



30V/100A N- Channel Advanced Power MOSFET

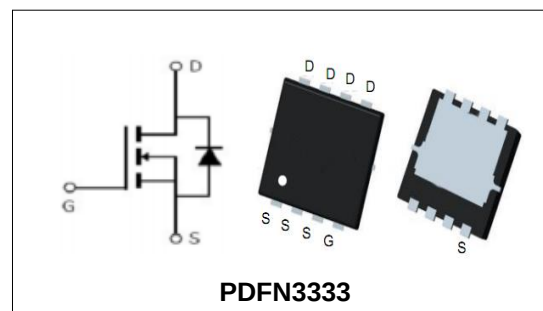
Features

- Low on-resistance and low conduction losses
- 100% Avalanche Tested

BVDSS	30	V
ID	100	A
RDSON@VGS=10V	3.1	mΩ
RDSON@VGS=4.5V	4.5	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
PTQ10HN03B	PDFN3333	PTQ10HN03	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	100	A
Mounted on Large Heat Sink				
E _{AS}	Single Pulse Avalanche Energy (Note1)		163	mJ
I _{DM}	Pulse Drain Current Tested (Note2)	TC =25°C	300	A
I _D	Continuous Drain current	TC =25°C	100	A
P _D	Maximum Power Dissipation	TC =25°C	54	W
R _{θJc}	Thermal Resistance Junction-to-Case		2.31	°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=30V,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	--	2.5	V
R _{DS(ON)}	Drain-Source On-State Resistance (Note3)	VGS=10V, ID=20A	--	3.1	4	mΩ
		VGS=4.5V, ID=15A	--	4.5	6	
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated) (Note4)						
C _{iss}	Input Capacitance	VDS=15V, VGS=0V, F=1MHz	--	2930	--	pF
C _{oss}	Output Capacitance		--	300	--	pF
C _{rss}	Reverse Transfer Capacitance		--	278	--	pF
Q _g	Total Gate Charge	VDS=15V, ID=20A, VGS=10V	--	55	--	nC
Q _{gs}	Gate-Source Charge		--	11	--	nC
Q _{gd}	Gate-Drain Charge		--	9	--	nC
Switching Characteristics (Note4)						
t _{d(on)}	Turn-on Delay Time	VDD=15V, ID=20A, VGS=10V RG=3Ω	--	7.8	--	nS
t _r	Turn-on Rise Time		--	11	--	nS
t _{d(off)}	Turn-off Delay Time		--	65	--	nS
t _f	Turn-off Fall Time		--	22	--	nS
Source- Drain Diode Characteristics@ TJ = 25°C (unless otherwise stated)						
V _{SD}	Forward on voltage	IS=20A,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.
- Pulse Test: pulse width ≤ 300 us, duty cycle ≤ 2%.
- Guaranteed by design, not subject to production testing.



Typical Characteristics

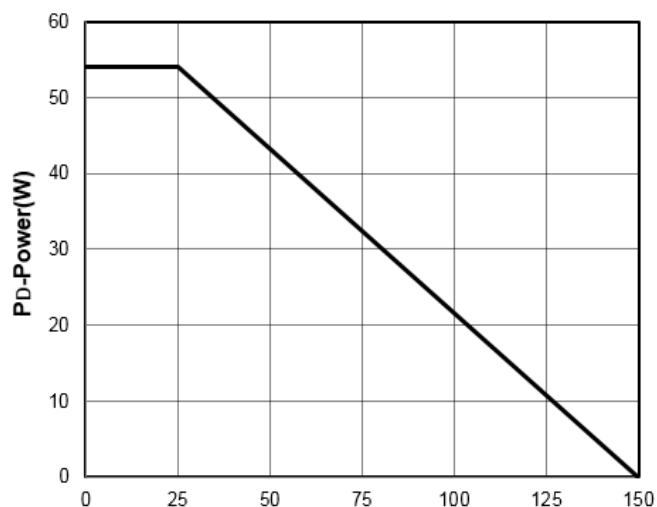


Figure1: T_j Junction Temperature (°C)

