30V/28A Dual N-Channel Advanced Power MOSFET

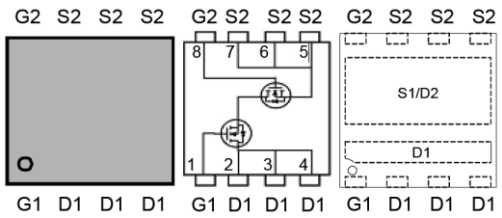
Features

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

BVDSS	30	V
ID	28	A
RDSON@VGS=10V	6.3	mΩ
RDSON@VGS=4.5V	8.3	mΩ

Applications

- Telecom DC/DC
- Synchronous buck converter
- POL



DFN3X3-8L

Order Information

Product	Package	Marking	Reel Size	Reel	Carton
PTM3028DS	DFN3X3-8L	PTM3028DS	7inch	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	28	A
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested (Sillicon Limit) (Note1)	TC =25°C	84	A
I_D	Continuous Drain current	TC =25°C	28	A
P_D	Maximum Power Dissipation	TC =25°C	20	W
$R_{\theta JC}$	Thermal Resistance Junction-to-Case (Note2)		6.25	°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	1.5	2.5	V
$R_{DS(ON)}$	Drain-Source On-State Resistance (Note3)	VGS=10V, ID=13A	--	6.3	9	mΩ
		VGS=4.5V, ID=10A	--	8.3	13	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated) (Note5)						
C_{iss}	Input Capacitance	VDS=15V, VGS=0V, F=1MHz	--	983	--	pF
C_{oss}	Output Capacitance		--	207	--	pF
C_{rss}	Reverse Transfer Capacitance		--	121	--	pF
Q_g	Total Gate Charge	VDS=15V, ID=5A, VGS=10V	--	28	--	nC
Q_{gs}	Gate-Source Charge		--	7	--	nC
Q_{gd}	Gate-Drain Charge		--	5	--	nC
Switching Characteristics (Note5)						
$t_{d(on)}$	Turn-on Delay Time	VDS=20V, ID=10A, RG=3Ω, VGS=10V	--	8	--	nS
t_r	Turn-on Rise Time		--	15	--	nS
$t_{d(off)}$	Turn-off Delay Time		--	27	--	nS
t_f	Turn-off Fall Time		--	7	--	nS
Source- Drain Diode Characteristics@ TJ = 25°C (unless otherwise stated)						
V_{SD}	Forward on voltage	IS=15A,VGS=0V	--	0.85	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. Guranteed by design, not subject to production testing.

