-30V/-40A P-Channel MOSFET

Features

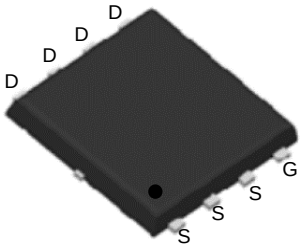
- High density cell design for ultra low RDS(ON)
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high EAS

Application

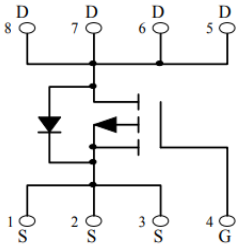
- Battery and loading switching
- Excellent package for good heat dissipation

Product Summary

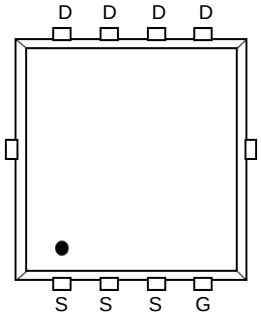
V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
-30V	10mΩ@-10V	-40A
	14mΩ@-4.5V	



PDFN3X3-8L top view



Schematic diagram

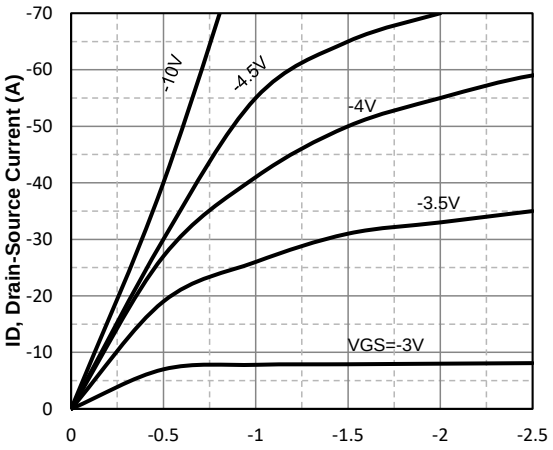


Pb-Free RoHS Halogen-Free

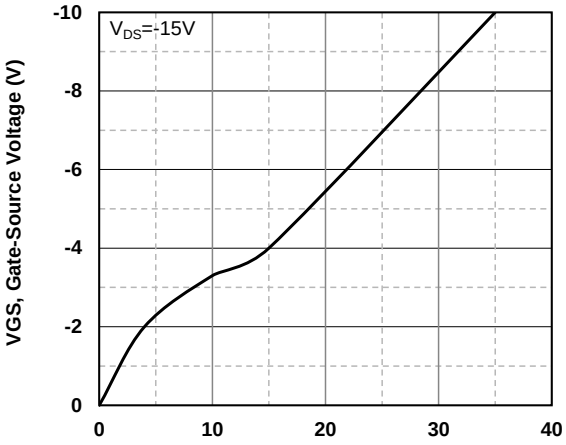
Absolute Maximum Ratings (TA=25℃unless otherwise noted)				
Symbol	**Parameter**		**Rating**	**Unit**
Common Ratings (TC=25°C Unless Otherwise Noted)				
V_{DS}	Drain-Source Breakdown Voltage		-30	V
V_{GS}	Gate-Source Voltage		±20	V
E_{AS}	Single pulse avalanche energy		77	mJ
T_J,T_{STG}	Storage Temperature Range		-55 to 175	°C
I_S	Diode Continuous Forward Current	Tc=25°C	-40	A
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested	Tc=25°C	-180	A
I_D	Continuous Drain Current	Tc=25°C	-40	A
P_D	Maximum Power Dissipation	Tc=25°C	30	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient		55	°C/W

Electrical Characteristics (TJ=25℃ 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
I_{DSS}	Zero Gate Voltage Drain Current	VDS=-30V，VGS=0V	--	--	-1	uA
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 @ TJ = 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	Tj=25℃，Is=-12A，	--	--	-1.2	V

