A
$P_D@T_c=25^\circ\text{C}$	Total Power Dissipation ⁴	83	W
TSTG	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_j	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance Junction-Ambient ¹	55	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction-Case ¹	1.5	$^\circ\text{C/W}$

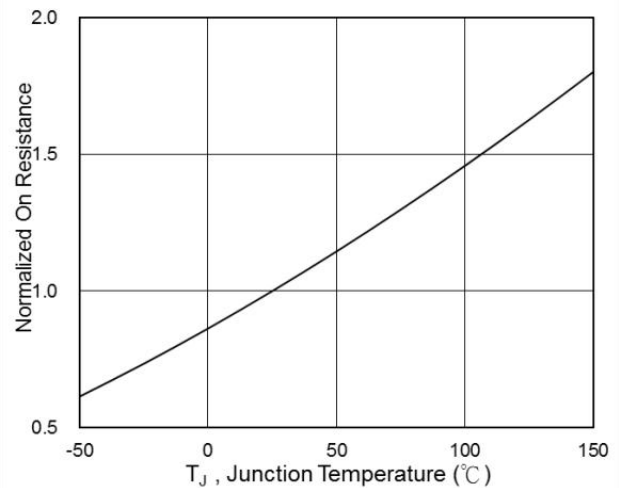
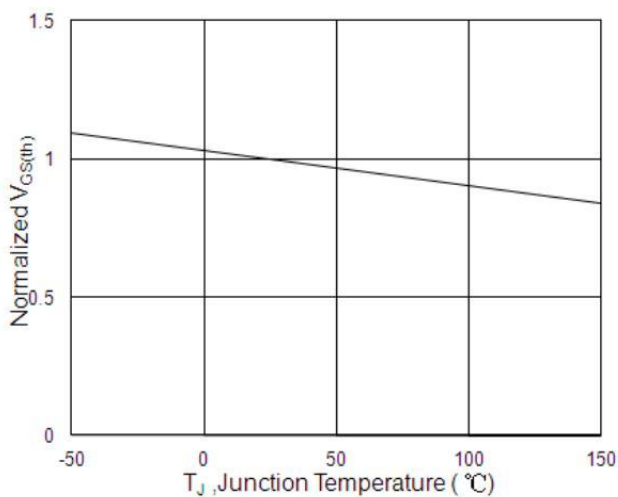
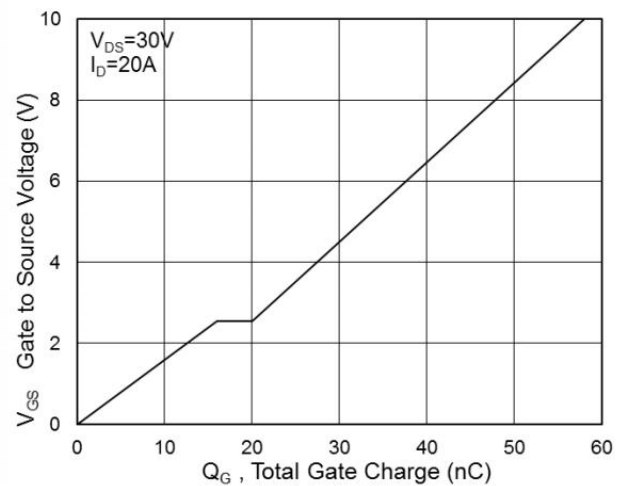
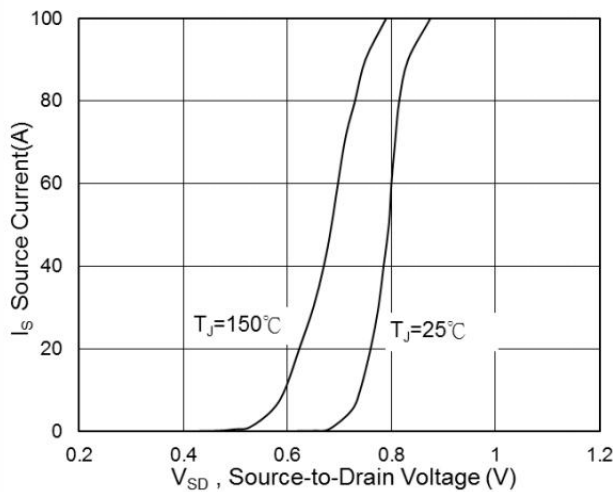
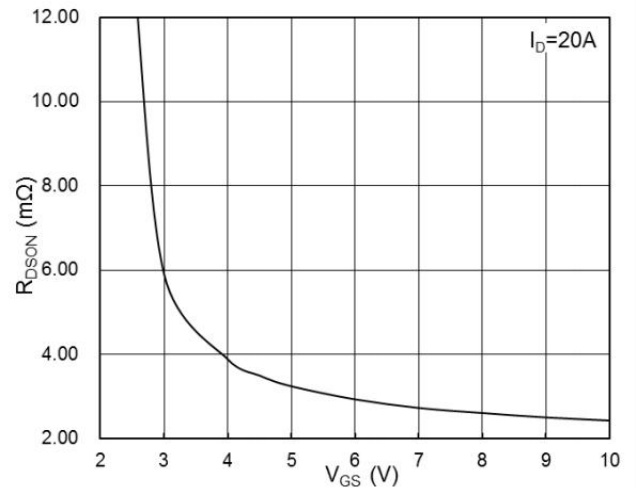
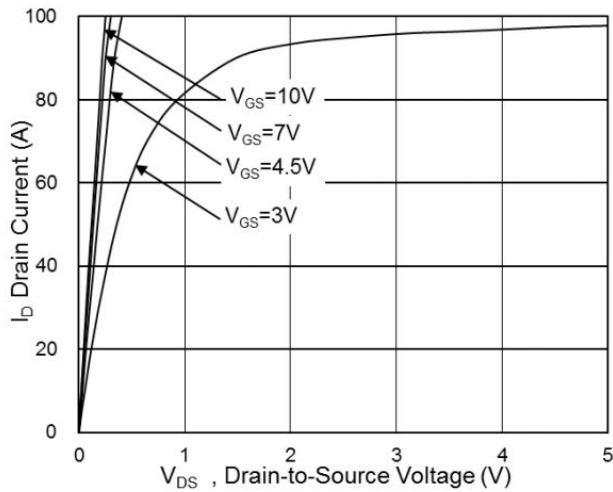
Electrical Characteristics (Tc=25 °C unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =250uA	60	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =10V , I _D =20A	---	3.0	3.6	mΩ
		V _{GS} =4.5V , I _D =15A	---	4.4	5.4	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	1.2	---	2.3	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =48V , V _{GS} =0V , T _J =25 °C	---	---	1	uA
		V _{DS} =48V , 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 =20A	---	65	---	S
R _g	Gate Resistance	V _{DS} =0V , V _{GS} =0V , f=1MHz	---	0.7	---	Ω
