

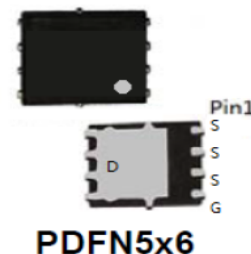
**-30V/-30A P-Channel Advanced Power MOSFET****Features**

- - 4.5V Logic Level Control
- PDFN5x6 SMD Package

Applications

- 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

**Order Information**

Product	Package	Marking	Packing
PTN30P30	PDFN5x6	PTN30P30	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 =25°C	-30	A
Mounted on Large Heat Sink				
I _{DM}	Pulse Drain Current Tested (Silicon 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 _c =25°C	32	W
EAS	Avalanche Energy, Single Pulsed (Note 2)		64	mJ
R _{θJC}	Thermal Resistance <i>Junction-to-Case</i> (Note 1)		3.9	°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. VDD=-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	VDS=-30V,VGS=0V	--	--	-100	nA
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=-30A	--	9	15	mΩ
R _{DS(ON)}	Drain-Source On-State Resistance note A	VGS=-4.5V, ID=-20A	--	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	--	3980	--	pF
C _{oss}	Output Capacitance		--	450	--	pF
C _{rss}	Reverse Transfer Capacitance		--	420	--	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	--	-0.70	-1.2	V

Note:

A: Pulse Test: pulse width $\leq 300 \mu s$, duty cycle $\leq 2\%$

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



Typical Electrical and Thermal Characteristics

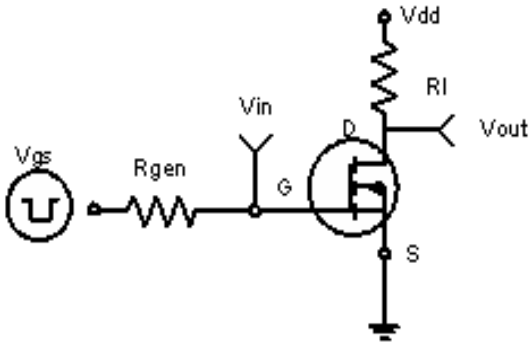


Figure 1 Switching Test Circuit

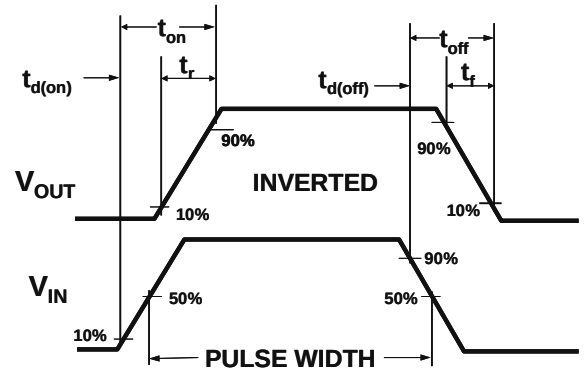


Figure 2 Switching Waveforms

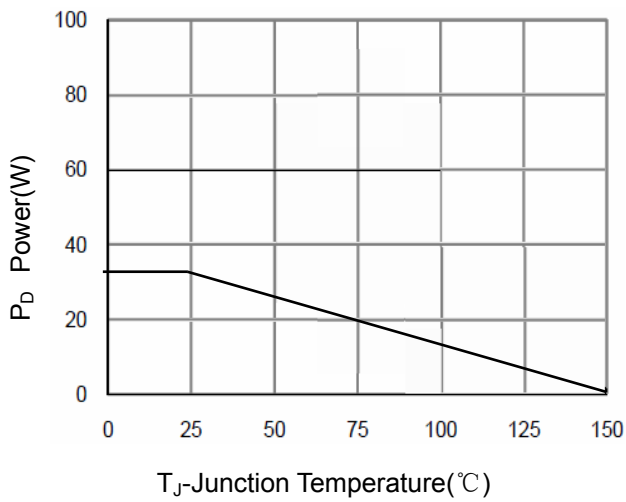


Figure 3 Power Dissipation

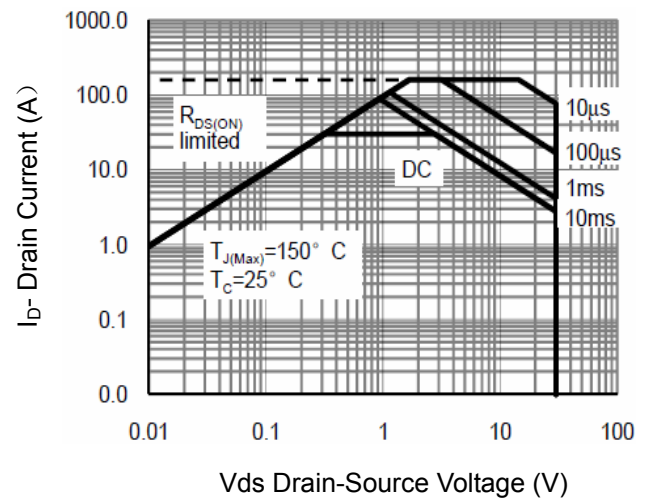


Figure 4 Safe Operation Area

