

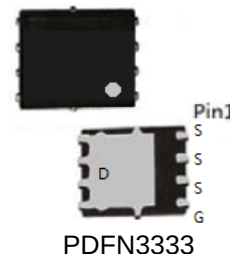
**30V/30A N-Channel Advanced Power MOSFET****Features**

- Low $R_{DS(on)}$ @ 4.5V Logic.
- 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
$R_{DS(on)}@V_{GS}=10V$	6	mΩ
$R_{DS(on)}@V_{GS}=5V$	9.3	mΩ

**Order Information**

Product	Package	Marking	Packing
PTN7530	PDFN3333	PTN7530	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 =25°C	20	A
Mounted on Large Heat Sink				
I _{DM}	Pulse Drain Current Tested (Silicon Limit)	T _c =25°C	100	A
I _D	Continuous Drain current @V _{GS} =10V	T _c =25°C	30	A
P _D	Maximum Power Dissipation	T _c =25°C	24	W
EAS	Avalanche Energy, Single Pulsed (Note 1)		15	mJ
R _{θJC}	Thermal Resistance <i>Junction-to-Case</i>		5.2	°C/W

Note :

1. Limited by T_{jmax} , starting $T_J = 25^\circ\text{C}$, $L = 0.5\text{mH}$, $R_G = 25\Omega$ $V_{GS} = 10V$. Part not recommended for use above this value



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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=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		2.5	V
R _{DS(ON)}	Drain-Source On-State Resistance note A	VGS=10V, ID=20A		6	9	mΩ
R _{DS(ON)}	Drain-Source On-State Resistance note A	VGS=5V, ID=16A	--	9.3	14	mΩ
Dynamic Electrical Characteristics @ T _J = 25°C (unless otherwise stated) note B						
C _{iss}	Input Capacitance	VDS=15V,VGS=0V, f=1MHz	--	970	--	pF
C _{oss}	Output Capacitance		--	197	--	pF
C _{rss}	Reverse Transfer Capacitance		--	113	--	pF
Q _g	Total Gate Charge	VDS=15V,ID=20A, VGS=10V	--	12	--	nC
Q _{gs}	Gate-Source Charge		--	3	--	nC
Q _{gd}	Gate-Drain Charge		--	4	--	nC
Switching Characteristics note B						
t _{d(on)}	Turn-on Delay Time	VDD=15V, ID=20A, RG=1.8Ω, VGS=10V	--	6	--	nS
t _r	Turn-on Rise Time		--	11	--	nS
t _{d(off)}	Turn-Off Delay Time		--	12	--	nS
t _f	Turn-Off Fall Time		--	5	--	nS
Source- Drain Diode Characteristics@ T _J = 25°C (unless otherwise stated)						
I _{SD}	Source-drain current(Body Diode)	Tc=25°C	--	--	20	A
V _{SD}	Forward on voltage	IS=20A,VGS=0V	--	0.80	1.2	V
t _{rr}	Reverse Recovery Time	Tj=25°C,ISD=20A, VGS=0V	--	20	--	nS
Q _{rr}	Reverse Recovery Charge	di/dt=100A/μs	--	13	--	nC

Note:

