

-30V/-50A P-Channel MOSFET

Features

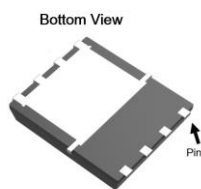
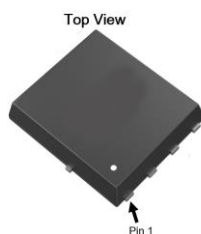
- High density cell design for ultra low $R_{DS(ON)}$
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high EAS

Product Summary

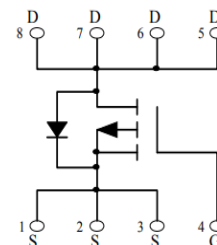
V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
-30V	10m Ω @-10V	-50A
	14m Ω @-4.5V	

Application

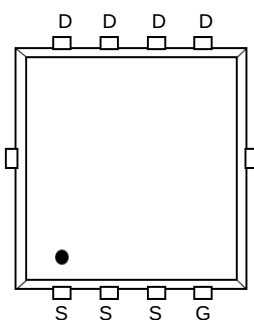
- Battery and loading switching
- Excellent package for good heat dissipation



PDFN5X6-8L



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	77	mJ
T_J, T_{STG}	Storage Temperature Range	-55 to 175	°C
I_S	Diode Continuous Forward Current	$T_C=25^\circ\text{C}$ -50	A
Mounted on Large Heat Sink			
I_{DM}	Pulse Drain Current Tested	$T_C=25^\circ\text{C}$ -210	A
I_D	Continuous Drain Current	$T_C=25^\circ\text{C}$ -50	A
P_D	Maximum Power Dissipation	$T_C=25^\circ\text{C}$ 65	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	62.5	°C/W

Electrical Characteristics (TJ=25℃ unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ TJ = 25℃ (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	--	8.5	10	mΩ
		V _{GS} =-4.5V, I _D =-10A	--	11.7	14	mΩ
Dynamic Electrical Characteristics @ TJ = 25℃ (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =-15V, V _{GS} =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	V _{DD} =-15V, I _D =-12A, V _{GS} =-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	V _{DD} =-15V, I _D =-1A, V _{GS} =-10V, R _G =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℃, I _S =-12A,	--	--	-1.2	V

