PTM1816DE

18V/16A Dual N-Channel Advanced Power MOSFET

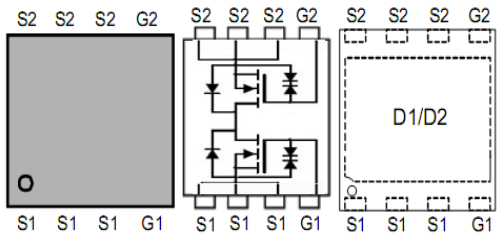
Features

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

BVDSS	18	V
ID	16	A
RDSON@VGS=4.5V	4.1	mΩ
RDSON@VGS=3.8V	4.3	mΩ
RDSON@VGS=2.5V	5.4	mΩ

Applications

- Load Switch
- PWM Application
- Power management



DFN3X3-8L

Order Information

Product	Package	Marking	Reel Size	Reel	Carton
PTM1816DE	DFN3X3-8L	PTM1816DE	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		18	V
V_{GS}	Gate-Source Voltage		±10	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	16	A
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested (Sillicon Limit) (Note1)	TA =25°C	60	A
I_D	Continuous Drain current	TA =25°C	16	A
P_D	Maximum Power Dissipation	TA =25°C	3	W
$R_{\theta JA}$	Thermal Resistance Junction−to−Ambient (Note2)		41.7	°C/W

18V/16A Dual N-Channel Advanced Power MOSFET

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	18	--	--	V
I_{DSS}	Zero Gate Voltage Drain current	VDS=18V,VGS=0V	--	--	1	μA
I_{GSS}	Gate-Body Leakage Current	VGS=±10V,VDS=0V	--	--	±10	uA
$V_{GS(TH)}$	Gate Threshold Voltage	VDS=VGS,ID=250μA	0.5	0.7	0.9	V
$R_{DS(ON)}$	Drain-Source On-State Resistance (Note3)	VGS=4.5V, ID=7A	--	4.1	5.3	mΩ
		VGS=3.8V, ID=5A	--	4.3	5.9	mΩ
		VGS=2.5V, ID=3A	--	5.4	6.4	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated) (Note5)						
C_{iss}	Input Capacitance	VDS=10V, VGS=0V, F=1MHz	--	1773	--	pF
C_{oss}	Output Capacitance		--	284	--	pF
C_{rss}	Reverse Transfer Capacitance		--	257	--	pF
Q_g	Total Gate Charge	VDS=10V, ID=10A, VGS=4.5V	--	24	--	nC
Q_{gs}	Gate-Source Charge		--	2.2	--	nC
Q_{gd}	Gate-Drain Charge		--	6.8	--	nC
Switching Characteristics (Note5)						
$t_{d(on)}$	Turn-on Delay Time	VDS=10V, ID=10A, RG=3Ω, VGS=4.5V	--	4.1	--	nS
t_r	Turn-on Rise Time		--	8	--	nS
$t_{d(off)}$	Turn-off Delay Time		--	76	--	nS
t_f	Turn-off Fall Time		--	21	--	nS
Source- Drain Diode Characteristics@ TJ = 25°C (unless otherwise stated)						
V_{SD}	Forward on voltage	IS=10A,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. Guranteed by design, not subject to production testing.

