

Description

The SX8P10S uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

General Features

$V_{DS} = -100V$ $I_D = -8A$

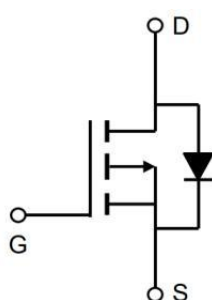
$R_{DS(ON)} < -110m\Omega$ @ $V_{GS} = -10V$

Application

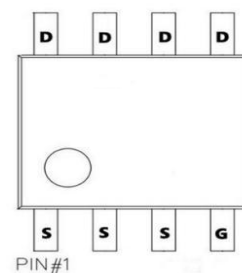
Battery protection

Load switch

Uninterruptible power supply



SOP-8



Absolute Maximum Ratings ($T_c=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-100	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_c=25^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ -10V^1$	-8	A
$I_D @ T_c=100^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ -10V^1$	-3.85	A
I_{DM}	Pulsed Drain Current ²	-18	A
EAS	Single Pulse Avalanche Energy ³	56	mJ
I_{AS}	Avalanche Current	3.1	A
$P_D @ T_c=25^\circ\text{C}$	Total Power Dissipation ⁴	3.1	W
T_{STG}	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	59	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction-Case ¹	16	$^\circ\text{C/W}$

Electrical Characteristics (T_J=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	-110	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =-10V , I _D =- 6A	---	83	110	mΩ
		V _{GS} =-4.5V , I _D =-3A	---	95	120	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =-250uA	-1.2	-1.8	-2.5	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =-100V , V _{GS} =0V , T _J =25°C	---	---	-50	uA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V , V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =-10V , I _D =-10A	---	24	---	S
Q _g	Total Gate Charge	V _{DS} =-50V , V _{GS} =-10V , I _D =-20A	---	20.1	---	nC
Q _{gs}	Gate-Source Charge		---	3.9	---	
Q _{gd}	Gate-Drain Charge		---	4.3	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =-50V , V _{GS} =-10V , R _G =3.3 , I _D =-10A	---	10	---	ns
T _r	Rise Time		---	30	---	
T _{d(off)}	Turn-Off Delay Time		---	77	---	
T _f	Fall Time		---	81	---	
C _{iss}	Input Capacitance	V _{DS} =-20V , V _{GS} =0V , f=1MHz	---	1051	---	pF
C _{oss}	Output Capacitance		---	119	---	
C _{rss}	Reverse Transfer Capacitance		---	25	---	
I _S	Continuous Source Current ^{1,5}	V _G =V _D =0V , Force Current	---	---	-15	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 =-8A , di/dt=-100A/μs , T _J =25°C	---	81	---	nS
Q _{rr}	Reverse Recovery Charge		---	140	---	nC

Notes:

- 1 、 Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
- 2 、 The test condition is, VDD=80V,VG=10V RG =25Ω, L=0.1mH.
- 3 、 The data tested by pulsed Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%
- 4 、 The power dissipation is limited by 150 °C junction temperature

