



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

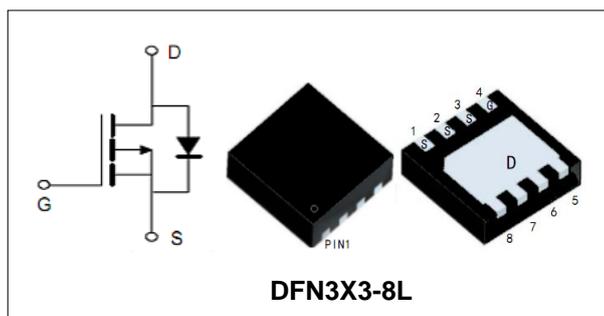
Features

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

BVDSS	-30	V
ID	-30	A
RDSON@VGS=10V	12.4	mΩ
RDSON@VGS=4.5V	16.5	mΩ

Applications

- Power Management
- Load Switch
- PWM Applications



Order Information

Product	Package	Marking	Reel Size	Reel	Carton
PTM30P30F8	DFN3X3-8L	M30P30F8	7inch	3000PCS	120000PCS

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	-30	A
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested (Silicon Limit) (Note1)	TC =25°C	-100	A
I_D	Continuous Drain current	TC =25°C	-30	A
P_D	Maximum Power Dissipation	TC =25°C	30	W
$R_{\theta JC}$	Thermal Resistance Junction-to-Case		4.17	°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	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 (Note2)	VGS= -10V, ID= -20A	--	12.4	17	mΩ
		VGS= -4.5V, ID= -15A	--	16.5	24	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated) (Note3)						
C _{iss}	Input Capacitance	VDS= -15V, VGS=0V, F=1MHz	--	2363	--	pF
C _{oss}	Output Capacitance		--	201	--	pF
C _{rss}	Reverse Transfer Capacitance		--	189	--	pF
Q _g	Total Gate Charge	VDS= -15V, ID= -10A, VGS= -10V	--	40	--	nC
Q _{gs}	Gate-Source Charge		--	7	--	nC
Q _{gd}	Gate-Drain Charge		--	8	--	nC
Switching Characteristics (Note3)						
t _{d(on)}	Turn-on Delay Time	VDD= -15V, ID=-10A, RG=2.4Ω, VGS= -10V	--	10	--	nS
t _r	Turn-on Rise Time		--	60	--	nS
t _{d(off)}	Turn-off Delay Time		--	52	--	nS
t _f	Turn-off Fall Time		--	72	--	nS
Source- Drain Diode Characteristics @ T_J = 25°C (unless otherwise stated)						
V _{SD}	Forward on voltage	IS=-20A,VGS=0V	--	--	1.2	V

Note:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Pulse Test: pulse width ≤ 300 us, duty cycle ≤ 2%.
3. Guaranteed by design, not subject to production testing.



