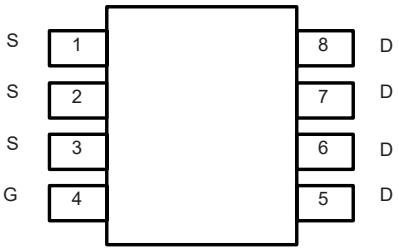
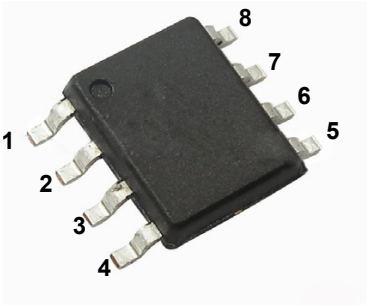
XPX8P10XS

-100V P-Channel Enhancement Mode MOSFET

Description

The XPX8P10XS 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

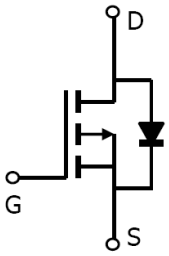
$R_{DS(ON)}$ < -83mΩ @ V_{GS}=-10V

Application

Battery protection

Load switch

Uninterruptible power supply



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
XPX8P10XS	SOP-8	XPX8P10XS XXX YYYY	3000

Absolute Maximum Ratings (T_C=25℃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□	Continuous Drain Current, V_{GS} @ -10V[1]	-8	A
I_D@T_C=100□	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℃	Total Power Dissipation[4]	3.1	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]	59	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-Case[1]	16	℃/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	-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℃	---	---	-50	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V , V_{DS}=0V	---	---	±100	nA
gfs	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℃	---	---	-1.2	V
t_{rr}	Reverse Recovery Time	I_F=-8A , di/dt=-100A/μs , T_J=25℃	---	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℃ junction temperature