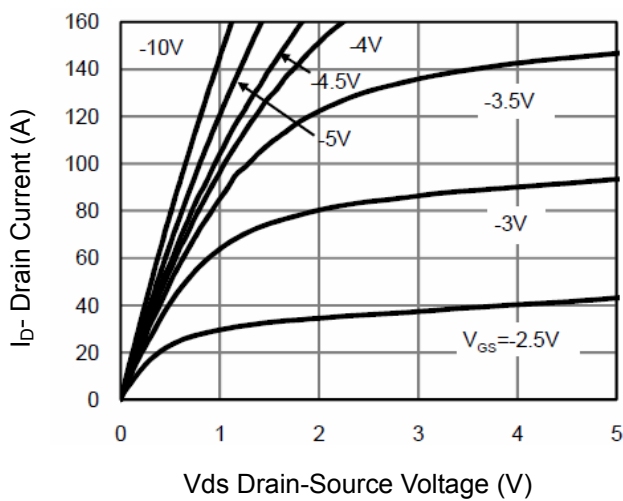


Figure 5 Output Characteristics

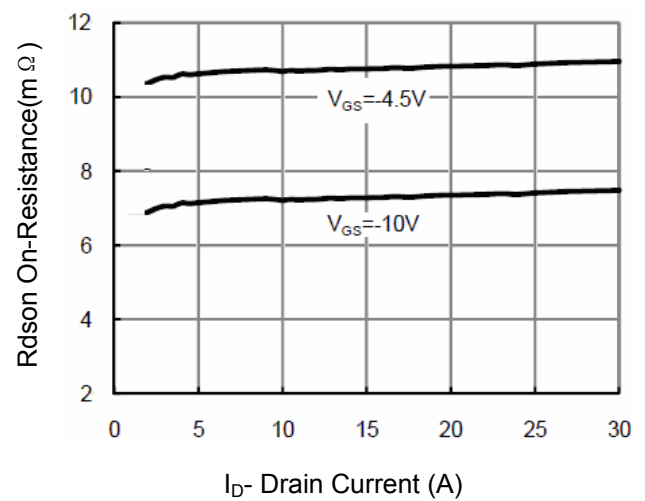
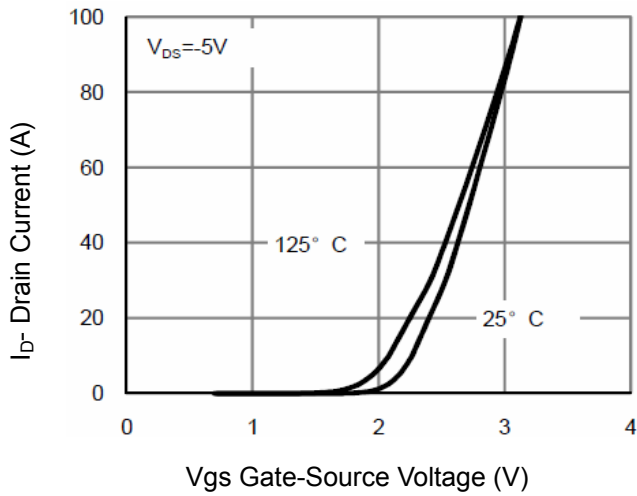
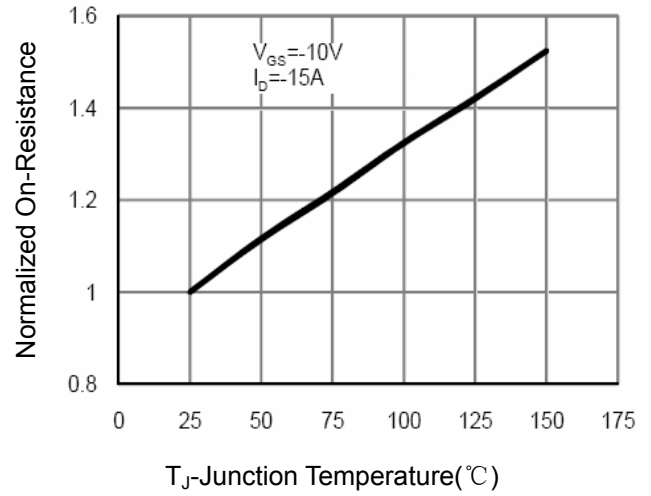
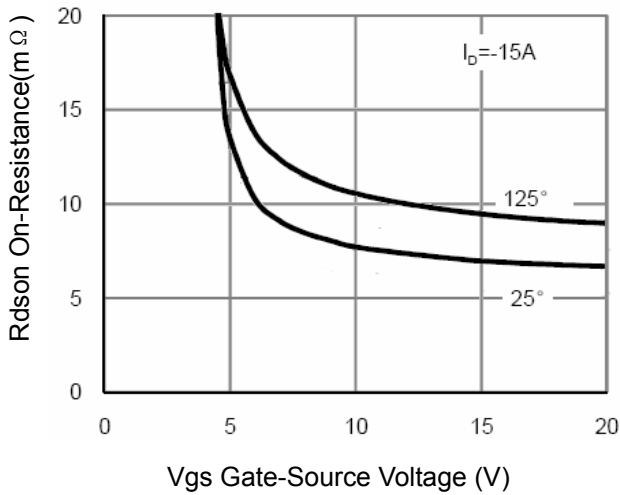
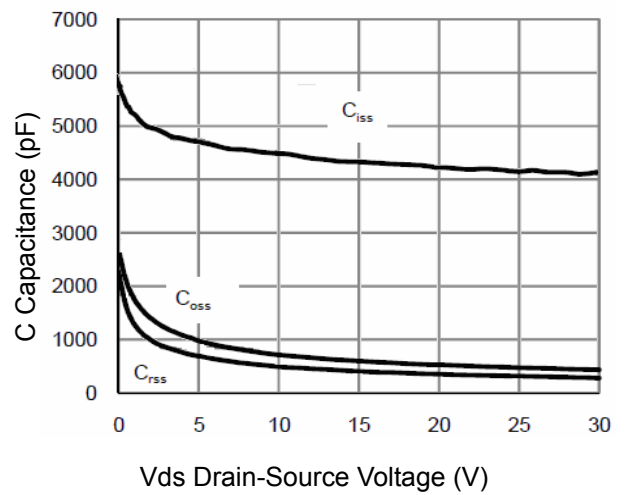
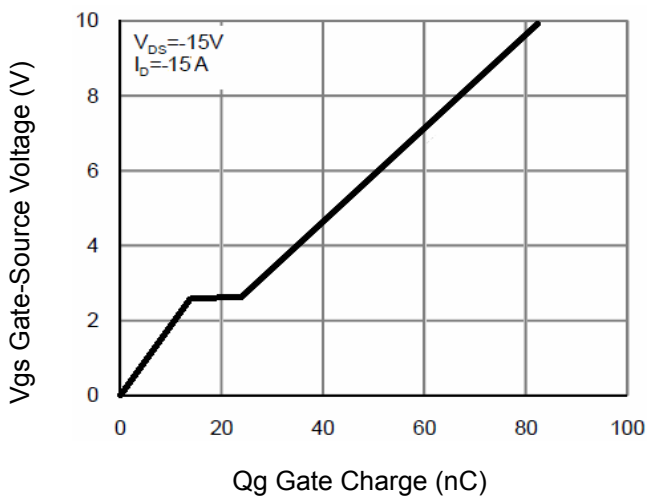
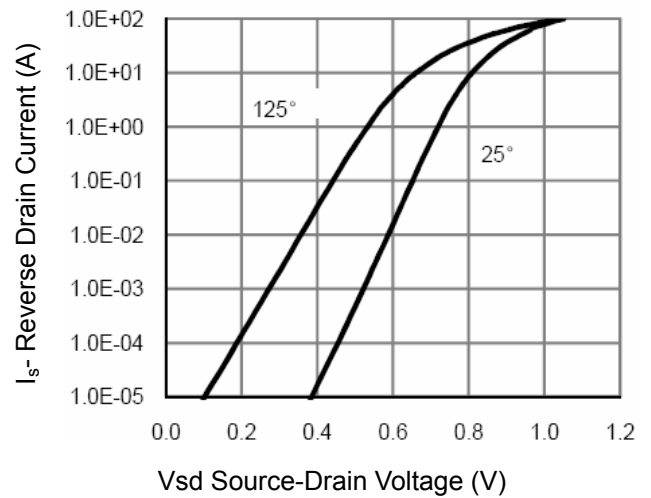
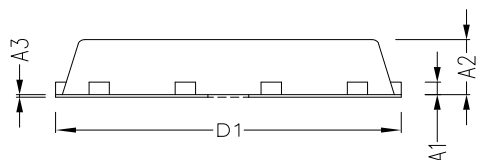
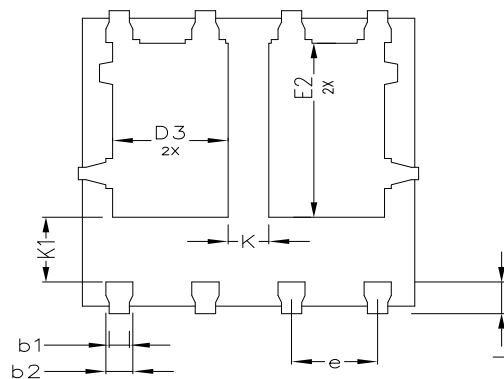
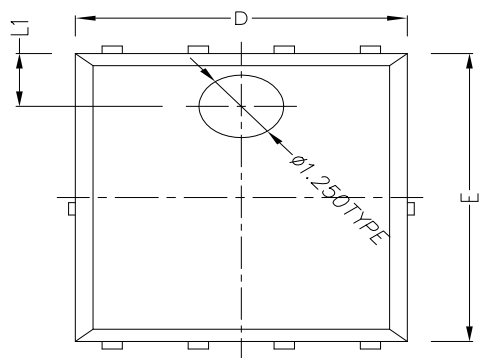