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Typical Characteristics

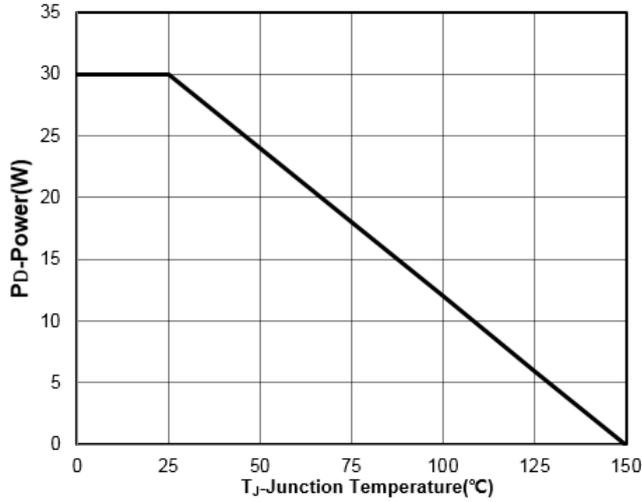


Figure1: Power De-rating

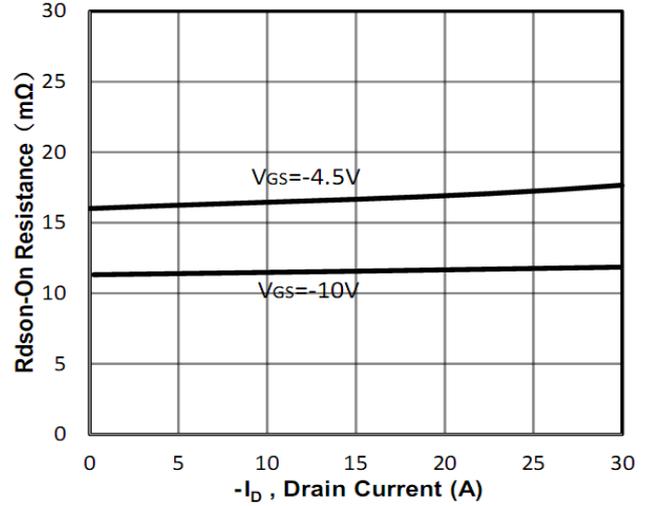


Figure2: Rdson- Drain Current

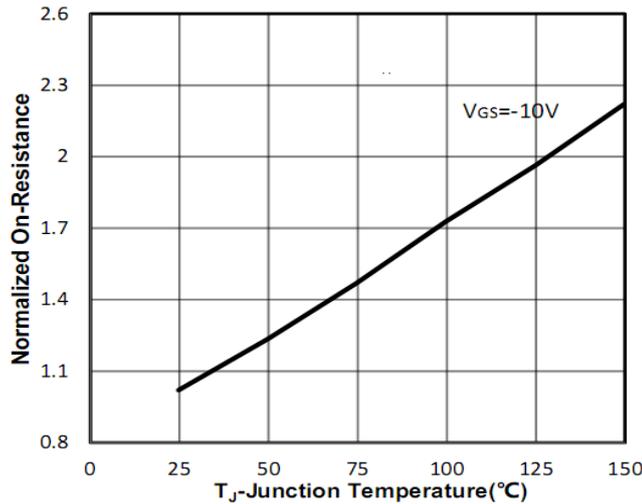


Figure3: Rdson-Junction Temperature

