

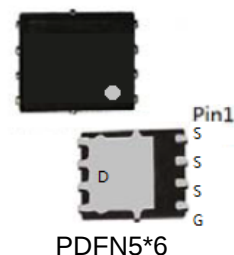
**30V100A N-Channel Advanced Power MOSFET****Features**

- ◆ Low On-Resistance
- ◆ Fast Switching
- ◆ 100% Avalanche Tested
- ◆ Repetitive Avalanche Allowed up to T_{jmax}
- ◆ Lead-Free, RoHS Compliant

BVDSS	30	V
ID	100	A
$R_{DS(on)}@V_{GS}=10V$	2.9	mΩ
$R_{DS(on)}@V_{GS}=4.5V$	4.6	mΩ

Order Information

Product	Package	Marking	Packing
PTN10HN03	PDFN5X6	PTN10HN03	5000PCS/Reel



Symbol	Parameter		Rating	Unit
Common Ratings (Tc=25°C Unless Otherwise Noted)				
VGS	Gate-Source Voltage		±20	V
V(BR)DSS	Drain-Source Breakdown Voltage		30	V
TJ	Maximum Junction Temperature		150	°C
TSTG	Storage Temperature Range		-55 to 150	°C
IS	Diode Continuous Forward Current	TC =25°C	100	A
Mounted on Large Heat Sink				
IDM	Pulse Drain Current Tested (Sillicon Limit)	TC =25°C	400	A
ID	Continuous Drain current@VGS=10V (See Fig2)	TC =25°C	100	A
PD	Maximum Power Dissipation	TC =25°C	88	W
RθJC	Thermal Resistance-Junction to Case		1.42	°C/W
Drain-Source Avalanche Ratings				
EAS	Avalanche Energy, Single Pulsed ②		238	mJ



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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	30	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current(T _c =25°C)	V _{DS} =30V,V _{GS} =0V	--	--	1	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	1.6	2.5	V
R _{DS(ON)}	Drain-Source On-State Resistance①	V _{GS} =10V, I _D =40A	--	2.9	4.0	mΩ
R _{DS(ON)}	Drain-Source On-State Resistance①	V _{GS} =4.5V, I _D =20A	--	4.6	6.0	mΩ
Dynamic Electrical Characteristics @ T _J = 25°C (unless otherwise stated)						
C _{iss}	Input Capacitance	V _{DS} =25V,V _{GS} =0V, f=1MHz	--	2560	--	pF
C _{oss}	Output Capacitance		--	315	--	pF
C _{rss}	Reverse Transfer Capacitance		--	296	--	pF
Q _g	Total Gate Charge	V _{DS} =15V,I _D =24A, V _{GS} =10V	--	42	--	nC
Q _{gs}	Gate-Source Charge		--	4	--	nC
Q _{gd}	Gate-Drain Charge		--	13	--	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DD} =15V, I _D =15A, R _G =3.3Ω, V _{GS} =10V	--	13	--	nS
t _r	Turn-on Rise Time		--	19.5	--	nS
t _{d(off)}	Turn-Off Delay Time		--	42	--	nS
t _f	Turn-Off Fall Time		--	13	--	nS
Source- Drain Diode Characteristics@ T _J = 25°C (unless otherwise stated)						
I _{SD}	Source-drain current(Body Diode)	T _c =25°C	--	--	100	A
V _{SD}	Forward on voltage	I _S =40A,V _{GS} =0V	--	--	1.2	V
t _{rr}	Reverse Recovery Time	T _J =25°C,I _{sd} =40A, V _{GS} =0V	--	22	--	nS
Q _{rr}	Reverse Recovery Charge	di/dt=100A/μs		11	--	nC

Note:

① Pulse width $\leq 300\mu s$; duty cycle $\leq 2\%$.② Limited by T_{jmax} , starting $T_J = 25^\circ\text{C}$, $L = 0.5\text{mH}$, $R_G = 25\Omega$, $I_{AS} = 18.8A$, $V_{GS} = 10V$. Part not recommended for use above this value

③ Repetitive rating; pulse width limited by max. junction temperature.