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Typical Characteristics

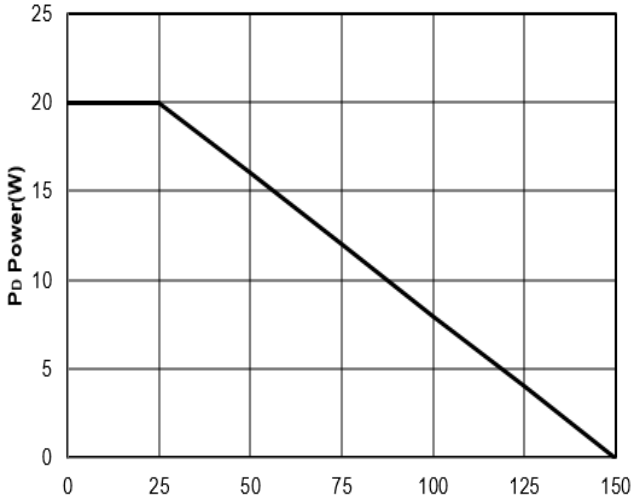

Figure1：T_J Junction Temperature（°C）

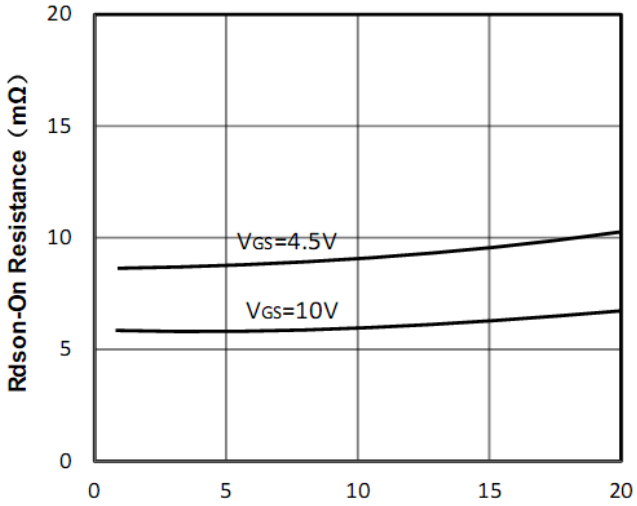

Figure2：I_D Drain Current（A）

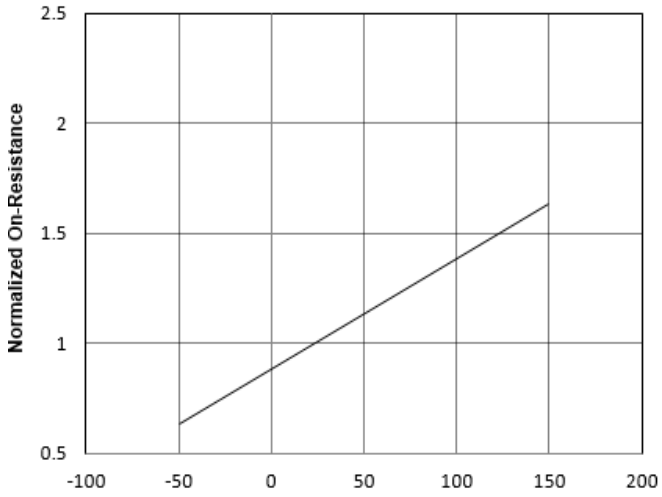

Figure3：T_J Junction Temperature（°C）

