

-30V/-50A P-Channel MOSFET

Features

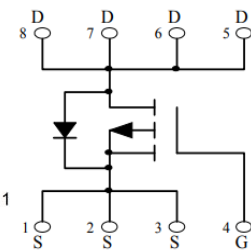
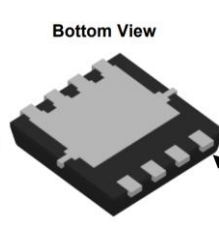
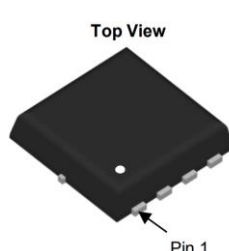
- High density cell design for ultra low $R_{DS(ON)}$
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high EAS

Product Summary

V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
-30V	8mΩ@-10V	-50A
	13mΩ@-4.5V	

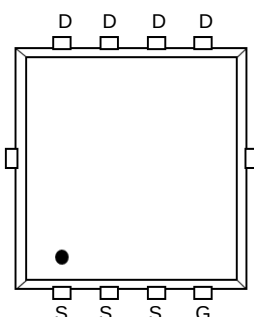
Application

- Battery and loading switching
- Excellent package for good heat dissipation



PDFN3X3-8L

Schematic diagram



Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Symbol	Parameter	Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)			
V_{DS}	Drain-Source Breakdown Voltage	-30	V
V_{GS}	Gate-Source Voltage	±20	V
E_{AS}	Single pulse avalanche energy	81	mJ
T_J, T_{STG}	Storage Temperature Range	-55 to 175	°C
I_S	Diode Continuous Forward Current	$T_C=25^\circ\text{C}$ -50	A
Mounted on Large Heat Sink			
I_{DM}	Pulse Drain Current Tested	$T_C=25^\circ\text{C}$ -200	A
I_D	Continuous Drain Current	$T_C=25^\circ\text{C}$ -50	A
P_D	Maximum Power Dissipation	$T_C=25^\circ\text{C}$ 30	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	55	°C/W

Electrical Characteristics (TJ=25°C unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
BV _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	-30	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-30V, V _{GS} =0V	--	--	-1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	--	--	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250μA	-1	-1.5	-2.2	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =-10V, I _D =-15A	--	6.5	8	mΩ
		V _{GS} =-4.5V, I _D =-10A	--	10	13	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V, f=1MHz	--	2690	--	pF
C _{OSS}	Output Capacitance		--	495	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	360	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DD} =-15V, I _D =-20A, V _{GS} =-10V	--	45	--	nC
Q _{gs}	Gate Source Charge		--	6.2	--	nC
Q _{gd}	Gate Drain Charge		--	13.5	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DD} =-15V, I _D =-20A, V _{GS} =-10V, R _G =3Ω	--	11	--	nS
t _r	Turn-on Rise Time		--	9.5	--	nS
t _{d(off)}	Turn-Off Delay Time		--	24	--	nS
t _f	Turn-Off Fall Time		--	12	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	Tj=25°C, Is=-28A,	--	--	-1.2	V