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Typical Characteristics

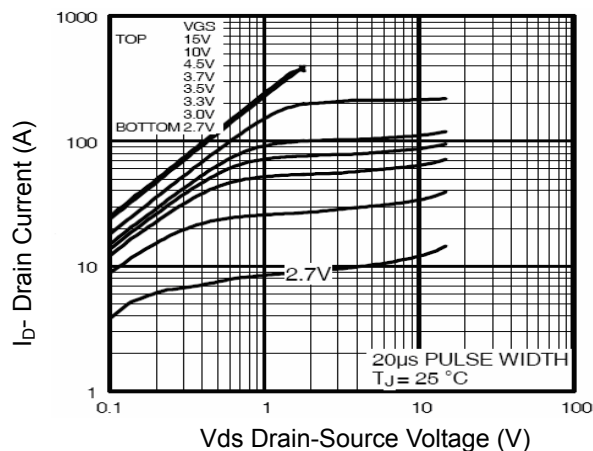


Figure 1 Output Characteristics

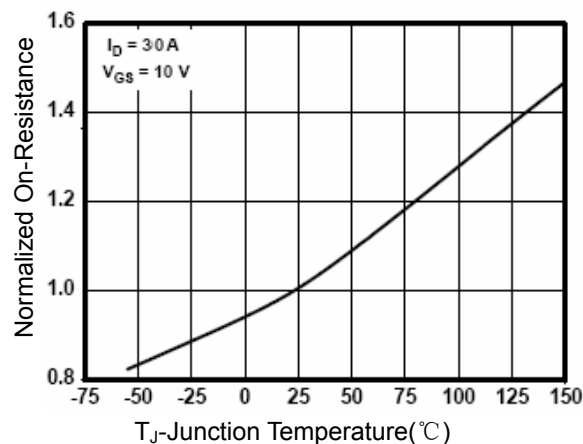


Figure 4 Rdson-Junction Temperature

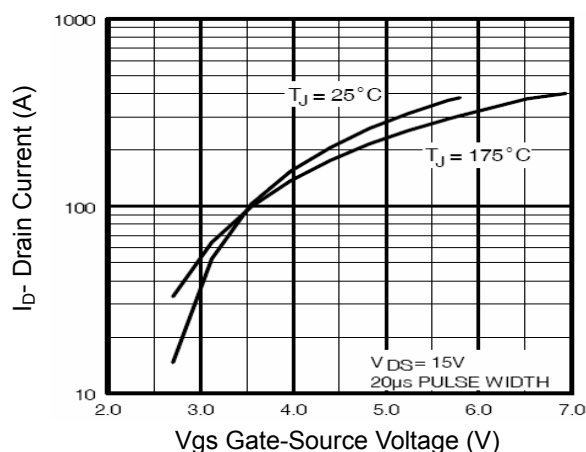


Figure 2 Transfer Characteristics

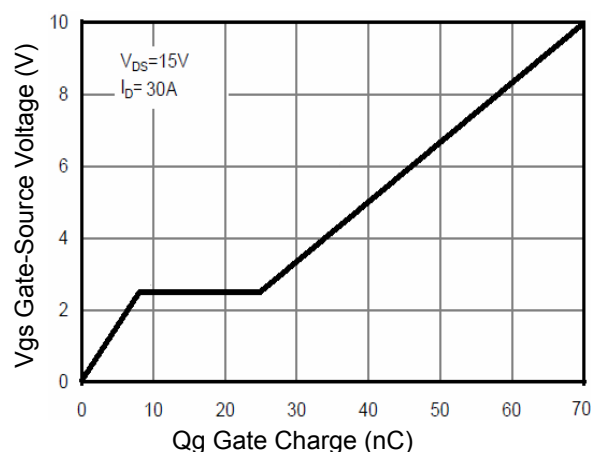


Figure 5 Gate Charge

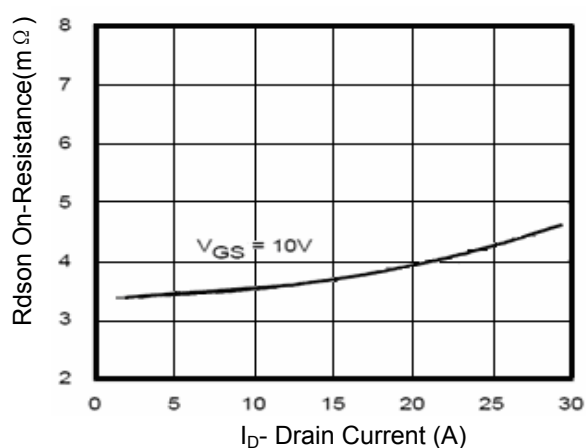


Figure 3 Rdson- Drain Current

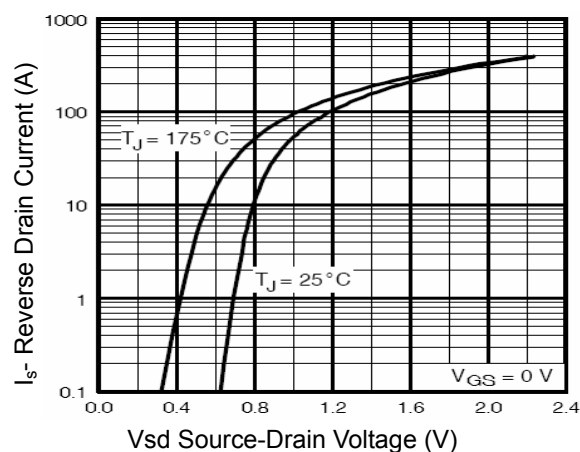


Figure 6 Source- Drain Diode Forward