Typical Characteristics

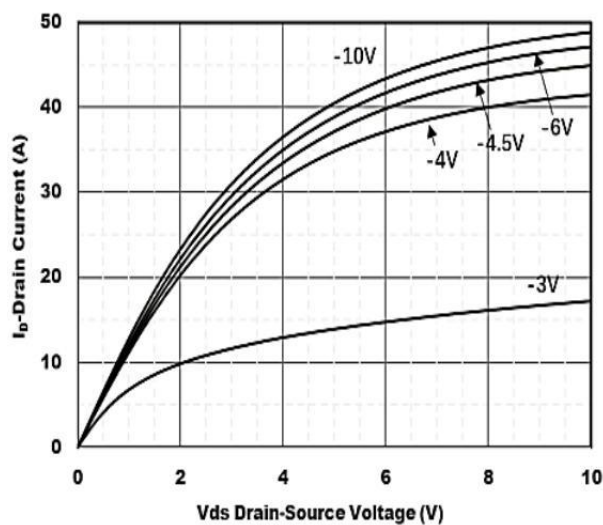


Figure1. Output Characteristics

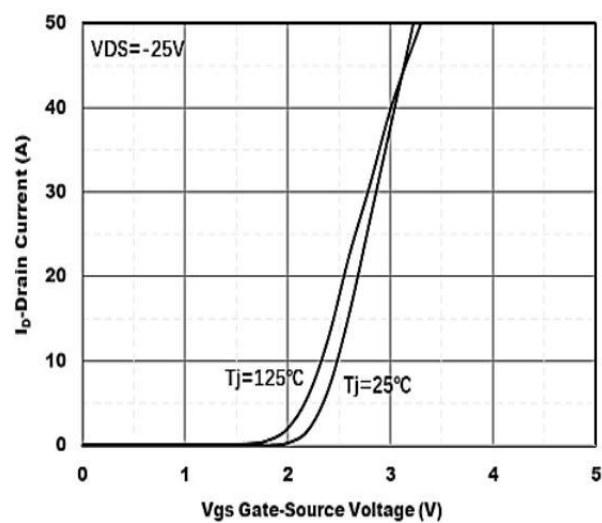


Figure2. Transfer Characteristics

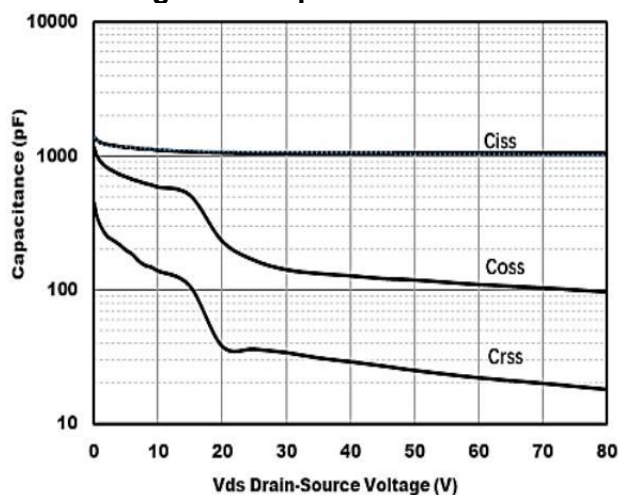


Figure3. Capacitance Characteristics

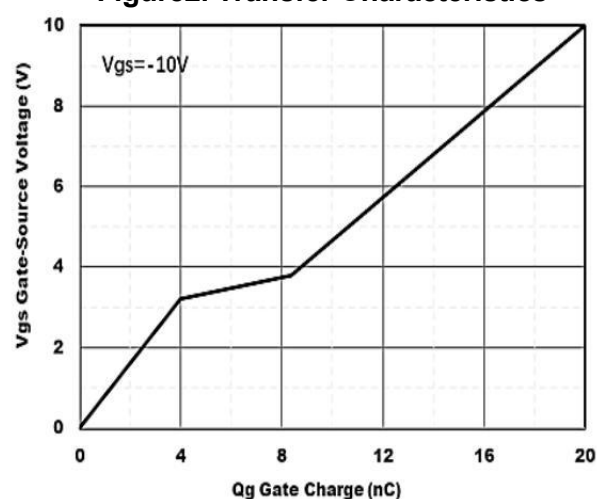


Figure4. Gate Charge

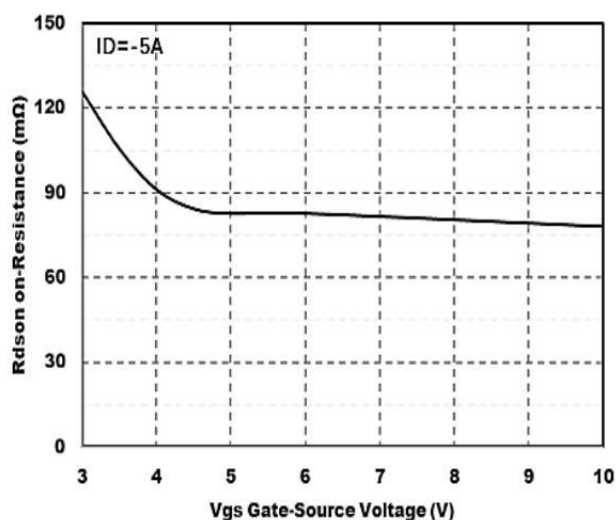