Figure 6 Drain-Source On-Resistance

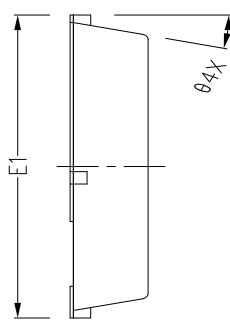
**Figure 7 Transfer Characteristics****Figure 8 Drain-Source On-Resistance****Figure 9 Rdson vs Vgs****Figure 10 Capacitance vs Vds****Figure 11 Gate Charge****Figure 12 Source- Drain Diode Forward**

**PDFN5X6-8L Package Outline Dimensions (Units: mm)**

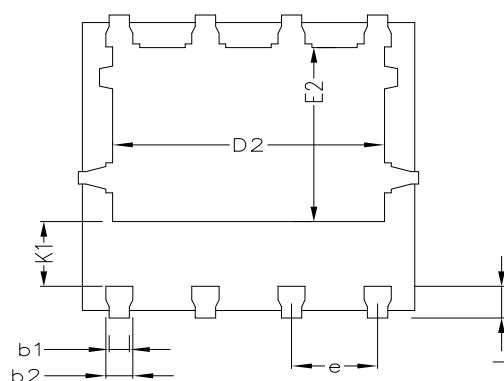
SIDE VIEW

BOTTOM VIEW
OPTION 2

TOP VIEW



SIDE VIEW

BOTTOM VIEW
OPTION 1

COMMON DIMENSIONS (UNITS OF MEASURE IS mm)			
	MIN	NORMAL	MAX
A1	0.254 BSC		
A2	1.000	1.100	1.200
A3	0.005	—	0.020
b1	0.250	0.300	0.350
b2	0.350	0.400	0.450
D	4.800	4.900	5.000
D1	5.000	5.100	5.200
D2	3.910	4.010	4.110
D3	1.605	1.705	1.805
E	5.650	5.750	5.850
E1	5.950	6.050	6.150
E2	3.375	3.475	3.575
e	1.270 TYPE		
L	0.530	0.630	0.730
L1	1.00REF		
θ	13° TYPE		
K	0.600 REF		
K1	1.235 REF		