

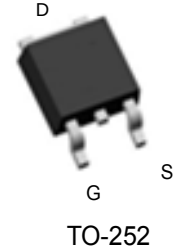
**30V/80A N-Channel Advanced Power MOSFET****Features**

- Low $R_{DS(on)}$
- 5V Logic Level Control
- TO-252 SMD Package

Applications

- High Side Load Switch
- Battery Switch
- Optimized for Power Management Applications for Portable Products, such as Aeromodelling, Power bank, Brushless motor, Main board, and Others

BVDSS	30	V
ID	80	A
$R_{DS(on)}@V_{GS}=10V$	4	mΩ
$R_{DS(on)}@V_{GS}=5V$	6.6	mΩ

**Order Information**

Product	Package	Marking	Packing
PTD3080	TO-252	PTD3080	2500PCS/REF

Absolute Maximum Ratings

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Symbol	Parameter		Rating	Unit
Common Ratings (T _c =25°C Unless Otherwise Noted)				
V _{GS}	Gate-Source Voltage		±20	V
V _{(BR)DSS}	Drain-Source Breakdown Voltage		30	V
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	°C
I _S	Diode Continuous Forward Current	T _C =25°C	70	A
Mounted on Large Heat Sink				
I _{DM}	Pulse Drain Current Tested (Silicon Limit)	T _C =25°C	240	A
I _D	Continuous Drain current @V _{GS} =10V (Note 2)	T _C =25°C	80	A
P _D	Maximum Power Dissipation	T _C =25°C	54	W
EAS	Avalanche Energy, Single Pulsed (Note 3)		150	mJ
R _{θJC}	Thermal Resistance <i>Junction-to-Case</i> ≤ 5 s (Note 1)		2.3	°C/W

Note :

1. Surface-mounted on FR4 board using 1 in sq. pad size (Cu area = 1.127 in sq. [2 oz] including traces).
2. Pulse Test: pulse width ≤ 300 us, duty cycle $\leq 2\%$
3. Limited by T_{jmax} , starting $T_J = 25^\circ\text{C}$, $L = 0.5\text{mH}$, $R_G = 25\Omega$, $I_{AS} = 28\text{A}$, $V_{GS} = 10\text{V}$. Part not recommended for use above this value

**30V/80A N-Channel Advanced Power MOSFET**

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Static Electrical Characteristics @ T _J = 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=24V,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=-250μ	1.0	1.5	2.5	V
R _{DS(ON)}	Drain-Source On-State Resistance note A	VGS=10V, ID=30A		4	6	mΩ
R _{DS(ON)}	Drain-Source On-State Resistance note A	VGS=5V, ID=20A	--	6.6	9	mΩ
Dynamic Electrical Characteristics @ T _J = 25°C (unless otherwise stated) note B						
C _{iss}	Input Capacitance	VDS=15V,VGS=0V, f=1MHz	--	1614	--	pF
C _{oss}	Output Capacitance		--	245	--	pF
C _{rss}	Reverse Transfer Capacitance		--	215	--	pF
Q _g	Total Gate Charge	VDS=15V,ID=30A, VGS=10V	--	33.7	--	nC
Q _{gs}	Gate-Source Charge		--	8.5	--	nC
Q _{gd}	Gate-Drain Charge		--	7.5	--	nC
Switching Characteristics note B						
t _{d(on)}	Turn-on Delay Time	VDD=15V, ID=30A, RG=3.0Ω, VGS=10V	--	7.5	--	nS
t _r	Turn-on Rise Time		--	14.5	--	nS
t _{d(off)}	Turn-Off Delay Time		--	35.2	--	nS
t _f	Turn-Off Fall Time		--	9.6	--	nS
Source- Drain Diode Characteristics@ T _J = 25°C (unless otherwise stated)						
I _{SD}	Source-drain current(Body Diode)	Tc=25°C	--	--	70	A
V _{SD}	Forward on voltage	IS=30A,VGS=0V	--	--	1.2	V

