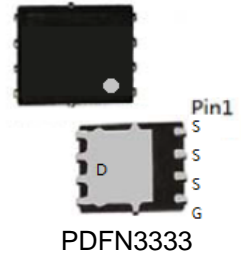**PUOLOP 迪浦**

Features

• - 1.8V Logic Level Control

• PDFN3333 SMD Package

Applications

• High Side Load Switch

• Battery Switch

• Optimized for Power Management Applications for

  Portable Products, such as Aeromodelling, Power bank,

  Brushless motor, Main board , and Others

BVDSS	-20	V
ID	-45	A
R_{DSON}@V_{GS}=-4.5V	9	mΩ
R_{DSON}@V_{GS}=-2.5V	12	mΩ
R_{DSON}@V_{GS}=-1.8V	16	mΩ

PDFN3333

Absolute Maximum Ratings

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the

Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may

affect device reliability.

Symbol	Parameter		Rating	Unit
Common Ratings (T_C=25°C Unless Otherwise Noted)				
V_{GS}	Gate-Source Voltage		±12	V
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage		-20	V
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-55 to 175	°C
Mounted on Large Heat Sink note B				
I_{DM}	Pulse Drain Current Tested (Sillicon Limit)	T_C =25°C	-180	A
I_D	Continuous Drain current @V_{GS}=10V	T_C =25°C	-45	A
P_D	Maximum Power Dissipation	T_A=25°C	3.5	W
		T_C=25°C	35	W
$R_{\theta JA}$	Thermal Resistance *Junction−to−*Ambient – Steady State (Note 1)		36	°C/W

Note :

1. Surface−mounted on FR4 board using 1 in sq. pad size (Cu area = 1.127 in sq. [2 oz] including traces).

-20V/-45A P-Channel Advanced Power MOSFET

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Static Electrical Characteristics @ T$_J$ = 25°C (unless otherwise stated)						
V$_{(BR)DSS}$	Drain-Source Breakdown Voltage	VGS=0V ID=-250μA	-20	--	--	V
I$_{DSS}$	Zero Gate Voltage Drain current(Tc=25℃)	VDS=-20V,VGS=0V	--	--	-1	μA
I$_{GSS}$	Gate-Body Leakage Current	VGS=±12V,VDS=0V	--	--	±100	nA
V$_{GS(TH)}$	Gate Threshold Voltage	VDS=VGS,ID=-250μA	-0.4		-1.0	V
R$_{DS(ON)1}$	Drain-Source On-State Resistance note A	VGS=-4.5V, ID=-20A		7.5	9	mΩ
R$_{DS(ON)2}$	Drain-Source On-State Resistance note A	VGS=-2.5V, ID=-15A		9.2	12	mΩ
R$_{DS ON)3}$	Drain-Source On-State Resistance note A	VGS=-1.8V, ID=-12A		12.3	16	mΩ
Dynamic Electrical Characteristics @ T$_J$ = 25°C (unless otherwise stated) note B						
C$_{iss}$	Input Capacitance	VDS=-10V,VGS=0V, f=1MHz	--	3500	--	pF
C$_{oss}$	Output Capacitance		--	577	--	pF
C$_{rss}$	Reverse Transfer Capacitance		--	445	--	pF
Q$_g$	Total Gate Charge	VDS=-10V,ID=-20A, VGS=-4.5V	--	55	--	nC
Q$_{gs}$	Gate-Source Charge		--	10	--	nC
Q$_{gd}$	Gate-Drain Charge		--	15	--	nC
Switching Characteristics note B						
t$_{d(on)}$	Turn-on Delay Time	VDD=-10V, R$_L$=0.5 Ω RG=3Ω, VGS=-4.5V	--	18	--	nS
t$_r$	Turn-on Rise Time		--	42	--	nS
t$_{d(off)}$	Turn-Off Delay Time		--	85	--	nS
t$_f$	Turn-Off Fall Time		--	23	--	nS
Source- Drain Diode Characteristics@ TJ = 25°C (unless otherwise stated)						
I$_{SD}$	Source-drain current(Body Diode)	Tc=25℃	--	--	-30	A
V$_{SD}$	Forward on voltage	IS=-30A,VGS=0V	--	-0.80	-1.2	V
t$_{rr}$	Reverse Recovery Time	Tj=25℃,ISD=-10A, VGS=0V di/dt=-100A/μs	--	47	--	nS
Q$_{rr}$	Reverse Recovery Charge		--	53	--	nC

Note:

A: Pulse Test: pulse width ≤ 300 us, duty cycle ≤ 2%

B:Guranteed by design, not subject to production testing.