Figure5. : On-Resistance vs. Gate to Source

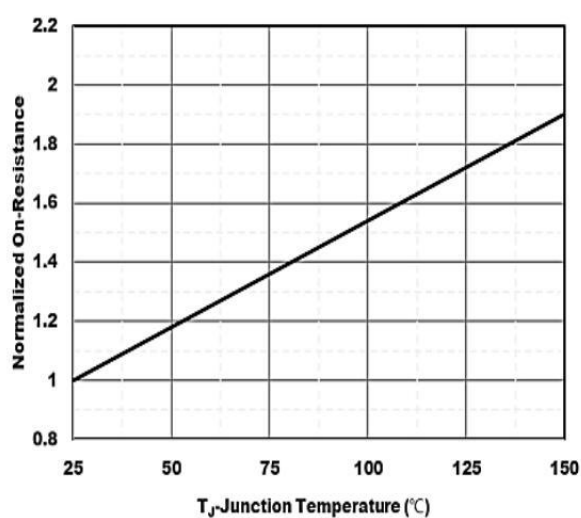


Figure6. Normalized On-Resistance Voltage

Typical Characteristics

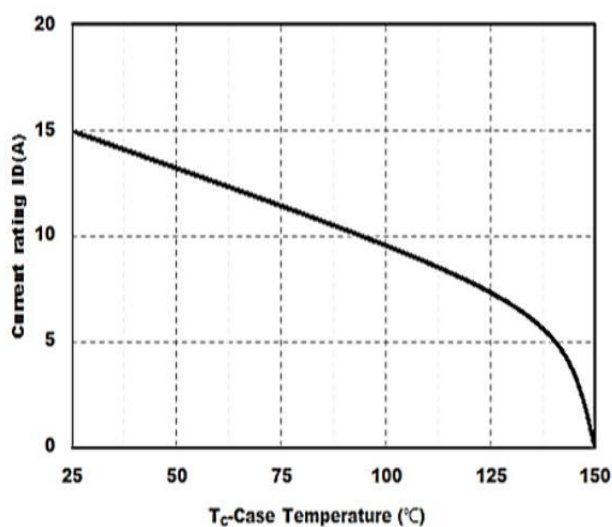


Figure7. Drain current

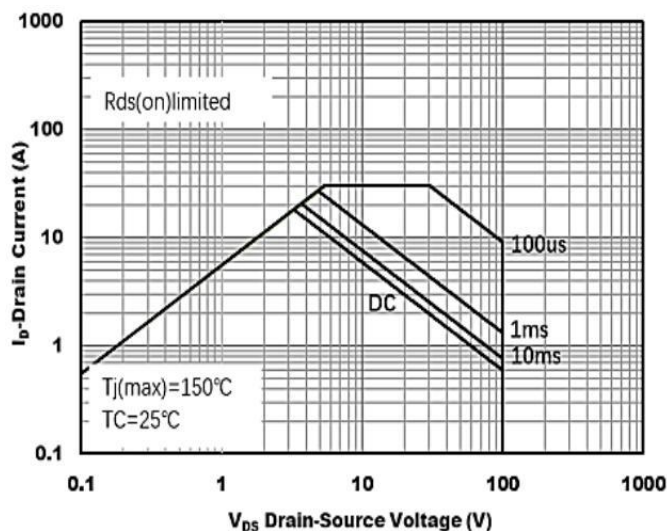


Figure8.Safe Operation Area

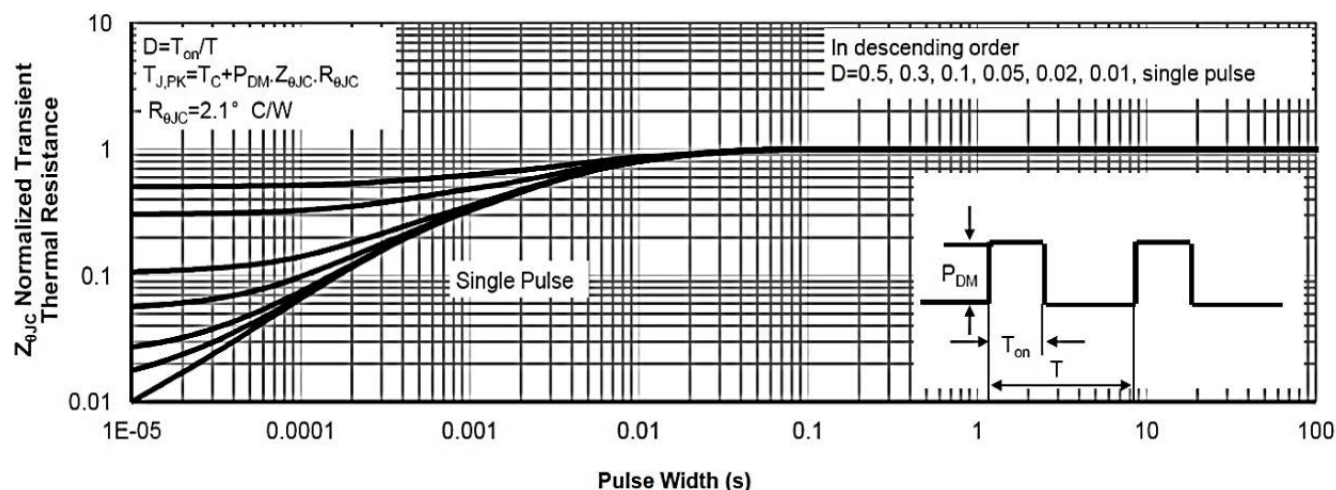


Figure9.Normalized Maximum Transient thermal impedance

