



-30V/-7A P-Channel Advanced Power MOSFET

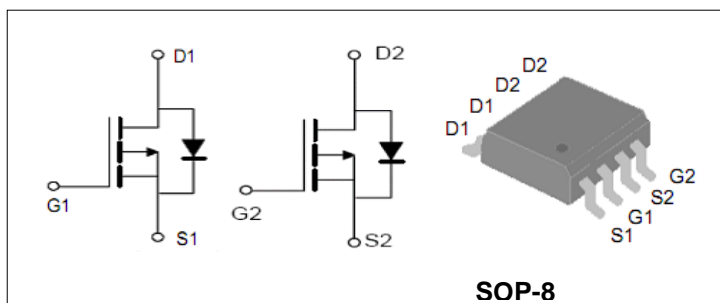
Features

- Improved dv/dt Capability, High Ruggedness.
- Maximum Junction Temperature Range (150°C)

BVDSS	-30	V
ID@TC =25°C	-7	A
RDSON@VGS=-10V	21	mΩ
RDSON@VGS=-4.5V	30	mΩ

Applications

- PWM applications
- Load switch
- Power management



Order Information

Product	Package	Marking	Reel Size	Reel	Carton
PTS4813	SOP-8	PTS4813	13inch	3000PCS	48000PCS

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	TA =25°C	-5	A
Mounted on Large Heat Sink				
I _{DM}	Pulse Drain Current Tested (Silicon Limit) (Note1)	TA =25°C	-26	A
I _D	Continuous Drain current	TA =25°C	-7	A
P _D	Maximum Power Dissipation	TA =25°C	2	W
R _{θJA}	Thermal Resistance Junction-to-Ambient (Note2)		62.5	°C/W

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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 TC =25°C	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	-1.6	-2.5	V
R _{DS(ON)}	Drain-Source On-State Resistance (Note3)	VGS=-10V, ID=-7A	--	21	30	mΩ
		VGS=-4.5V, ID=-5.6A	--	30	42	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated) (Note4)						
C _{iss}	Input Capacitance	VDS= -15V, VGS=0V, F=1MHz	--	480	--	pF
C _{oss}	Output Capacitance		--	90	--	pF
C _{rss}	Reverse Transfer Capacitance		--	50	--	pF
Q _g	Total Gate Charge	VDS= -15V, ID= -3A, VGS= -4.5V	--	12	--	nC
Q _{gs}	Gate-Source Charge		--	3.5	--	nC
Q _{gd}	Gate-Drain Charge		--	2.8	--	nC
Switching Characteristics (Note4)						
t _{d(on)}	Turn-on Delay Time	VDD=-20V, ID=-6A, RG=3.3Ω, VGS=-4.5V	--	8	--	nS
t _r	Turn-on Rise Time		--	5	--	nS
t _{d(off)}	Turn-off Delay Time		--	22	--	nS
t _f	Turn-off Fall Time		--	8.5	--	nS
Source- Drain Diode Characteristics @ T_J = 25°C (unless otherwise stated)						
V _{SD}	Forward on voltage (Note3)	IS=-2A,VGS=0V	--	--	-1.2	V

Note:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec
3. Pulse Test: pulse width ≤ 300 us, duty cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.



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Typical Characteristics

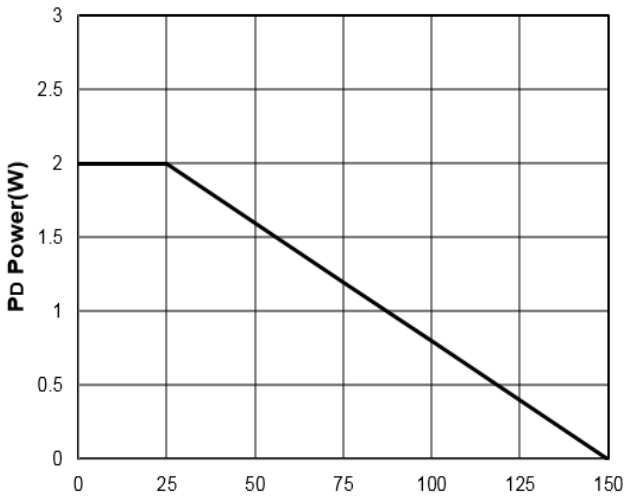


Figure1: Tj Junction Temperature (°C)

