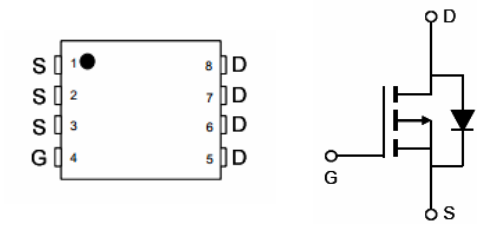
Description

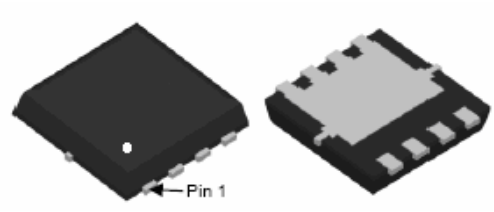
The XPX80P02RX uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.



General Features

V_{DS} = -20V I_D =-80A

$R_{DS(ON)}$ < 4mΩ @ V_{GS}=4.5V



Application

Battery protection

Load switch

Uninterruptible power supply

Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
XPX80P02RX	PDFN3*3-8L	XPX80P02RX XXX YYYY	5000

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

Symbol	Parameter	Rating	Units
VDS	Drain-Source Voltage	-20	V
VGS	Gate-Source Voltage	±12	V
I_D@T_C=25℃	Continuous Drain Current, V_{GS} @ -4.5V[1]	-80	A
I_D@T_C=70℃	Continuous Drain Current, V_{GS} @ -4.5V[1]	-44	A
IDM	Pulsed Drain Current[2]	-300	A
EAS	Single Pulse Avalanche Energy	180	mJ
P_D@T_C=25℃	Total Power Dissipation[3]	43.1	W
TSTG	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃
RθJA	Thermal Resistance Junction-Ambient [1]	85	℃/W
RθJC	Thermal Resistance Junction-Case[1]	2.9	℃/W

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

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V(BR)DSS	Drain-Source Breakdown Voltage	VGS = 0V, ID = -250μA	-20	-	-	V
IGSS	Gate-body Leakage current	VDS = 0V, VGS = ±12V	-	-	±100	nA
IDSS	Zero Gate Voltage Drain Current TJ=25℃	VDS = -20V, VGS = 0V	-	-	-1	μA
IDSS	Zero Gate Voltage Drain Current TJ=100℃		-	-	-100	
VGS(th)	Gate-Threshold Voltage	VDS = VGS, ID = -250μA	-0.4	-0.7	-1.0	V
RDS(on)	Drain-Source On-Resistance4	VGS = -4.5V, ID = -10A	-	4.0	5.5	mΩ
RDS(on)	Drain-Source On-Resistance4	VGS = -2.5V, ID = -10A	-	5.0	6.8	
gfs	Forward Transconductance4	VDS = -4.5V, ID = -10A	-	56	-	S
Ciss	Input Capacitance	VDS = -10V, VGS =0V, f =1MHz	-	4770	-	pF
Coss	Output Capacitance		-	665	-	
Crss	Reverse Transfer Capacitance		-	570	-	
Rg	Gate Resistance	f =1MHz	-	9.6	-	Ω
Qg	Total Gate Charge	VGS = -4.5V,VDS = -10V, ID= -10A	-	55	-	nC
Qgs	Gate-Source Charge		-	5.2	-	
Qgd	Gate-Drain Charge		-	10	-	
td(on)	Turn-On Delay Time	VGS = -4.5V, VDD = -10V, RG = 3Ω, ID= -10A	-	22	-	ns
tr	Rise Time		-	38	-	
td(off)	Turn-Off Delay Time		-	110	-	
tf	Fall Time		-	62	-	
VSD	Diode Forward Voltage4	IS = -10A, VGS = 0V	-	-	-1.2	V
IS	Continuous Source Current	TC=25°C	-	-	-70	A

Note :

1、The data tested by surface mounted on a 1 inch 2 FR-4 board with 2OZ copper.

2、The EAS data shows Max. rating. The test condition is VDD=-25V, VGS=-10V, L=0.4mH, I AS = -20A.

2、The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%

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

4、The data is theoretically the same as I D and I DM , in real applications , should be limited by total power dissipation.