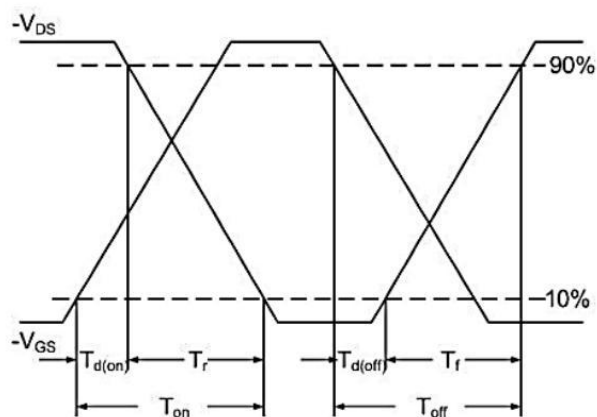


Figure10 Switching Time Waveform

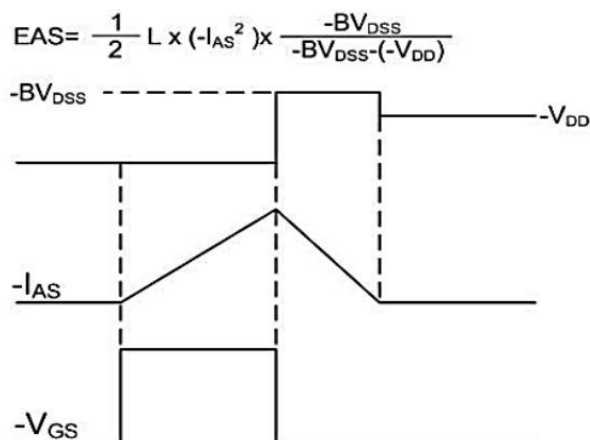
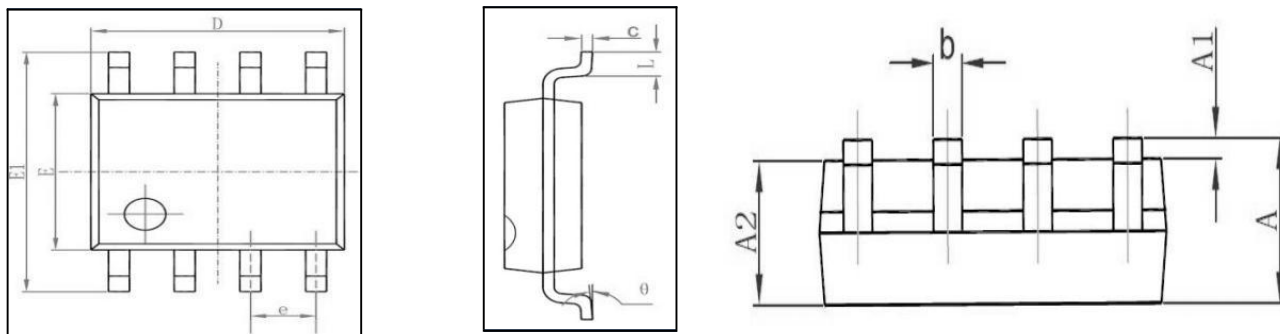
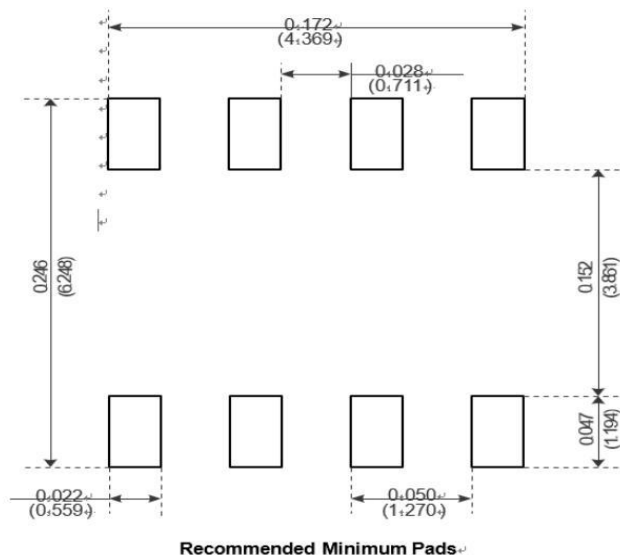


Figure11 Unclamped Inductive Waveform

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°



Package Marking and Ordering Information

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