Q _g	Total Gate Charge (10V)	V _{DS} =30V , V _{GS} =10V , I _D =20A	---	58	---	nC
Q _{gs}	Gate-Source Charge		---	16	---	
Q _{gd}	Gate-Drain Charge		---	4	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =30V , V _{GS} =10V , R _G =3 , I _D =20A	---	18	---	ns
T _r	Rise Time		---	8	---	
T _{d(off)}	Turn-Off Delay Time		---	50	---	
T _f	Fall Time		---	10.5	---	
C _{iss}	Input Capacitance	V _{DS} =30V , V _{GS} =0V , f=1MHz	---	3458	---	pF
C _{oss}	Output Capacitance		---	1522	---	
C _{rss}	Reverse Transfer Capacitance		---	22	---	
I _S	Continuous Source Current ^{1,5}	V _G =V _D =0V , Force Current	---	---	55	A
V _{SD}	Diode Forward Voltage ²	V _{GS} =0V , I _S =1A , T _J =25 °C	---	---	1.2	V
t _{rr}	Reverse Recovery Time	I _F =20A , dI/dt=100A/μs , T _J =25 °C	---	24	---	nS
Q _{rr}	Reverse Recovery Charge		---	85	---	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}=50V,V_{GS}=10V,L=0.1mH,I_{AS}=40A
- 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.
- 6.The maximum current rating is package limited.