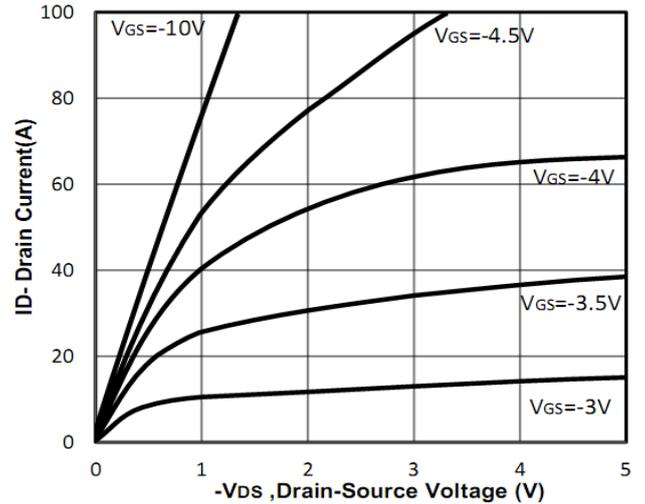


Figure4: Output Characteristics

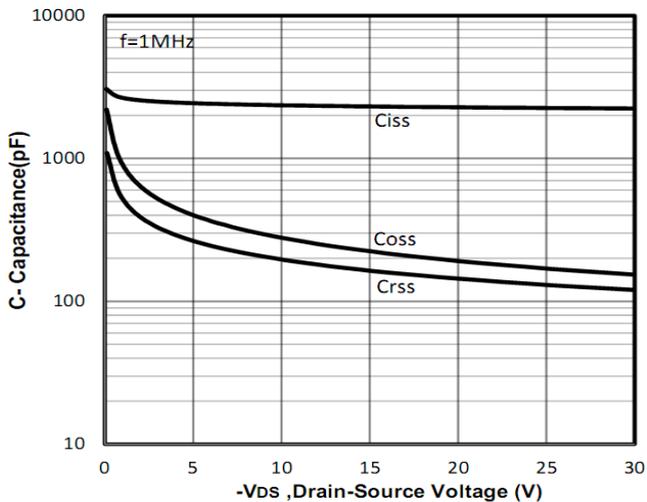


Figure5: Capacitance vs VDS

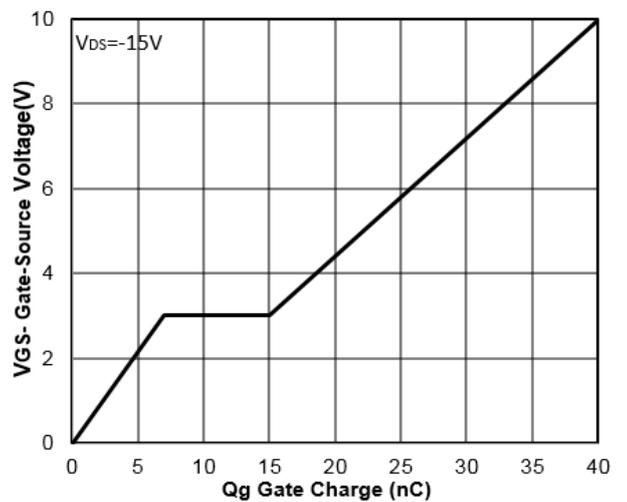


Figure6: Gate Charge



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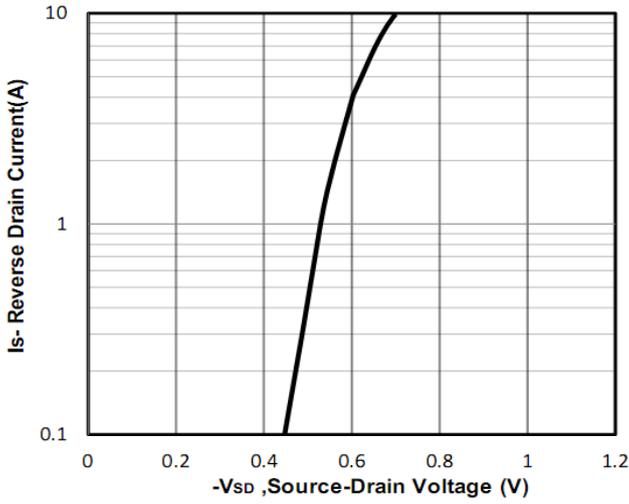