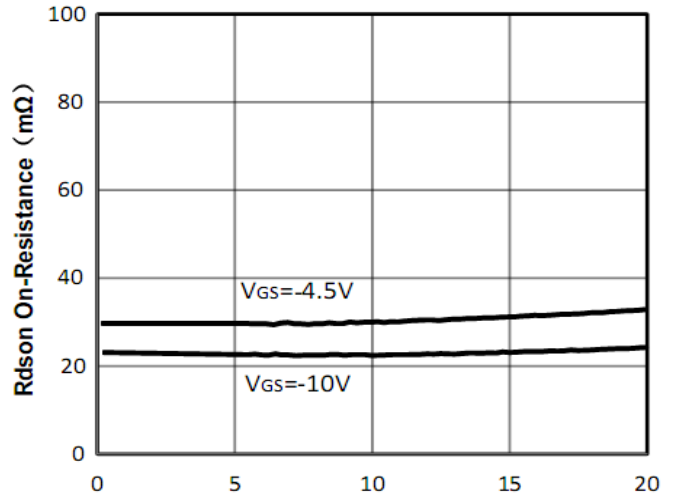


Figure2: -Id Drain Current (A)

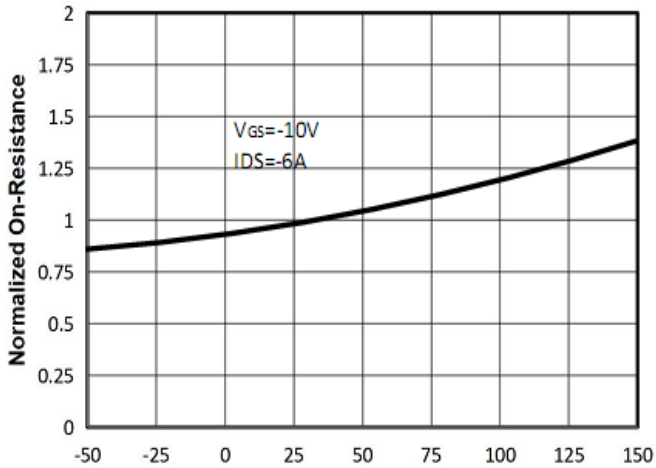


Figure3: Tj Junction Temperature (°C)

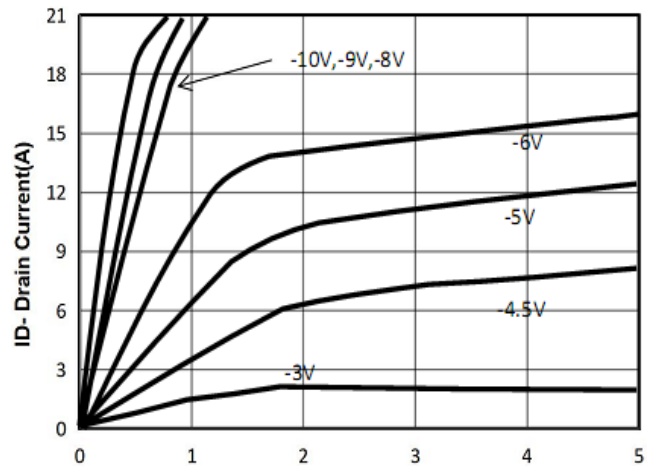


Figure4: -Vds Drain-Source Voltage (V)

