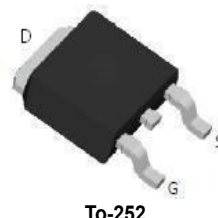
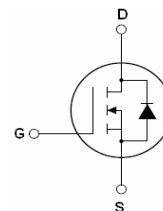


100V/15A N-Channel Advanced Power MOSFET
Features

- N-Channel, 5V Logic Level Control
- Enhancement mode
- Very low on-resistance @ $V_{GS}=4.5V$
- Fast Switching
- 100% Avalanche test
- Pb-free lead plating; RoHS compliant

V_{DS}	100	V
$R_{DS(on),typ@V_{GS}=10V}$	95	mΩ
$R_{DS(on),typ@V_{GS}=4.5V}$	100	mΩ
I_D	15	A


To-252

Order Information

Product	Package	Marking	Packing
PTD15N10	TO-252	PTD15N10	2500PCS/REF

Maximum ratings, at $T_j=25^\circ\text{C}$, unless otherwise specified

Symbol	Parameter		Rating	Unit
$V_{(BR)DSS}$	Drain-Source breakdown voltage		100	V
V_{GS}	Gate-Source voltage		± 20	V
I_D	Continuous drain current@ $V_{GS}=10V$	$T_C=25^{\circ}C$	15	A
		$T_C=70^{\circ}C$	9.6	A
I_{DM}	Pulse drain current tested ①	$T_C=25^{\circ}C$	40	A
P_D	Maximum power dissipation	$T_C=25^{\circ}C$	30	W
I_S	Diode Continuous Forward Current	$T_C=25^{\circ}C$	15	A
I_{AS}	Avalanche Current Max	$L=0.5mH$	11	A
E_{AS}	Avalanche energy, single pulsed ②		9	mJ
T_{STG}, T_J	Storage and operating temperature range		-55 to 150	$^{\circ}C$
Thermal characteristics				
$R_{\theta JA}$	Thermal Resistance Junction-Ambient		60	$^{\circ}C/W$
$R_{\theta JC}$	Thermal Resistance-Junction to Case		5	$^{\circ}C/W$



100V/15A N-Channel Advanced Power MOSFET

Typical Electrical Characteristics

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Static Electrical Characteristics @ T _J = 25°C (unless otherwise stated)						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V I _D =250μA	100	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current(Tc=25°C)	V _{DS} =100V,V _{GS} =0V	--	--	1	μA
	Zero Gate Voltage Drain Current(Tc=125°C)	V _{DS} =100V,V _{GS} =0V	--	--	100	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V,V _{DS} =0V	--	--	±100	nA
V _{GS(TH)}	Gate Threshold Voltage	V _{DS} =V _{GS} ,I _D =250μA	1.0	2.0	3.0	V
R _{DS(ON)}	Drain-Source On-State Resistance③	V _{GS} =10V, I _D =10A	--	95	110	mΩ
R _{DS(ON)}	Drain-Source On-State Resistance③	V _{GS} =4.5V, I _D =8A	--	110	120	mΩ
Dynamic Electrical Characteristics @ T _J = 25°C (unless otherwise stated)						
C _{iss}	Input Capacitance	V _{DS} =30V,V _{GS} =0V, f=1MHz	--	525	--	pF
C _{oss}	Output Capacitance		--	41	--	pF
C _{rss}	Reverse Transfer Capacitance		--	36	--	pF
R _g	Gate Resistance			2.6		Ω
Q _g	Total Gate Charge	V _{DS} =50V,I _D =3A, V _{GS} =10V	--	15.6	--	nC
Q _{gs}	Gate-Source Charge		--	3.2	--	nC
Q _{gd}	Gate-Drain Charge		--	4.4	--	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DD} =50V, I _D =1A, R _G =6.8Ω, V _{GS} =4.5V	--	8	--	nS
t _r	Turn-on Rise Time		--	4.5	--	nS
t _{d(off)}	Turn-Off Delay Time		--	26	--	nS
t _f	Turn-Off Fall Time		--	3.8	--	nS
Source- Drain Diode Characteristics@ T _J = 25°C (unless otherwise stated)						
V _{SD}	Forward on voltage	I _{SD} =10A,V _{GS} =0V	--	0.89	1.20	V
t _{rr}	Reverse Recovery Time	T _J =25°C,I _{sd} =10A, V _{GS} =0V	--	26	--	nS
Q _{rr}	Reverse Recovery Charge	di/dt=500A/μs		115		nC

