30V/10A N-Channel Advanced Power MOSFET

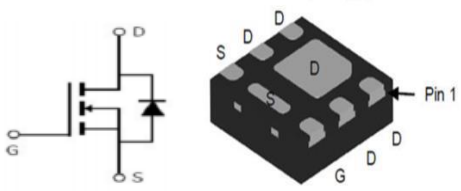
Features

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

BVDSS	30	V
ID	10	A
RDSON@VGS=10V	9.4	mΩ
RDSON@VGS=4.5V	12.5	mΩ

Applications

- Battery protection
- Load switch
- Power management



DFN2X2-6L

Order Information

Product	Package	Marking	Reel Size	Reel	Carton
PTM3010	DFN2X2-6L	PTM3010	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	10	A
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested (Sillicon Limit) (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	W
$R_{\theta JC}$	Thermal Resistance Junction−to−Case (Note2)		41.67	°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=7A	--	9.4	12	mΩ
		VGS=4.5V, ID=5A	--	12.5	16	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated) (Note4)						
C_{iss}	Input Capacitance	VDS= 15V, VGS= 0V, F= 1MHz	--	1070	--	pF
C_{oss}	Output Capacitance		--	163	--	pF
C_{rss}	Reverse Transfer Capacitance		--	139	--	pF
Q_g	Total Gate Charge	VDS= 15V, ID= 5A, VGS= 10V	--	12	--	nC
Q_{gs}	Gate-Source Charge		--	3	--	nC
Q_{gd}	Gate-Drain Charge		--	4	--	nC
Switching Characteristics (Note4)						
$t_{d(on)}$	Turn-on Delay Time	VDD= 15V, ID= 5A, RG= 1.8Ω, VGS= 10V	--	6	--	nS
t_r	Turn-on Rise Time		--	11	--	nS
$t_{d(off)}$	Turn-off Delay Time		--	12	--	nS
t_f	Turn-off Fall Time		--	5	--	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. 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

