

-30V/-40A P-Channel MOSFET

Features

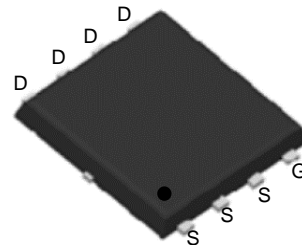
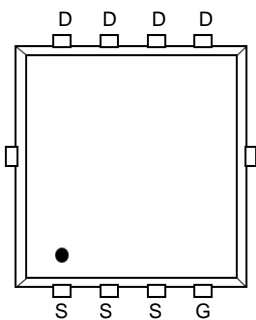
- High density cell design for ultra low RDS(ON)
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high EAS

Application

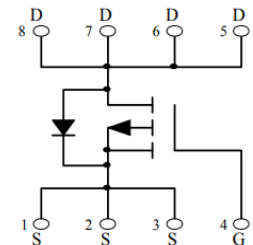
- Battery and loading switching
- Excellent package for good heat dissipation

Product Summary

V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
-30V	10mΩ@-10V	-40A
	14mΩ@-4.5V	



PDFN3X3-8L top view



Schematic diagram



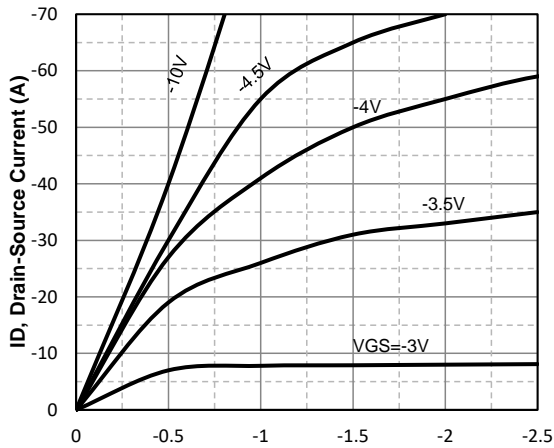
Halogen-Free

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

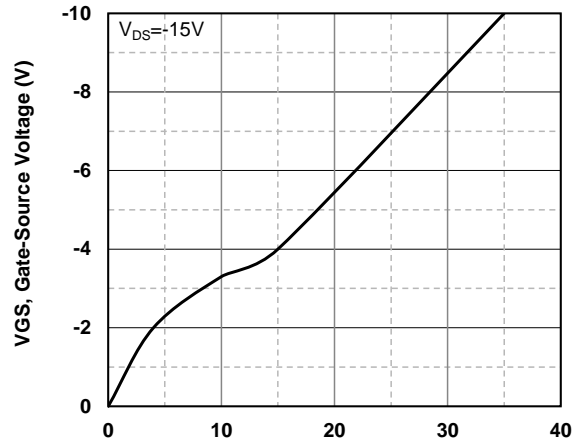
Symbol	Parameter	Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)			
V_{DS}	Drain-Source Breakdown Voltage	-30	V
V_{GS}	Gate-Source Voltage	±20	V
E_{AS}	Single pulse avalanche energy	77	mJ
T_J, T_{STG}	Storage Temperature Range	-55 to 175	°C
I_S	Diode Continuous Forward Current	$T_c=25^\circ\text{C}$ -40	A
Mounted on Large Heat Sink			
I_{DM}	Pulse Drain Current Tested	$T_c=25^\circ\text{C}$ -180	A
I_D	Continuous Drain Current	$T_c=25^\circ\text{C}$ -40	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 (T_J=25°C unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
BV _{(BR)DSS}	Drain-Source Breakdown Voltage	VGS=0V, ID=-250μA	-30	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	VDS=-30V, VGS=0V	--	--	-1	μA
I _{GSS}	Gate-Body Leakage Current	VGS=±20V, VDS=0V	--	--	±100	nA
V _{GS(th)}	Gate Threshold Voltage	VDS=VGS, ID=-250μA	-1	-1.5	-2.2	V
R _{DS(on)}	Drain-Source On-State Resistance	VGS=-10V, ID=-15A	--	8.8	10	mΩ
		VGS=-4.5V, ID=-10A	--	12	14	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	VDS=-15V, VGS=0V, f=1MHz	--	1988	--	pF
C _{OSS}	Output Capacitance		--	305	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	266	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	VDD=-15V, ID=-12A, VGS=-10V	--	35	--	nC
Q _{gs}	Gate Source Charge		--	5.8	--	nC
Q _{gd}	Gate Drain Charge		--	8.8	--	nC
t _{d(on)}	Turn-on Delay Time	VDD=-15V, ID=-1A, VGS=-10V, RG=2.5Ω	--	11	--	nS
t _r	Turn-on Rise Time		--	7.7	--	nS
t _{d(off)}	Turn-Off Delay Time		--	43.3	--	nS
t _f	Turn-Off Fall Time		--	18	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	T _J =25°C, I _S =-12A,	--	--	-1.2	V