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

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



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Typical Characteristics

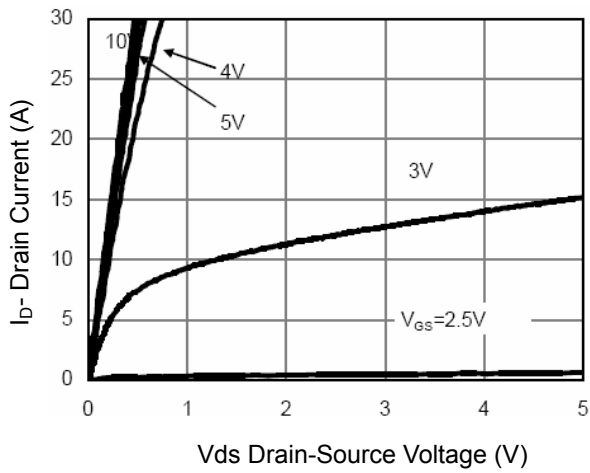


Figure 1 Output Characteristics

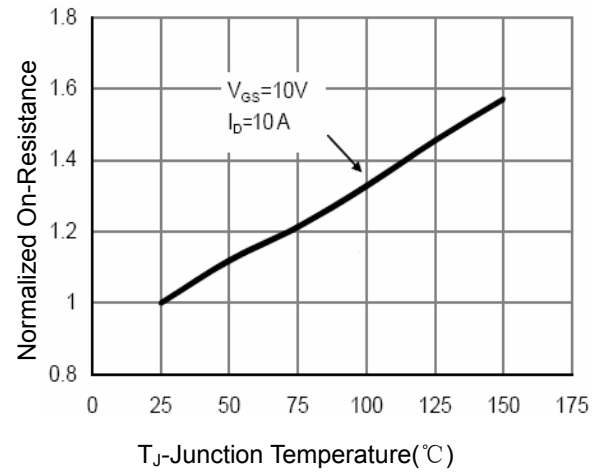
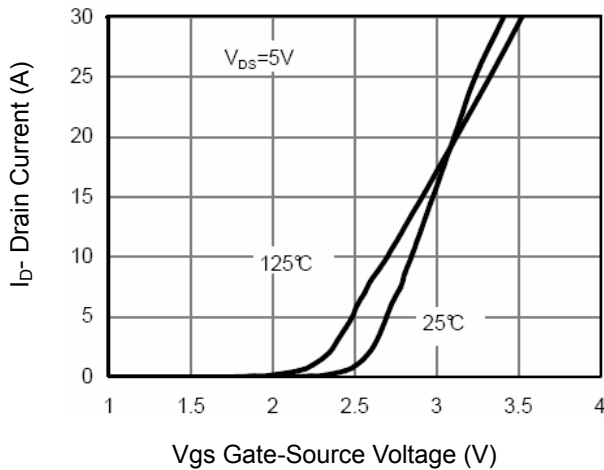
Figure 4 $R_{DS(on)}$ -Junction Temperature

