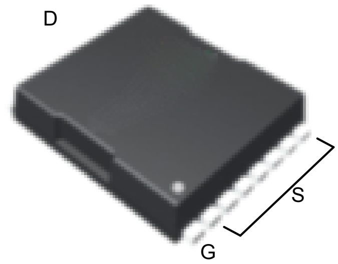
80V N-ChannelEnhancement Mode MOSFET

RoHS COMPLIANT

Description

The XPX80N35LL uses advanced technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 10V. This device is suitable for use as a Battery protection or in other Switching application.



TOLL

General Features

V_{DS} = 80V I_D =350A

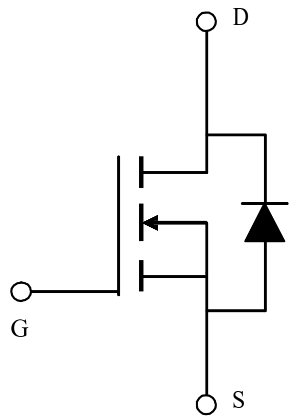
$R_{DS(ON)}$ <1.3mΩ @ V_{GS}=10V

Application

DC/DC Converter

LED Backlighting

Power Management Switches



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
XPX80N35LL	TOLLA-8L	XPX80N35LL XXX YYYY	2000

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

Symbol	Parameter	Rating	Units
VDS	Drain-Source Voltage	80	V
VGS	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current, V_{GS} @ 10V	350	A
I_D@T_C=100℃	Continuous Drain Current, V_{GS} @ 10V	220	A
IDM	Pulsed Drain Current	960	A
EAS	Single Pulse Avalanche Energy	2025	mJ
IAS	Avalanche Current	53.4	A
P_D@T_C=25℃	Total Power Dissipation[4]	313	W
TSTG	Storage Temperature Range	-55 to 175	℃
T_J	Operating Junction Temperature Range	-55 to 175	℃
R_{θ}JA	Thermal Resistance Junction-Ambient	0.54	℃/W
R_{θ}JC	Thermal Resistance Junction-Case	40	℃/W

Electrical Characteristics (T_C=25℃unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V(BR)DSS	Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = 250μA	85	92	-	V
IGSS	Gate-body Leakage current	V_{DS} = 0V, V_{GS} = ±20V	-	-	±100	nA
IDSS	Zero Gate Voltage Drain Current T_J=25°C	V_{DS} =85V, V_{GS} = 0V	-	-	1	μA
	Zero Gate Voltage Drain Current T_J=100°C		-	-	100	
VGS(th)	Gate-Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	2.0	3.0	4.0	V
RDS(on)	Drain-Source on-Resistance[4]	V_{GS} = 10V, I_D = 50A	-	1.35	1.8	mΩ
gfs	Forward Transconductance[4]	V_{DS} = 5V, I_D = 40A	-	145	-	S
Ciss	Input Capacitance	V_{DS} = 50V, V_{GS} =0V, f =1MHz	-	13580	-	pF
Coss	Output Capacitance		-	2000	-	
Crss	Reverse Transfer Capacitance		-	586.2	-	
R_g	Gate Resistance	f =1MHz	-	2	-	Ω
Q_g	Total Gate Charge	V_{GS} = 10V, V_{DS} = 50V, I_D=20A	-	205	-	nC
Qgs	Gate-Source Charge		-	54	-	
Qgd	Gate-Drain Charge		-	46	-	
td(on)	Turn-on Delay Time	V_{GS}=10V, V_{DD}=40V, R_G=3Ω, I_D= 20A	-	38	-	ns
t_r	Rise Time		-	132	-	
td(off)	Turn-off Delay Time		-	126	-	
t_f	Fall Time		-	153	-	
trr	Body Diode Reverse Recovery Time	I_F=30A, dI/dt=500A/μs	-	112	-	ns
Q_{rr}	Body Diode Reverse Recovery Charge	I_F=30A, dI/dt=500A/μs	-	213	-	nC
VSD	Diode Forward Voltage[4]	I_S =50A, V_{GS} = 0V	-	0.85	1.2	V
IS	Continuous Source Current T_C=25°C	-	-	-	300	A

Notes:

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 V_{DD}=50V, V_{GS}=10V, L=0.5mH, I_{AS}=50A
4、The power dissipation is limited by 150°C 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.