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Typical Characteristics

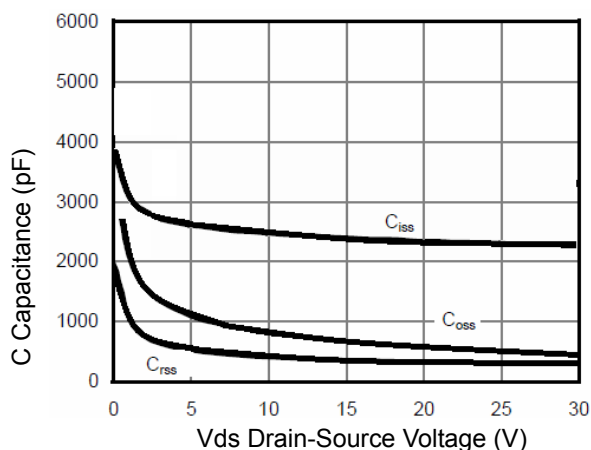


Figure 7 Capacitance vs Vds

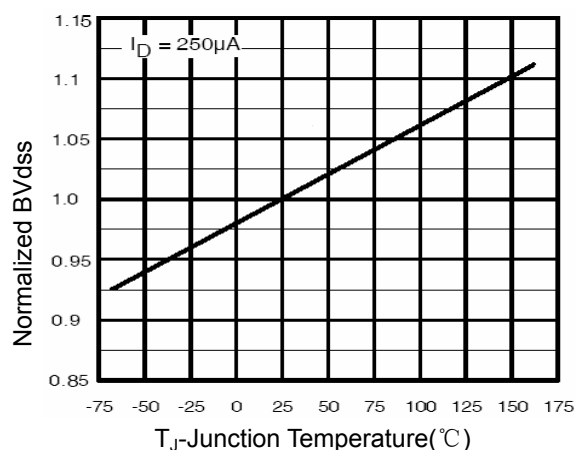


Figure 9 BV_{DSS} vs Junction Temperature

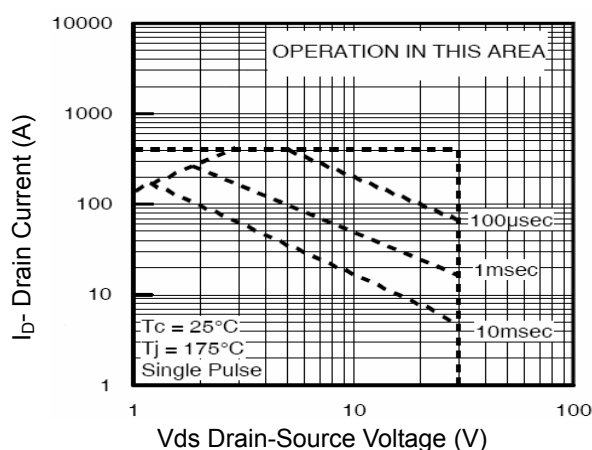


Figure 8 Safe Operation Area

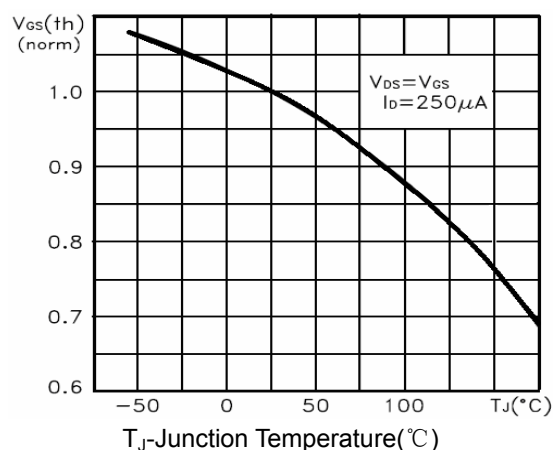
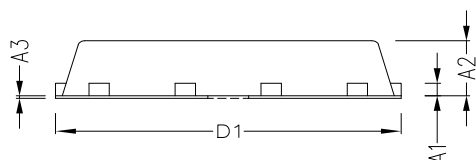


Figure 10 V_{GS(th)} vs Junction Temperature

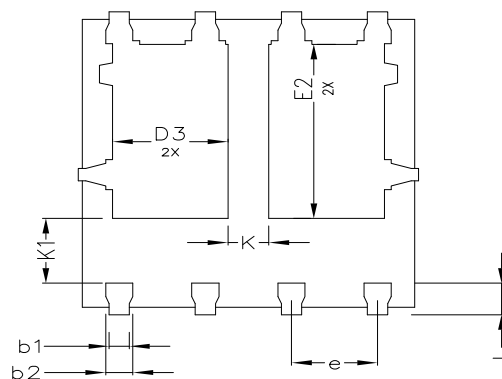
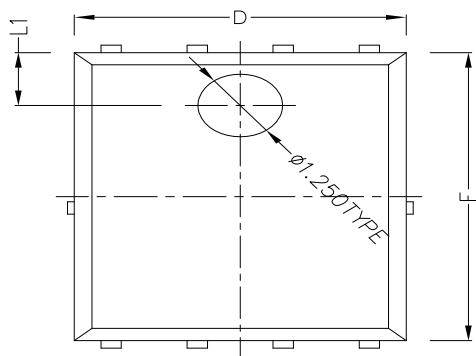


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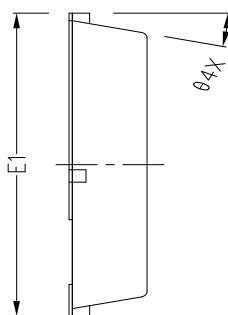
