Description

The SX8808CF uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.

General Features

V_{DS} = 20V I_D =12A

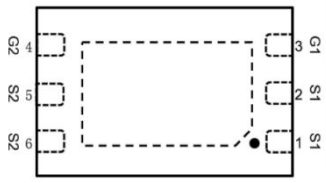
$R_{DS(ON)}$ < 8mΩ @ V_{GS}=4.5V

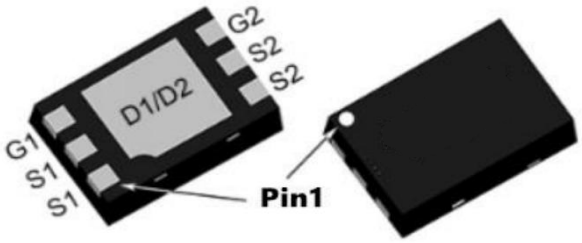
ESD=2500V HBM

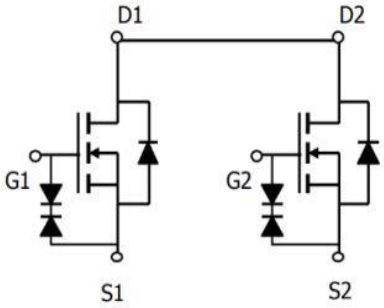
Application

BMS

Uninterruptible power supply







Absolute Maximum Ratings (T_C=25℃unless otherwise noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	±12	V
I_D@T_A=25℃	Continuous Drain Current, V_{GS} @ 4.5V[1]	12	A
I_D@T_A=70℃	Continuous Drain Current, V_{GS} @ 4.5V[1]	8.8	A
I_{DM}	Pulsed Drain Current[2]	70	A
IAS	Avalanche Current	20	A
P_D@T_A=25℃	Total Power Dissipation[1]	1.56	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃
$R_{\theta JA}$	Thermal Resistance Junction-Ambient [1]	80	℃/W

Electrical Characteristics (T_J=25 ℃, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	20	24	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=4.5V , I_D=5.5A		7.2	8.0	mΩ
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=2.5V , I_D=5.5A		9.8	11	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	0.5	0.7	1.2	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=20V , V_{GS}=0V ,	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±12V , V_{DS}=0V	---	---	±10	uA
gfs	Forward Transconductance	V_{DS}=5V , I_D=5.5A	---	38	---	S
Q_g	Total Gate Charge (4.5V)	V_{DS}=16V , V_{GS}=4.5V , I_D=10A	---	23	---	nC
Q_{gs}	Gate-Source Charge		---	3.5	---	
Q_{gd}	Gate-Drain Charge		---	8.4	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=16V ,V_{GS}=4.5V , R_G=6Ω, I_D=5.5A	---	10.2	---	ns
T_r	Rise Time		---	41	---	
$T_{d(off)}$	Turn-Off Delay Time		---	67	---	
T_f	Fall Time		---	31	---	
C_{iss}	Input Capacitance	V_{DS}=10V , V_{GS}=0V , f=1MHz	---	1767	---	pF
C_{oss}	Output Capacitance		---	184	---	
C_{rss}	Reverse Transfer Capacitance		---	155	---	
IS	Continuous Source Current[1]	V_G=V_D=0V , Force Current	---	---	12	A
I_{SM}	Pulsed Source Current[2]		---	---	70	A
V_{SD}	Diode Forward Voltage[2]	V_{GS}=0V, I_S=11A ,T_J=25℃	---	---	1.2	V

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 VDD=40V,VGS=10V,L=0.1mH,IAS=20A

4、The power dissipation is limited by 150℃junction temperature

5、The data is theoretically the same as ID and IDM , in real applications , should be limited by total power dissipation.