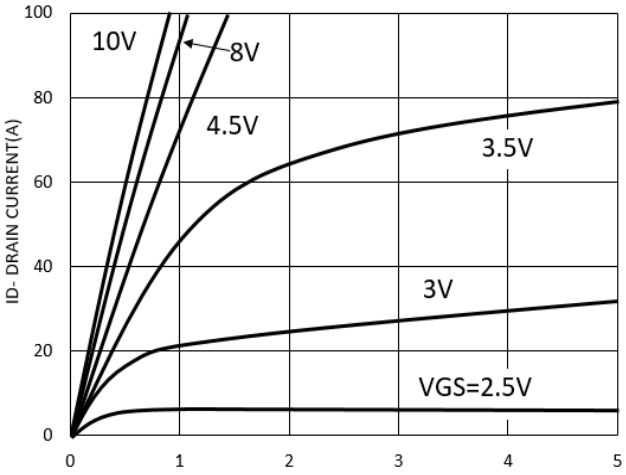

Figure4：V_{DS} Drain-Source Voltage（V）

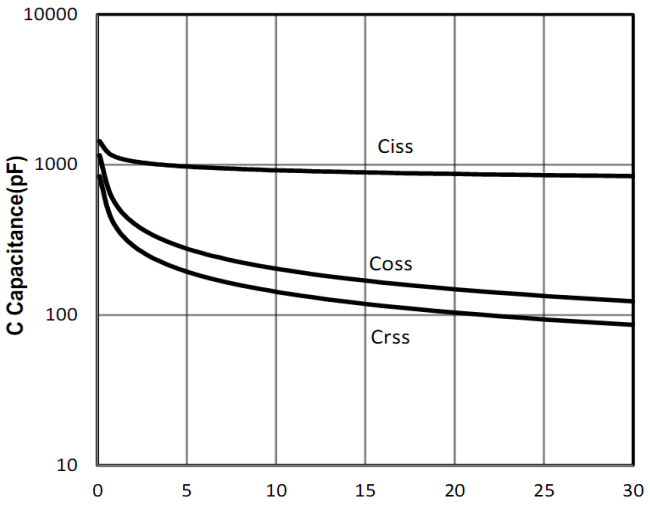

Figure5：V_{DS} Drain-Source Voltage（V）

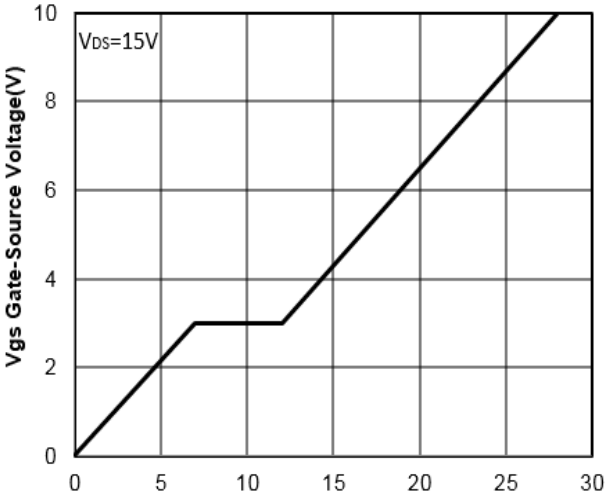

Figure6：Qg Gate Charge（nC）

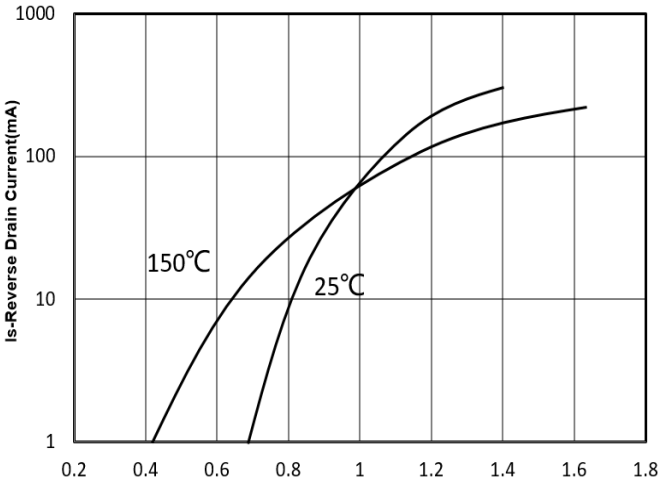