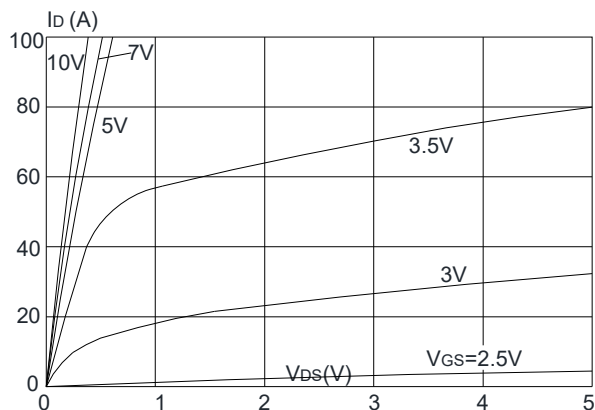
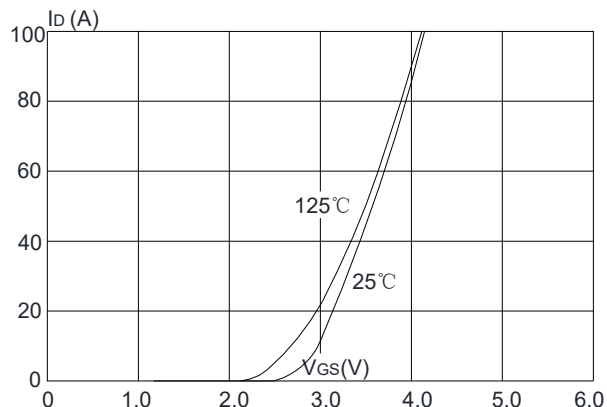
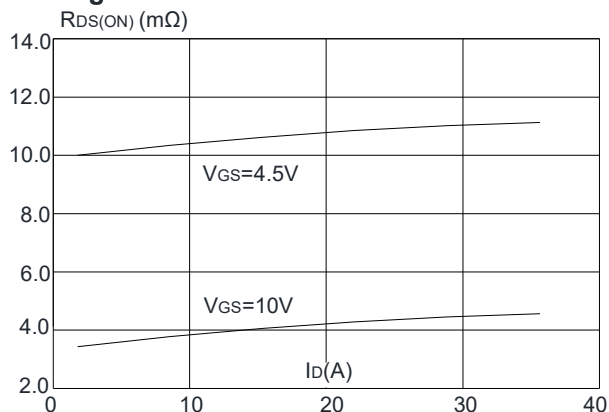
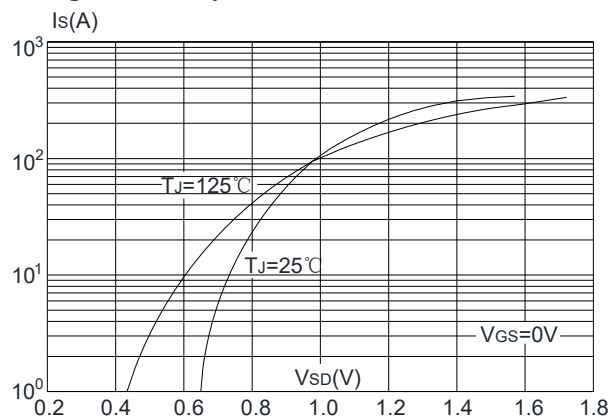
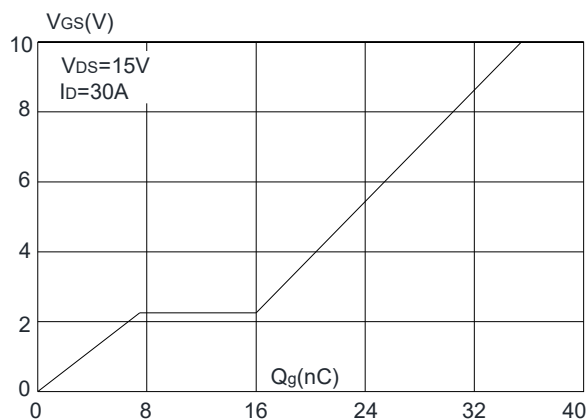
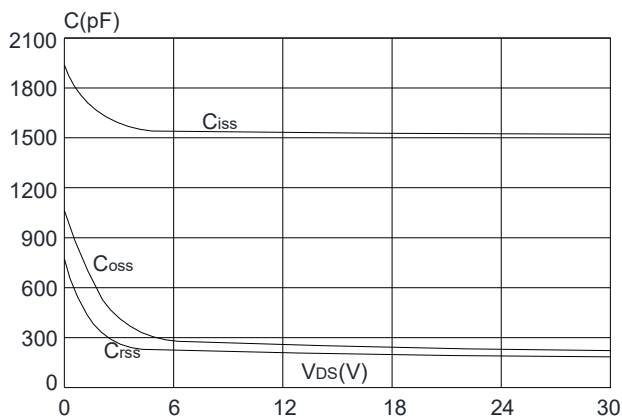
A: Pulse Test: pulse width $\leq 300 \mu s$, duty cycle $\leq 2\%$

B: Guranteed by design, not subject to production testing.



