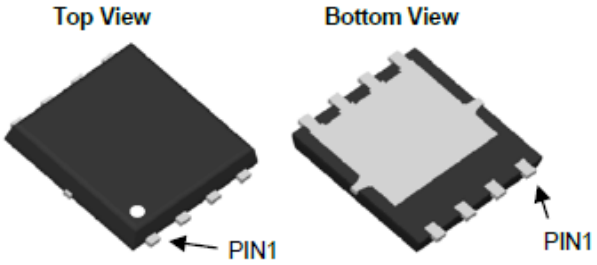
XPX10P08RD

-100V P-Channe Enhancement Mode Power MOSFET

RoHS COMPLIANT

Description

The XPX10P08RD 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 =-80A

$R_{DS(ON)}$ <18mΩ @ V_{GS}=10V

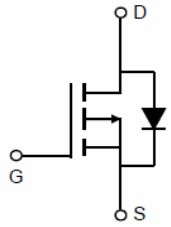
Application

Brushless motor

Load switch

Uninterruptible power supply

Pin Assignment



Schematic diagram

Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
XPX10P08RD	PDFN5*6-8L	XPX10P08RD XXX YYYY	5000

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]	-80	A
I_D@T_C=100℃	Continuous Drain Current, V_{GS} @ -10V[1]	-56	A
I_{DM}	Pulsed Drain Current[2]	-300	A
EAS	Single Pulse Avalanche Energy[3]	174	mJ
I_{AS}	Avalanche Current	-50	A
P_D@T_C=25℃	Total Power Dissipation[4]	280	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]	25	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-Case[1]	0.65	℃/W

P-Channel Electrical Characteristics (TJ =25 ℃, unless otherwise noted)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
V(BR)DSS	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250μA	-100	110	-	V
IDSS	Zero Gate Voltage Drain Current	V_{DS}=-100V, V_{GS}=0V,	-	-	-1.0	μA
IGSS	Gate to Body Leakage Current	V_{DS}=0V, V_{GS}= ±20V	-	-	±100	nA
VGS(th)	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250μA	-1.0	-1.6	-2.5	V
RDS(on)	Static Drain-Source on-Resistance	V_{GS}=-10V, I_D=-20A	-	18	25	mΩ
		V_{GS}=-4.5V, I_D=-10A	-	21	30	
Ciss	Input Capacitance	V_{DS}=-50V, V_{GS}=0V, f=1.0MHz	-	4228	-	pF
Coss	Output Capacitance		-	388	-	pF
Crss	Reverse Transfer Capacitance		-	27	-	pF
Q_g	Total Gate Charge	V_{DS}=-50V, I_D=-5A, V_{GS}=-10V	-	80	-	nC
Qgs	Gate-Source Charge		-	15.6	-	nC
Qgd	Gate-Drain(“Miller”) Charge		-	17.2	-	nC
td(on)	Turn-on Delay Time	V_{DD}=-50V, I_D=-5A, R_G=6Ω, V_{GS}=-10V	-	26	-	ns
tr	Turn-on Rise Time		-	78	-	ns
td(off)	Turn-off Delay Time		-	200	-	ns
t_f	Turn-off Fall Time		-	210	-	ns
IS	Maximum Continuous Drain to Source Diode Forward Current		-	-	-80	A
ISM	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-280	A
VSD	Drain to Source Diode Forward Voltage	V_{GS}=0V, I_S=-30A	-	-	-1.2	V
trr	Body Diode Reverse Recovery Time	T_J=25℃, I_F=-5A,dI/dt=100A/μs	-	208	-	ns
Q_{rr}	Body Diode Reverse Recovery Charge		-	560	-	nC

Note :

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

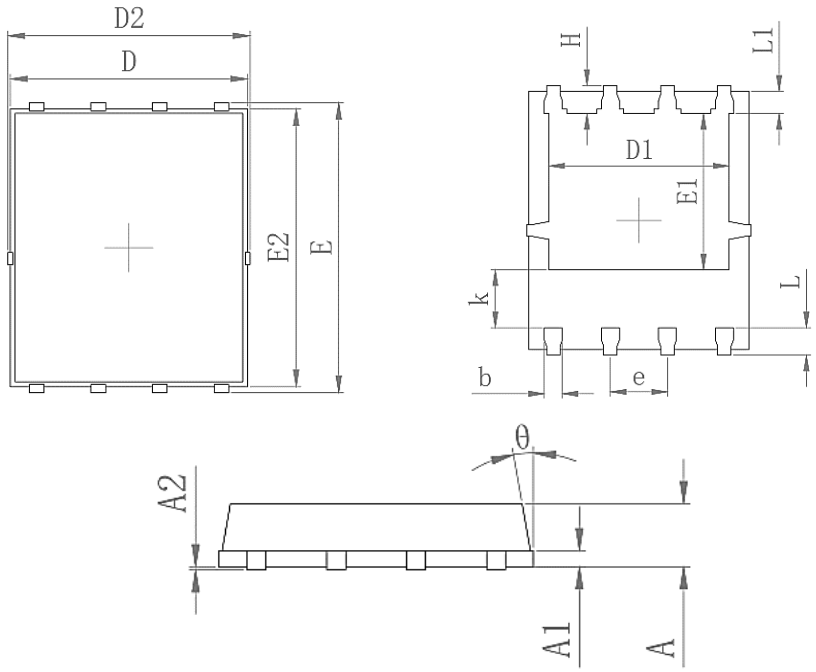
2、The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%

3、The EAS data shows Max. rating . The test condition is V DD =-72V,VGS =-10V,L=0.1mH,IAS =-50A

4、The power dissipation is limited by 150℃ 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.

Package Mechanical Data-PDFN5X6-8L-XZT Single



Symbol	Common	
	mm	
	Mim	Max
A	0.90	1.10
A1	0.254 REF	
A2	0-0.05	
D	4.824	4.976
D1	3.910	4.110
D2	4.944	5.076
E	5.924	6.076
E1	3.375	3.575
E2	5.674	5.826
b	0.350	0.450
e	1.270	
L	0.534	0.686
L1	0.424	0.576
K	1.190	1.390
H	0.549	0.701
Φ	8°	12°

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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