

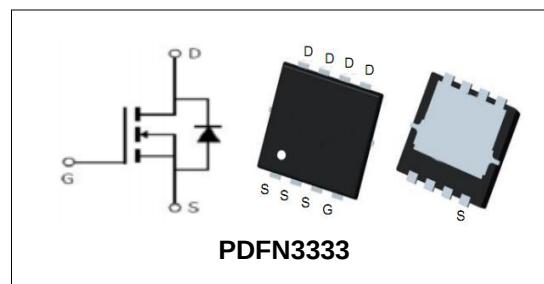
**30V/80A N- Channel Advanced Power MOSFET****Features**

- Low on-resistance and low conduction losses
- Ultra Low Gate Charge cause lower driving requirements

BVDSS	30	V
ID	80	A
RDSON@VGS=10V	3.6	mΩ
RDSON@VGS=4.5V	5.1	mΩ

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

**Order Information**

Product	Package	Marking	Reel Size	Reel	Carton
PTQ3006	PDFN3333	PTQ3006	13inch	5000PCS	50000PCS

Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)				
V _{(BR)DSS}	Drain-Source Breakdown Voltage		30	V
V _{GS}	Gate-Source Voltage		±20	V
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	°C
I _S	Diode Continuous Forward Current	TC =25°C	60	A
Mounted on Large Heat Sink				
E _{AS}	Single Pulse Avalanche Energy (Note1)		163	mJ
I _{DM}	Pulse Drain Current Tested (Silicon Limit) (Note2)	TC =25°C	240	A
I _D	Continuous Drain current	TC =25°C	80	A
P _D	Maximum Power Dissipation	TC =25°C	37	W
R _{θJc}	Thermal Resistance Junction-to-Case (Note3)		3.38	°C/W



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Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Static Electrical Characteristics @ TJ = 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	1.8	2.5	V
R _{DS(ON)}	Drain-Source On-State Resistance (Note4)	VGS=10V, ID=30A	--	3.6	5	mΩ
		VGS=4.5V, ID=20A	--	5.1	7.5	
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated) (Note5)						
C _{iss}	Input Capacitance	VDS=15V, VGS=0V, F=1MHz	--	2190	--	pF
C _{oss}	Output Capacitance		--	306	--	pF
C _{rss}	Reverse Transfer Capacitance		--	265	--	pF
Q _g	Total Gate Charge	VDS=15V, ID=18A, VGS=10V	--	88	--	nC
Q _{gs}	Gate-Source Charge		--	18	--	nC
Q _{gd}	Gate-Drain Charge		--	16	--	nC
Switching Characteristics (Note5)						
t _{d(on)}	Turn-on Delay Time	VDD=15V, ID=20A, VGS=10V RG=4.7Ω	--	30	--	nS
t _r	Turn-on Rise Time		--	28	--	nS
t _{d(off)}	Turn-off Delay Time		--	44	--	nS
t _f	Turn-off Fall Time		--	28	--	nS
Source- Drain Diode Characteristics@ TJ = 25°C (unless otherwise stated)						
V _{SD}	Forward on voltage	IS=40A,VGS=0V	--	--	1.2	V