Typical Characteristics

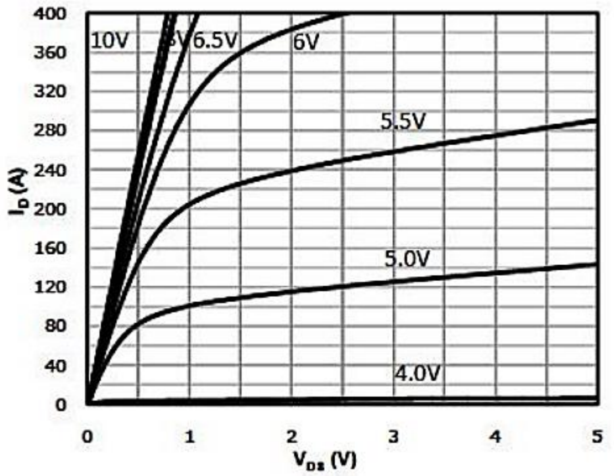


Figure 1. Output Characteristics

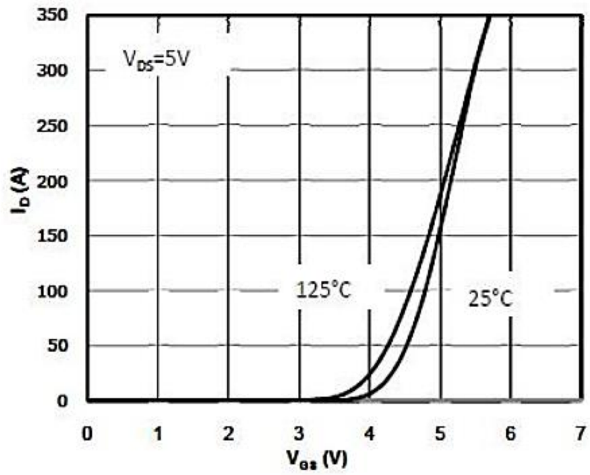


Figure 2. Transfer Characteristics

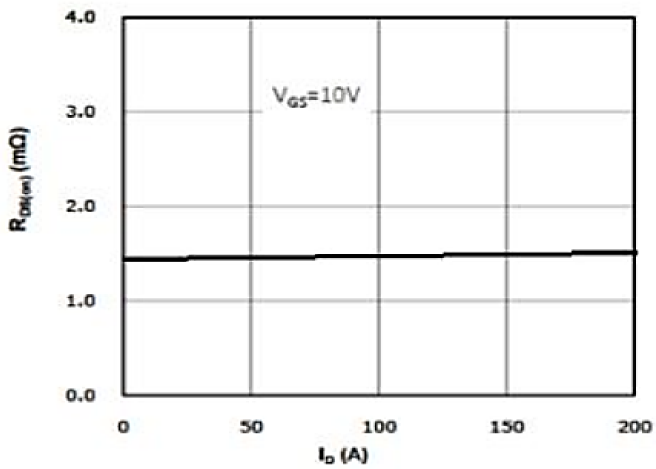


Figure 3. RDS（ON）VS Drain Currebt and Vgs

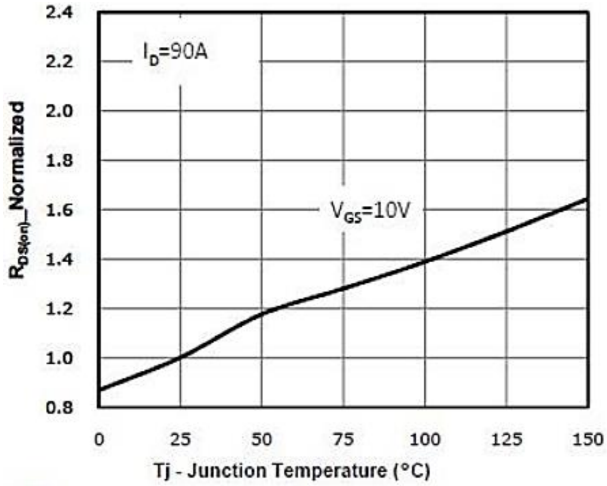


Figure 4. RDS(ON) vs. VGS

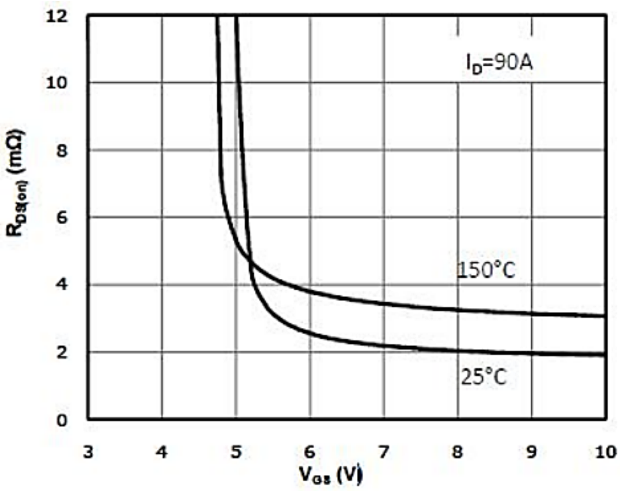


Figure 5. RDS(ON) vs.Temperature

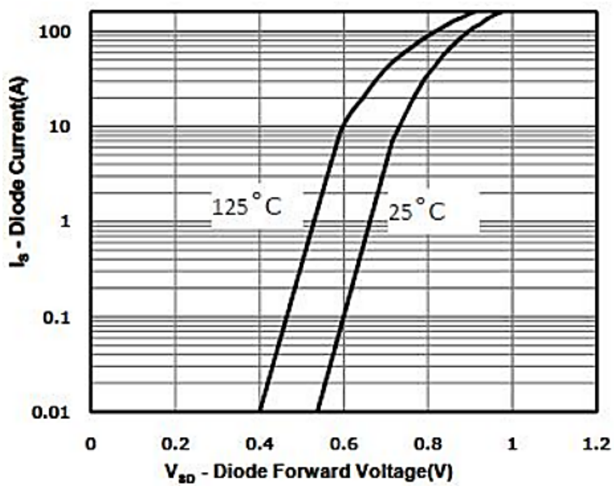


Figure 6. Capacitance Characteristics