Typical Characteristics

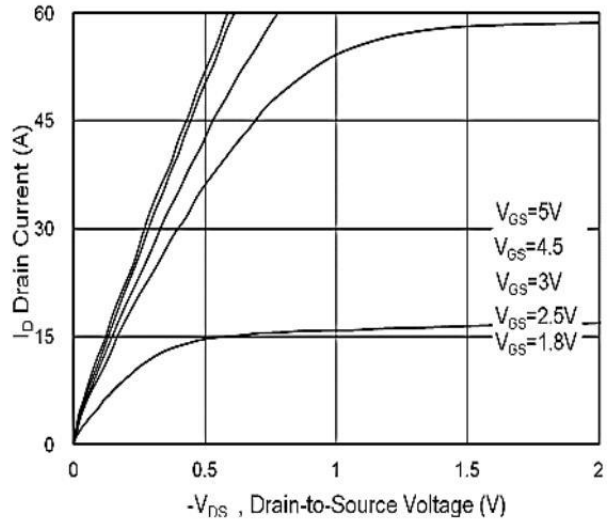


Figure.1 Typical Output Characteristics

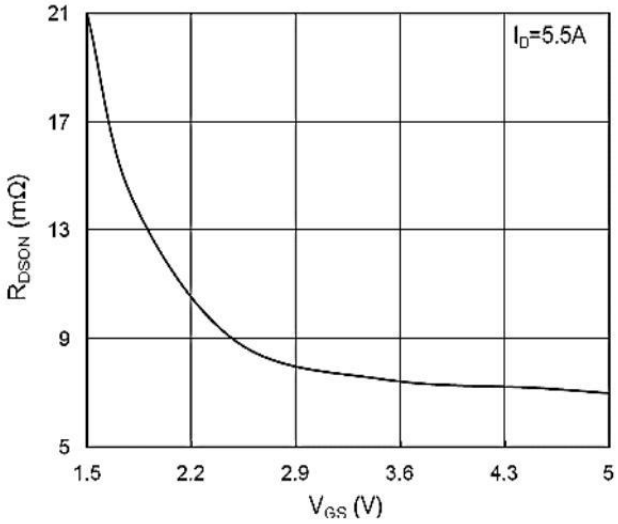


Figure.2 On-Resistance vs.Gate-Source

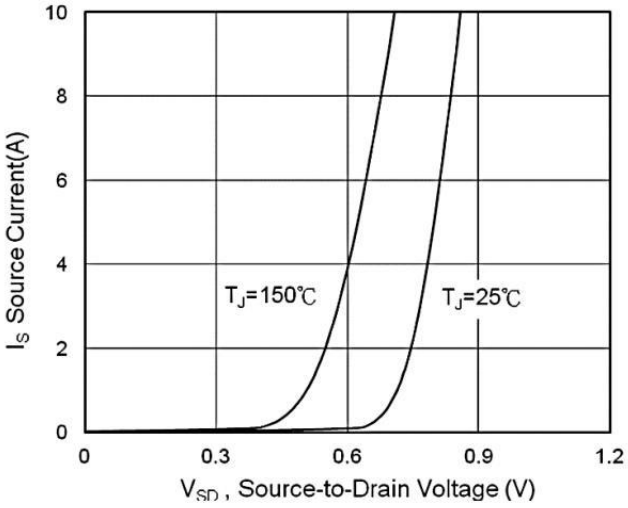


Figure.3 Forward Characteristics Of Reverse

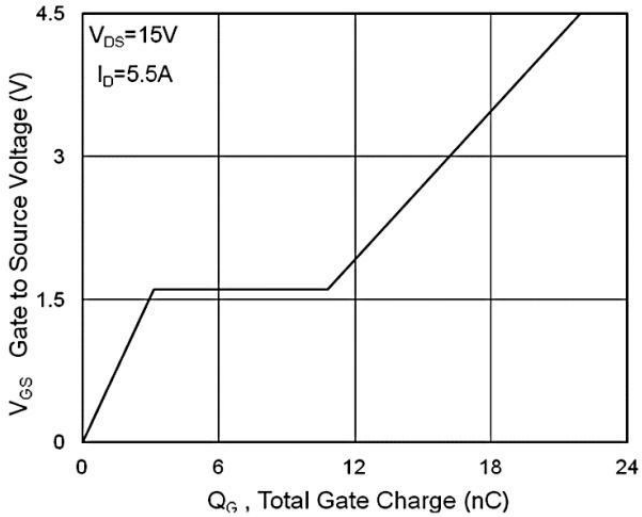