Figure 2 Transfer Characteristics

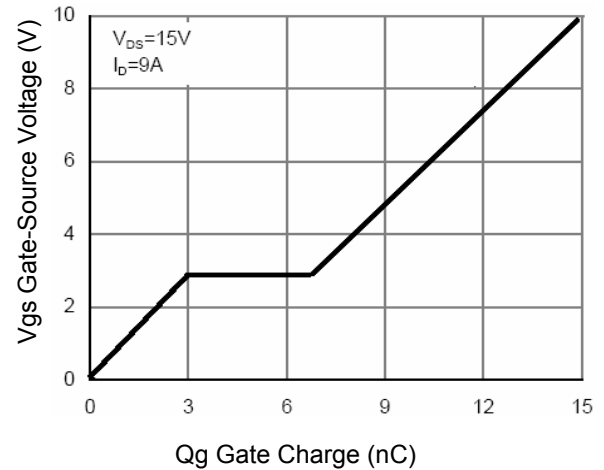


Figure 5 Gate Charge

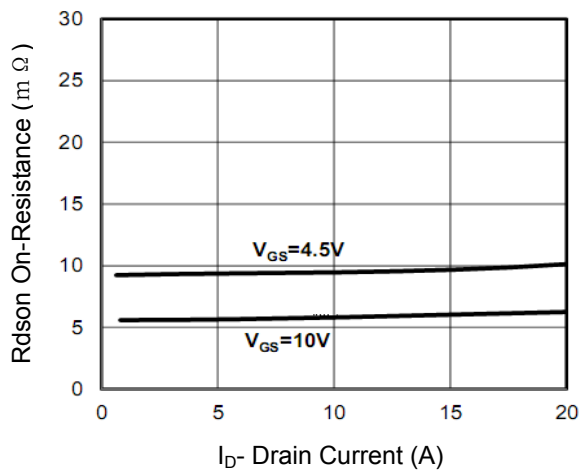
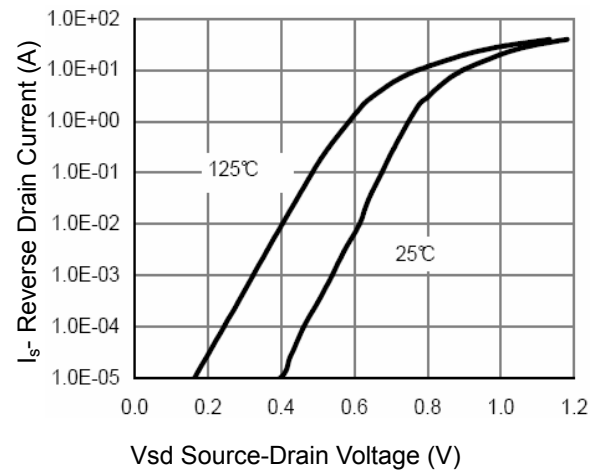
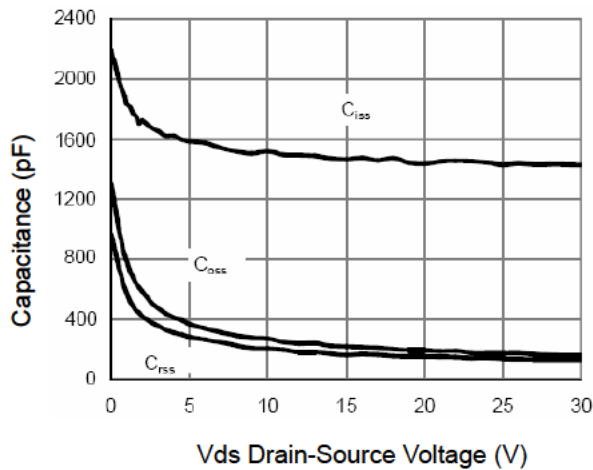
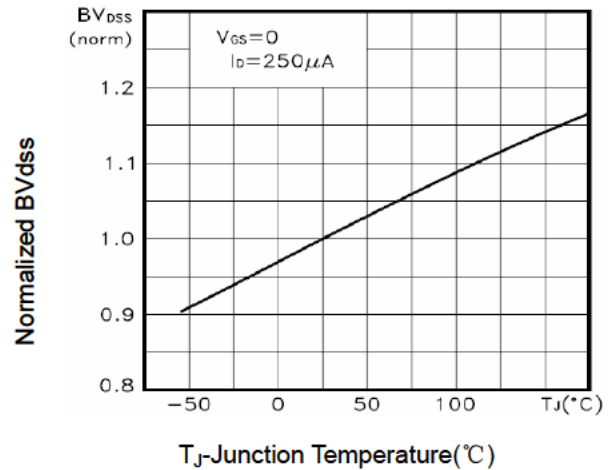
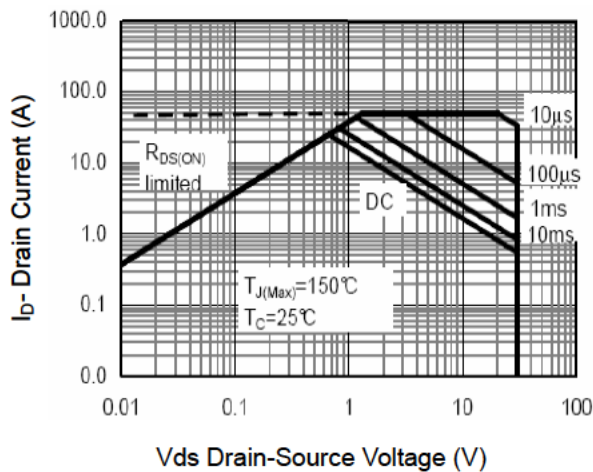
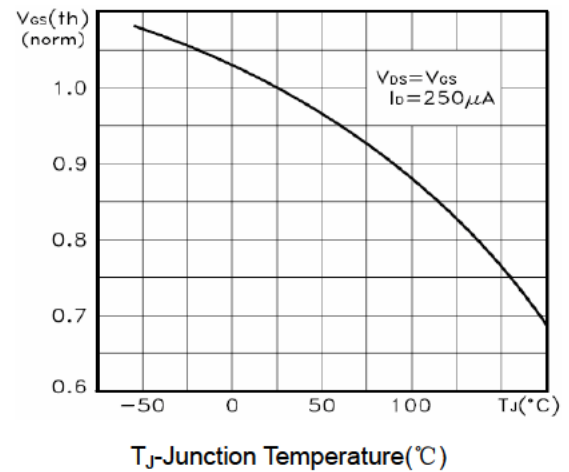
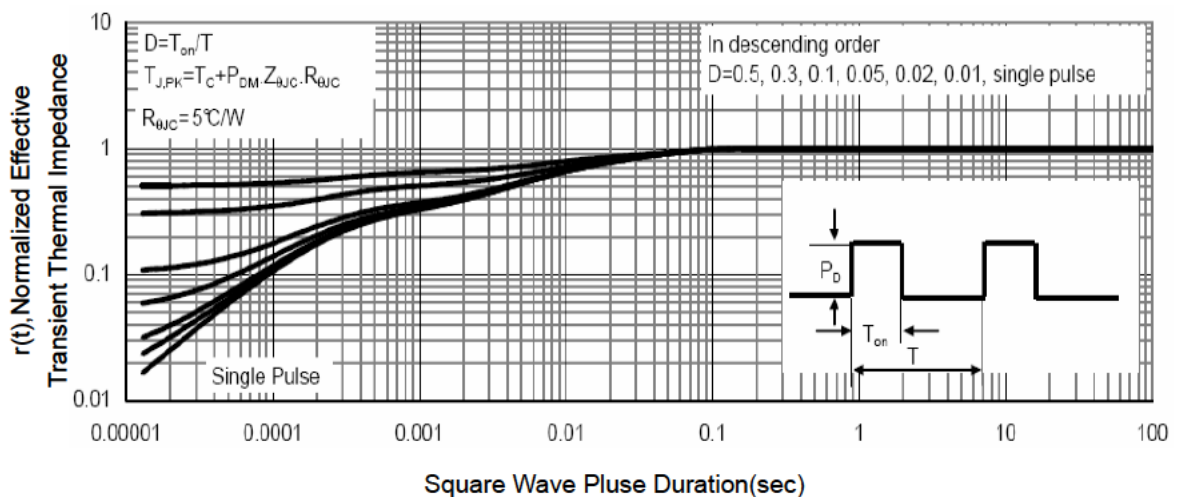
Figure 3 $R_{DS(on)}$ - Drain Current