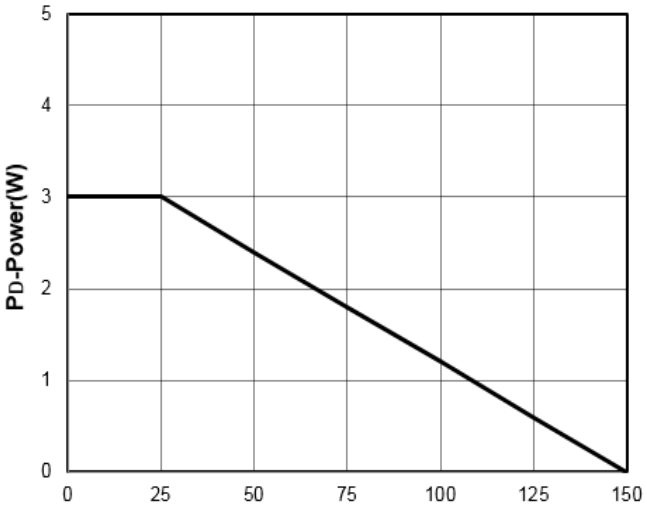


Figure1：T_J -Junction Temperature（°C）

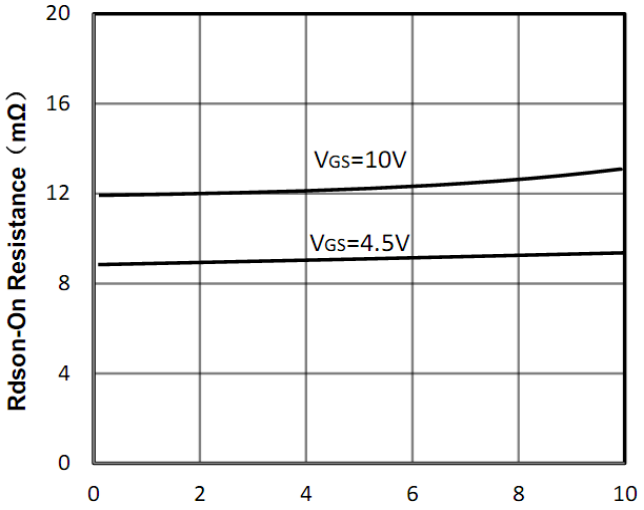


Figure2：I_D -Drain Current（A）

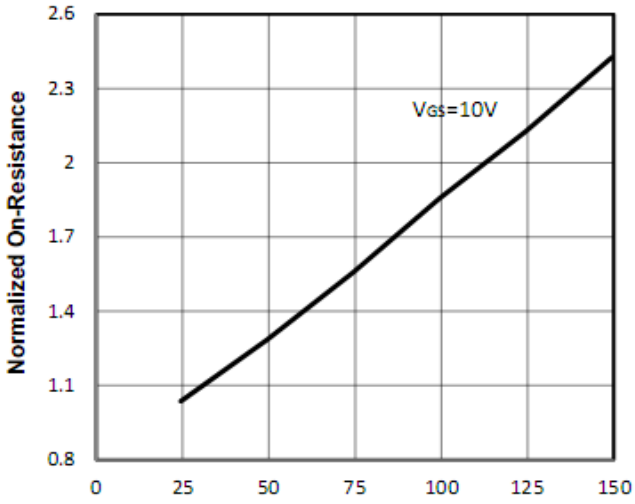


Figure3：T_J Junction Temperature（°C）

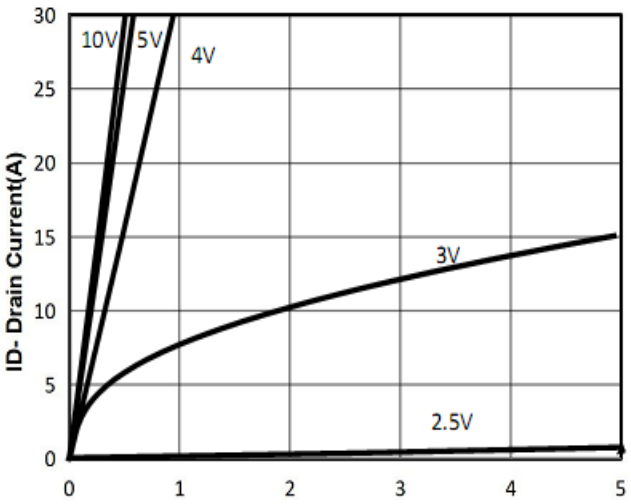


Figure4：V_{DS} –Drain Source Voltage（V）

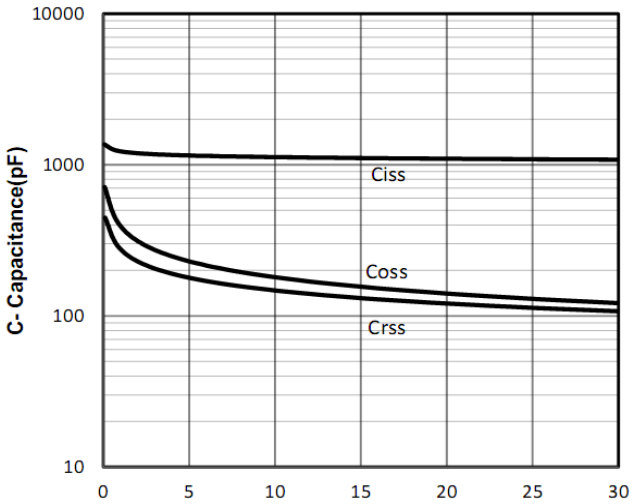


Figure5：V_{DS} -Drain Source Voltage（V）

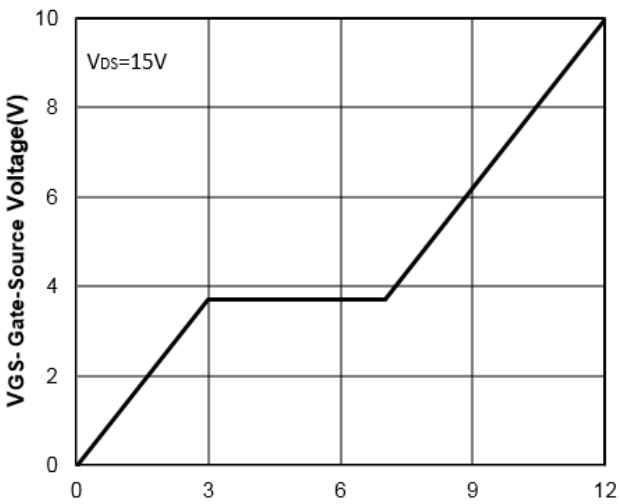


Figure6：Qg -Gate Charge（nC）

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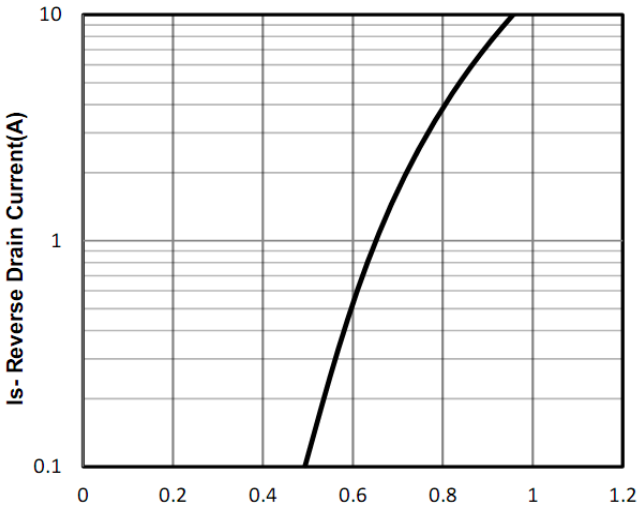