Figure7: Source- Drain Diode Forward

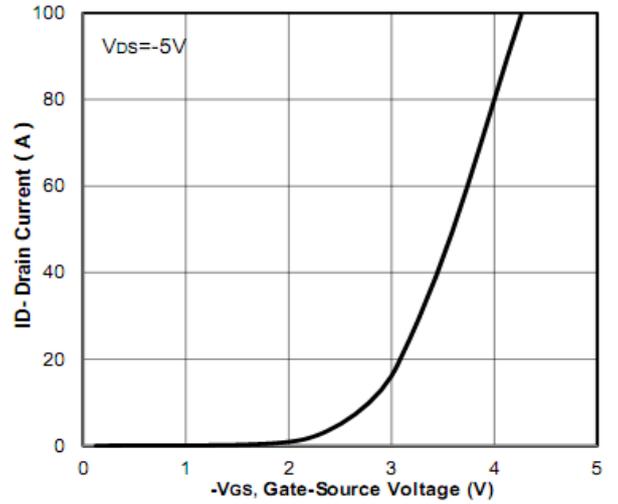


Figure8: Transfer Characteristics

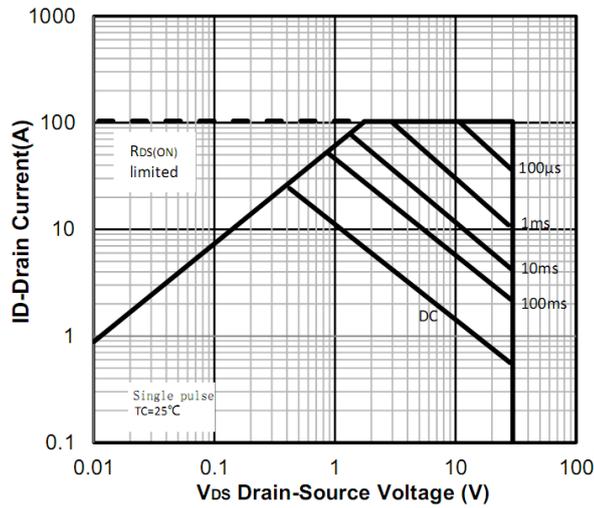


Figure9: Safe Operation Area

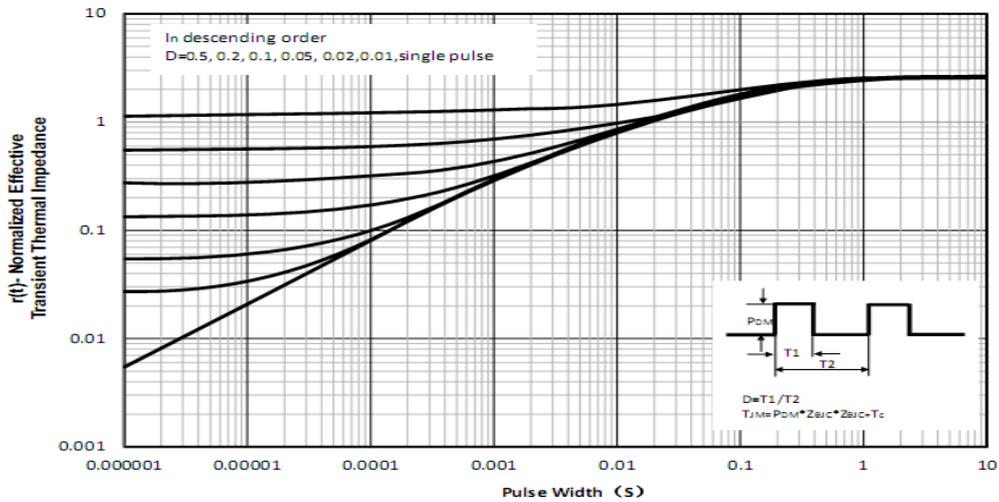


Figure10: Normalized Maximum Transient Thermal Impedance

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Test Circuit and Waveform:

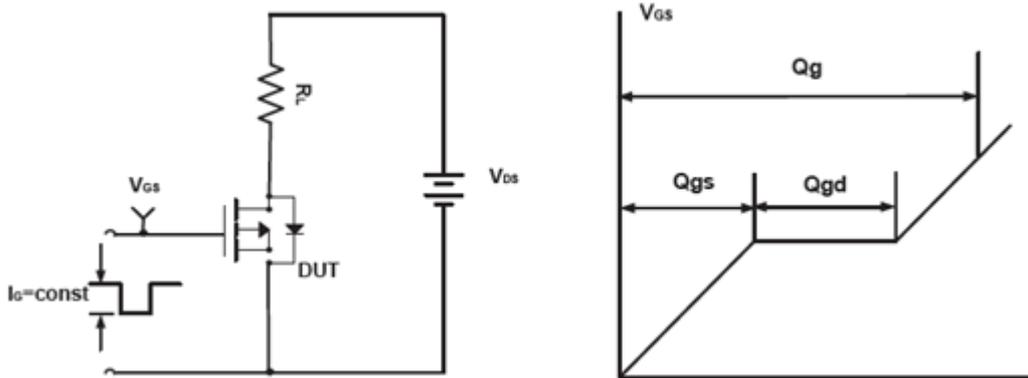


Figure A Gate Charge Test Circuit & Waveforms

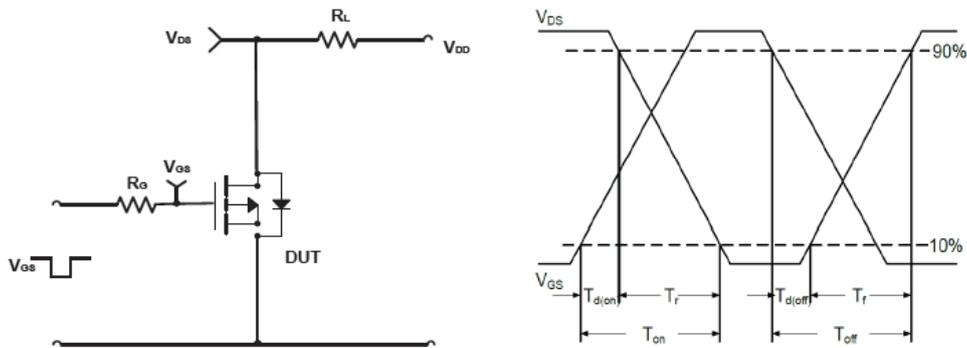
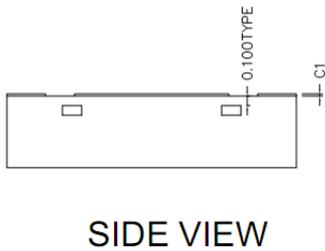
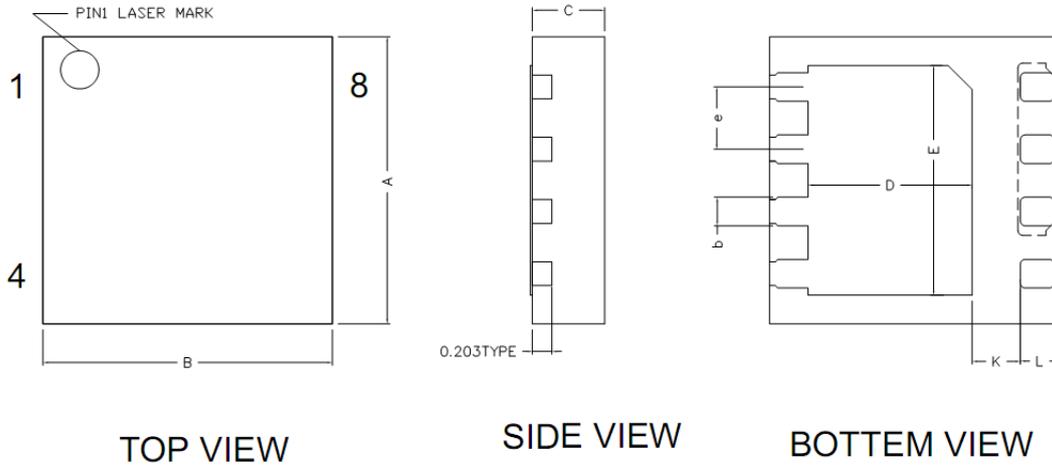


Figure B Switching Test Circuit & Waveforms



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DFN3X3-8L Package Outline Dimensions (Units: mm)



COMMON DIMENSIONS (UNITS OF MEASURE IS mm)			
	MIN	NORMAL	MAX
A	2.900	3.000	3.100
B	2.900	3.000	3.100
C	0.700	0.750	0.800
C1	0.005	—	0.020
D	1.600	1.700	1.800
E	2.300	2.400	2.500
L	0.350	0.400	0.450
b	0.250	0.300	0.350
e	0.650 TYPE		
K	0.500 TYPE		