Typical Characteristics



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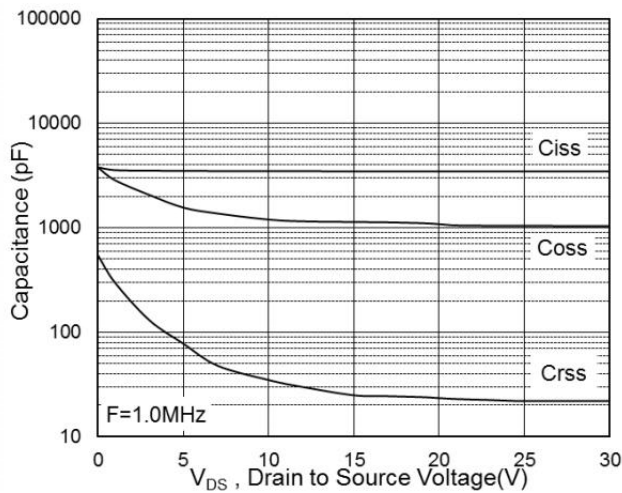


Fig.7 Capacitance

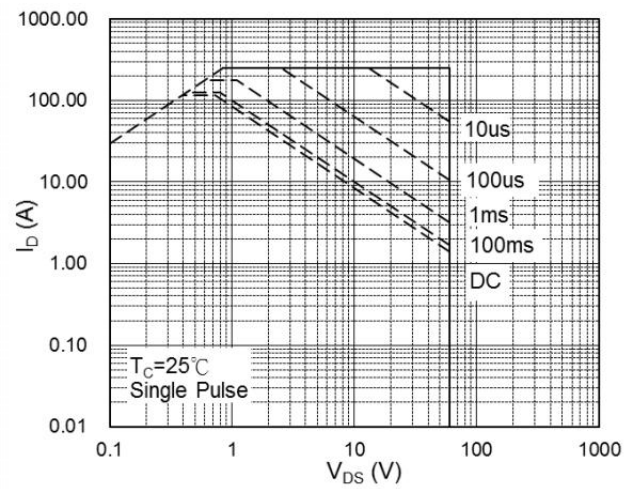


Fig.8 Safe Operating Area

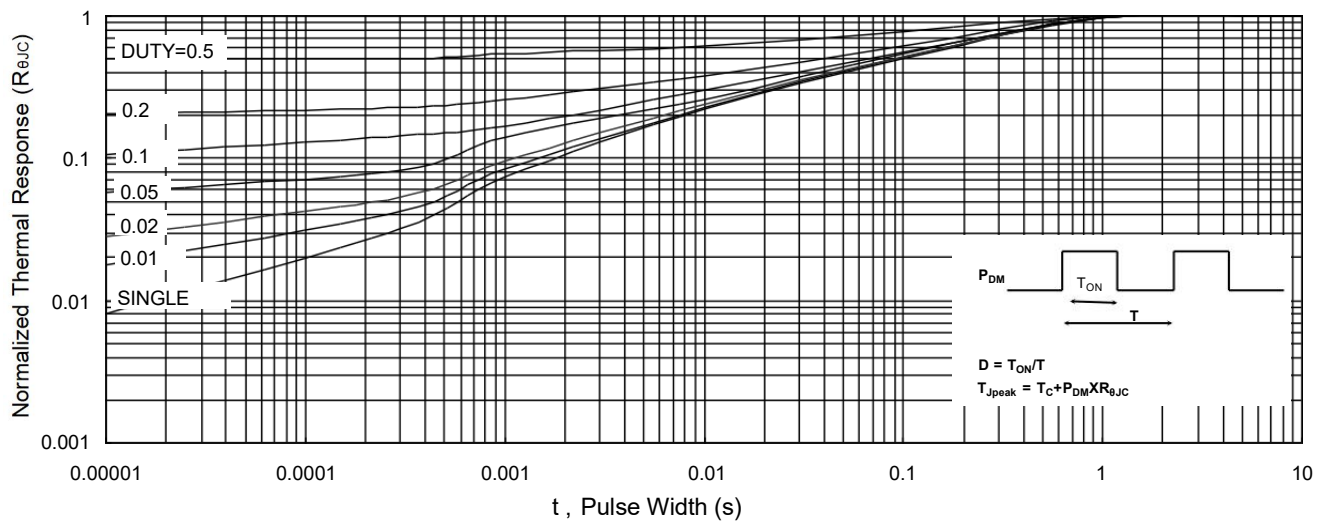


Fig.9 Normalized Maximum Transient Thermal Impedance

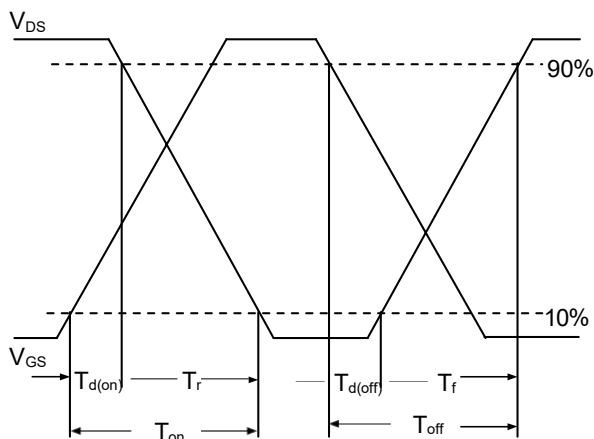


Fig.10 Switching Time Waveform

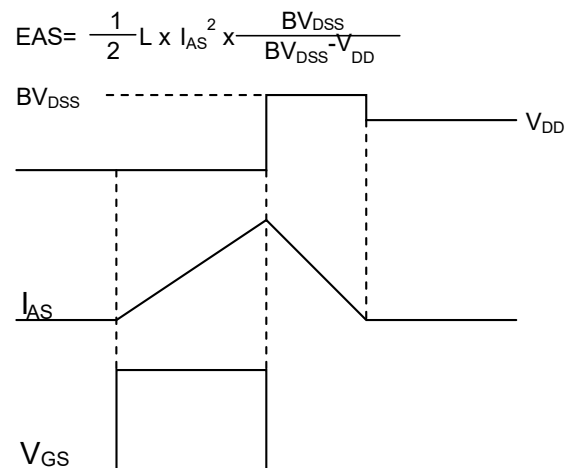
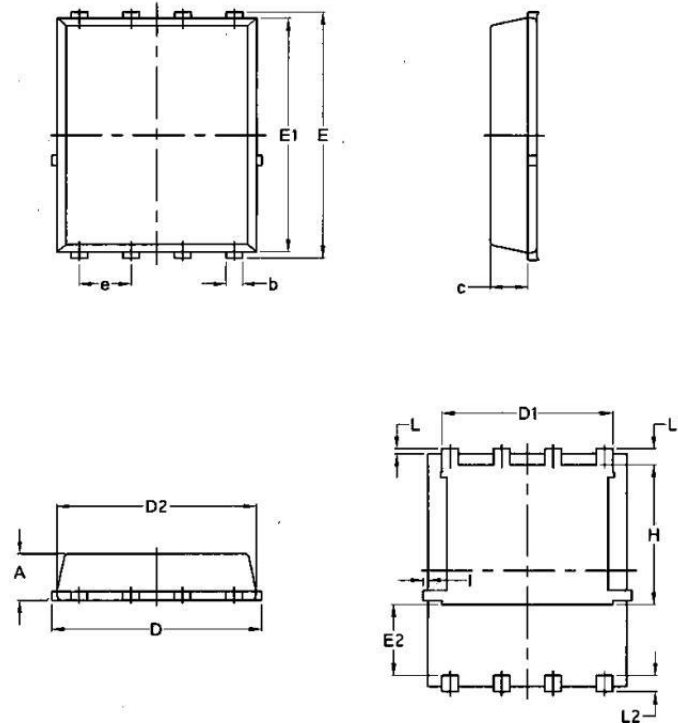


Fig.11 Unclamped Inductive Switching Waveform

MOSFET Package Mechanical Data-PDFN5*6-8L-JQ Single



Symbol	Common			
	mm		Inch	
	Mim	Max	Min	Max
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.824	0.0970	0.0324	0.082
D	4.80	5.40	0.1890	0.2126
D1	4.11	4.31	0.1618	0.1697
D2	4.80	5.00	0.1890	0.1969
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	1.60	/	0.0630	/
e	1.27 BSC		0.05 BSC	
L	0.05	0.25	0.0020	0.0098
L1	0.38	0.50	0.0150	0.0197
L2	0.38	0.50	0.0150	0.0197
H	3.30	3.50	0.1299	0.1378
I	/	0.18	/	0.0070

Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
TAPING	PDFN5*6-8L		5000