Typical Characteristics

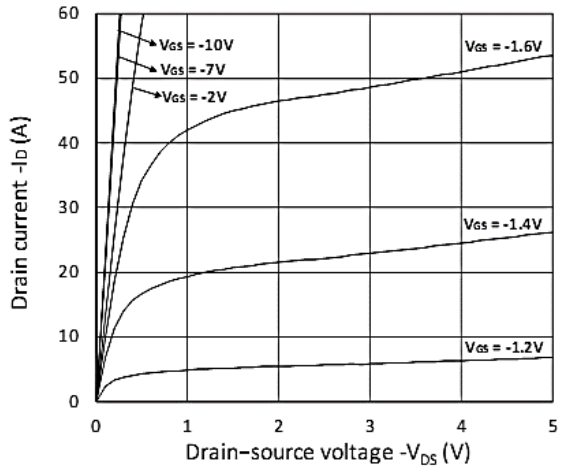


Figure 1. Output Characteristics

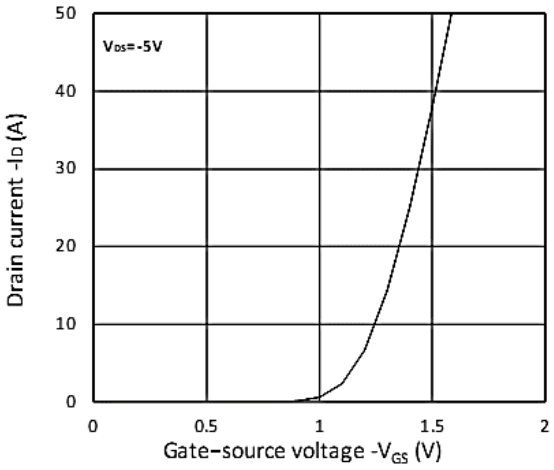


Figure 2. Transfer Characteristics

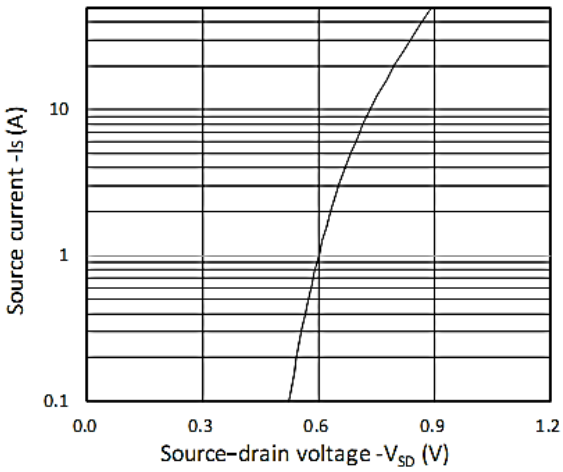


Figure 3. Forward Characteristics of Reverse

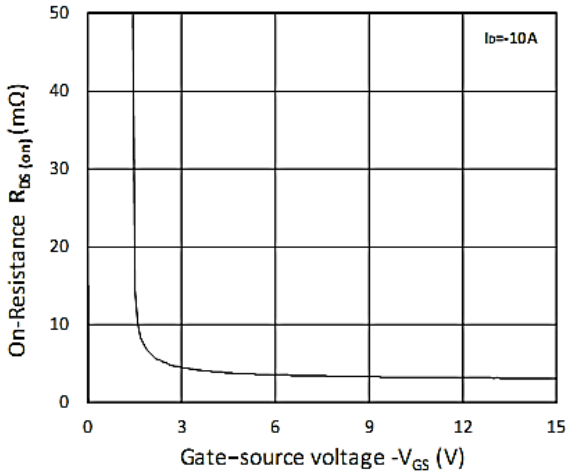


Figure 4. RDS(ON) vs. VGS

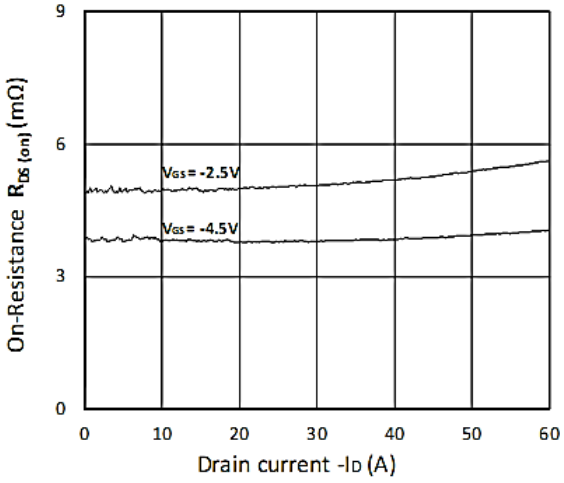


Figure 5. RDS(ON) vs. ID

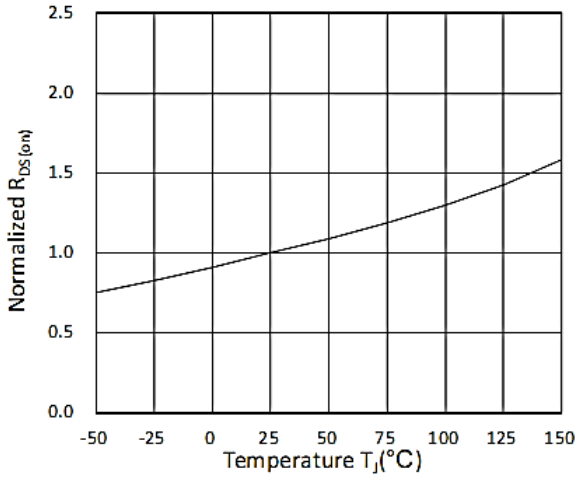


Figure 6. Normalized R DS(on) vs. Temperature

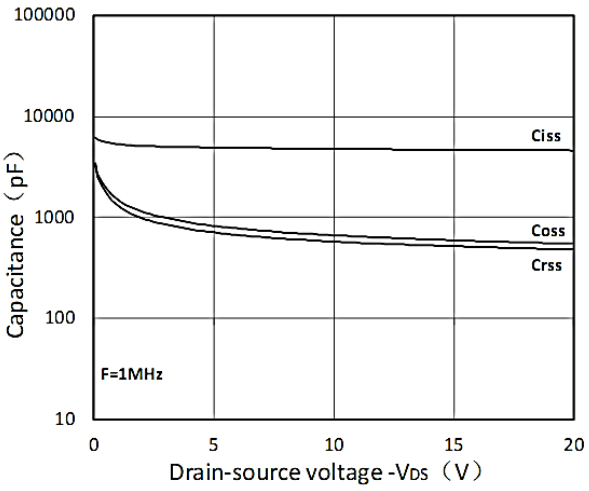


Figure 7. Capacitance Characteristics