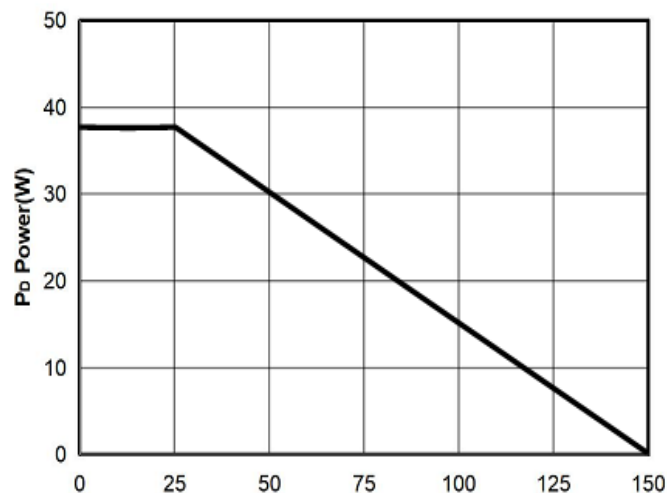
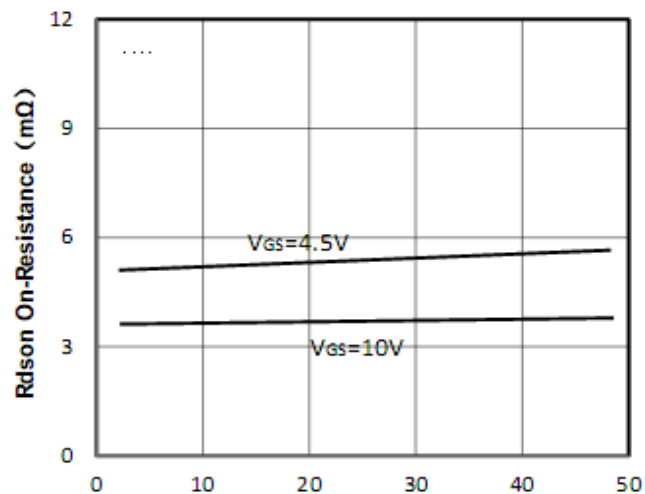
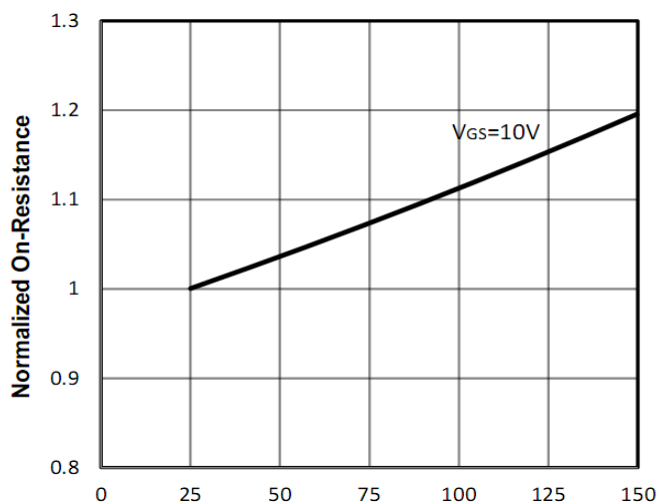
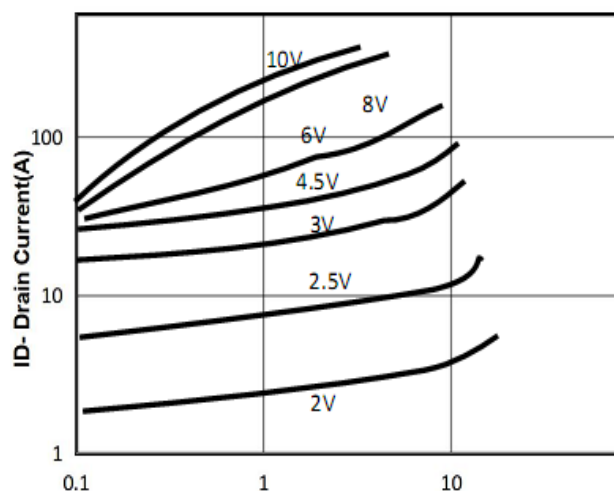
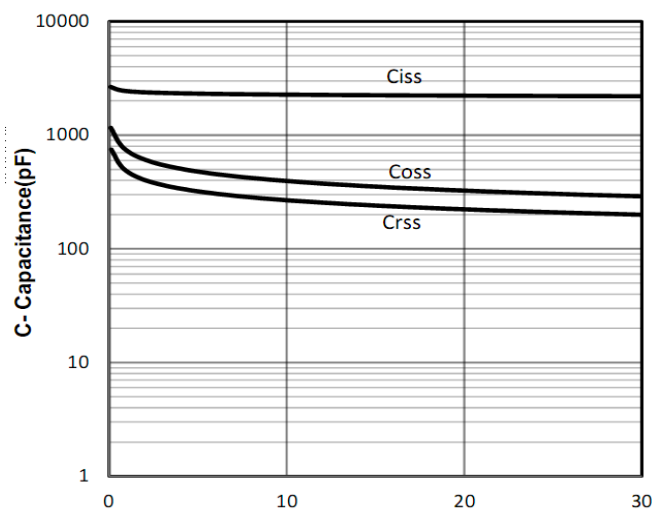
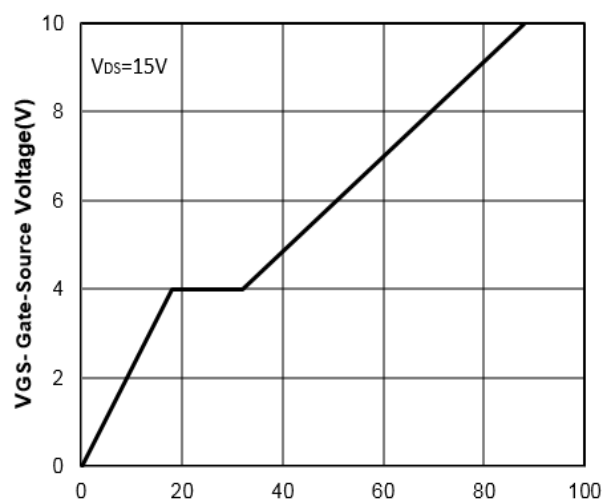
Note:

- Limited by TJmax, starting TJ = 25° C, RG = 25Ω, VD =15V, VGS =10V. Part not recommended for use above this value.
- Repetitive Rating: Pulse width limited by maximum junction temperature.
- Surface Mounted on FR4 Board, t ≤ 10 sec.
- Pulse Test: pulse width ≤ 300 us, duty cycle ≤ 2%.
- Guaranteed by design, not subject to production testing.



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Typical Characteristics

Figure1: T_j Junction Temperature (°C)Figure2: I_d Drain Current (A)Figure3: T_j Junction Temperature (°C)Figure4: V_{ds} Drain-Source Voltage (V)Figure5: V_{ds} Drain-Source Voltage (V)Figure6: Q_g Gate Charge (nC)



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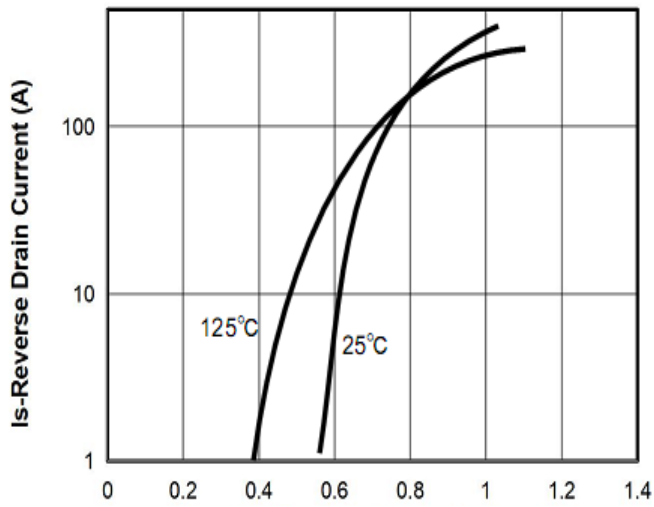


Figure7: Vsd Source-Drain Voltage (V)

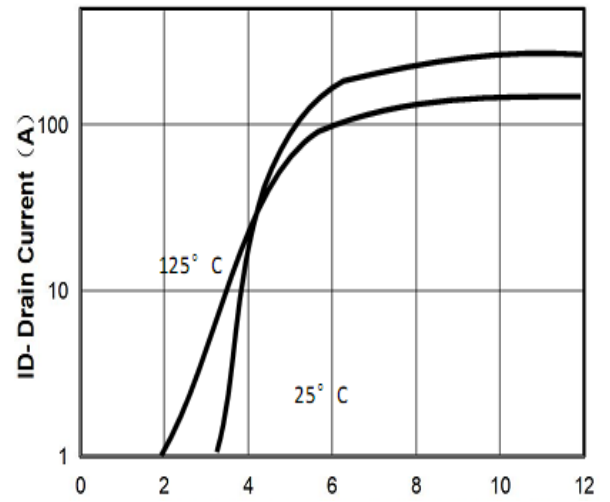


Figure8: Vgs Gate-Source Voltage (V)