NOTE:

- ① Repetitive rating; pulse width limited by max. junction temperature
- ② Limited by T_{Jmax} , starting $T_J = 25^\circ\text{C}$, $L = 0.5\text{mH}$, $R_G = 25\Omega$, $I_{AS} = 6A$, $V_{GS} = 10V$. Part not recommended for use above this value.
- ③ Pulse width $\leq 300\mu s$; duty cycles $\leq 2\%$.



100V/15A N-Channel Advanced Power MOSFET Typical Characteristics

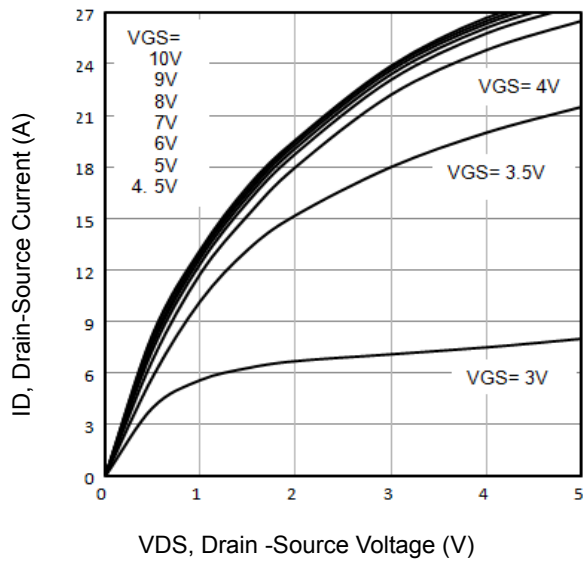


Fig1. Typical Output Characteristics

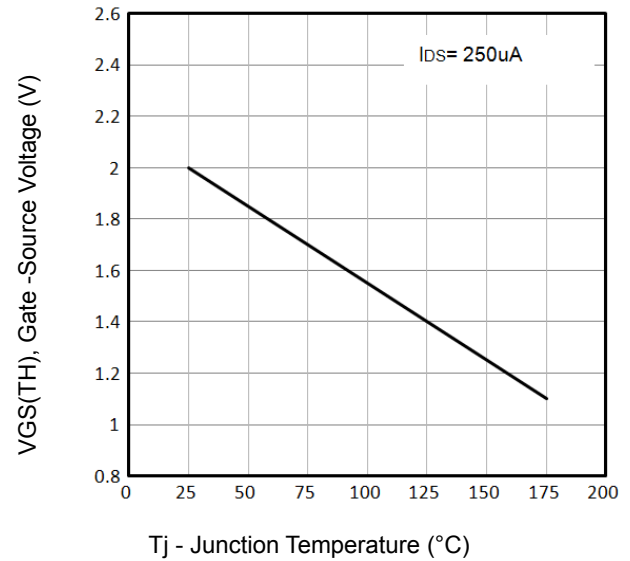


Fig2. $V_{GS(TH)}$ Gate-Source Voltage Vs. T_j

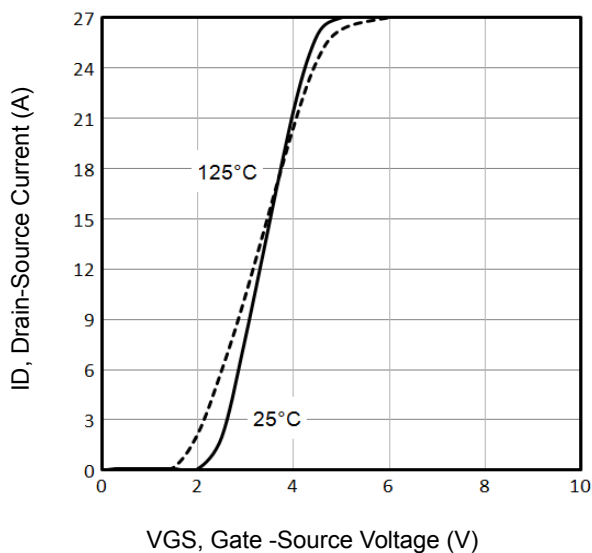


Fig3. Typical Transfer Characteristics

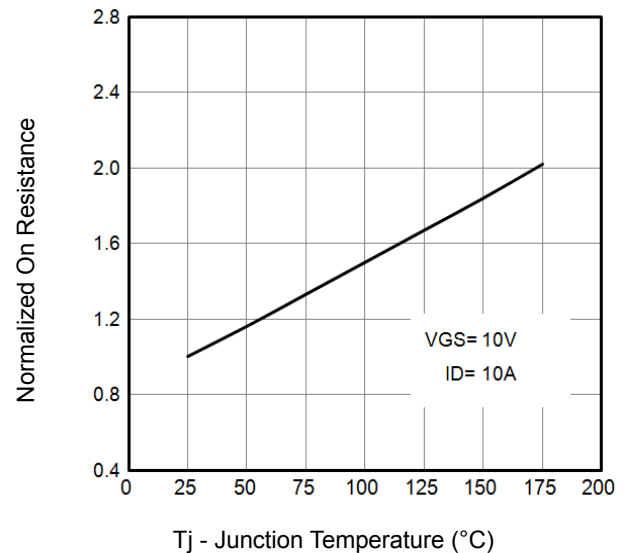


Fig4. Normalized On-Resistance Vs. T_j

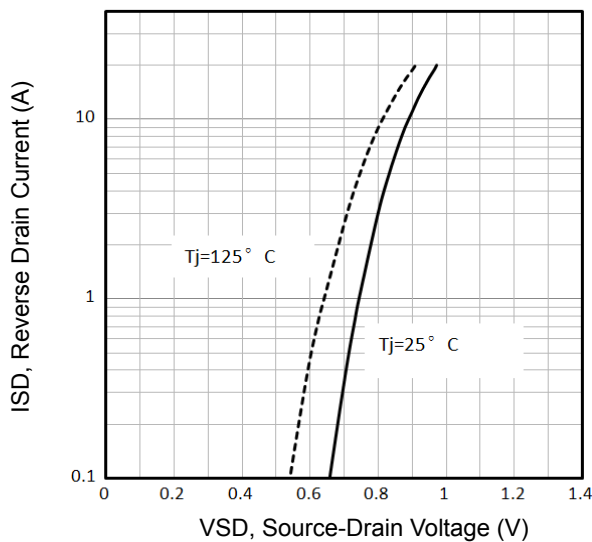


