

-30V/-50A P-Channel MOSFET

Product Summary

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

Features

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

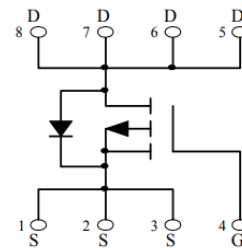
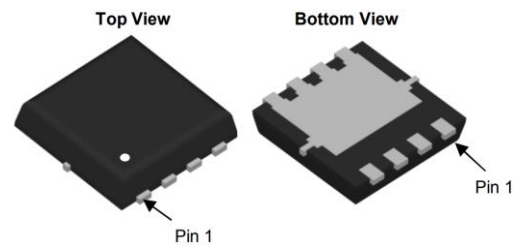
Application

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

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)
M03P50Q	PDFN3X3-8L	ME0D50AP	5,000

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	Tc=25°C	-50	A
Mounted on Large Heat Sink				
I _{DM}	Pulse Drain Current Tested	Tc=25°C	-200	A
I _D	Continuous Drain Current	Tc=25°C	-50	A
P _D	Maximum Power Dissipation	Tc=25°C	30	W
R _{θJA}	Thermal Resistance Junction-Ambient		55	°C/W

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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	VGS=0V, ID=-250μA	-30	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=-30V, VGS=0V	--	--	-1	μA
IGSS	Gate-Body Leakage Current	VGS=±20V, VDS=0V	--	--	±100	nA
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=-250μA	-1	-1.5	-2.2	V
RDS(on)	Drain-Source On-State Resistance	VGS=-10V, ID=-15A	--	6.5	8	mΩ
		VGS=-4.5V, ID=-10A	--	10	13	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
CISS	Input Capacitance	VDS=-15V, VGS=0V, f=1MHz	--	2690	--	pF
COSS	Output Capacitance		--	495	--	pF
CRSS	Reverse Transfer Capacitance		--	360	--	pF
Switching Characteristics						
Qg	Total Gate Charge	VDD=-15V, ID=-20A, VGS=-10V	--	45	--	nC
Qgs	Gate Source Charge		--	6.2	--	nC
Qgd	Gate Drain Charge		--	13.5	--	nC
td(on)	Turn-on Delay Time	VDD=-15V, ID=-20A, VGS=-10V, RG=3Ω	--	11	--	nS
tr	Turn-on Rise Time		--	9.5	--	nS
td(off)	Turn-Off Delay Time		--	24	--	nS
tf	Turn-Off Fall Time		--	12	--	nS
Source- Drain Diode Characteristics						
VSD	Forward on voltage	Tj=25°C, Is=-28A,	--	--	-1.2	V

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Typical Operating Characteristics