30V/80A N-Channel Advanced Power MOSFET

Typical Characteristics

Figure1: Output Characteristics**Figure 2: Typical Transfer Characteristics****Figure 3: On-resistance vs. Drain Current****Figure 4: Body Diode Characteristics****Figure 5: Gate Charge Characteristics****Figure 6: Capacitance Characteristics**

30V/80A N-Channel Advanced Power MOSFET

Typical Characteristics

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

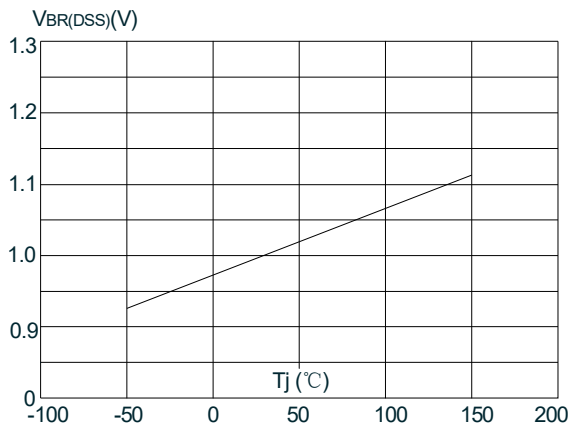


Figure 8: Normalized on Resistance vs. Junction Temperature

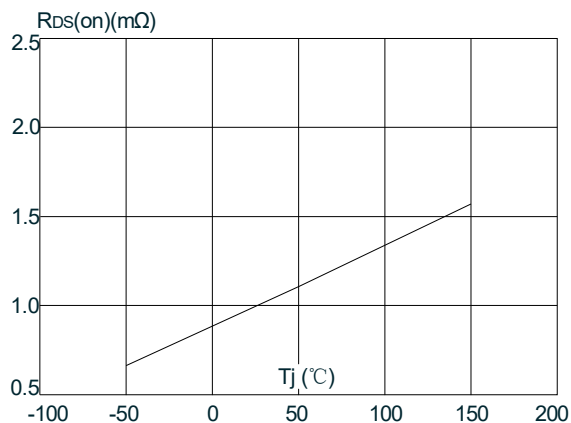


Figure 9: Maximum Safe Operating Area

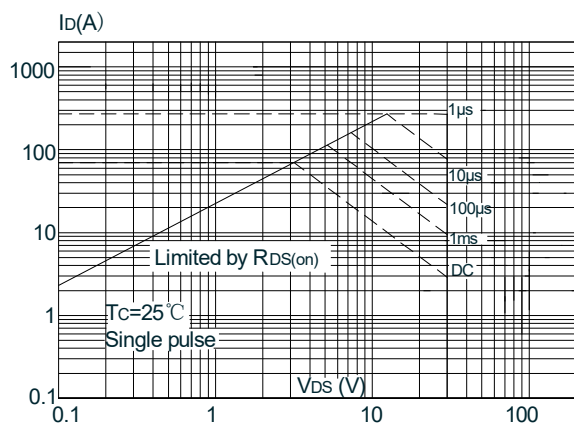


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

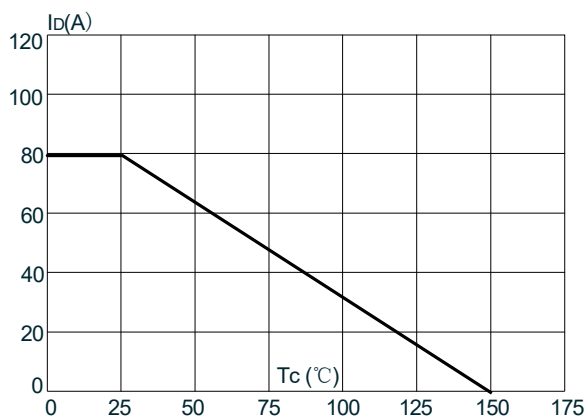
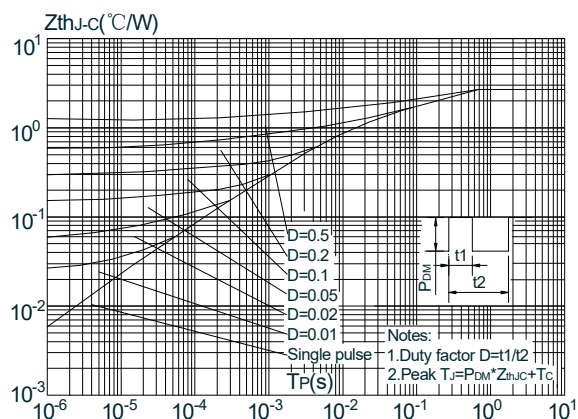