Typical Characteristics

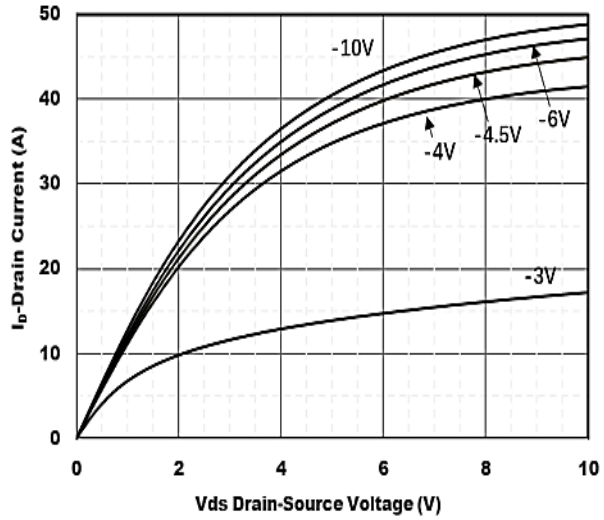


Figure1. Output Characteristics

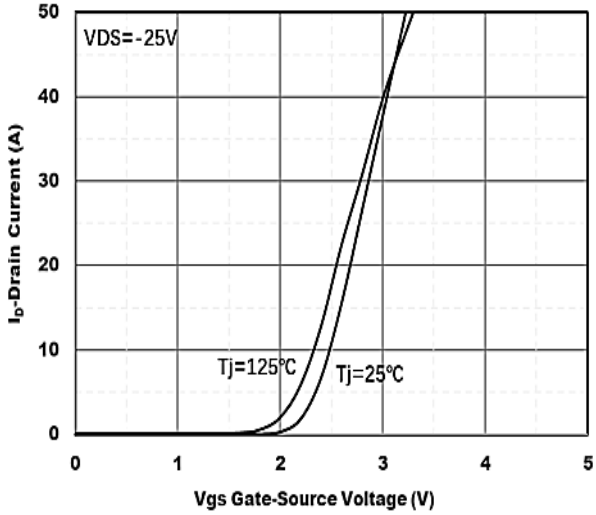


Figure2. Transfer Characteristics

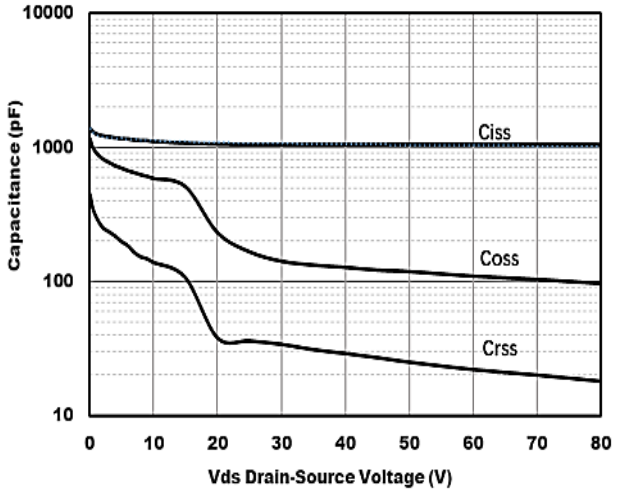


Figure3. Capacitance Characteristics

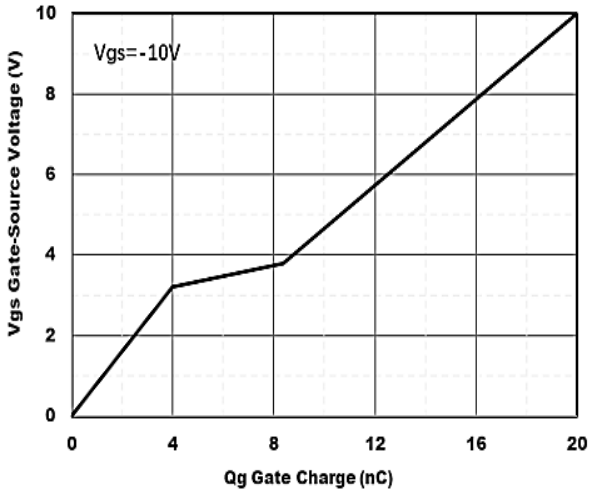


Figure4. Gate Charge

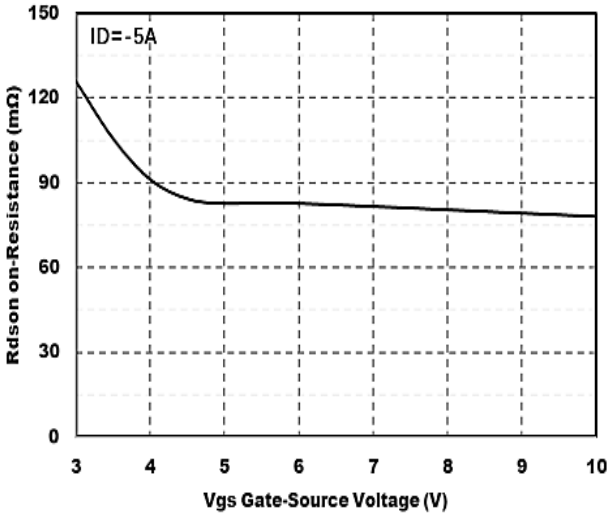


Figure5. : On-Resistance vs. Gate to Source Voltage

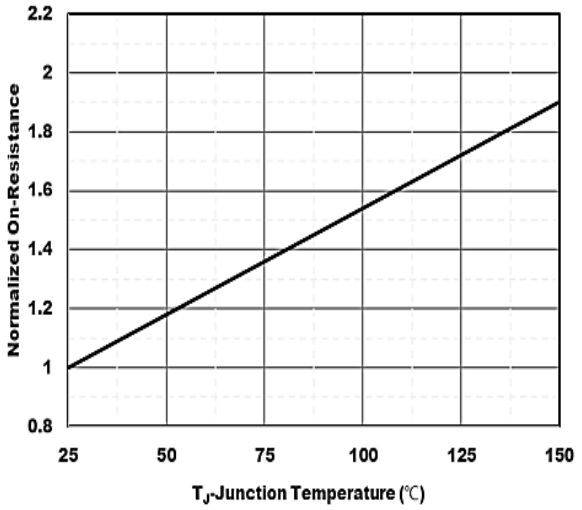