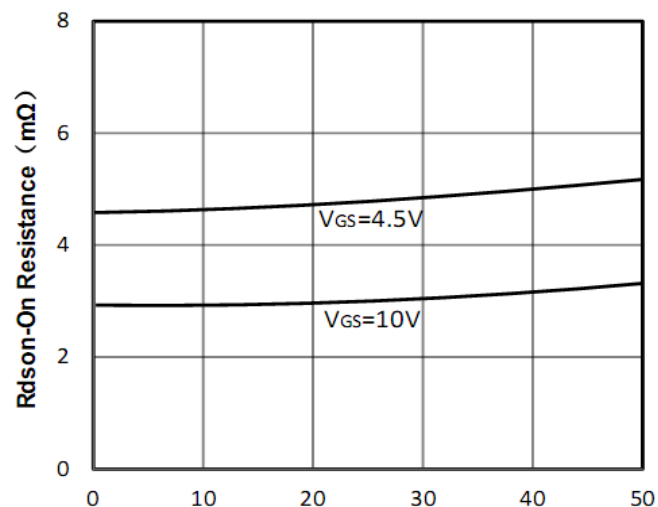


Figure2: I_d Drain Current (A)

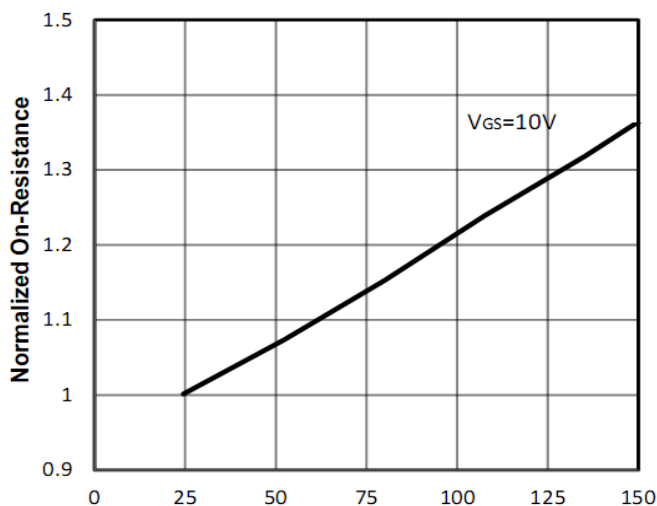


Figure3: T_j Junction Temperature (°C)

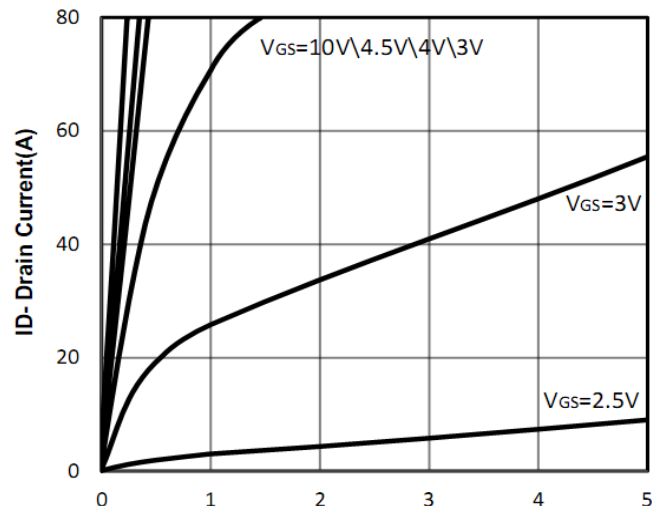


Figure4: V_{DS} Drain-Source Voltage (V)

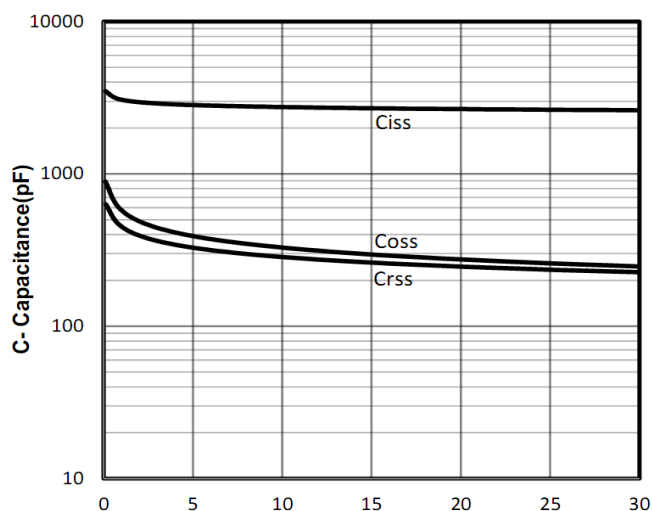


Figure5: V_{DS} Drain-Source Voltage (V)