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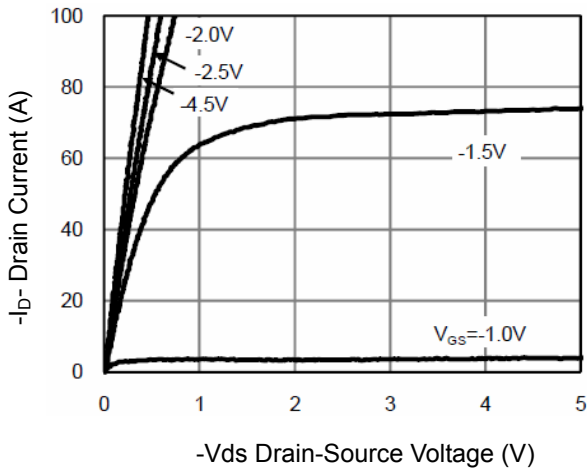## Typical Electrical and Thermal Characteristics (Curves)
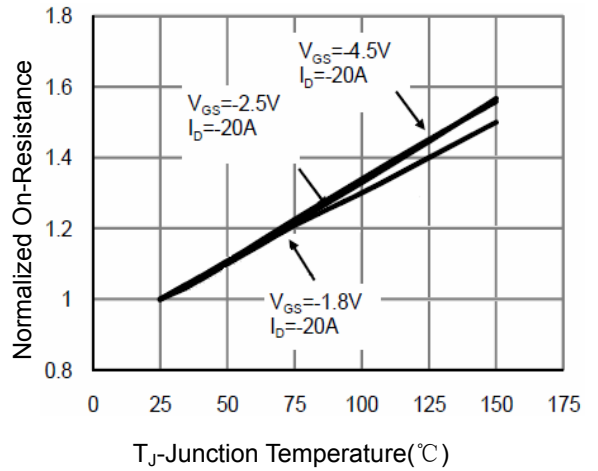

