PTM15P10C6

-15V/-10A P-Channel Advanced Power MOSFET

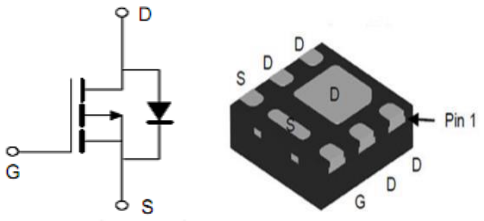
Features

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

BVDSS	-15	V
ID	-10	A
RDSON@VGS=-4.5V	24	mΩ
RDSON@VGS=-2.5V	33	mΩ

Applications

- Battery protection
- Load switch
- Power management



DFN2X2-6L

Order Information

Product	Package	Marking	Reel Size	Reel	Carton
PTM15P10C6	DFN2X2-6L	PTM15P10	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		-15	V
V_{GS}	Gate-Source Voltage		±12	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	-10	A
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested (Note1)	TC =25°C	-40	A
I_D	Continuous Drain current	TC =25°C	-10	A
P_D	Maximum Power Dissipation	TC =25°C	3.8	W
$R_{\theta JC}$	Thermal Resistance Junction−to− Case		33	°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	-15	--	--	V
I_{DSS}	Zero Gate Voltage Drain current	VDS=-15V,VGS=0V	--	--	-1	μA
I_{GSS}	Gate-Body Leakage Current	VGS=±12V,VDS=0V	--	--	±100	nA
$V_{GS(TH)}$	Gate Threshold Voltage	VDS=VGS,ID=-250μA	-0.4	--	-1	V
$R_{DS(ON)}$	Drain-Source On-State Resistance (Note2)	VGS=-4.5V, ID=-5A	--	24	30	mΩ
		VGS=-2.5V, ID=-3A	--	33	42	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated) (Note3)						
C_{iss}	Input Capacitance	VDS= -10V, VGS=0V, f=1MHz	--	670	--	pF
C_{oss}	Output Capacitance		--	148	--	pF
C_{rss}	Reverse Transfer Capacitance		--	120	--	pF
Q_g	Total Gate Charge	VDS= -10V, ID= -5A, VGS= -4.5V	--	15	--	nC
Q_{gs}	Gate-Source Charge		--	1.8	--	nC
Q_{gd}	Gate-Drain Charge		--	2.8	--	nC
Switching Characteristics (Note3)						
$t_{d(on)}$	Turn-on Delay Time	VDD=-10V, ID=-5A, RG=3Ω, VGS= -4.5V	--	4.5	--	nS
t_r	Turn-on Rise Time		--	9.2	--	nS
$t_{d(off)}$	Turn-off Delay Time		--	18.7	--	nS
t_f	Turn-off Fall Time		--	3.3	--	nS
Source- Drain Diode Characteristics@ TJ = 25°C (unless otherwise stated)						
V_{SD}	Forward on voltage	IS=-5A,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