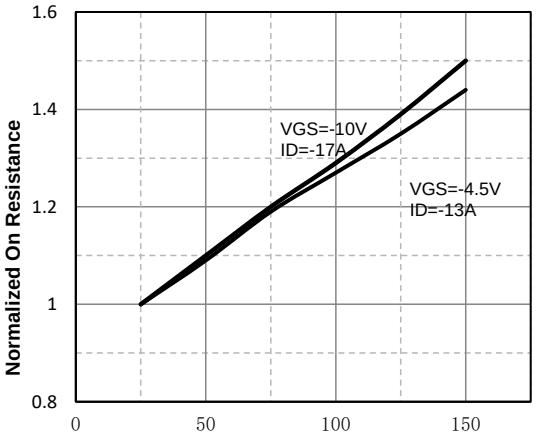
Typical Operating Characteristics



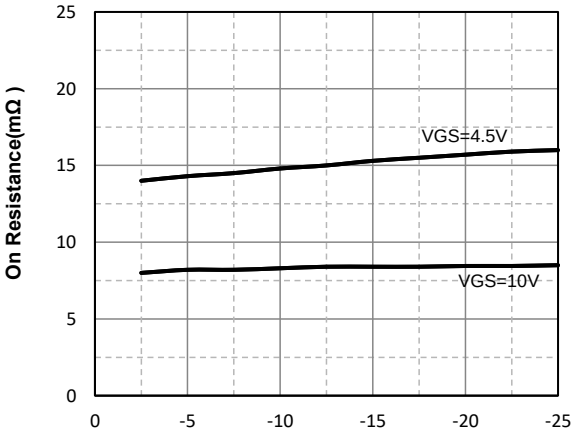
VDS, Drain -Source Voltage (V)
Fig1. Typical Output Characteristics



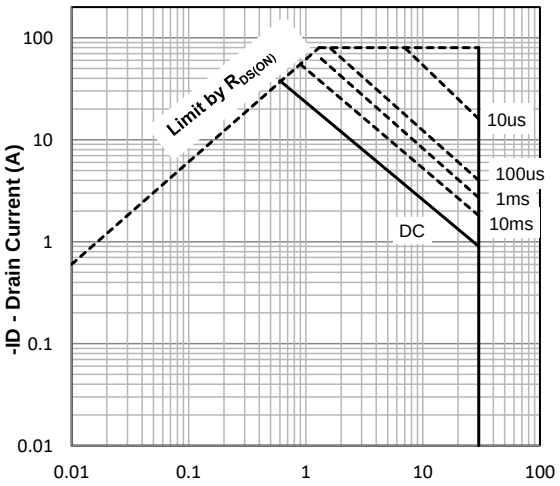
Qg -Total Gate Charge (nC)
Fig2. Typical Gate Charge Vs.Gate-Source Voltage



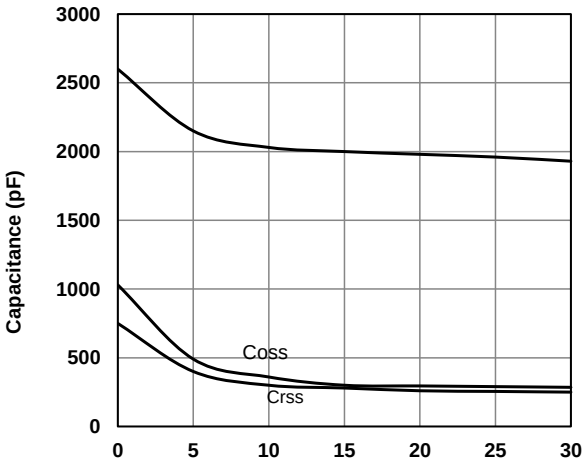
Tj - Junction Temperature (°C)
Fig3. Normalized On-Resistance Vs. Temperature