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



30V/80A N-Channel Advanced Power MOSFET

Test Circuit

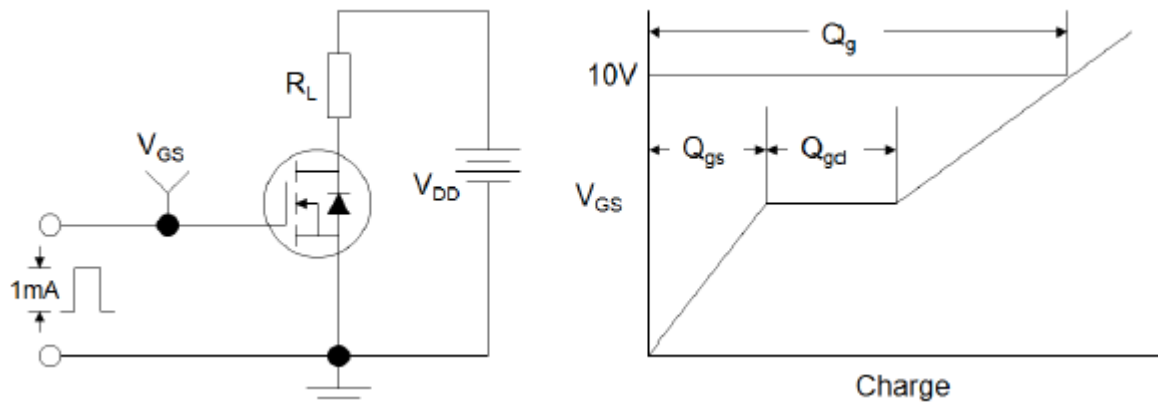


Figure1:Gate Charge Test Circuit & Waveform

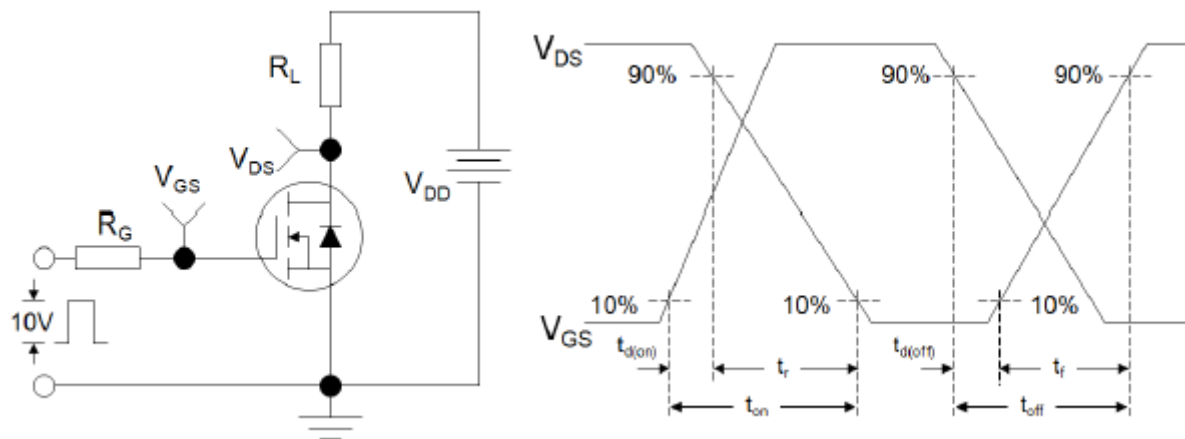


Figure 2: Resistive Switching Test Circuit & Waveforms

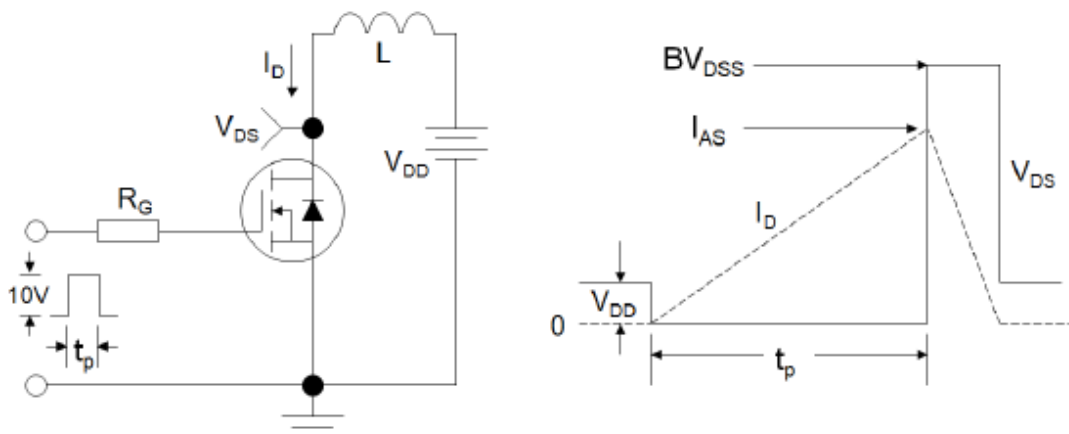
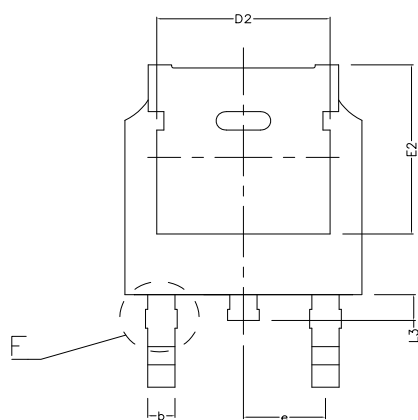


Figure 3:Unclamped Inductive Switching Test Circuit & Waveforms