Fig5. Typical Source-Drain Diode Forward Voltage

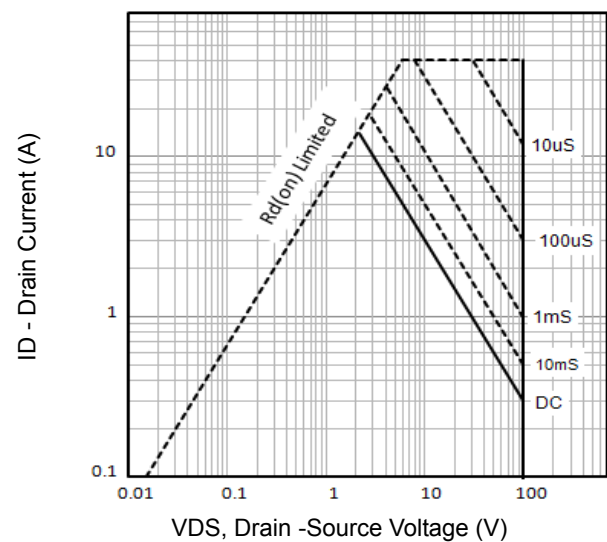


Fig6. Maximum Safe Operating Area



Typical Characteristics

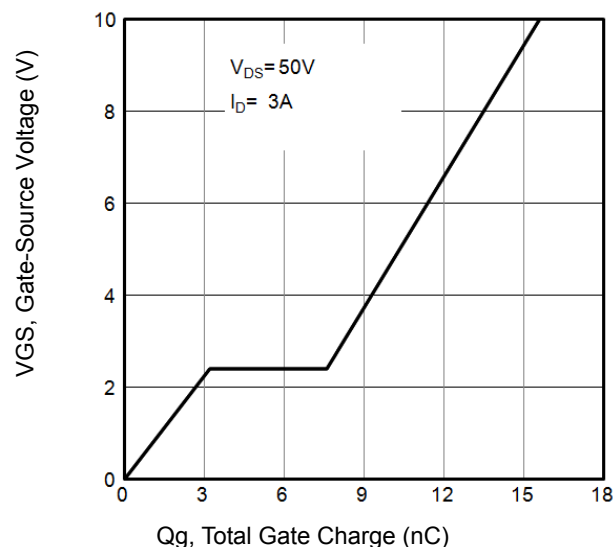
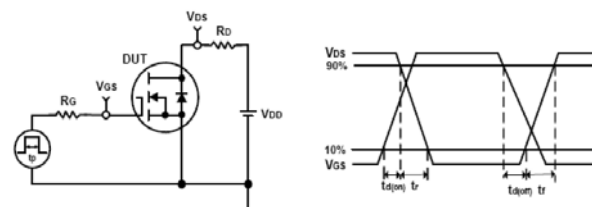
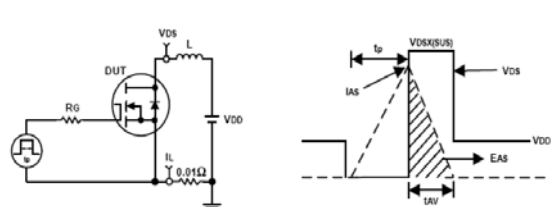
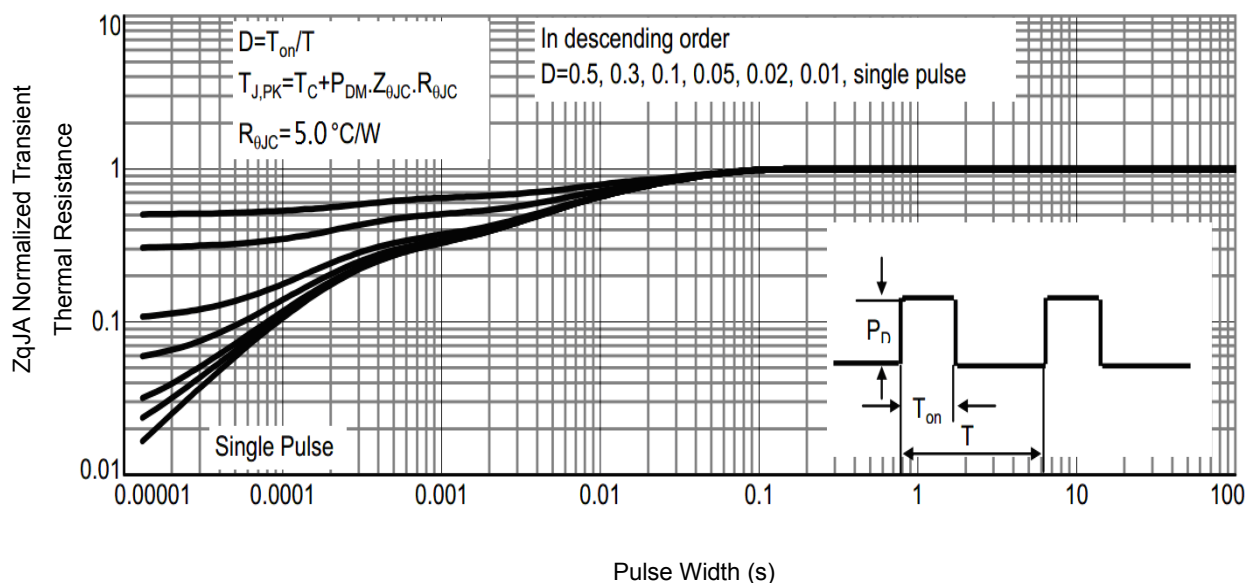
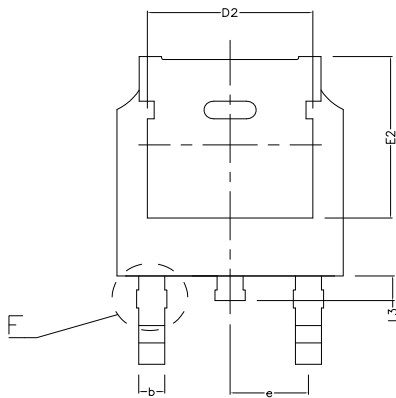