Typical Operating Characteristics

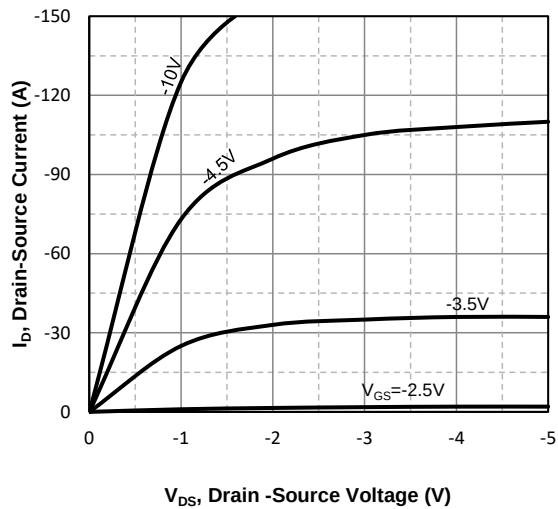


Fig1. Typical Output Characteristics

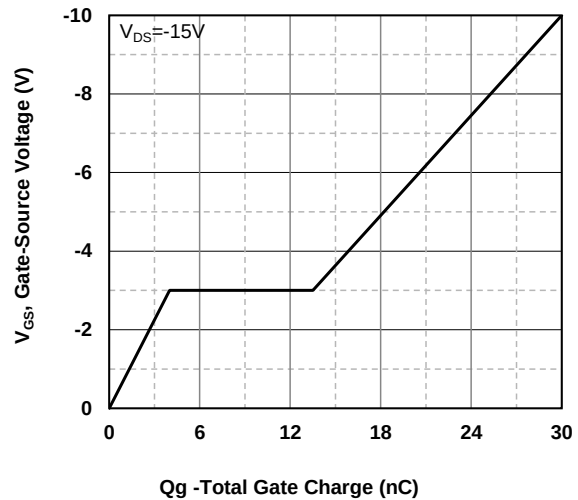


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

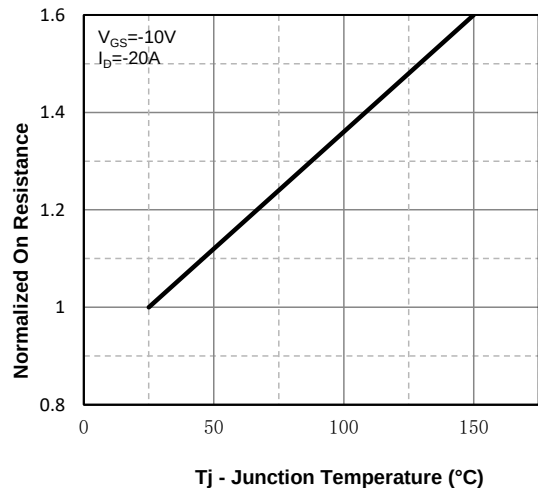


Fig3. Normalized On-Resistance Vs. Temperature

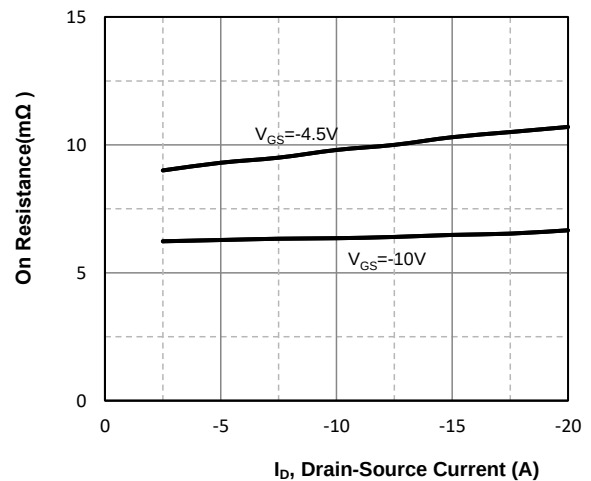


Fig4. On-Resistance Vs. Drain-Source Current

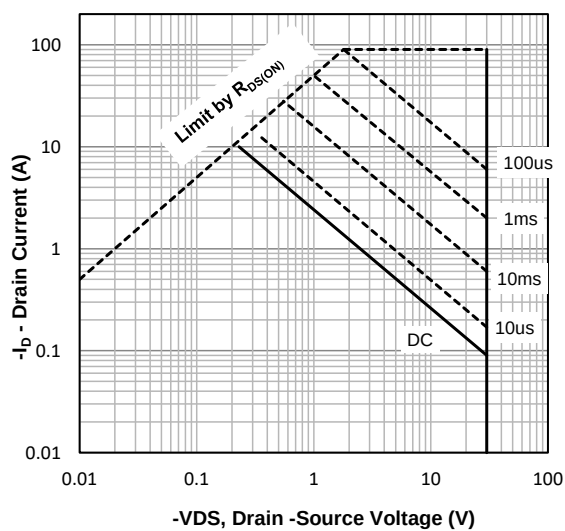


Fig5. Maximum Safe Operating Area

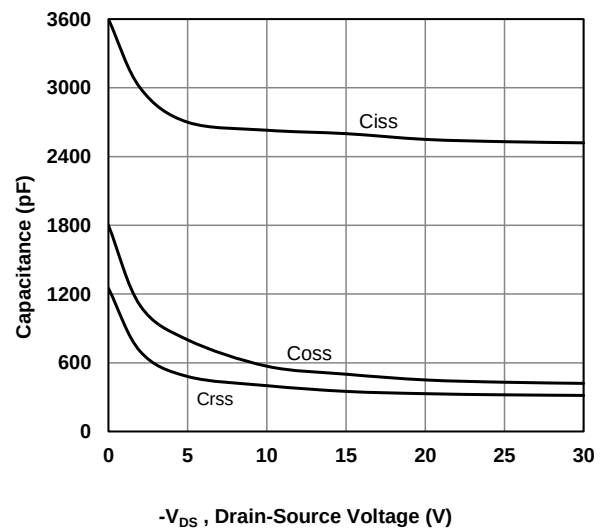


Fig6. Typical Capacitance Vs. Drain-Source Voltage

PDFN3X3-8L Package information