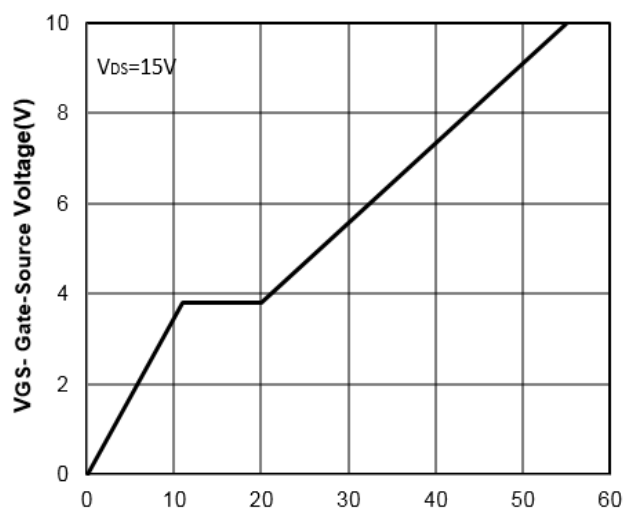


Figure6: Q_g Gate Charge (nC)



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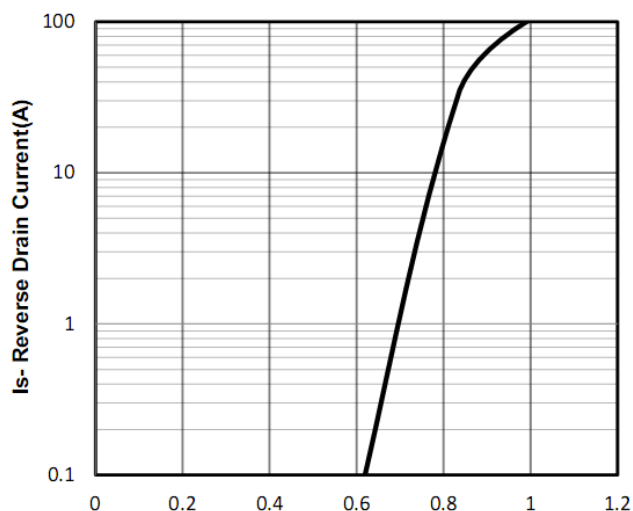


Figure7: Vsd Source-Drain Voltage (V)

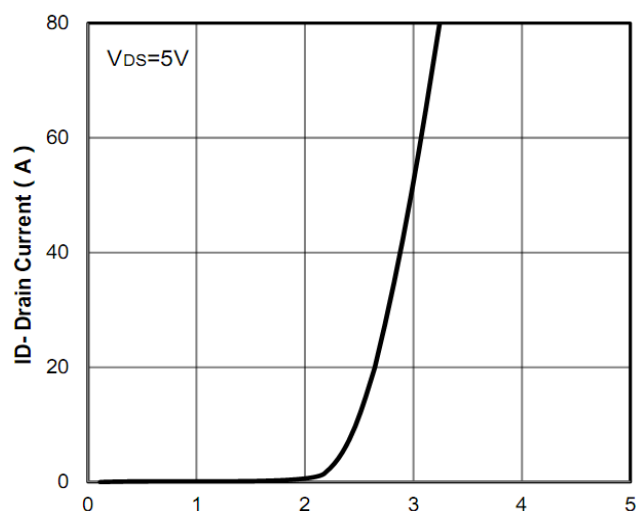


Figure8: Vgs Gate-Source Voltage (V)

