

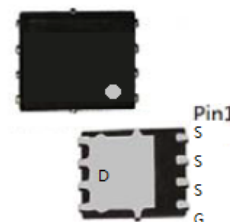
**-30V/-30A P-Channel Advanced Power MOSFET****Features**

- - 4.5V 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	-30	V
ID	-30	A
$R_{DS(on)}@V_{GS}=-10V$	9	mΩ
$R_{DS(on)}@V_{GS}=-4.5V$	13	mΩ



PDFN3333

Order Information

Product	Package	Marking	Packing
PTN30P03	PDFN3333	PTN30P03	5000PCS/Reel

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		±20	V
V _{(BR)DSS}	Drain-Source Breakdown Voltage		-30	V
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	°C
I _S	Diode Continuous Forward Current	T _C	-30	A
Mounted on Large Heat Sink				
I _{DM}	Pulse Drain Current Tested (Sillicon Limit)	T _C =25°C	-90	A
I _D	Continuous Drain current @V _{GS} =10V	T _C =25°C	-30	A
P _D	Maximum Power Dissipation	T _A =25°C	3.5	W
		T _c =25°C	32	W
EAS	Avalanche Energy, Single Pulsed (Note 2)		64	mJ
R _{θJA}	Thermal Resistance <i>Junction-to-Ambient</i> – Steady State (Note 1)		35	°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).
2. Limited by T_{jmax}, starting T_J = 25°C, L = 0.5mH, I_{AS} = -16A, V_{GS} = -10V. V_{DD} = -24V Part not recommended for use above this value.