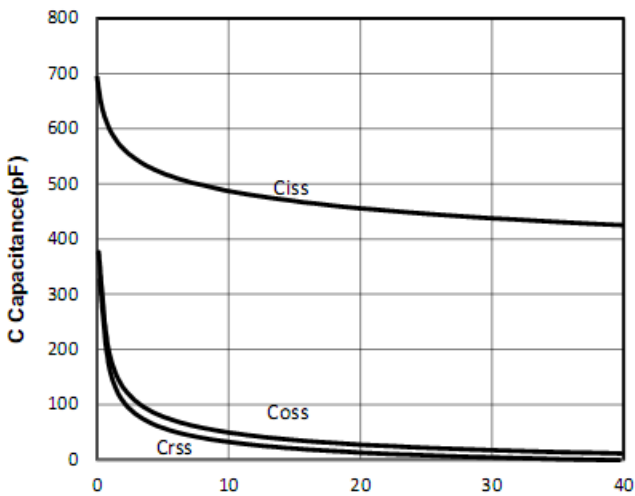


Figure5: -Vds Drain-Source Voltage (V)

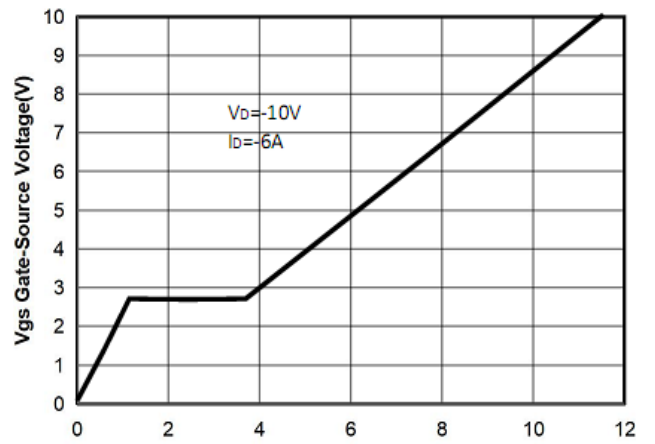


Figure6: Qg Gate Charge (nC)



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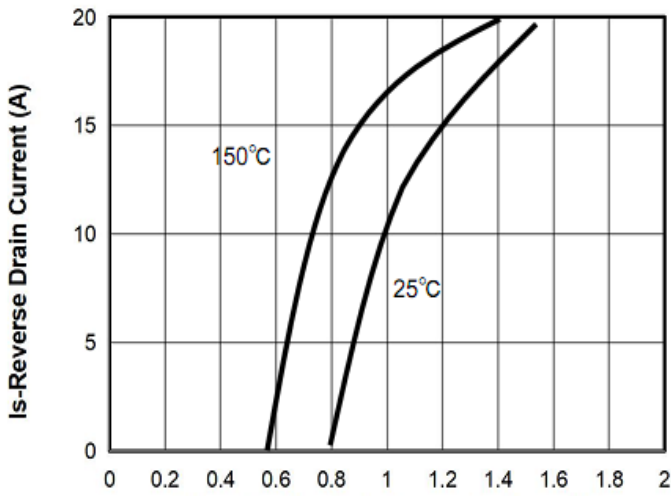


Figure7: -Vsd Source-Drain Voltage (V)

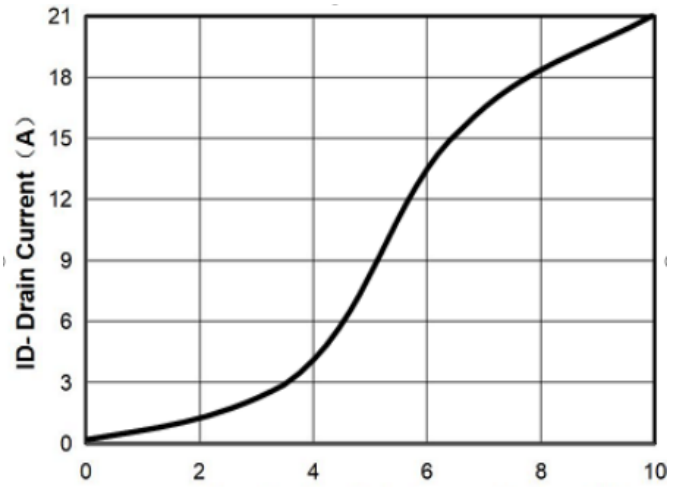


Figure8: -Vgs Gate-Source Voltage (V)