Typical Operating Characteristics

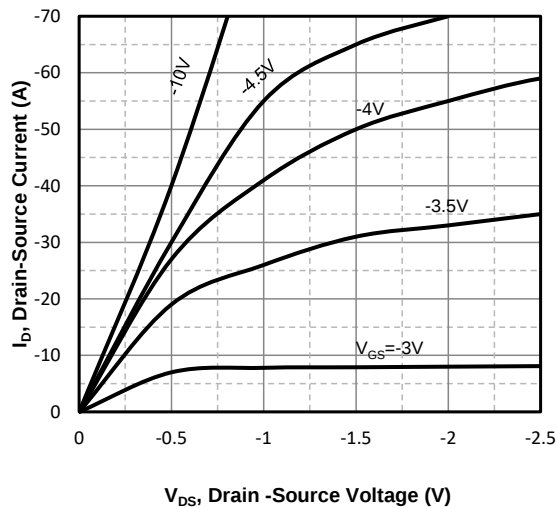


Fig1. Typical Output Characteristics

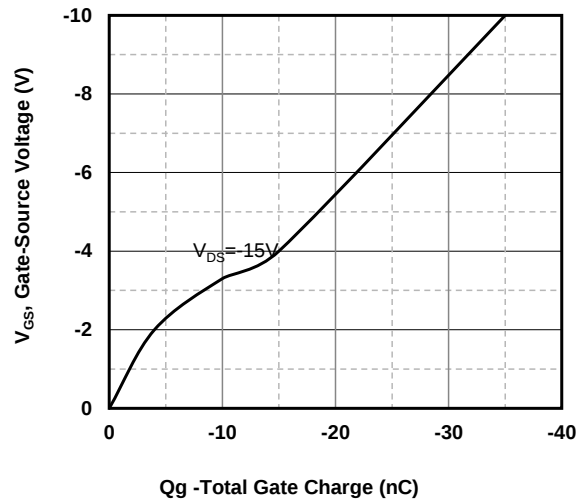


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

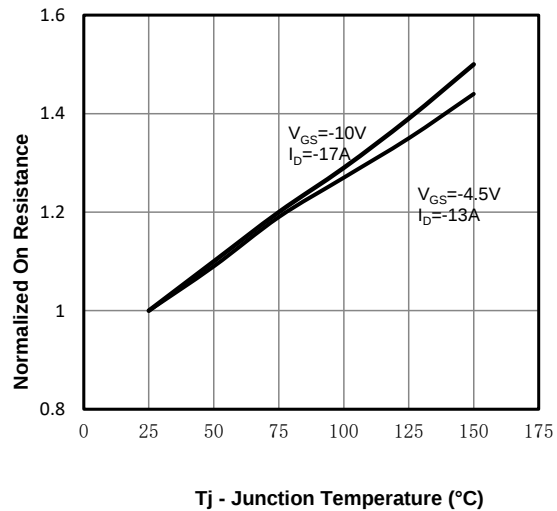


Fig3. Normalized On-Resistance Vs. Temperature

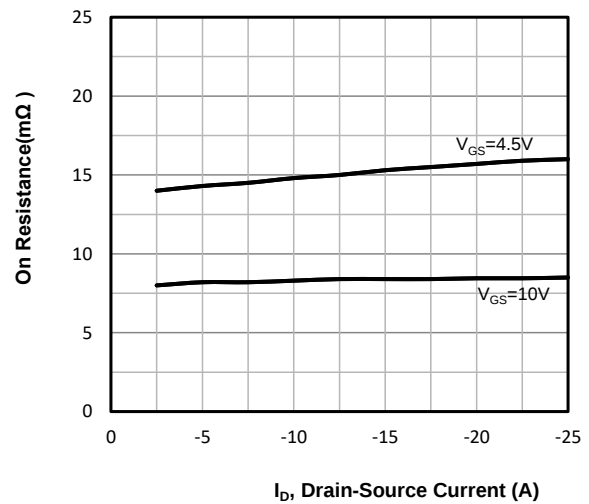


Fig4. On-Resistance Vs. Drain-Source Current

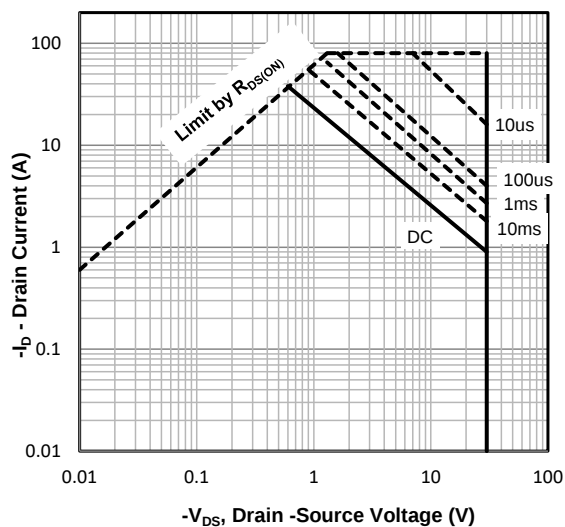


Fig5. Maximum Safe Operating Area

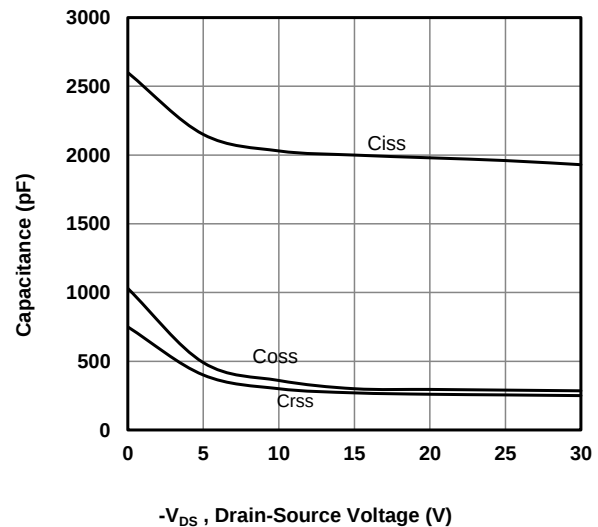
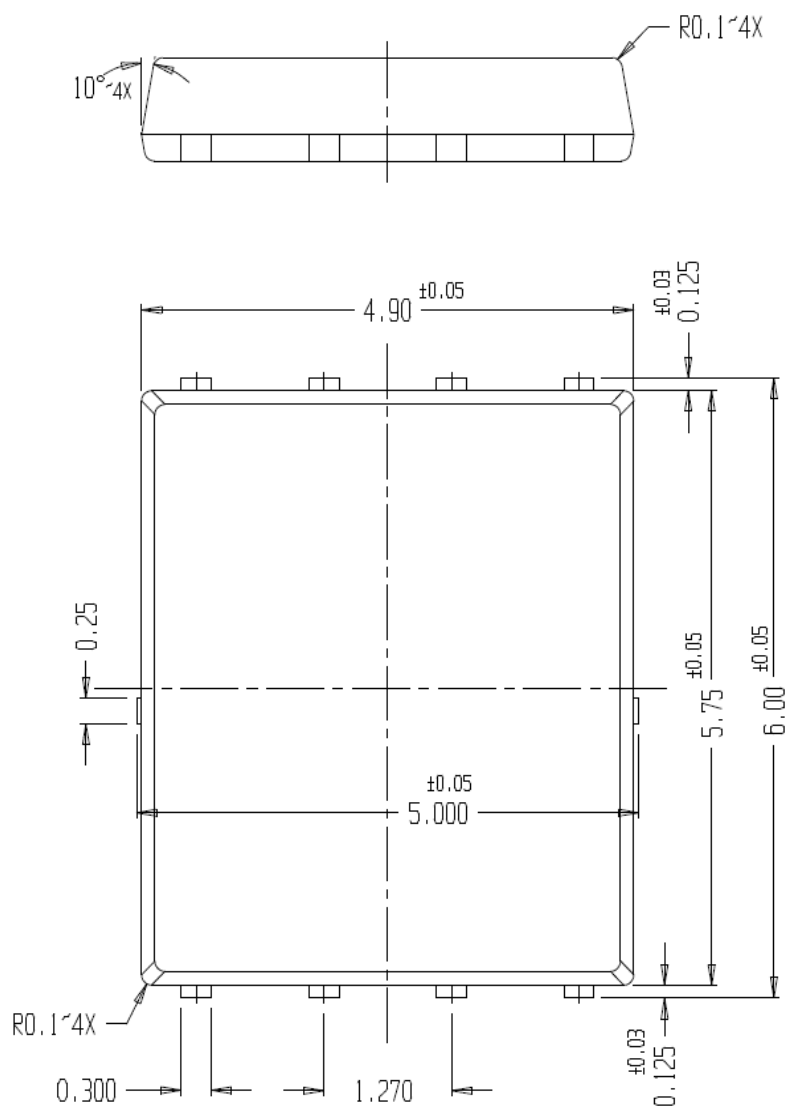


Fig6 Typical Capacitance Vs. Drain-Source Voltage

PDFN5X6-8L Package information



PDFN 5X6