PDFN5X6 Package Outline Dimensions (Units: mm)



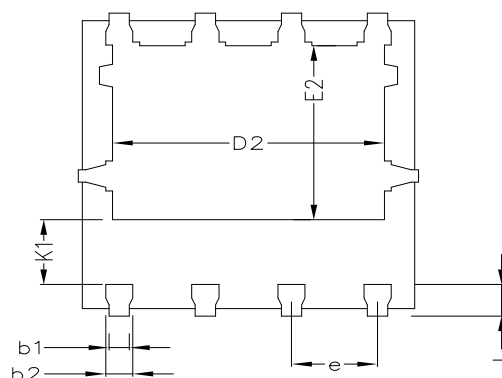
SIDE VIEW

BOTTOM VIEW
OPTION 2

TOP VIEW



SIDE VIEW

BOTTOM VIEW
OPTION 1

COMMON DIMENSIONS (UNITS OF MEASURE IS mm)			
	MIN	NORMAL	MAX
A1	0.254 BSC		
A2	1.000	1.100	1.200
A3	0.005	—	0.020
b1	0.250	0.300	0.350
b2	0.350	0.400	0.450
D	4.800	4.900	5.000
D1	5.000	5.100	5.200
D2	3.910	4.010	4.110
D3	1.605	1.705	1.805
E	5.650	5.750	5.850
E1	5.950	6.050	6.150
E2	3.375	3.475	3.575
e	1.270 TYPE		
L	0.530	0.630	0.730
L1	1.00REF		
θ	13° TYPE		
K	0.600 REF		
K1	1.235 REF		