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

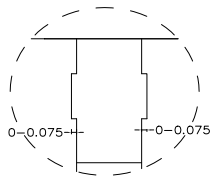


**100V/15A N-Channel Advanced Power MOSFET**

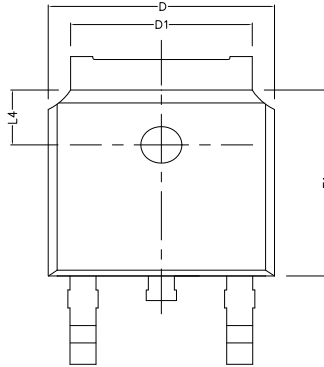
TO-252 Package Outline Dimensions (Units: mm)



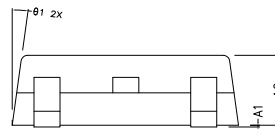
BOTTOM VIEW



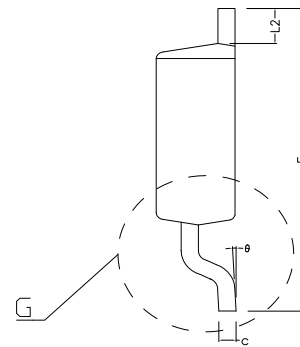
DETAIL F



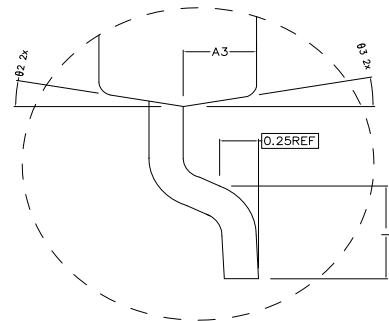
TOP VIEW



SIDE VIEW



SIDE VIEW



DETAIL G

COMMON DIMENSIONS (UNITS OF MEASURE IS mm)			
	MIN	NORMAL	MAX
A1	0.000	0.100	0.150
A2	2.200	2.300	2.400
A3	1.020	1.070	1.120
b	0.710	0.760	0.810
c	0.460	0.508	0.550
D	6.500	6.600	6.700
D1	5.330REF		
D2	4.830REF		
E	9.900	10.100	10.300
E1	6.000	6.100	6.200
E2	5.600REF		
e	2.286TYPE		
L	1.400	1.550	1.700
L2	1.10REF		
L3	0.80REF		
L4	1.80REF		
θ	0~8°		
θ1	7° TYPE		
θ2	10° TYPE		
θ3	10° TYPE		