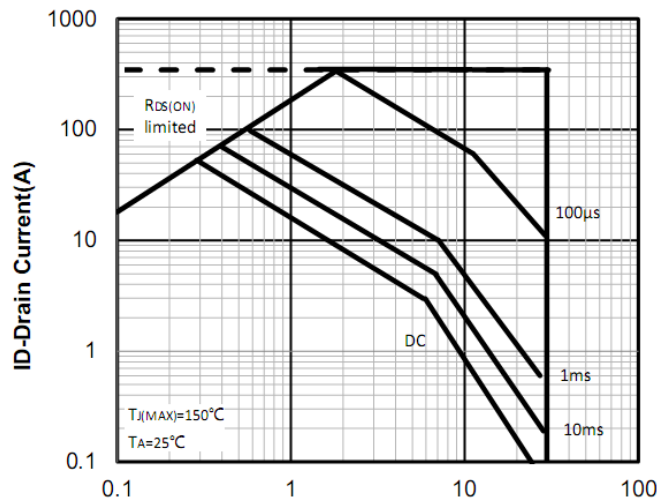


Figure9: VDS Drain -Source Voltage (V)

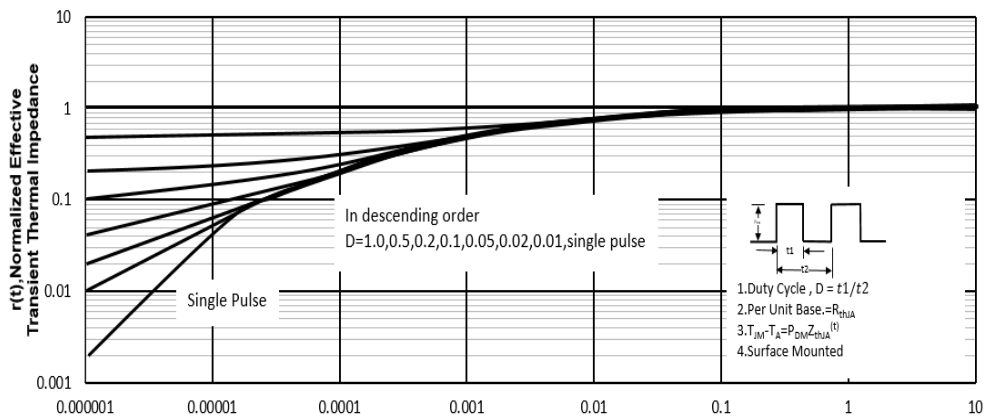


Figure10: Square Wave Pulse Duration (sec)



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Test Circuit and Waveform:

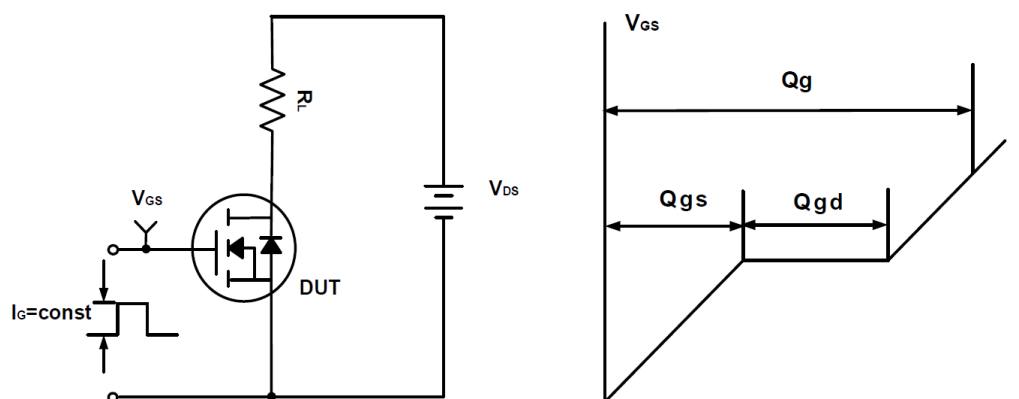


Figure A Gate Charge Test Circuit & Waveforms

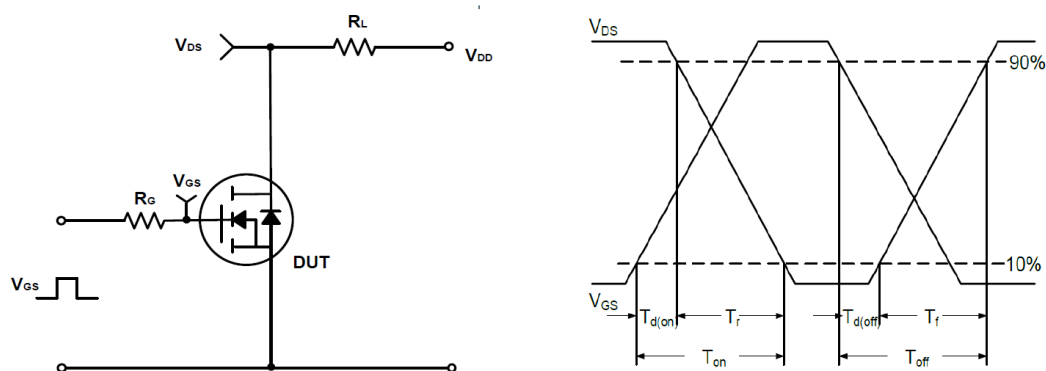


Figure B Switching Test Circuit & Waveforms

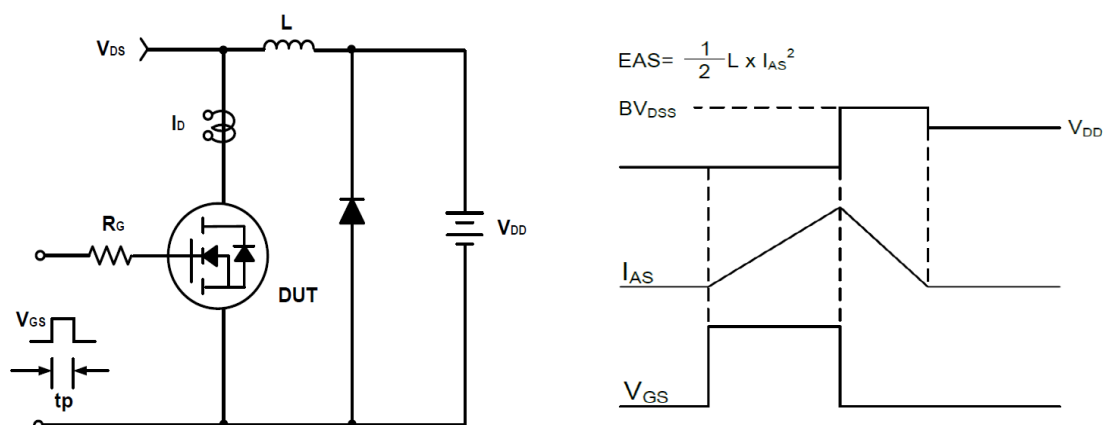
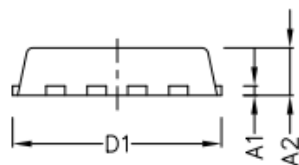
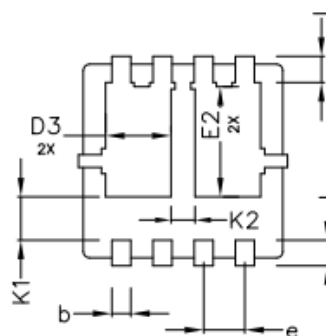
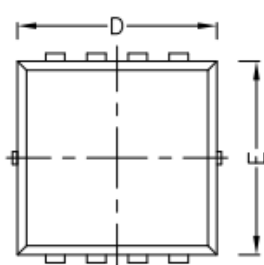


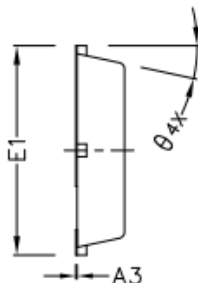
Figure C Unclamped Inductive Switching Circuit & Waveforms

**PDFN3333 Package Outline Dimensions (Units: mm)**

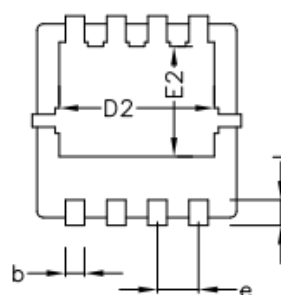
SIDE VIEW

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		