Figure.4 Gate-Charge Characteristics

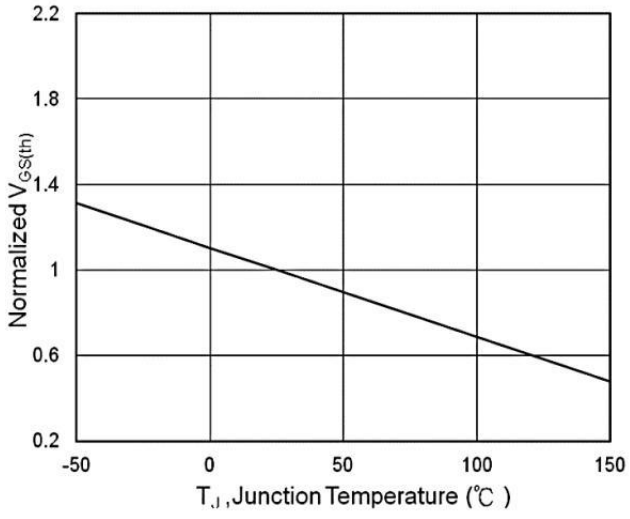


Figure.5 VGS(th)vs. TJ

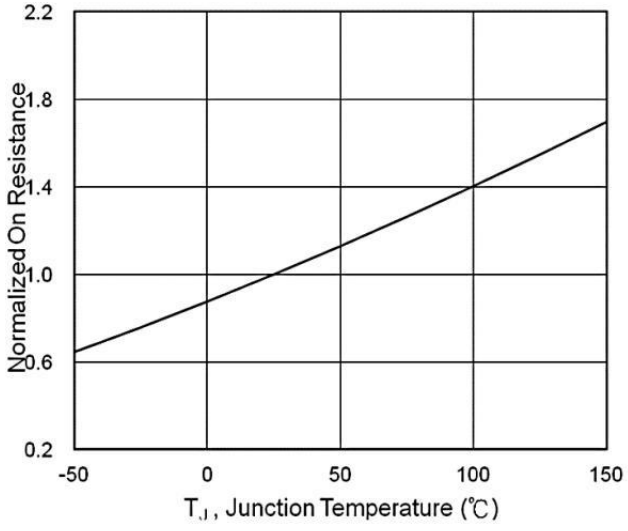


Figure.6 Normalized RDSON vs. TJ

Typical Characteristics

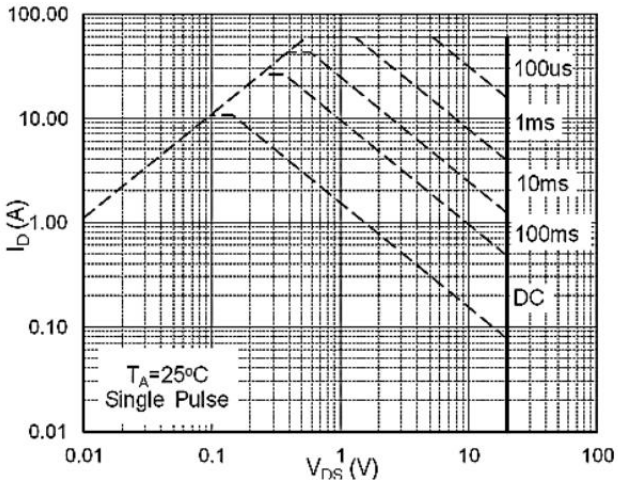


Figure.7 Capacitance