Figure7：Vsd -Source Drain Voltage（V）

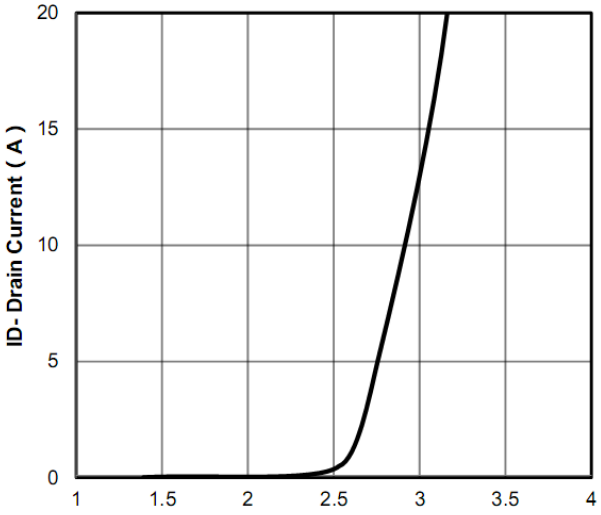


Figure8：Vgs -Gate Source Voltage（V）

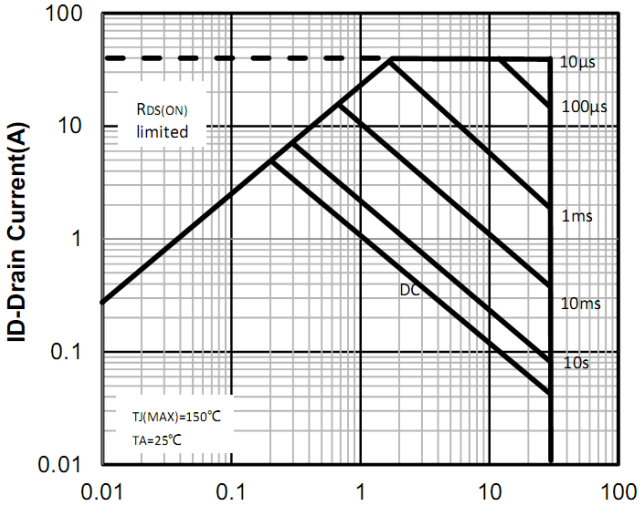


Figure9：VDS- Drain Source Voltage（V）

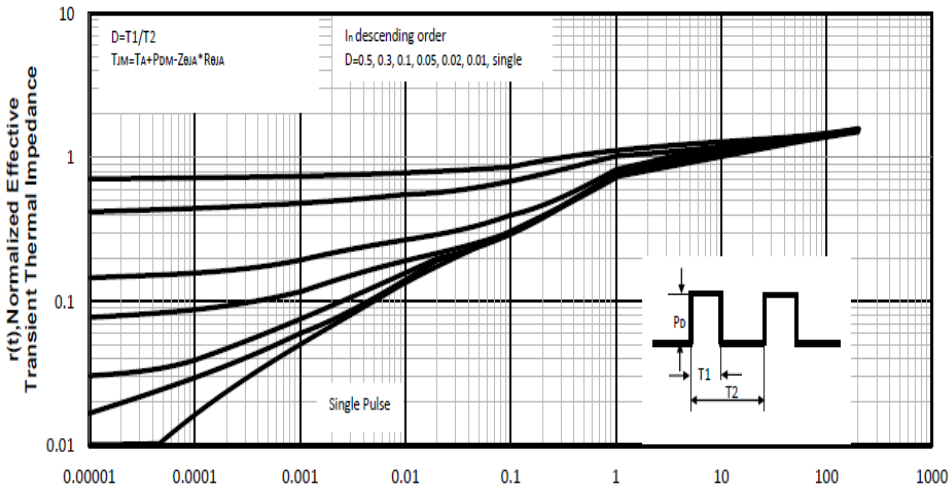


Figure10：Square Wave Pulse Duration（sec）

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Test Circuit and Waveform:

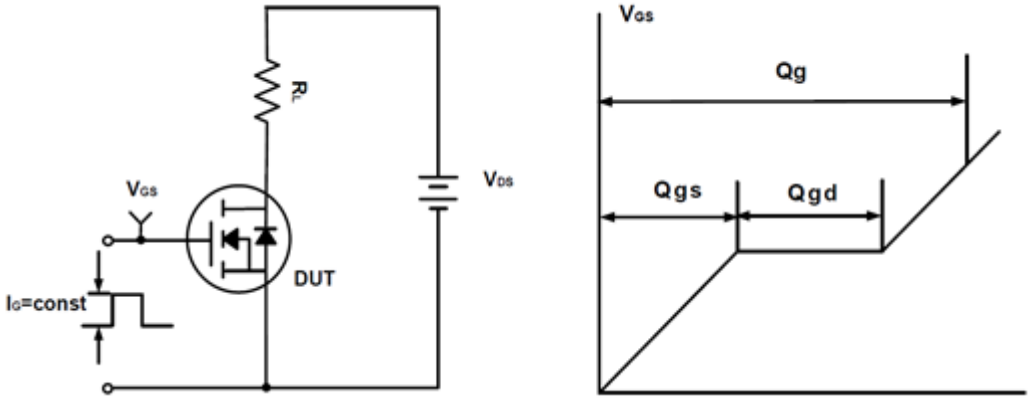


Figure A Gate Charge Test Circuit &Waveforms

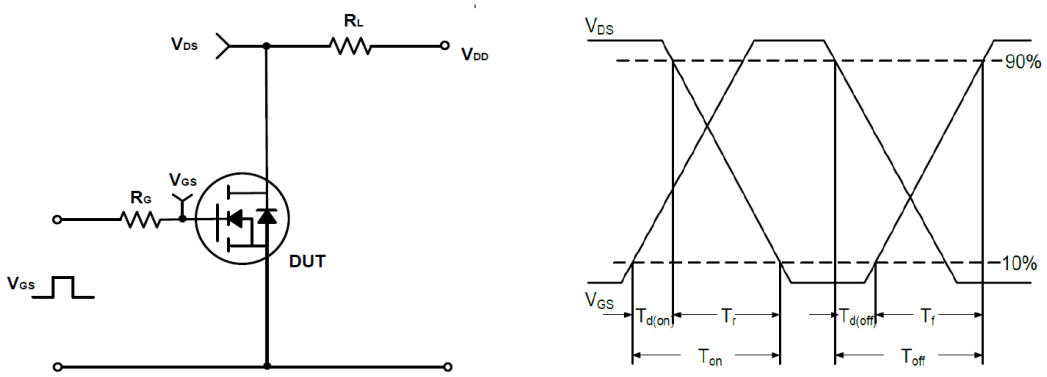
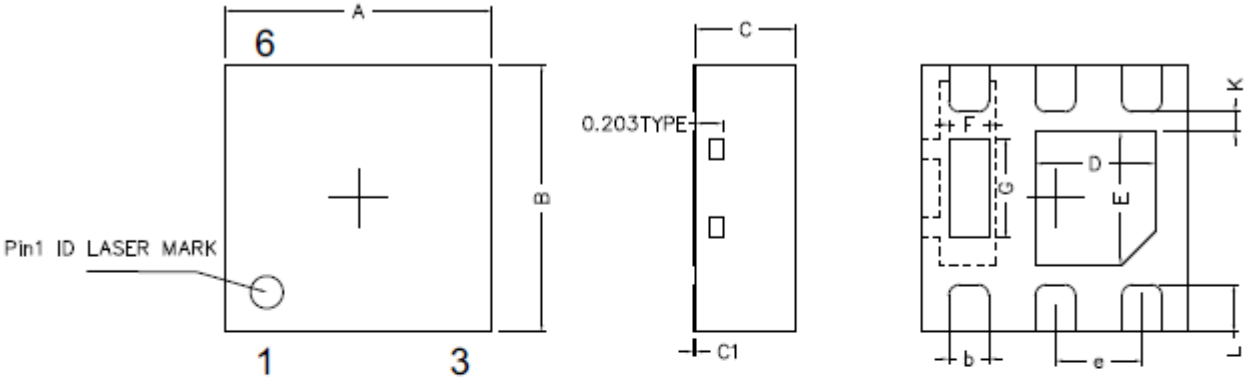


Figure B Switching Test Circuit & Waveforms

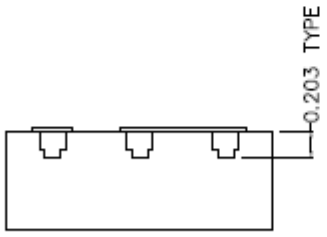
DFN2X2-6L Package Outline Dimensions (Units: mm)



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		