18V/16A Dual N-Channel Advanced Power MOSFET

Typical Characteristics

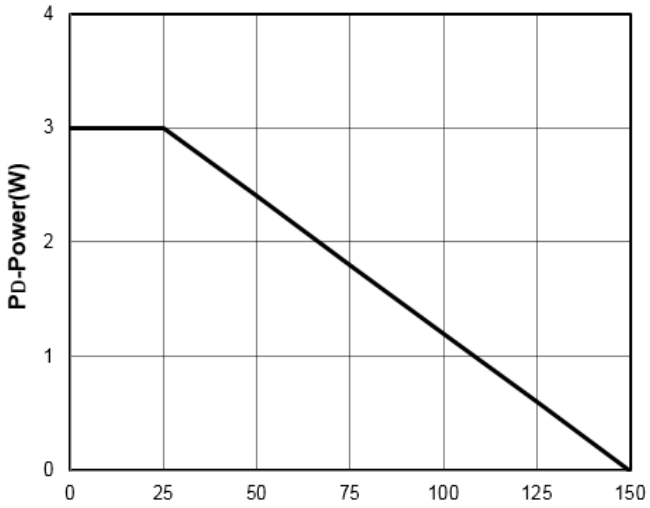


Figure1：T_J -Junction Temperature（°C）

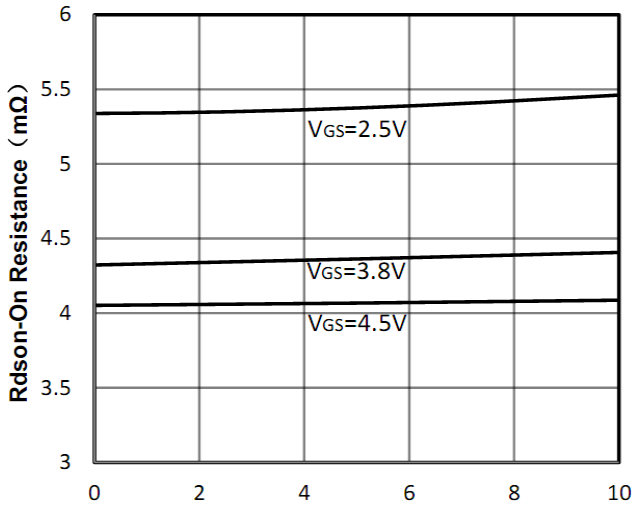


Figure2：I_D -Drain Current（A）

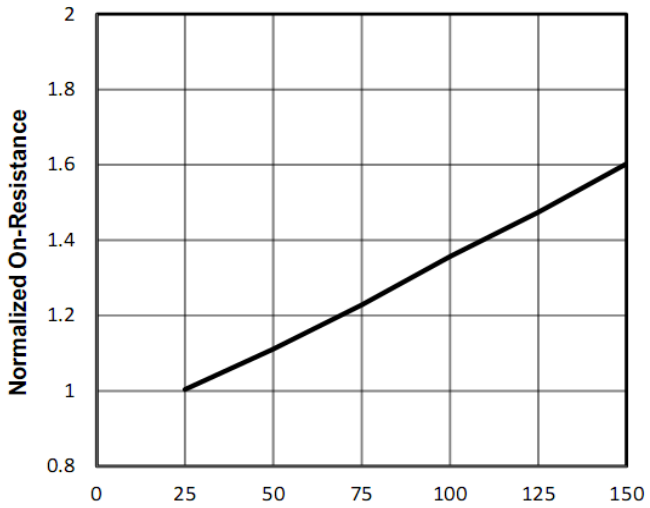


Figure3：T_J -Junction Temperature（°C）