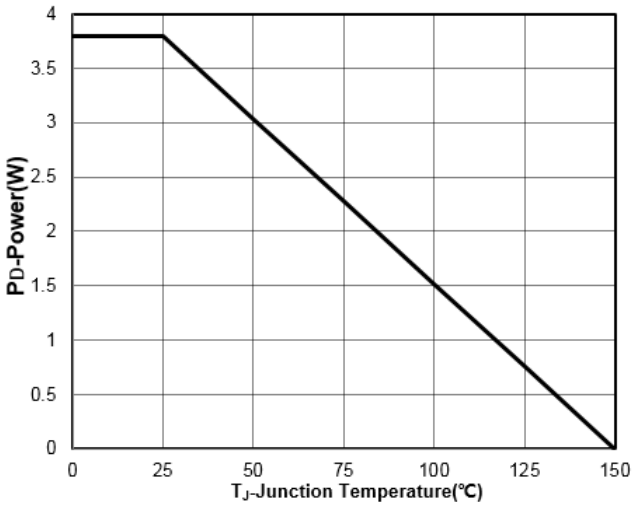

Figure1：Power De-rating

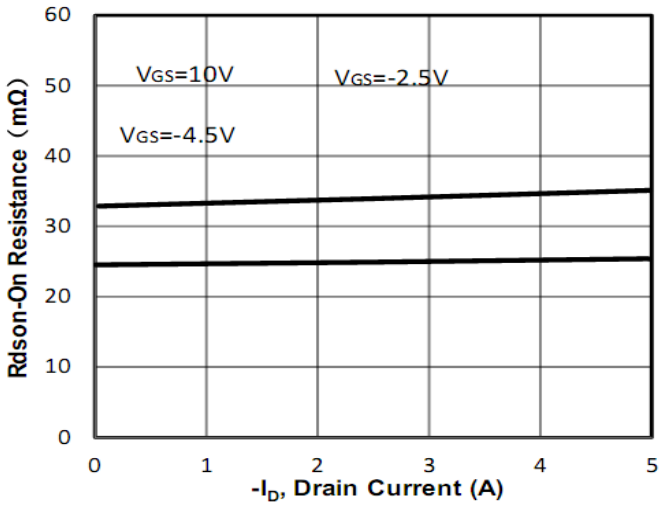

Figure2：Rdson- Drain Current

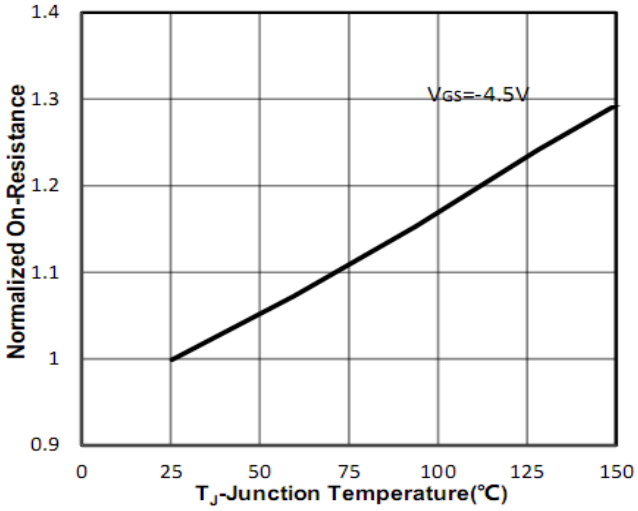

Figure3：Rdson-Junction Temperature

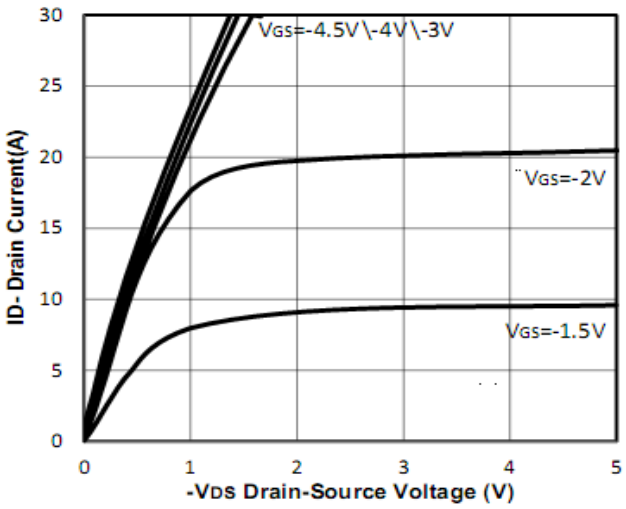