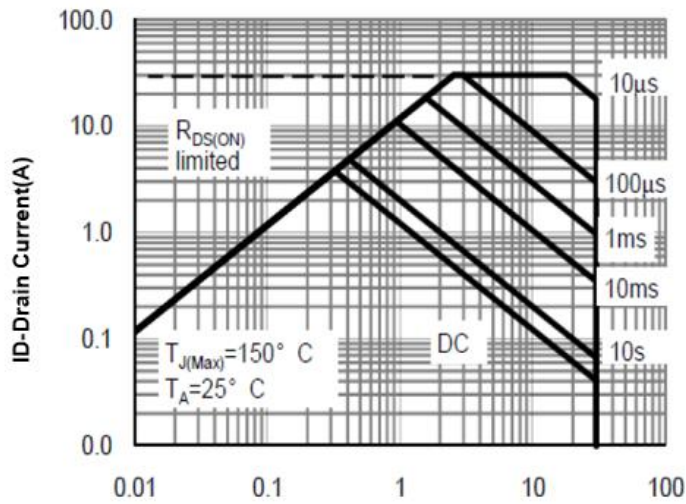


Figure9: -VDS Drain -Source Voltage (V)

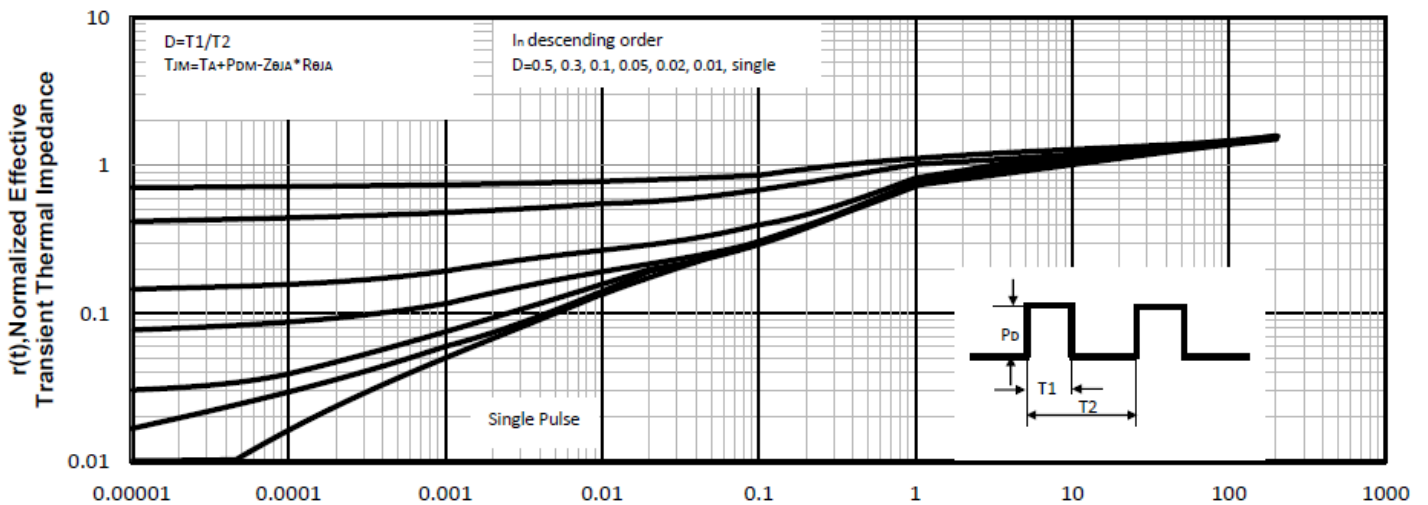


Figure10: Square Wave Pulse Duration (sec)