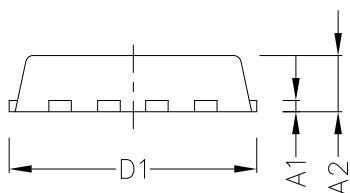
Figure 6 Source- Drain Diode Forward

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Figure 7 Capacitance vs Vds

Figure 9 BV_{DSS} vs Junction Temperature

Figure 8 Safe Operation Area

Figure 10 V_{GS(th)} vs Junction Temperature

Figure 11 Normalized Maximum Transient Thermal Impedance

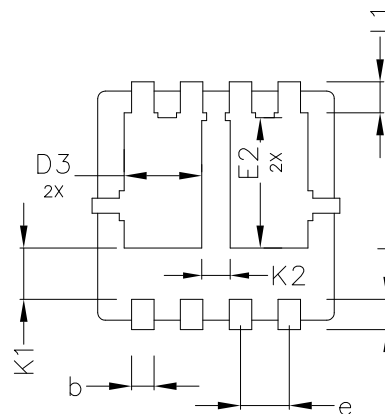
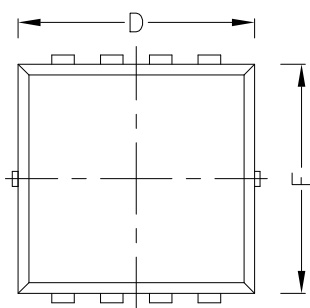


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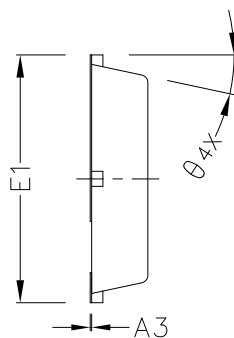
PDFN3333 Package Outline Dimensions (Units: mm)



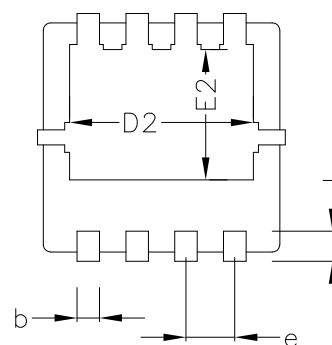
SIDE VIEW

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		