Figure 1 Output Characteristics

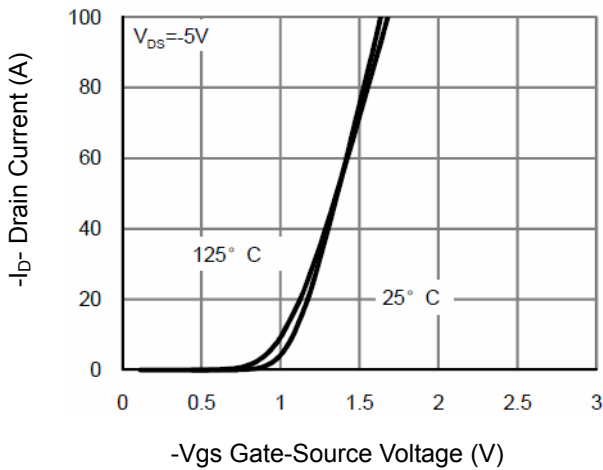**Figure 4 Rdson-Junction Temperature**

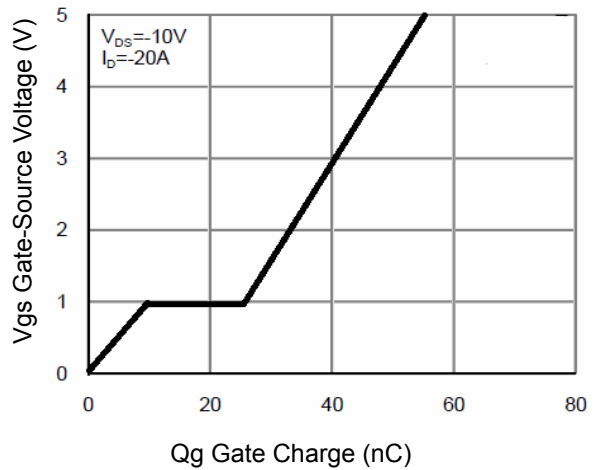**Figure 2 Transfer Characteristics**

Figure 5 Gate Charge

Figure 3 Rdson- Drain Current

Figure 6 Source- Drain Diode Forward

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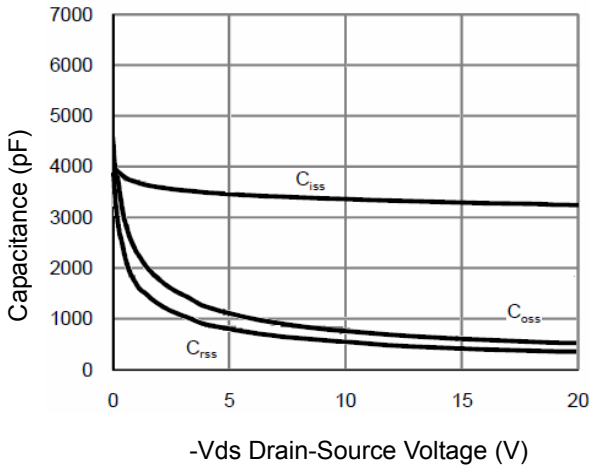
-20V/-45A P-Channel Advanced Power MOSFET

Figure 7 Capacitance vs Vds

Figure 9 Power De-rating

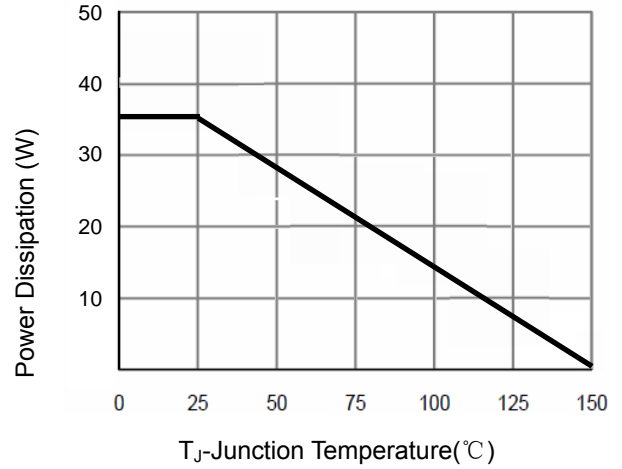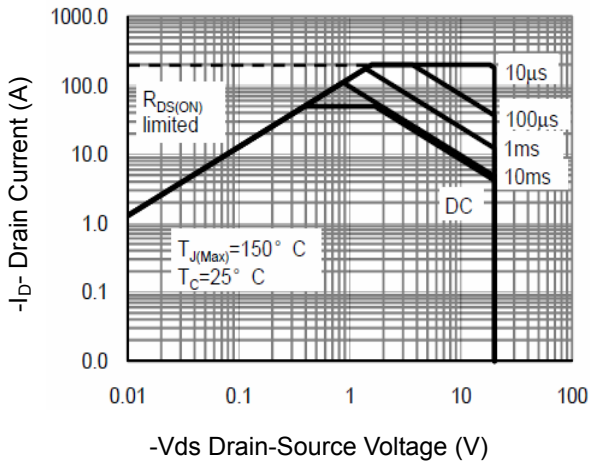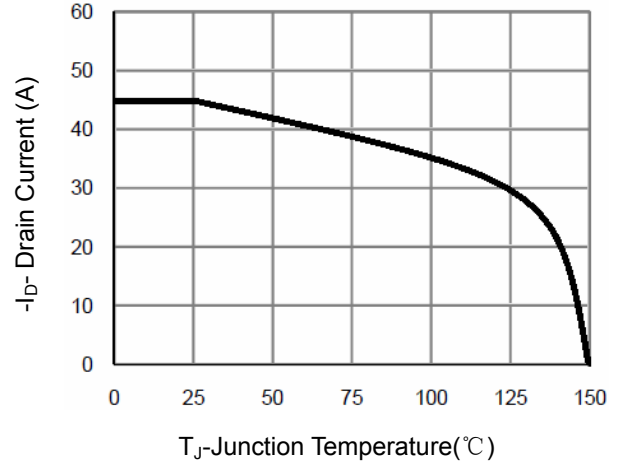**Figure 8 Safe Operation Area**

Figure 10 -Current De-rating