Figure4： Output Characteristics

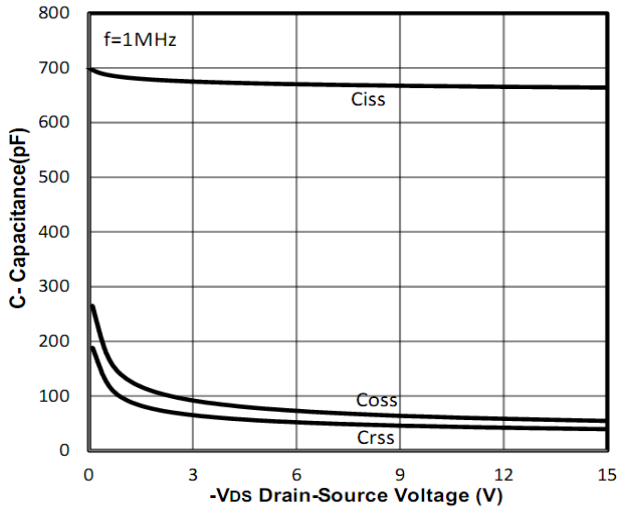

Figure5：Capacitance vs VDS

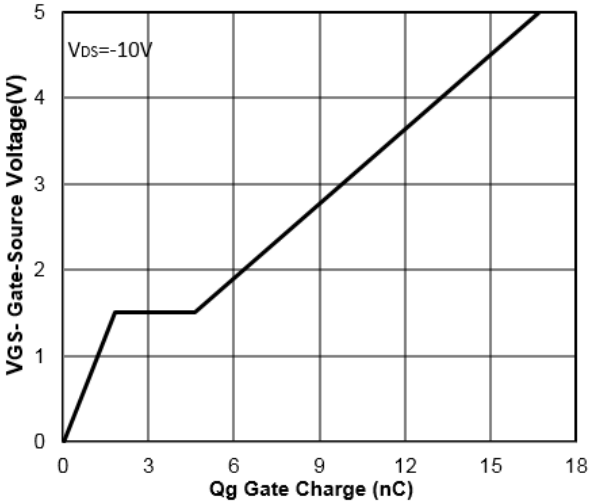

Figure6：Gate Charge

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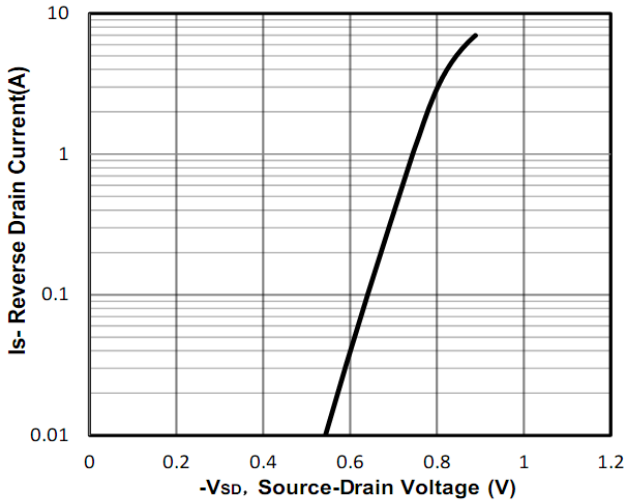