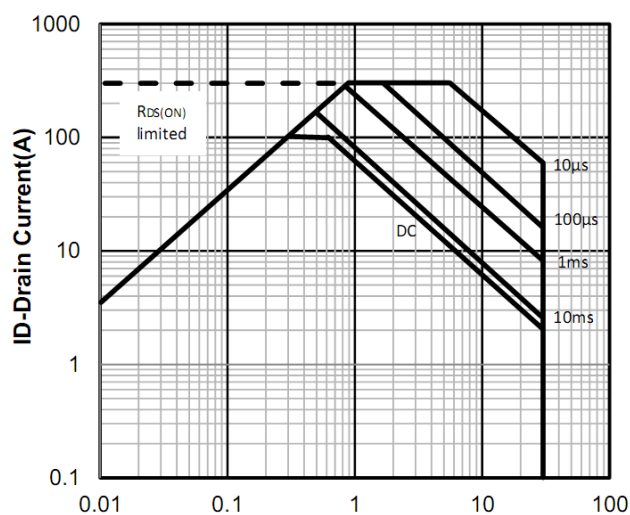


Figure9: VDS Drain -Source Voltage (V)

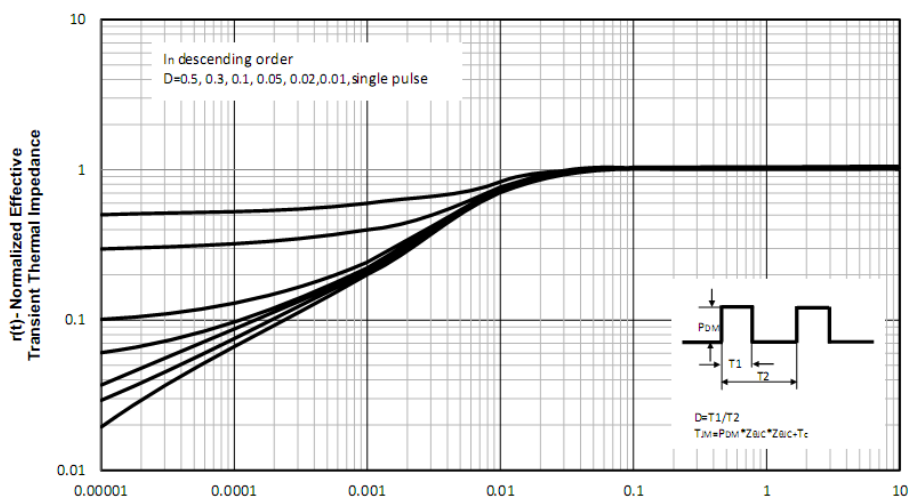
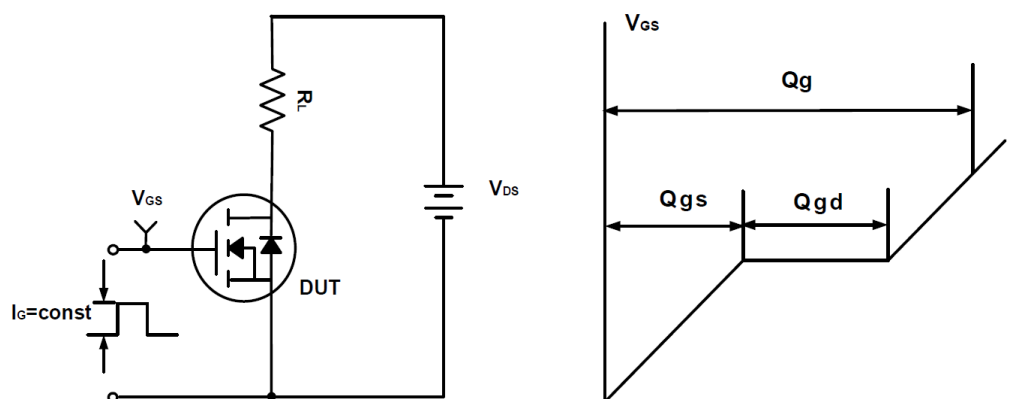
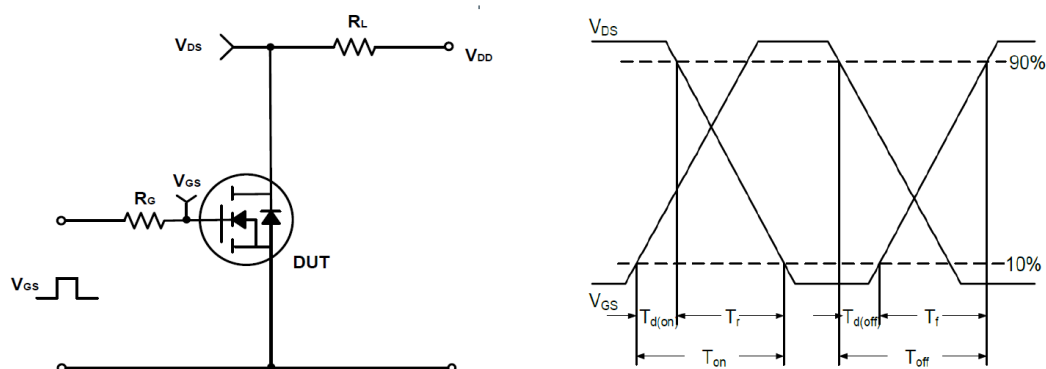
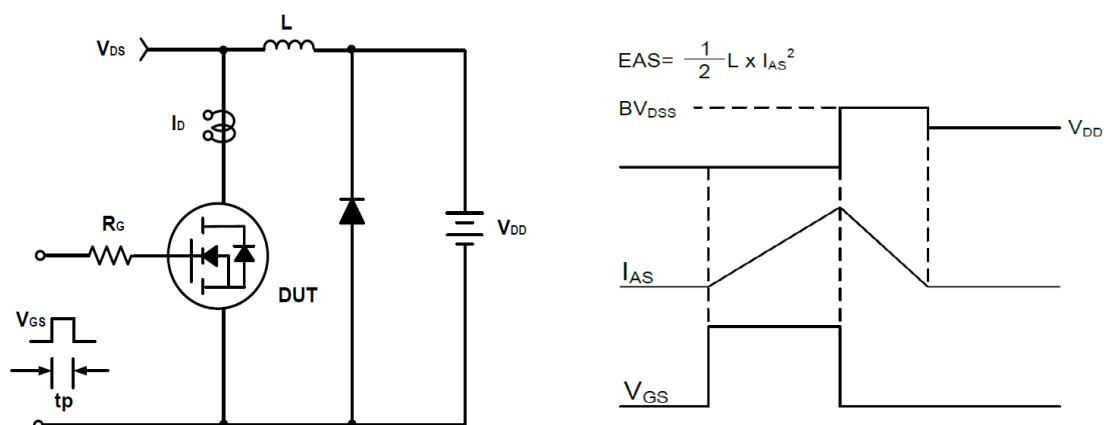
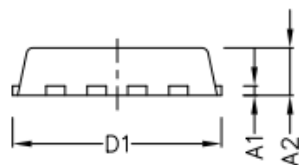
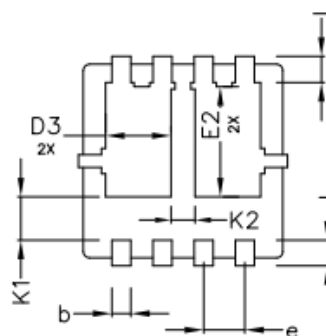
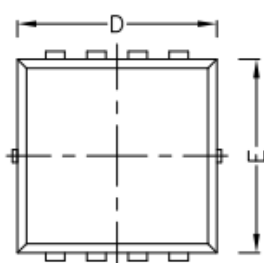
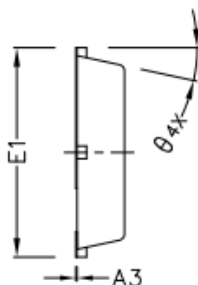
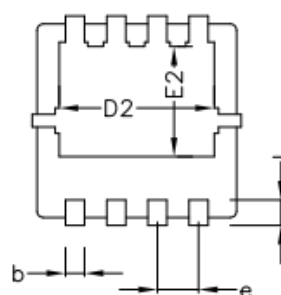


Figure10: Square Wave Pulse Duration (sec)

**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		