Figure6.Normalized On-Resistance

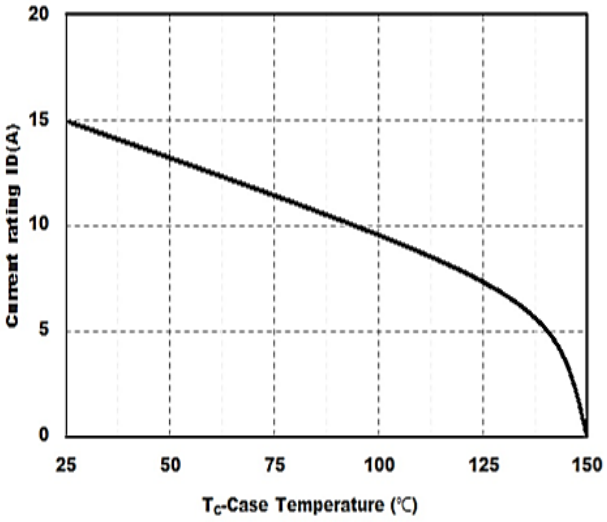


Figure7. Drain current

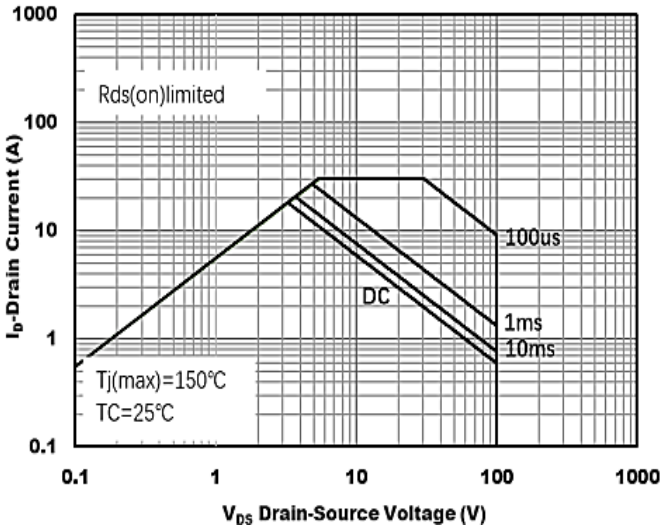


Figure8.Safe Operation Area

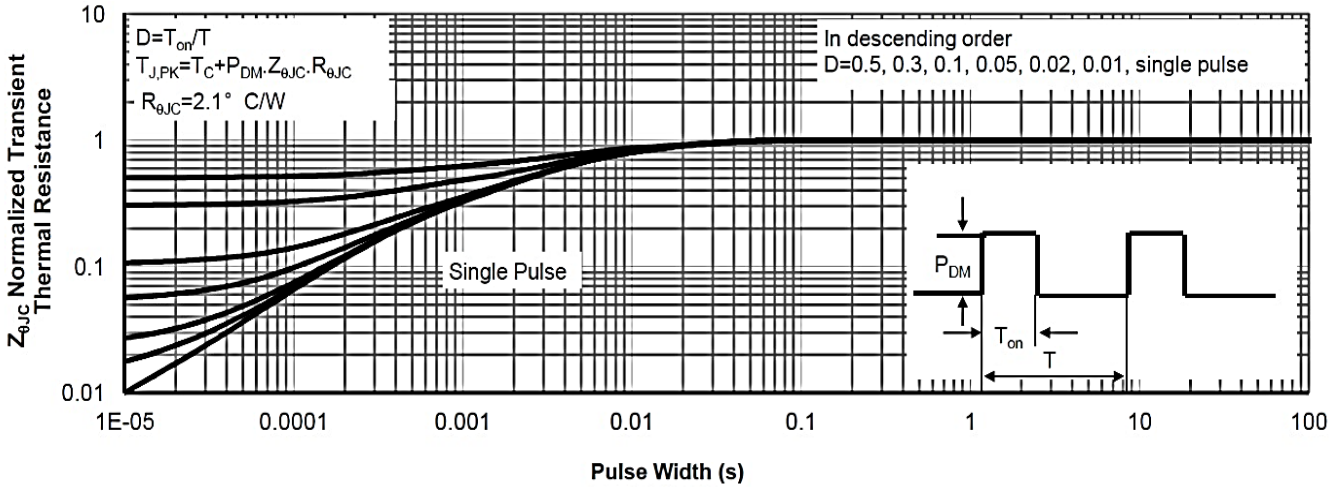


Figure9.Normalized Maximum Transient thermal impedance

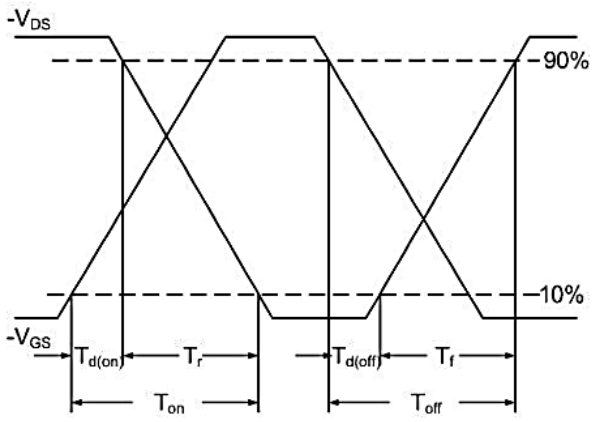


Figure10 Switching Time Waveform

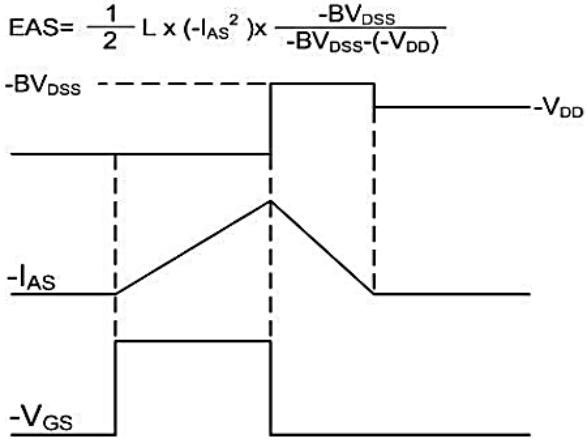
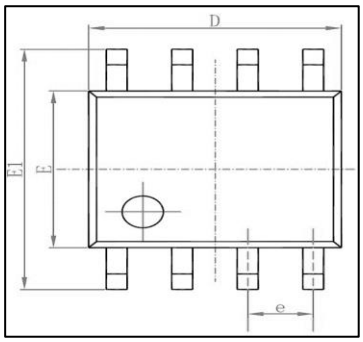
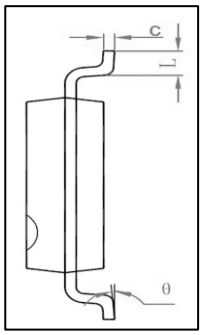