Figure7：Source- Drain Diode Forward

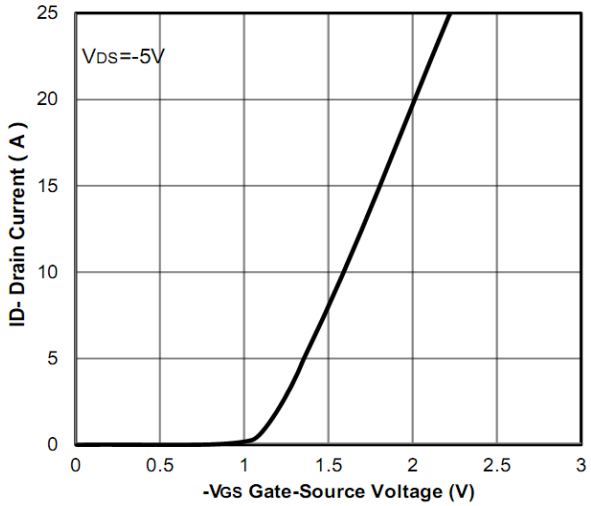

Figure8：Transfer Characteristics

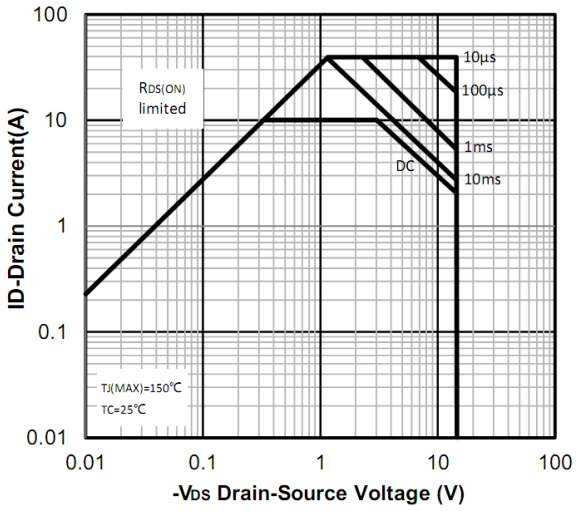

Figure9：Safe Operation Area

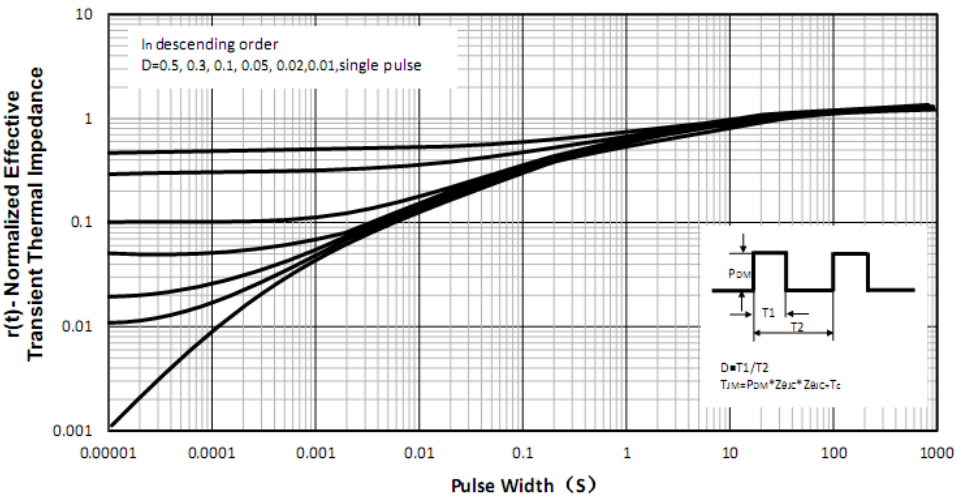

Figure10：Normalized Maximum Transient Thermal Impedance

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Test Circuit and Waveform:

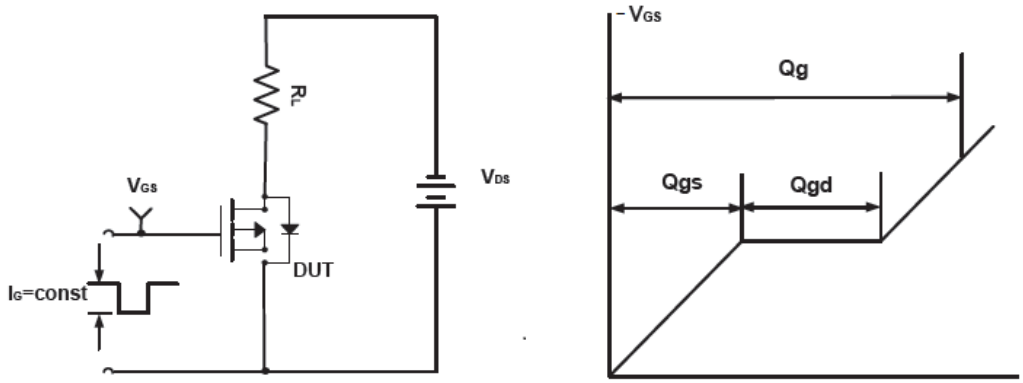

Figure A Gate Charge Test Circuit &Waveforms

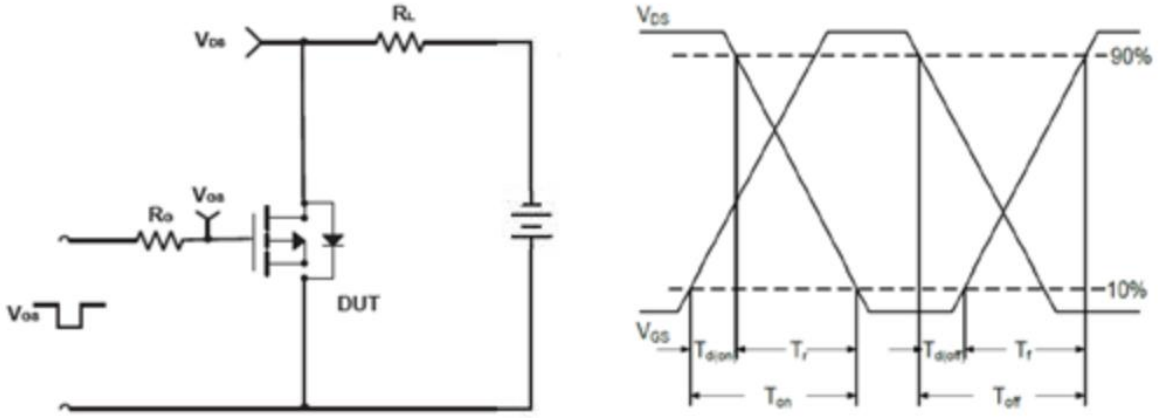

Figure B Switching Test Circuit & Waveforms

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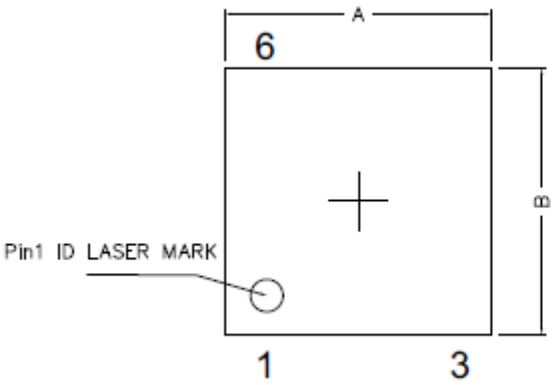
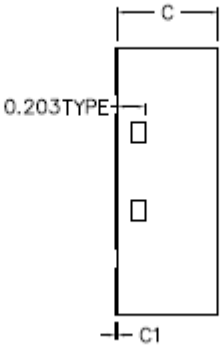
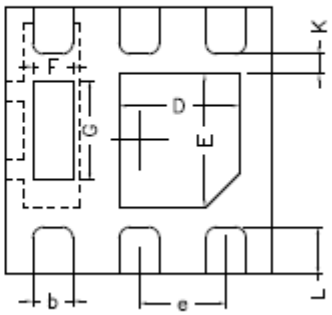
DFN2X2-6L Package Outline Dimensions (Units: mm)



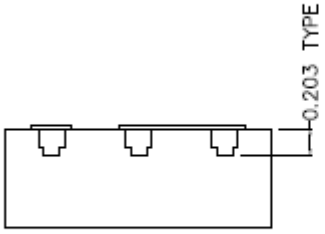
TOP VIEW



SIDE VIEW



BOTTEM VIEW



SIDE VIEW

COMMON DIMENSIONS (UNITS OF MEASURE IS mm)			
	MIN	NORMAL	MAX
A	1.900	2.000	2.100
B	1.900	2.000	2.100
C	0.700	0.750	0.800
C1	0.005	–	0.020
D	0.850	0.900	0.950
E	0.950	1.000	1.050
F	0.250	0.300	0.350
G	0.700	0.750	0.800
L	0.300	0.350	0.400
b	0.250	0.300	0.350
K	0.150 TYPE		
e	0.650 TYPE		