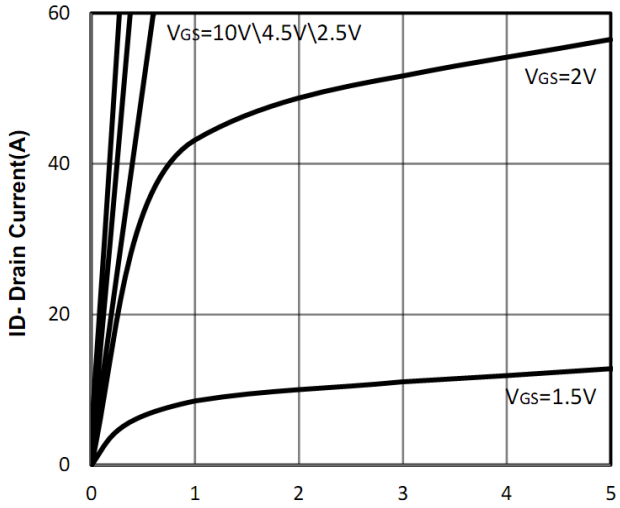


Figure4：V_{DS} –Drain Source Voltage（V）

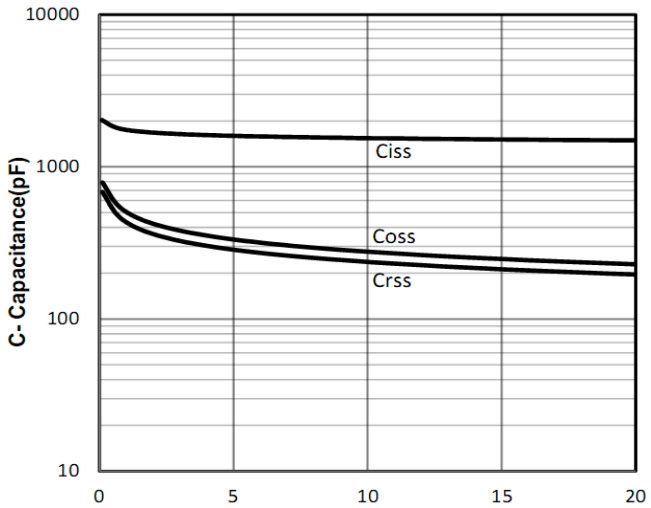


Figure5：V_{DS} –Drain Source Voltage（V）

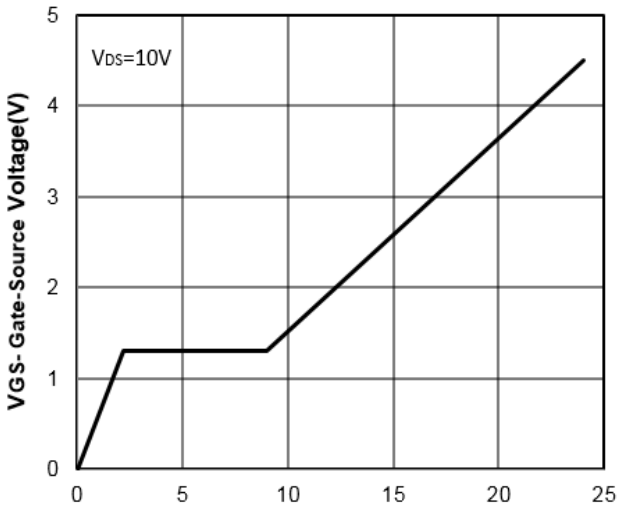


Figure6：Qg -Gate Charge（nC）

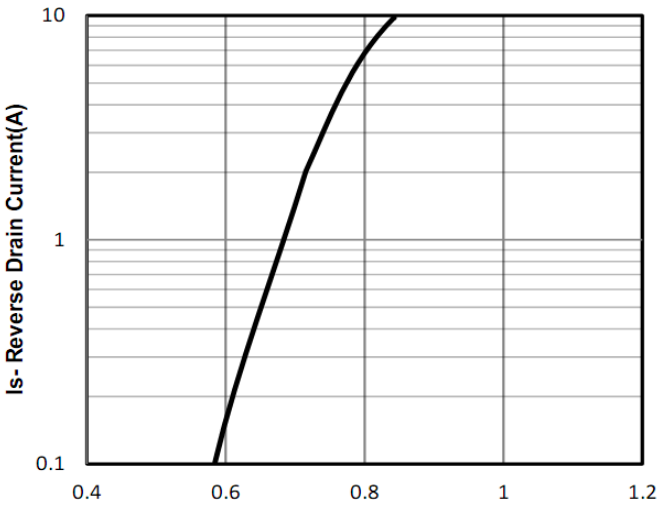


Figure7：Vsd –Source Drain Voltage（V）