**-30V/-30A P-Channel Advanced Power MOSFET**

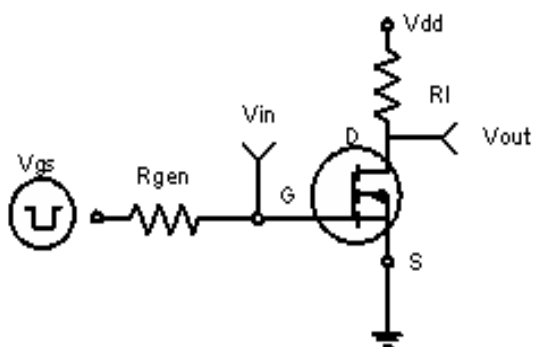
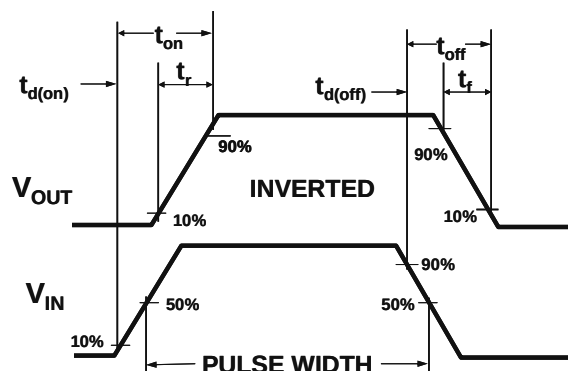
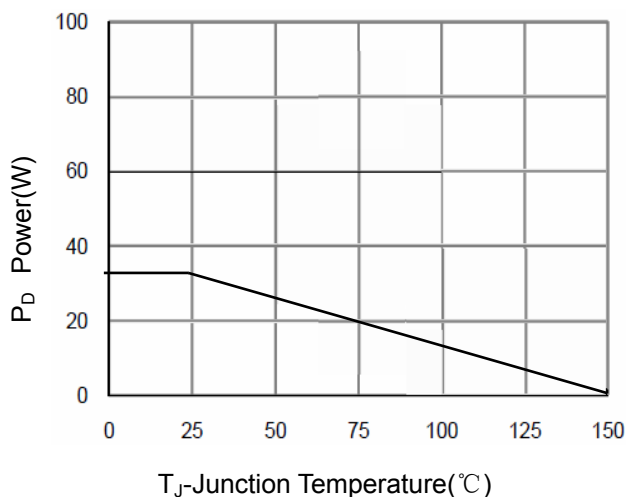
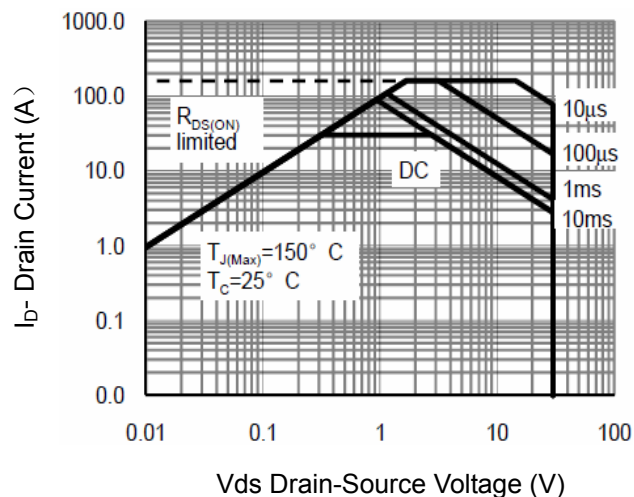
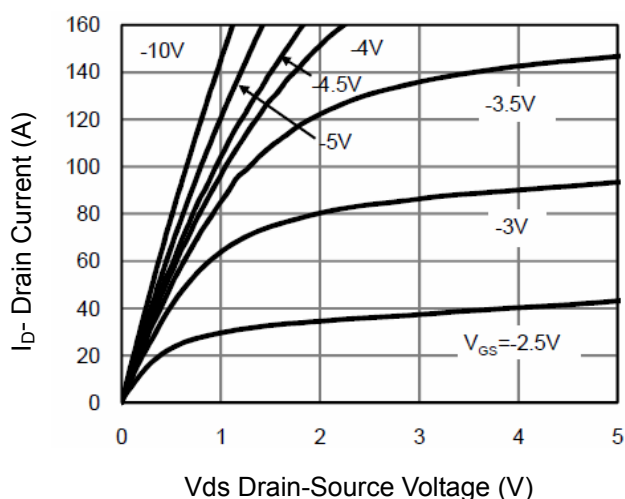
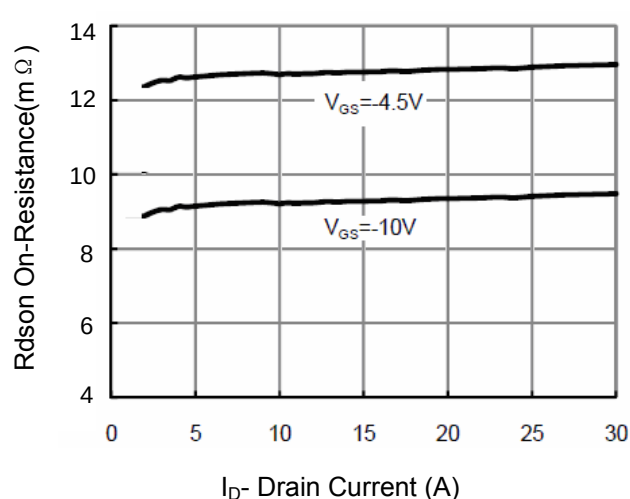
Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Static Electrical Characteristics @ T _J = 25°C (unless otherwise stated)						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	VGS=0V ID=-250μA	-30	--	--	V
I _{DSS}	Zero Gate Voltage Drain current(Tc=25°C)	VDS=-24V,VGS=0V	--	--	-1	μA
I _{GSS}	Gate-Body Leakage Current	VGS=±20V,VDS=0V	--	--	±100	nA
V _{GS(TH)}	Gate Threshold Voltage	VDS=VGS,ID=-250μA	-1.0	--	-2.2	V
R _{DS(ON)}	Drain-Source On-State Resistance note A	VGS=-10V, ID=-15A	--	9	15	mΩ
R _{DS(ON)}	Drain-Source On-State Resistance note A	VGS=-4.5V, ID=-10A	--	13	20	mΩ
Dynamic Electrical Characteristics @ T _J = 25°C (unless otherwise stated) note B						
C _{iss}	Input Capacitance	VDS=-15V,VGS=0V, f=1MHz	--	2780	--	pF
C _{oss}	Output Capacitance		--	324	--	pF
C _{rss}	Reverse Transfer Capacitance		--	313	--	pF
Q _g	Total Gate Charge	VDS=-15V,ID=-15A, VGS=-10V	--	81	--	nC
Q _{gs}	Gate-Source Charge		--	12	--	nC
Q _{gd}	Gate-Drain Charge		--	9.7	--	nC
Switching Characteristics note B						
t _{d(on)}	Turn-on Delay Time	VDD=-15V, ID=-15A RG=3Ω, VGS=-10V	--	17	--	nS
t _r	Turn-on Rise Time		--	21	--	nS
t _{d(off)}	Turn-Off Delay Time		--	36	--	nS
t _f	Turn-Off Fall Time		--	15	--	nS
Source- Drain Diode Characteristics@ T _J = 25°C (unless otherwise stated)						
V _{SD}	Forward on voltage	IS=-30A,VGS=0V	--	-0.80	-1.2	V