Figure7：Vsd Source-Drain Voltage（V）

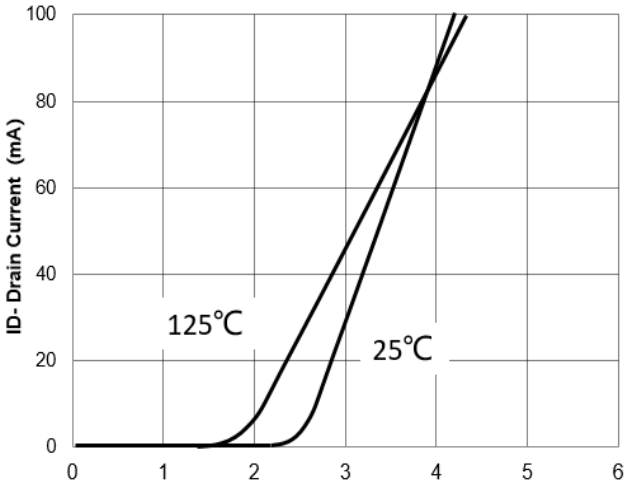

Figure8：Vgs Gate-Source Voltage（V）

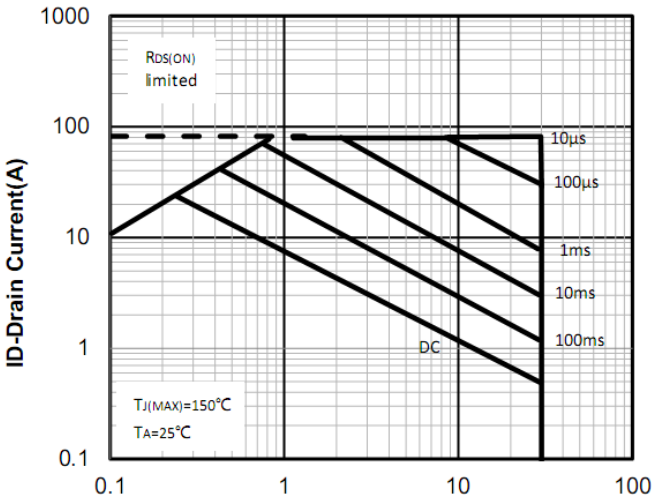

Figure9：VDS Drain -Source Voltage（V）

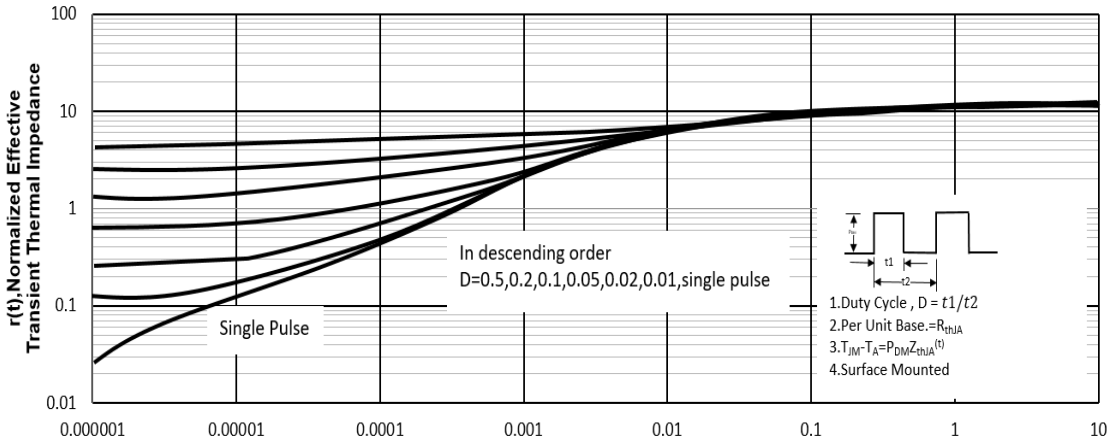

Figure10：Square Wave Pulse Duration（sec）

Test Circuit and Waveform:

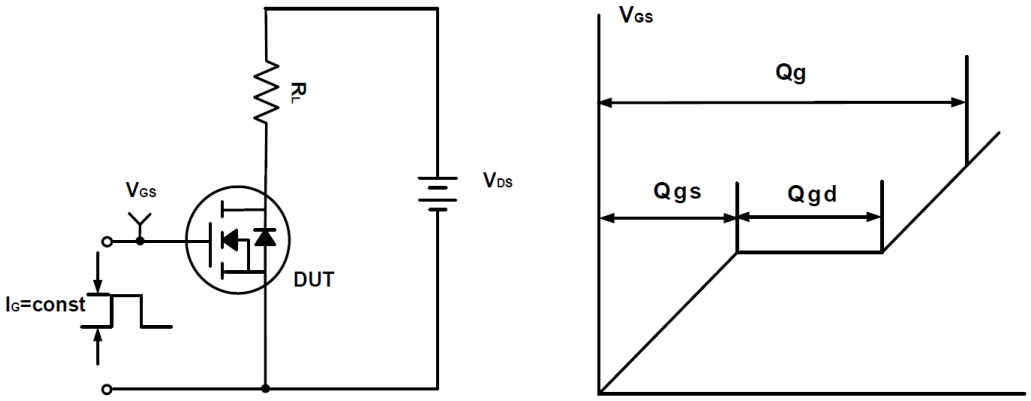

Figure A Gate Charge Test Circuit &Waveforms

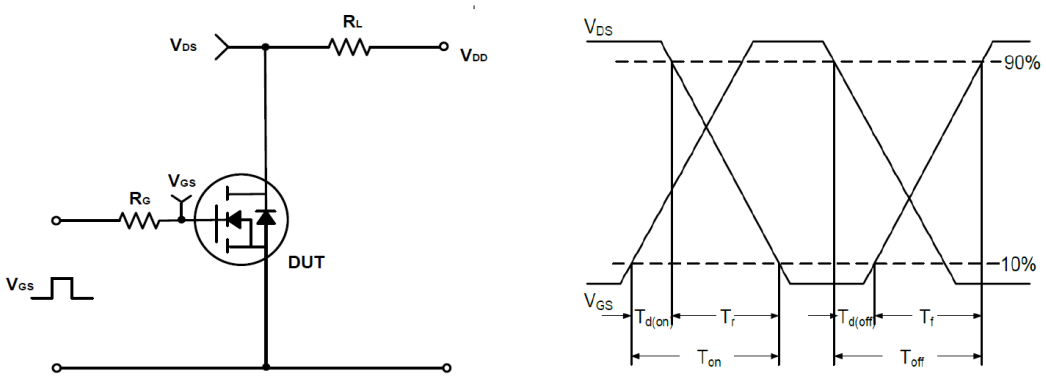

Figure B Switching Test Circuit & Waveforms

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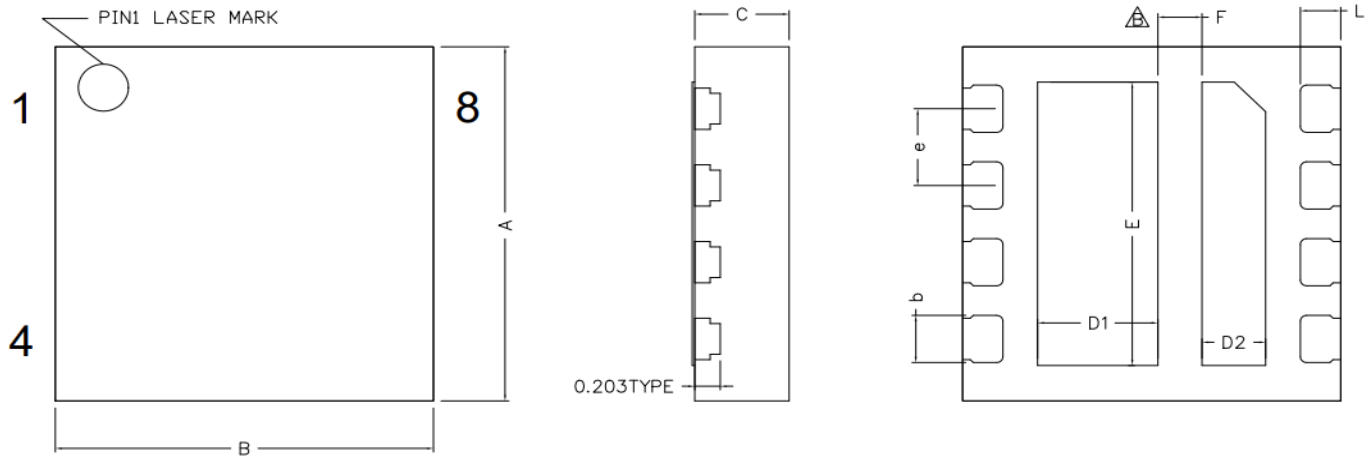
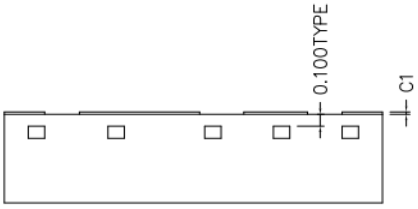
DFN3X3-8L Package Outline Dimensions (Units: mm)



TOP VIEW SIDE VIEW BOTTEM VIEW



SIDE VIEW

	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
D1	0.855	0.955	1.055
D2	0.405	0.505	0.605
E	2.300	2.400	2.500
F	0.35 TYPE		
L	0.270	0.320	0.370
b	0.350	0.400	0.450
e	0.650 TYPE		