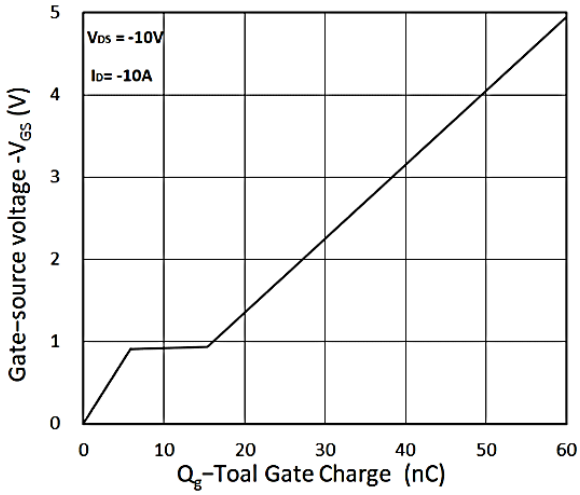


Figure 8. Gate Charge Characteristics

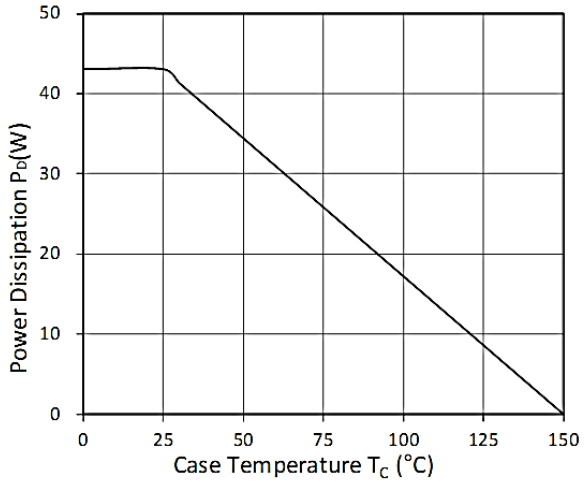


Figure 9. Power Dissipation

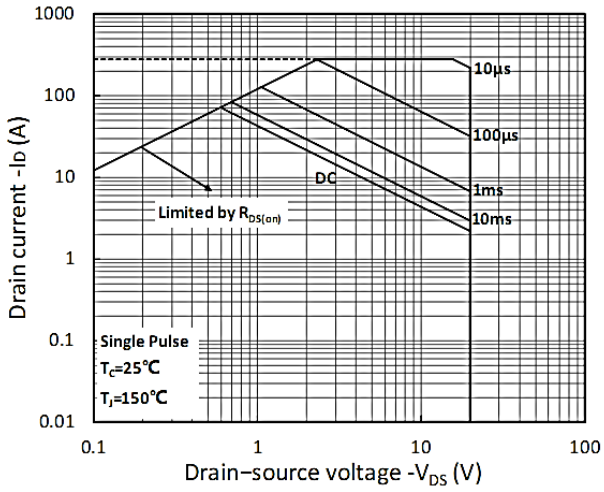


Figure10. Safe Operating Area

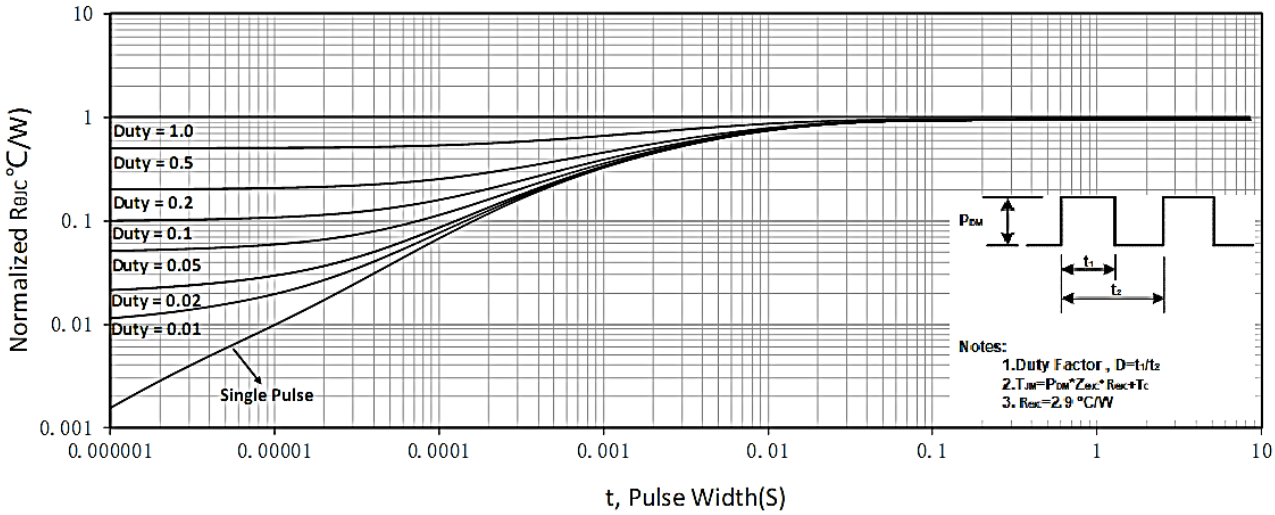
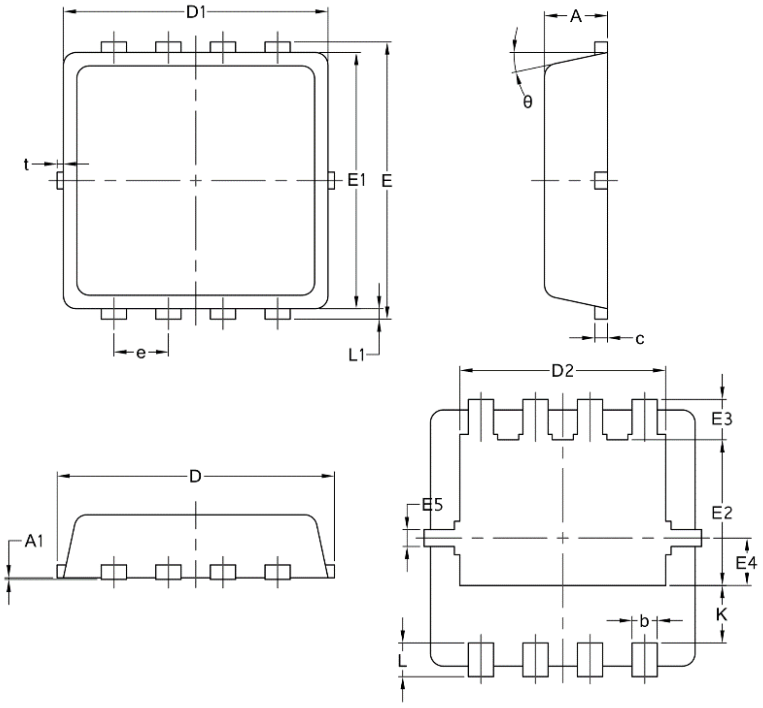


Figure 11 Normalized Maximum Transient Thermal Impedance

Package Mechanical Data-DFN3*3-8L-JQ Single



Symbol	Common		
	mm		
	Mim	Nom	Max
A	0.70	0.75	0.85
A1	/	/	0.05
b	0.20	0.30	0.40
c	0.10	0.152	0.25
D	3.15	3.30	3.45
D1	3.00	3.15	3.25
D2	2.29	2.45	2.65
E	3.15	3.30	3.45
E1	2.90	3.05	3.20
E2	1.54	1.74	1.94
E3	0.28	0.48	0.65
E4	0.37	0.57	0.77
E5	0.10	0.20	0.30
e	0.60	0.65	0.70
K	0.59	0.69	0.89
L	0.30	0.40	0.50
L1	0.06	0.125	0.20
t	0	0.075	0.13
Φ	10	12	14

Flow (wave) soldering (solder dipping)

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

This integrated circuit can be damaged by ESD UniverChip Corporation recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedure can cause damage. ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

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