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

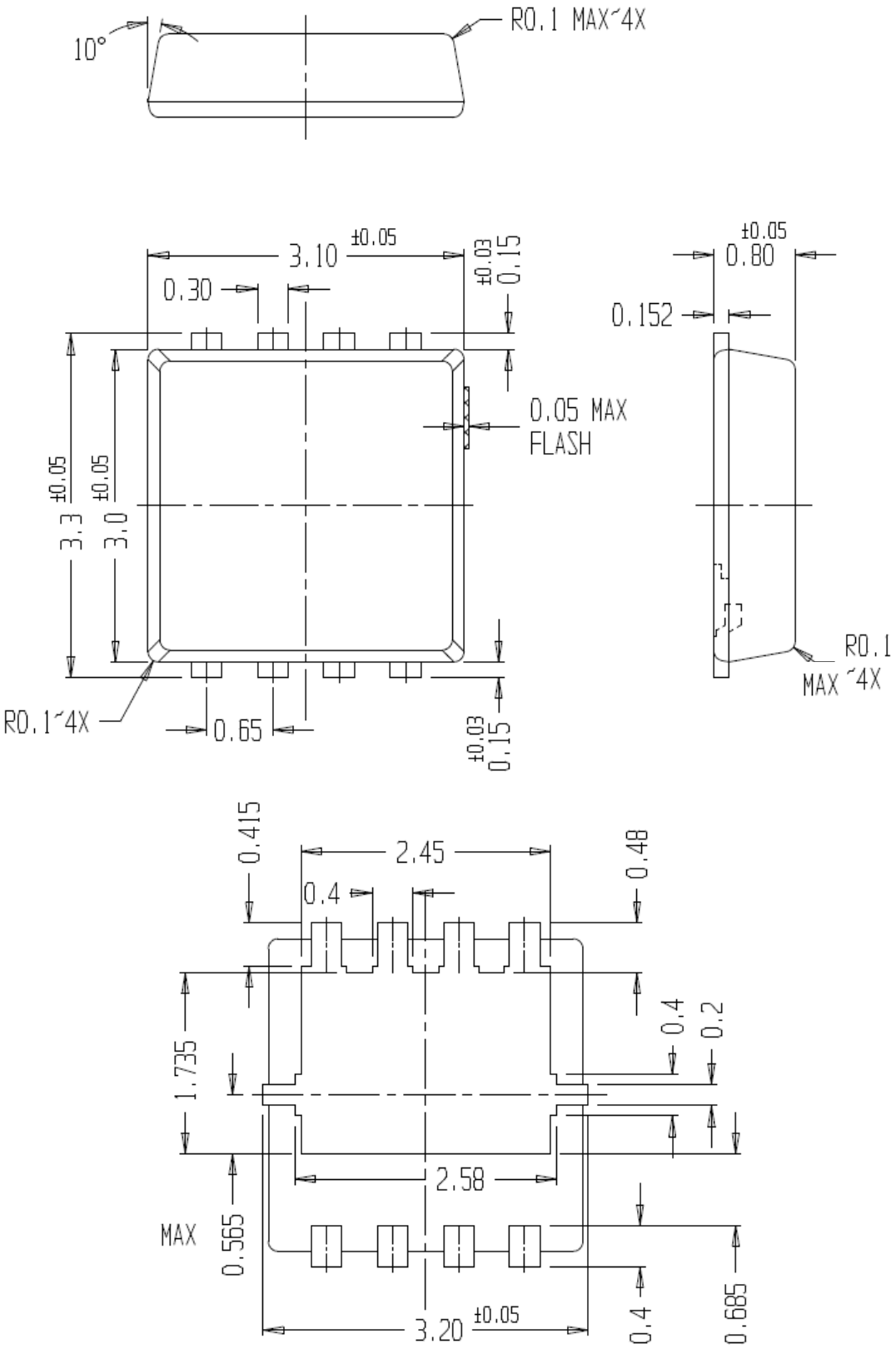


-VDS, Drain -Source Voltage (V)
Fig5. Maximum Safe Operating Area



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

PDFN3X3-8L Package information



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