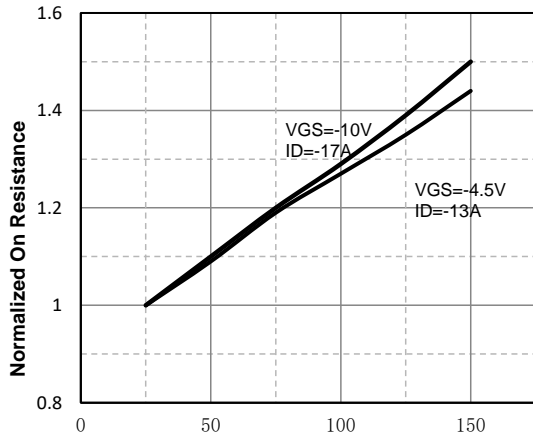
Typical Operating Characteristics



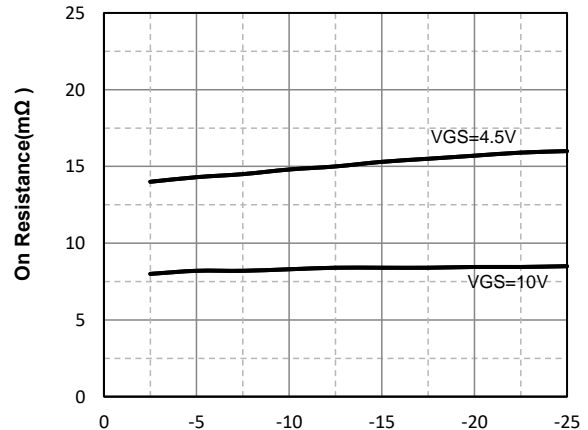
VDS, Drain -Source Voltage (V)
Fig1. Typical Output Characteristics



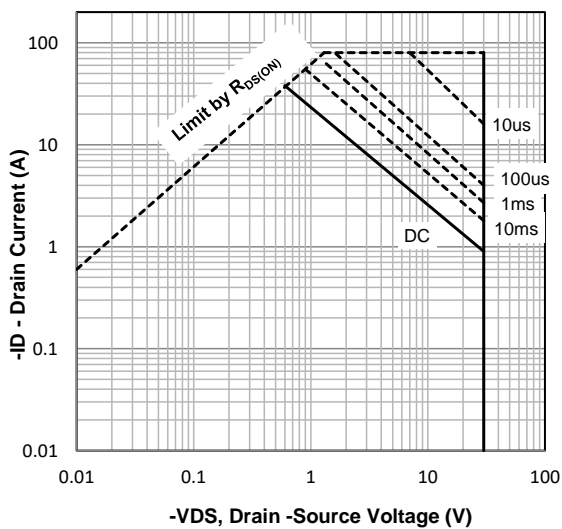
Qg -Total Gate Charge (nC)
Fig2. Typical Gate Charge Vs. Gate-Source Voltage



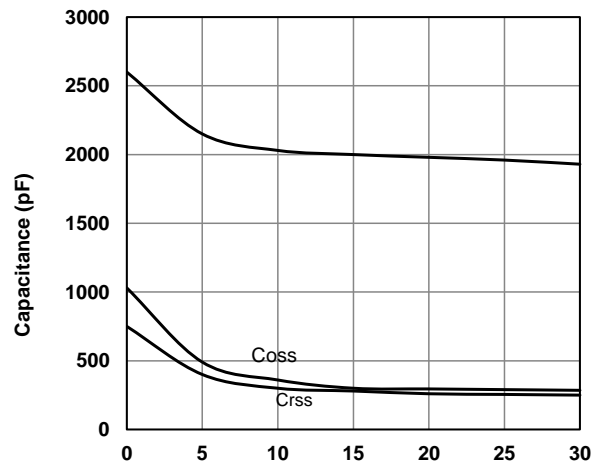
Tj - Junction Temperature (°C)
Fig3. Normalized On-Resistance Vs. Temperature



ID, Drain-Source Current (A)
Fig4. On-Resistance Vs. Drain-Source Current



-VDS, Drain -Source Voltage (V)
Fig5. Maximum Safe Operating Area



-VDS, Drain-Source Voltage (V)
Fig6. Typical Capacitance Vs. Drain-Source Voltage

PDFN3X3-8L Package information