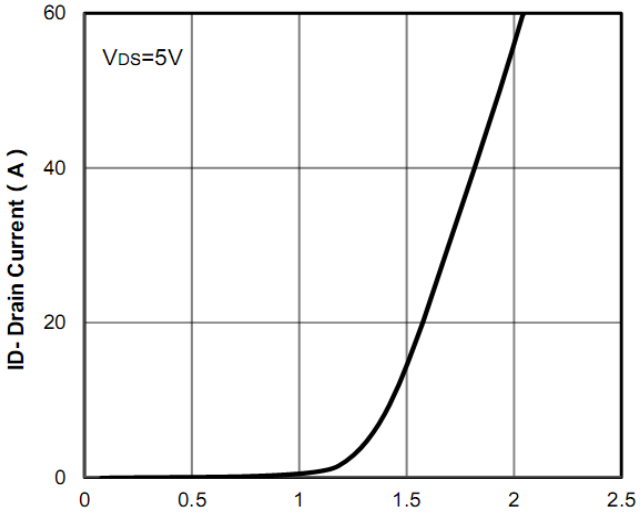


Figure8：Vgs –Gate Source Voltage（V）

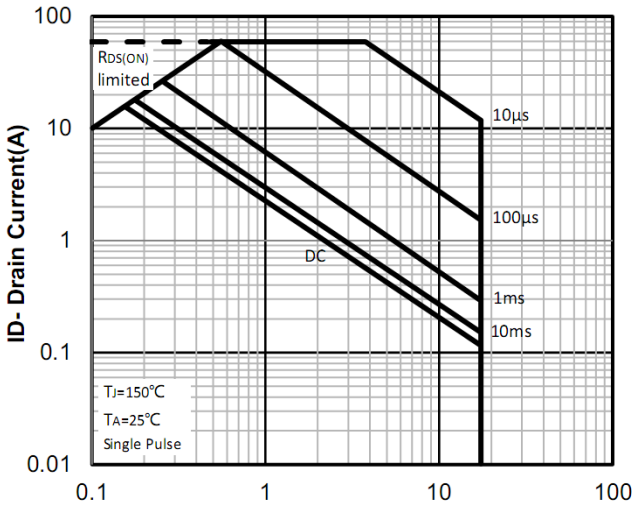


Figure9：VDS -Drain Source Voltage（V）

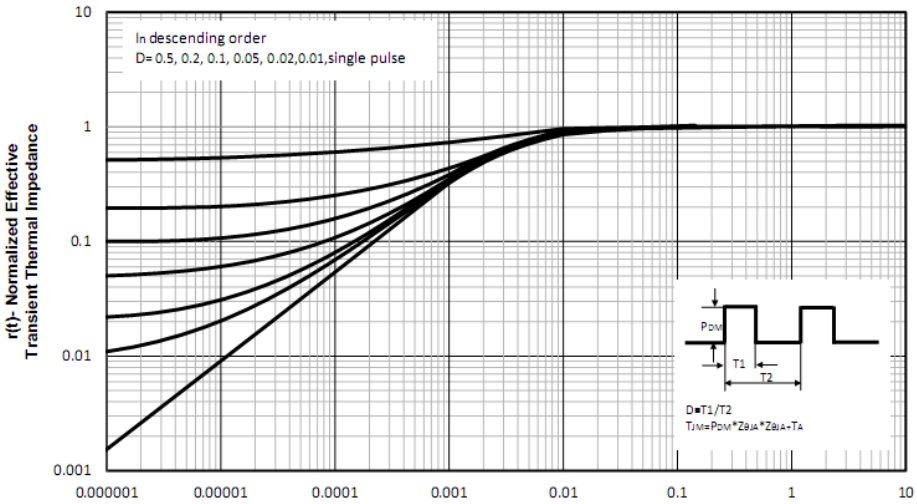


Figure10：Square Wave Pulse Duration（sec）

18V/16A Dual N-Channel Advanced Power MOSFET

Test Circuit and Waveform:

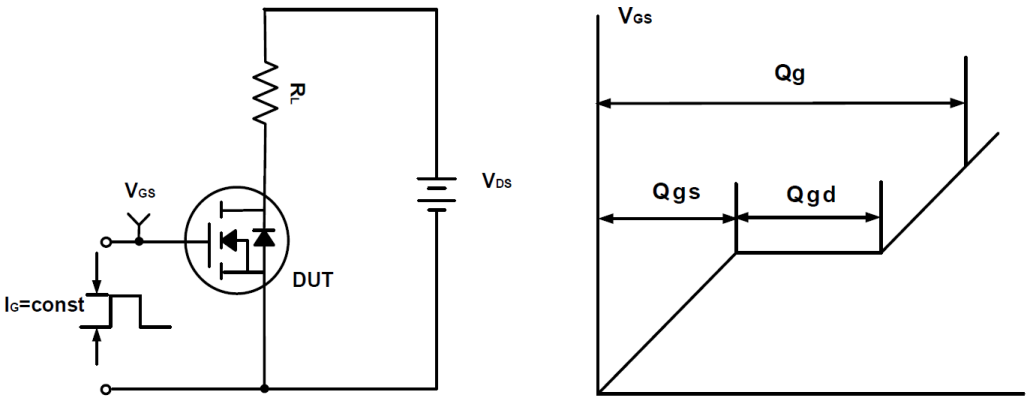


Figure A Gate Charge Test Circuit &Waveforms

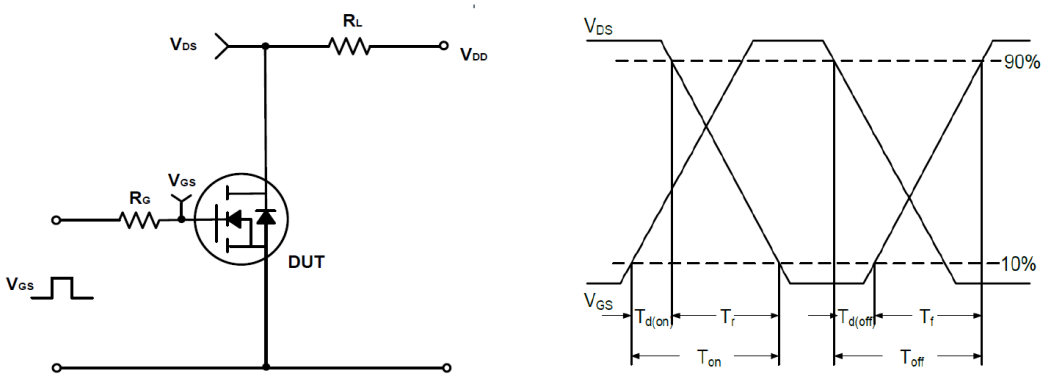
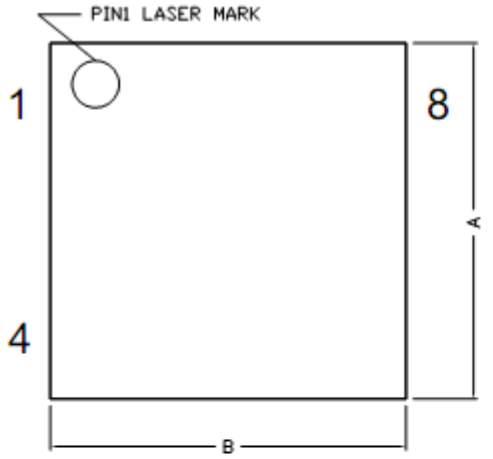


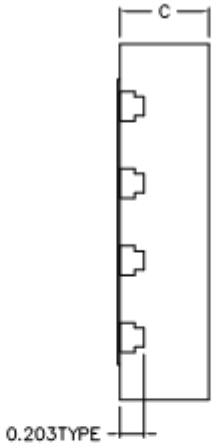
Figure B Switching Test Circuit & Waveforms

18V/16A Dual N-Channel Advanced Power MOSFET

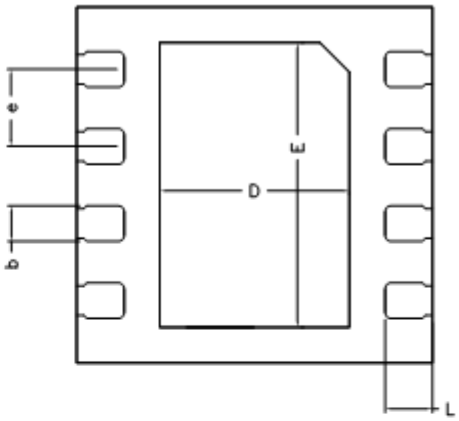
DFN3X3-8L Package Outline Dimensions (Units: mm)



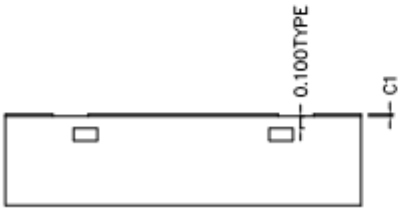
TOP VIEW



SIDE VIEW



BOTTEM VIEW



SIDE VIEW

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	1.500	1.600	1.700
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		