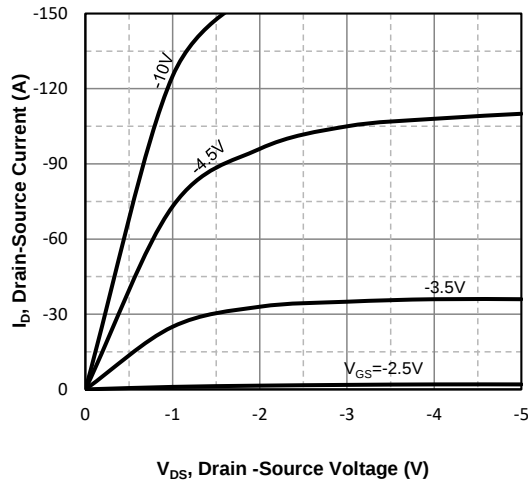


Fig1. Typical Output Characteristics

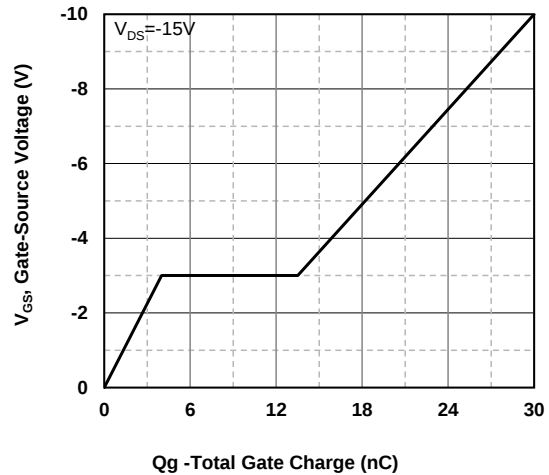


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

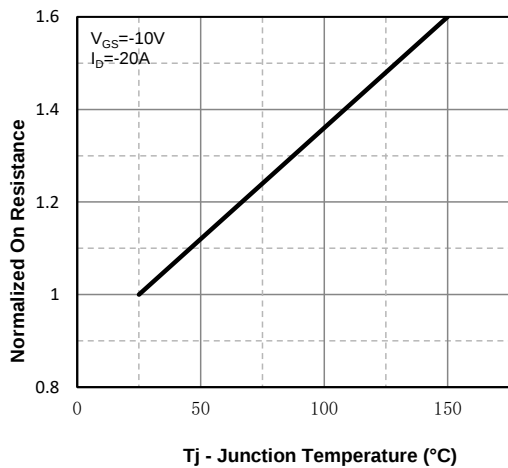


Fig3. Normalized On-Resistance Vs. Temperature

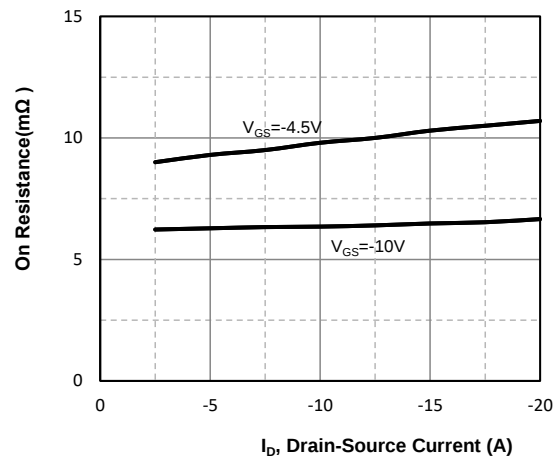


Fig4. On-Resistance Vs. Drain-Source Current

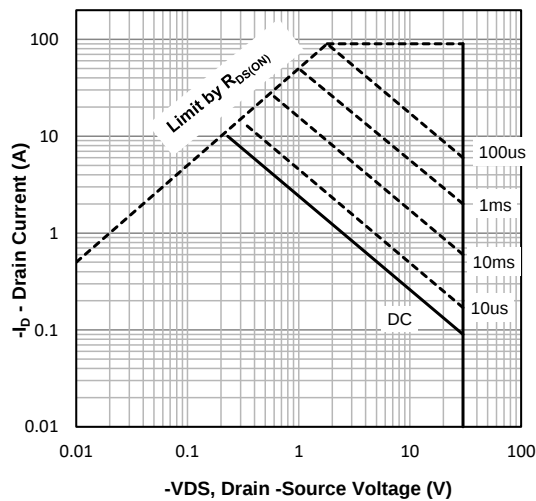


Fig5. Maximum Safe Operating Area

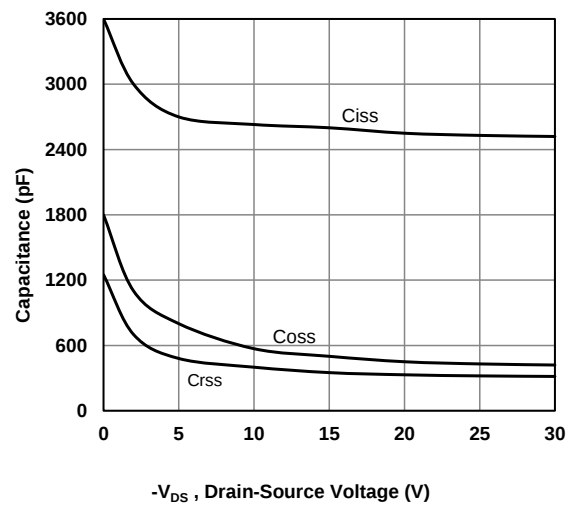


Fig6 Typical Capacitance Vs. Drain-Source Voltage

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PDFN3X3-8L Package information