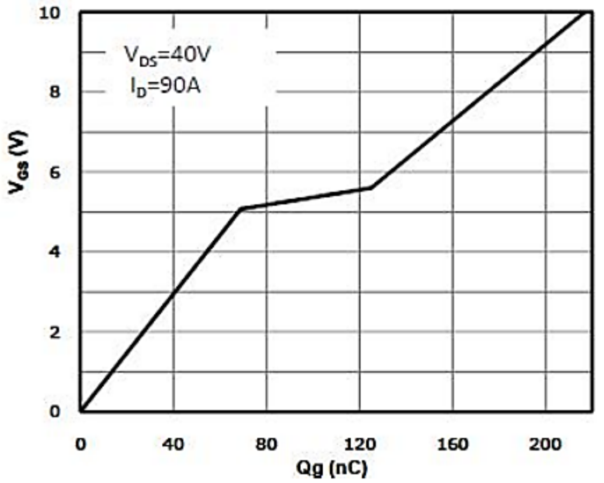


Figure 7. Gate Charge Characteristics

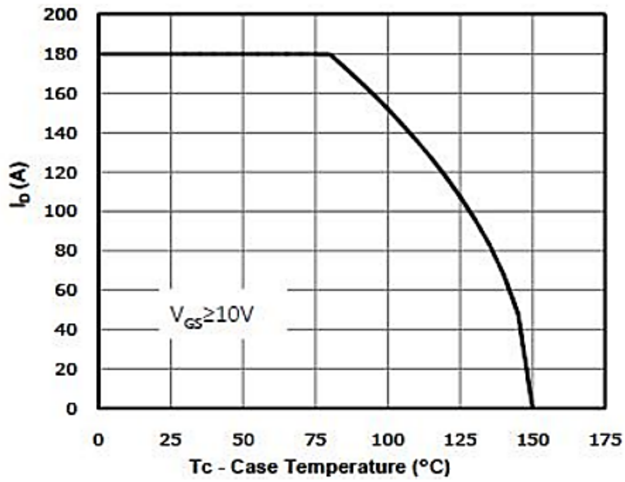


Figure 8. Body-Diode Forward Characteristics

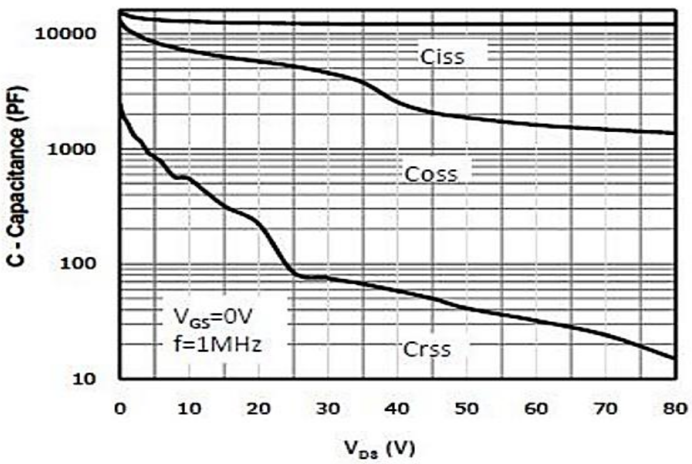


Figure 9. CapacitanceCharacteristics

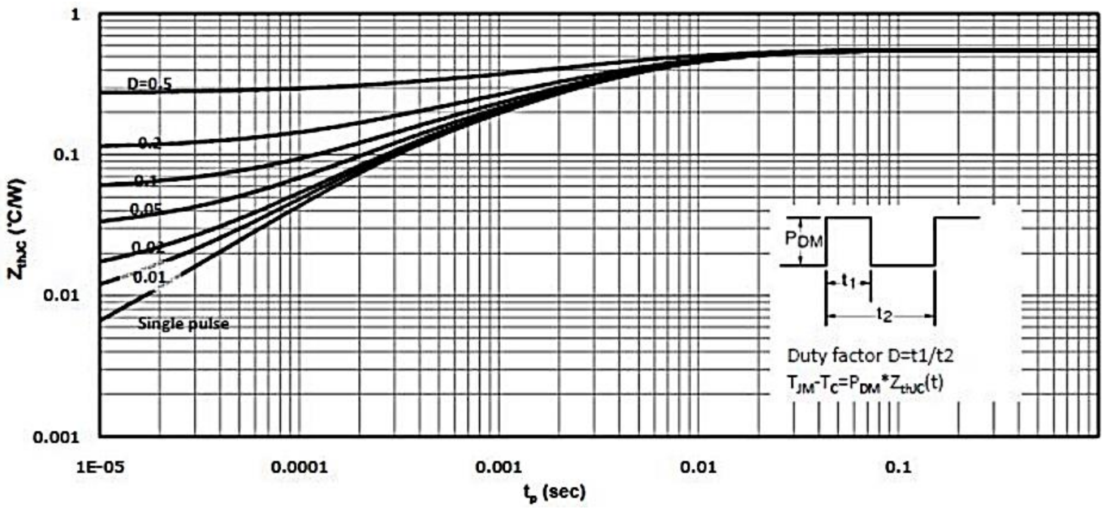
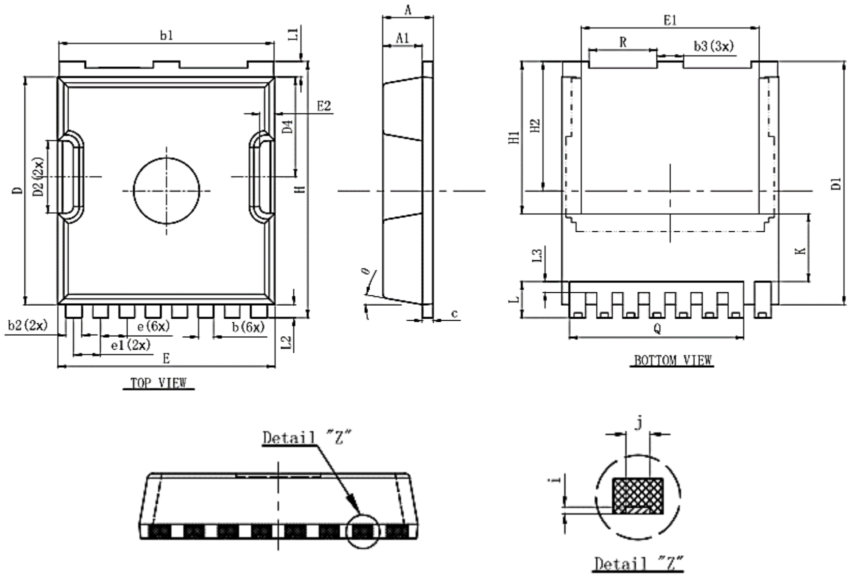


Figure 10.

Package Mechanical Data-TOLLA-8-XZ Single



Symbol	Dimensions In Millimeters		
	Min.	Nom	Max.
A	2.2	2.3	2.4
A1	1.7	1.8	1.9
b	0.6	0.7	0.8
b1	9.7	9.8	9.9
b2	0.65	0.75	0.85
b3	1.1	1.2	1.3
C	0.4	0.5	0.6
D	10.3	10.4	10.5
D1	11.0	11.1	11.2
D2	3.2	3.3	3.4
D4	4.47	4.57	4.67
E	9.8	9.9	10.0
E1	8.0	8.1	8.2
E2	0.5	0.6	0.7
e	1.200（BSC）		
e1	1.225（BSC）		
H	11.6	11.7	11.8
H1	6.95BSC		
H2	5.9BSC		
i	0.1REF		
j	0.350REF		
K	3.100REF		
L	1.55	1.65	1.75
L1	0.6	0.7	0.8
L2	0.5	0.6	0.7
L3	0.4	0.5	0.6
Q	7.95REF		
R	3.0	3.1	3.2
θ	10°REG		

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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