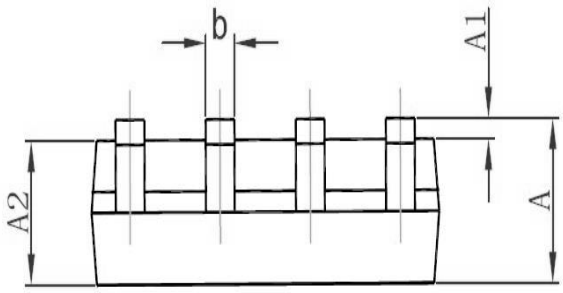


Figure11 Unclamped Inductive Waveform

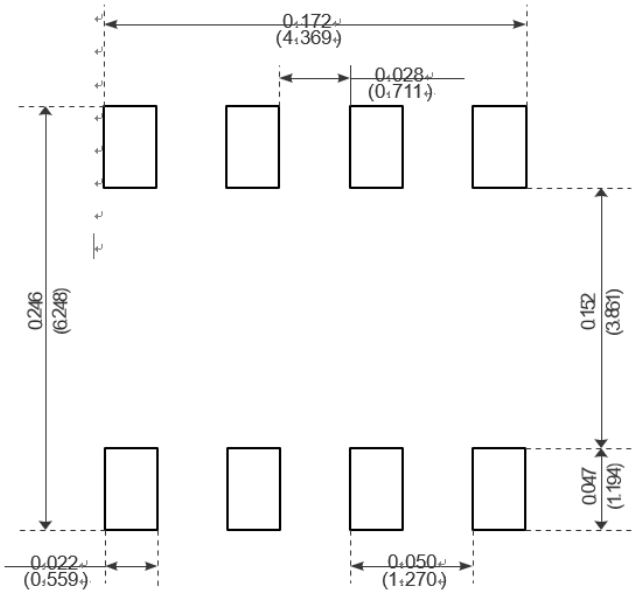
Package Mechanical Data-SOP-8







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°



Recommended Minimum Pads

Flow (wave) soldering (solder dipping)

Product	Peak Temperature	Dipping Time
Pb device	245℃±5℃	5sec±1sec
Pb-Free device	260℃+0/-5℃	5sec±1sec

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