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Test Circuit and Waveform:

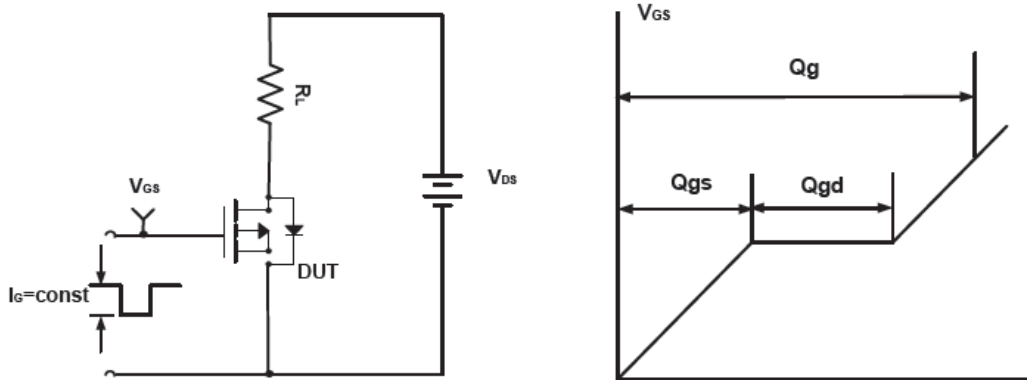


Figure A Gate Charge Test Circuit & Waveforms

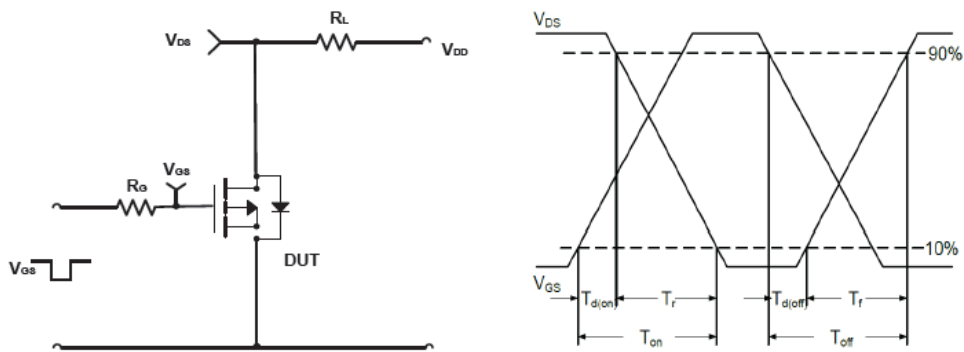


Figure B Switching Test Circuit & Waveforms

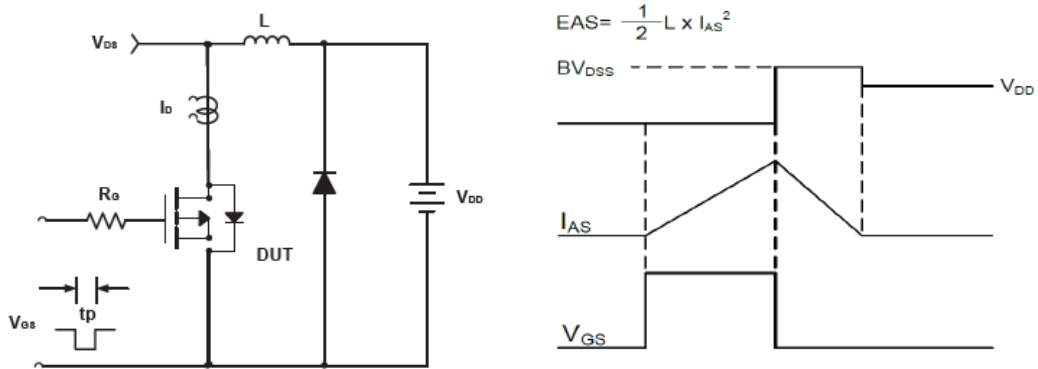
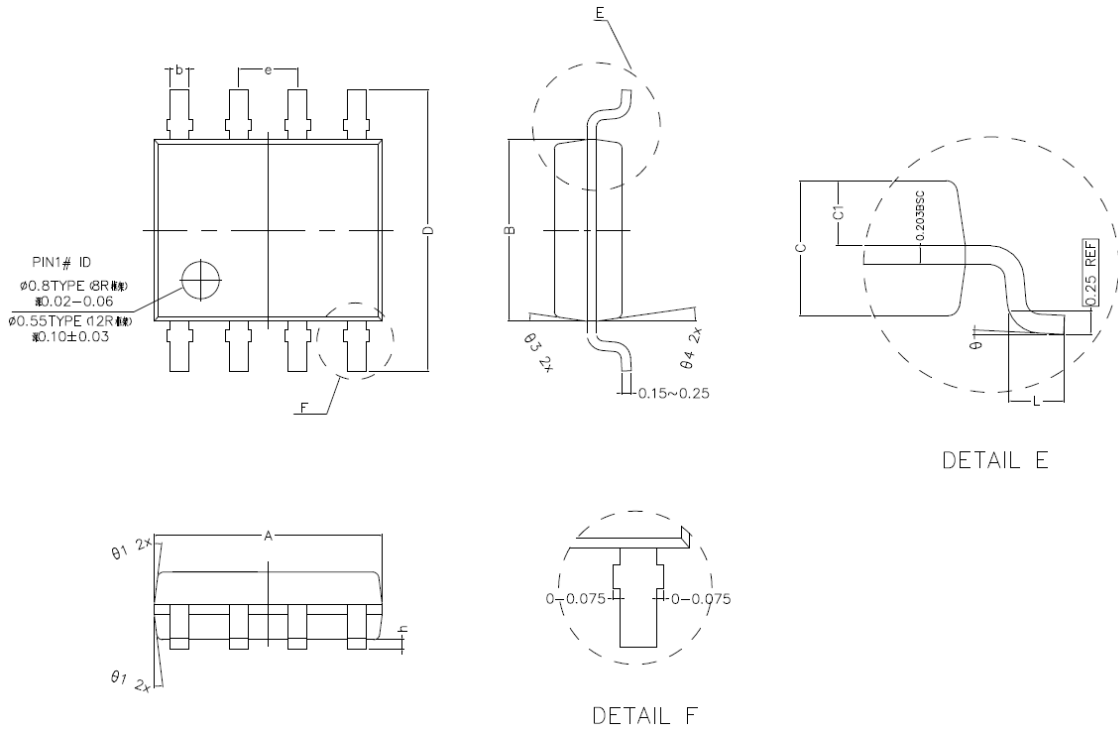


Figure C Unclamped Inductive Switching Circuit & Waveforms

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SOP-8 Package Outline Dimensions (Units: mm)


COMMON DIMENSIONS (UNITS OF MEASURE IS mm)			
	MIN	NORMAL	MAX
A	4.800	4.900	5.000
B	3.800	3.900	4.000
C	1.350	1.450	1.550
C1	0.650	0.700	0.750
D	5.900	6.100	6.300
L	0.500	0.600	0.700
b	0.350	0.400	0.450
h	0.050	0.150	0.250
e	1.270TYPE		
θ_1	7° TYPE(8R)		12° TYPE(12R)
θ_2	7° TYPE(8R)		10° TYPE(12R)
θ_3	8° TYPE(8R)		12° TYPE(12R)
θ_4	8° TYPE(8R)		10° TYPE(12R)
θ	0° ~ 8°		