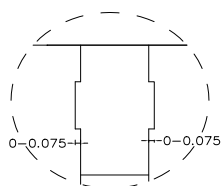


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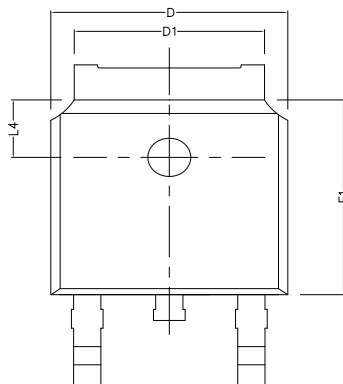
TO-252 Package Outline Dimensions (Units: mm)



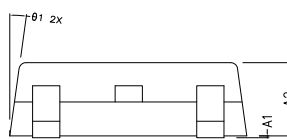
BOTTOM VIEW



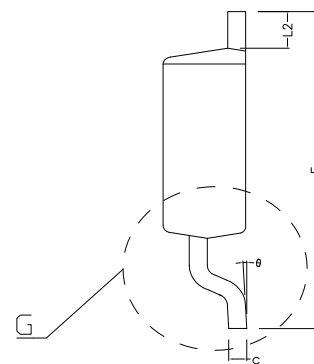
DETAIL F



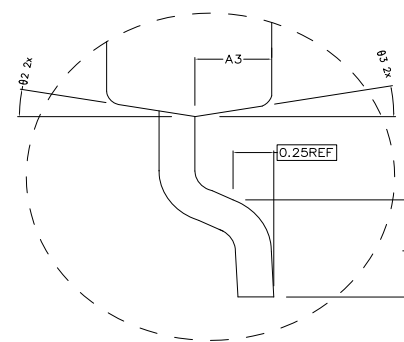
TOP VIEW



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		