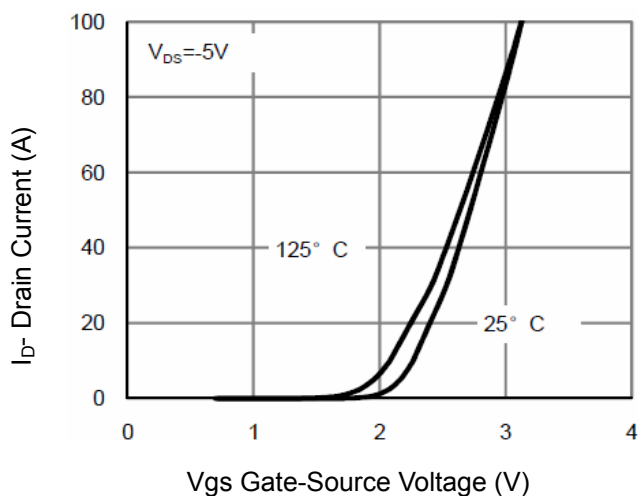
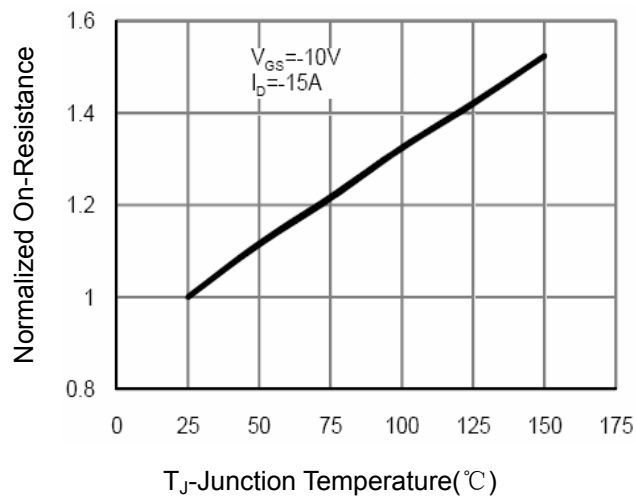
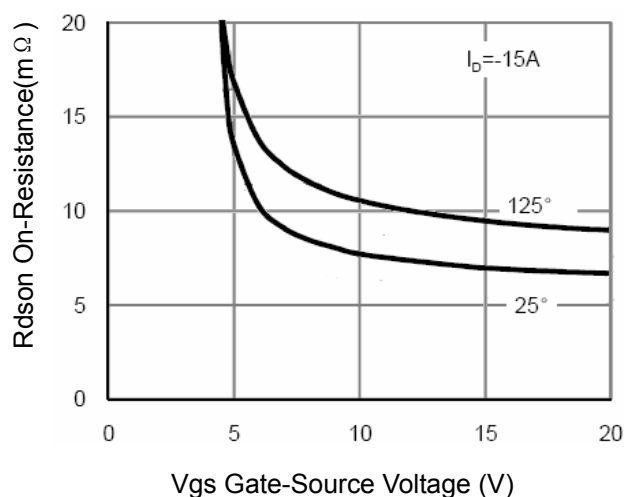
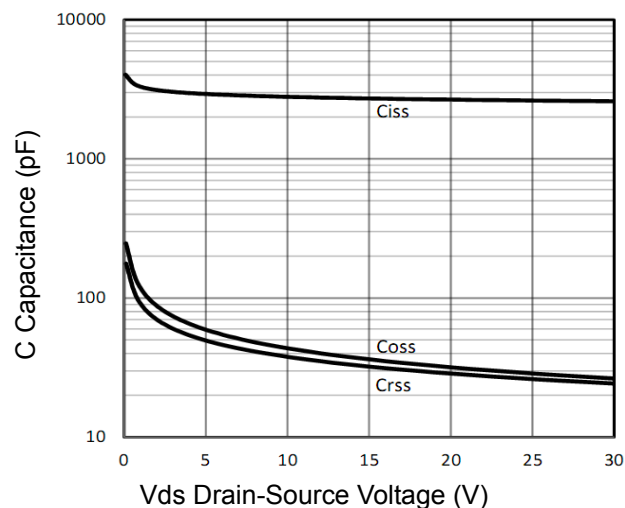
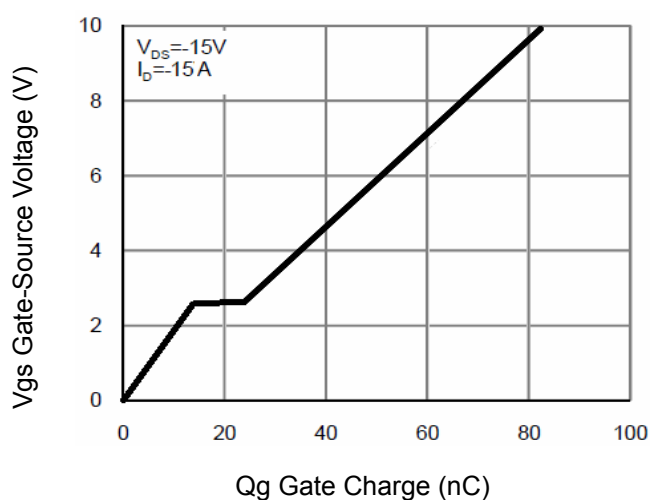
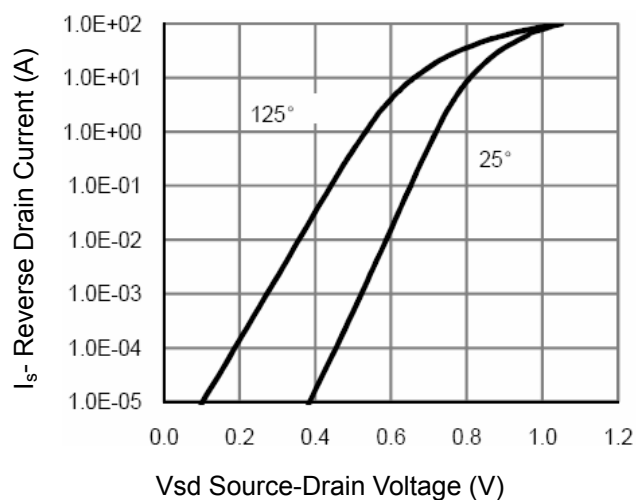
Note:

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

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

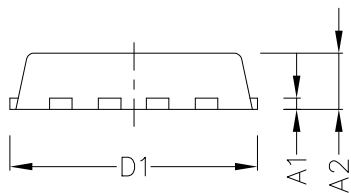
-30V/-30A P-Channel Advanced Power MOSFET Typical Electrical and Thermal Characteristics


Figure 1 Switching Test Circuit

Figure 2 Switching Waveforms

Figure 3 Power Dissipation

Figure 4 Safe Operation Area

Figure 5 Output Characteristics

Figure 6 Drain-Source On-Resistance

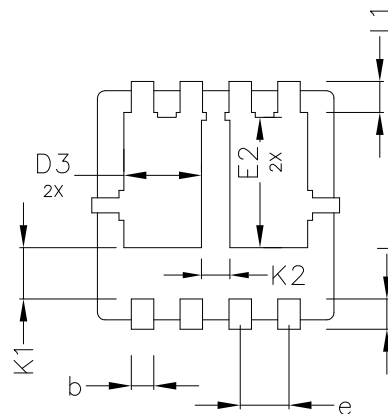
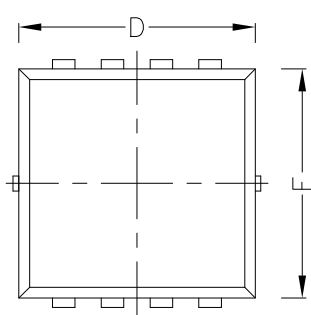
**-30V/-30A P-Channel Advanced Power MOSFET****Figure 7 Transfer Characteristics****Figure 8 Drain-Source On-Resistance****Figure 9 Rdson vs Vgs****Figure 10 Capacitance vs Vds****Figure 11 Gate Charge****Figure 12 Source- Drain Diode Forward**

**-30V/-30A P-Channel Advanced Power MOSFET**

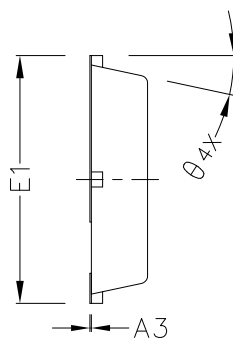
PDFN3333 Package Outline Dimensions (Units: mm)



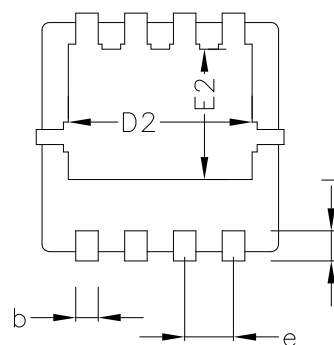
SIDE VIEW

BOTTOM VIEW
OPTION 2

TOP VIEW



SIDE VIEW

BOTTOM VIEW
OPTION 1

COMMON DIMENSIONS (UNITS OF MEASURE IS mm)			
	MIN	NORMAL	MAX
A1	0.152 BSC		
A2	0.650	0.750	0.850
A3	0.005	—	0.020
b	0.250	0.300	0.350
D	3.050	3.150	3.250
D1	3.200	3.300	3.400
D2	2.350	2.450	2.550
D3	0.935	1.035	1.135
E1	3.150	3.300	3.450
E	2.950	3.050	3.150
E2	1.635	1.735	1.835
e	0.650 TYPE		
L	0.300	0.400	0.500
θ	12° TYPE		
K1	0.680 REF		
K2	0.380 REF		
L1	0.410 REF		