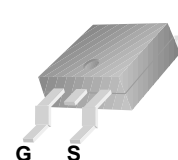
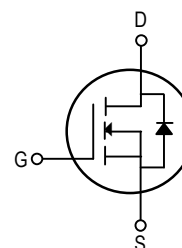


PTD4080B

40V/60A N-Channel Advanced Power MOSFET

Features

- $R_{DS(on)}$ (Typical 5.5m Ω)@ $V_{GS}=10V$
- Improved dv/dt Capability, High Ruggedness
- 100% Avalanche Tested
- Maximum Junction Temperature Range (150°C)



TO-252

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 ($T_J=25^\circ\text{C}$ Unless Otherwise Noted)			
V_{GS}	Gate-Source Voltage	± 20	V
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	40	V
T_J	Maximum Junction Temperature	-50 to 175	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-50 to 175	$^\circ\text{C}$
I_S	Diode Continuous Forward Current	60	A
Mounted on Large Heat Sink ($T_J=25^\circ\text{C}$ Unless Otherwise Noted)			
I_{DM}	Pulse Drain Current Tested (Silicon Limit) ^(Note1)	240	A
I_D	Continuous Drain current@ $V_{GS}=10V$	$T_C=25^\circ\text{C}$ 60	A
P_D	Maximum Power Dissipation	$T_C=25^\circ\text{C}$ 47	W
E_{AS}	Sing Pulsed Avalanche Energy ^(Note2)	81	mJ
$R_{\theta JC}$	Thermal Resistance Junction-to-Case	3.2	$^\circ\text{C/W}$

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	40	--	--	V
I _{DSS}	Zero Gate Voltage Drain current(Tc=25°C)	VDS=40V,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=20A	--	5.5	7	mΩ
R _{DS(ON)}	Drain-Source On-State Resistance (Note3)	VGS=4.5V, ID=20A	--	9	12.5	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
C _{iss}	Input Capacitance	VDS=20V,VGS=0V, f=1MHz	--	2400	--	pF
C _{oss}	Output Capacitance		--	192	--	pF
C _{rss}	Reverse Transfer Capacitance		--	165	--	pF
Q _g	Total Gate Charge	VDS=20V, ID=30A VGS=10V	--	37	--	nC
Q _{gs}	Gate-Source Charge		--	6	--	nC
Q _{gd}	Gate-Drain Charge		--	7	--	nC
Switching Characteristics ^{note B}						
t _{d(on)}	Turn-on Delay Time	VDD=20V ID=30A, RGEN=3Ω, RL=1Ω, VGS=10V	--	12	--	nS
t _r	Turn-on Rise Time		--	12	--	nS
t _{d(off)}	Turn-Off Delay Time		--	38	--	nS
t _f	Turn-Off Fall Time		--	9	--	nS
Source- Drain Diode Characteristics @ T_J = 25°C (unless otherwise stated)						
V _{SD}	Forward on voltage	IS=20A, VGS=0V	--	--	1.2	V

Note :

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition: T_J=25°C , VDD=20V, VG=10V, RG=25Ω L=0.5mH, IAS=18A
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Typical characteristic curve:

Figure 1: Output Characteristics

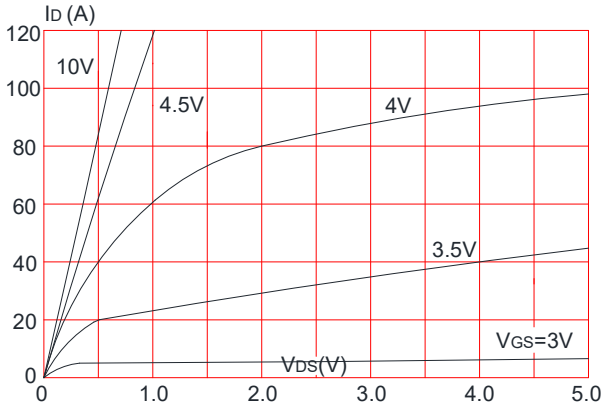


Figure 2: Typical Transfer Characteristics

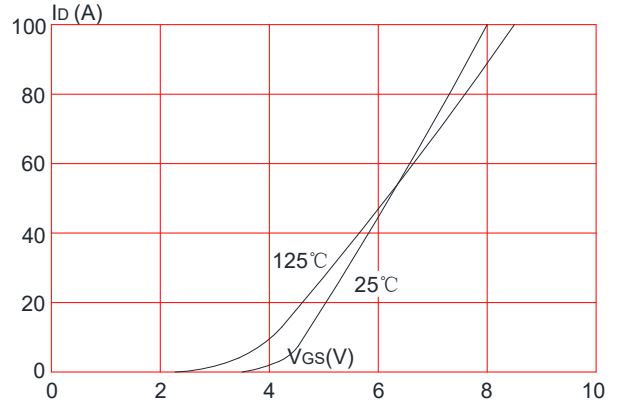


Figure 3: On-resistance vs. Drain Current

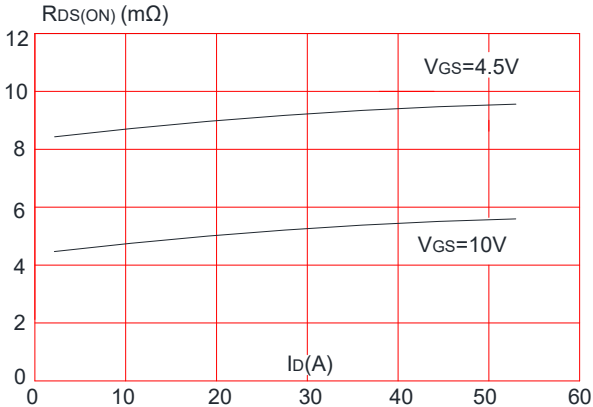


Figure 4: Body Diode Characteristics

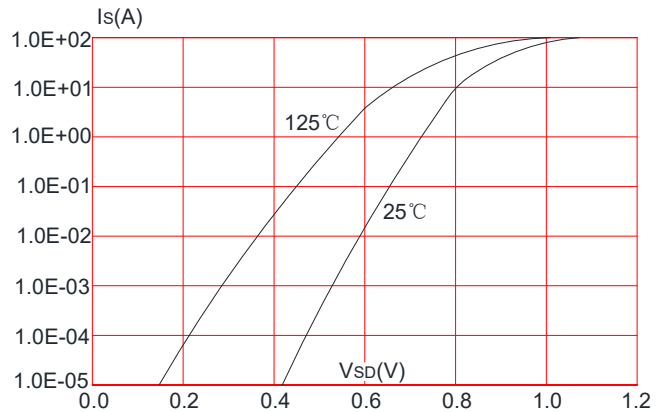


Figure 5: Gate Charge Characteristics

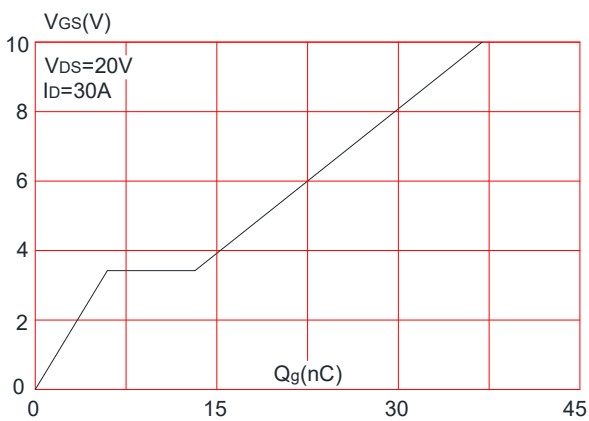
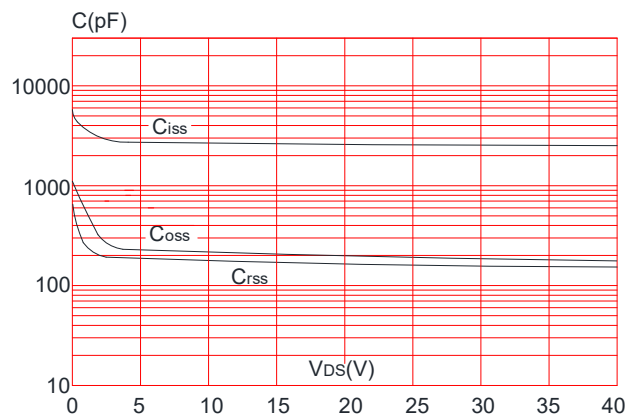


Figure 6: Capacitance Characteristics



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