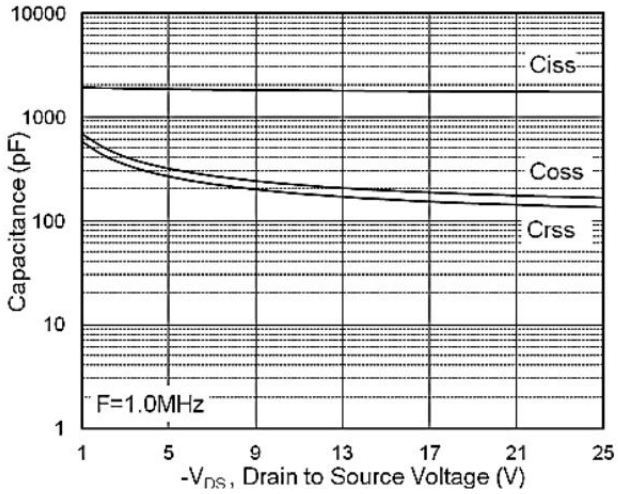


Figure.8 Safe Operating Area

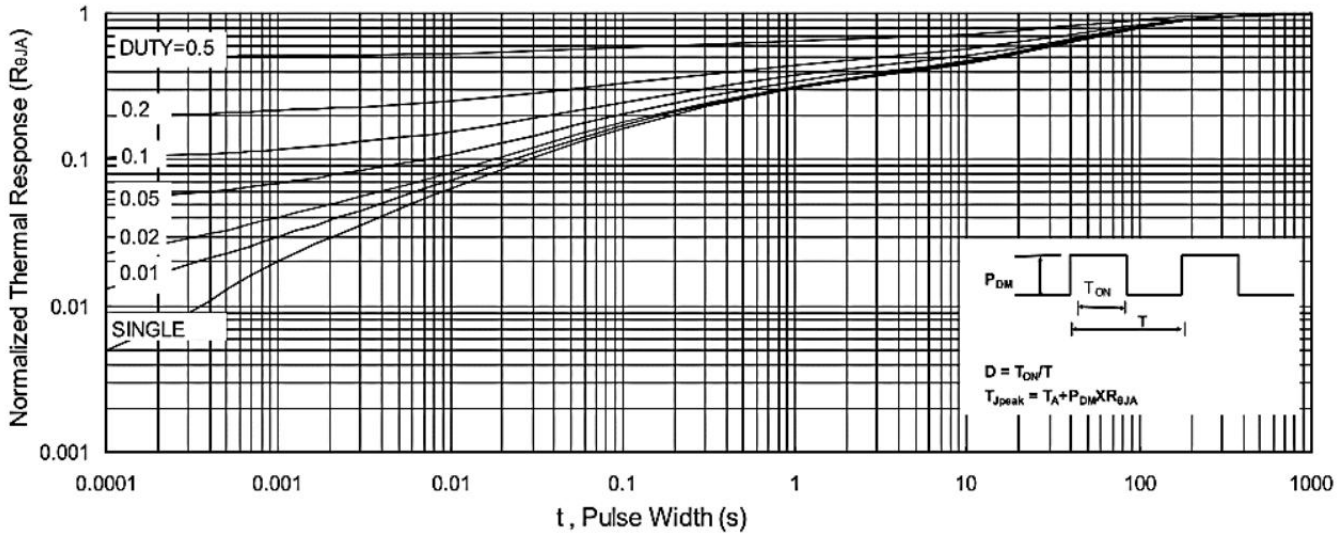


Figure.9 Normalized Maximum Transient Thermal Impedance

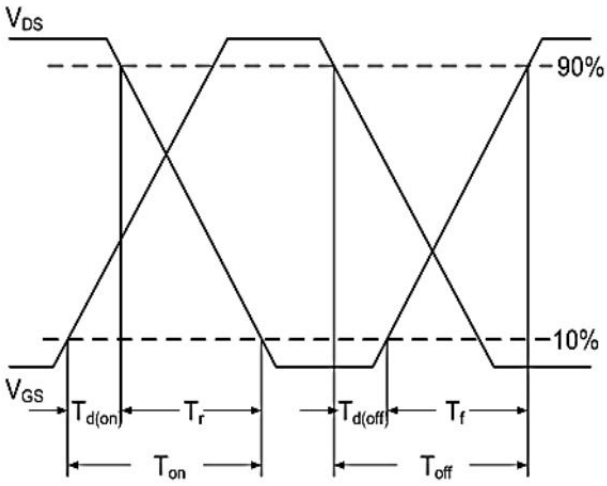


Fig.10 Switching Time Waveform

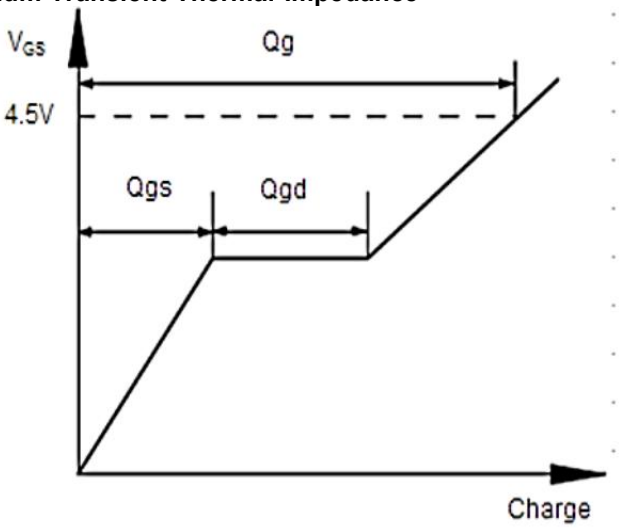
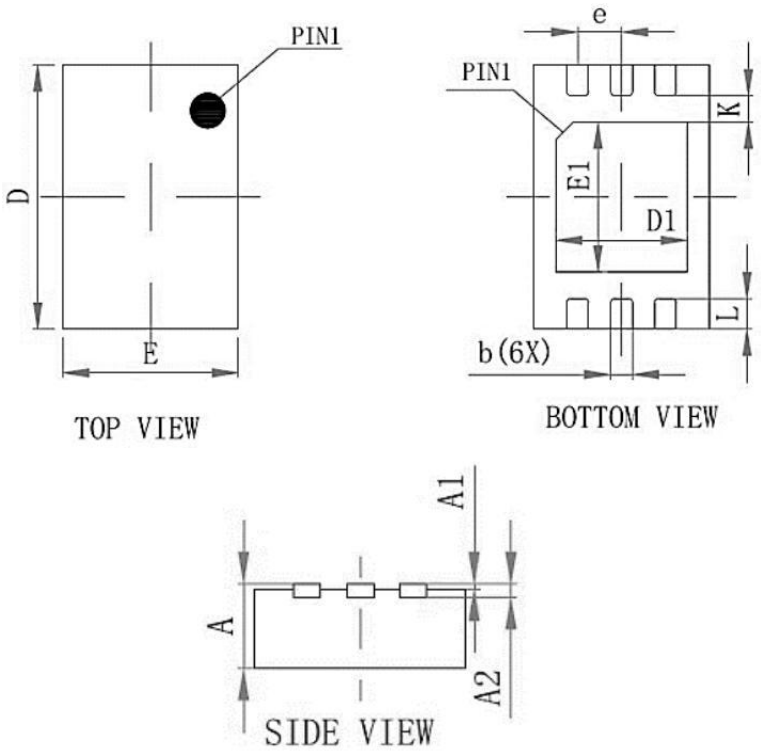


Fig.11 Gate Charge Waveform

Package Mechanical Data-DFN2X3-6L



Symbol	Dim in mm	
	Min	Max
A	0.70	0.80
A1	0.00	0.05
A2	0.203REF	
D	2.90	3.10
E	1.90	2.10
D1	1.40	1.60
E1	1.60	1.80
L	0.34	0.36
K	0.25BSC	
e	0.50BSC	
b	0.24	0.26

Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
TAPING	DFN2X3-6L		3000