

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
30V	2.0mΩ@10V	120A
	3.2mΩ@4.5V	

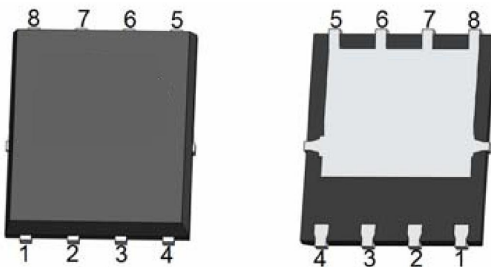
Feature

- Fast switching speed
- Surface mount package
- Low Gate Charge and Rdson

Application

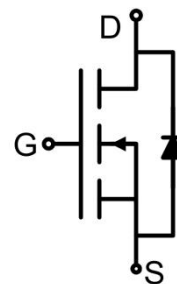
- DC/DC converter
- Motor Control

Package

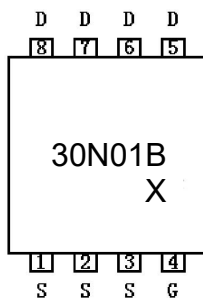


PDFN5*6-8L

Circuit diagram



Marking



Absolute maximum ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current($T_C=25^\circ\text{C}$)	I_D	120	A
Continuous Drain Current($T_C=100^\circ\text{C}$)	$I_D(100^\circ\text{C})$	80	A
Pulsed Drain Current	I_{DM}	480	A
Single pulse avalanche energy ¹⁾	E_{AS}	156	mJ
Power Dissipation ($T_C=25^\circ\text{C}$)	P_D	85	W
Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	1.5	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^\circ\text{C}$

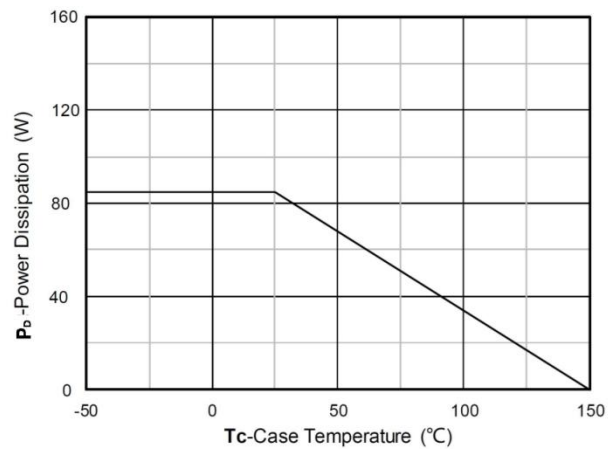
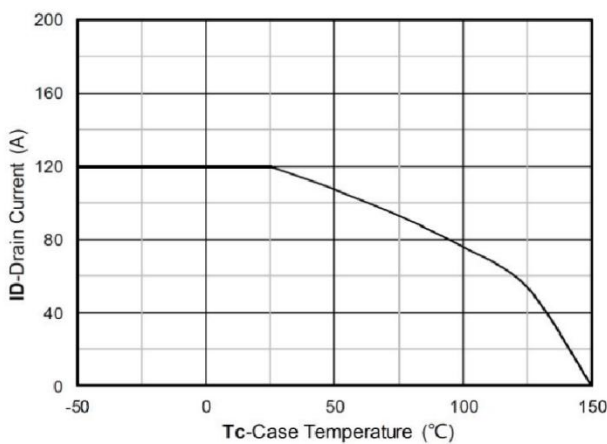
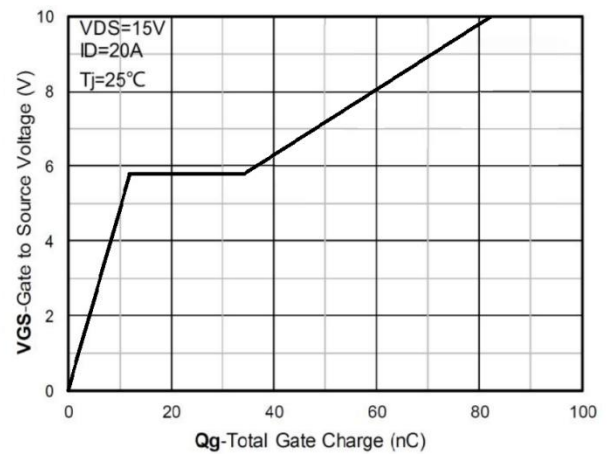
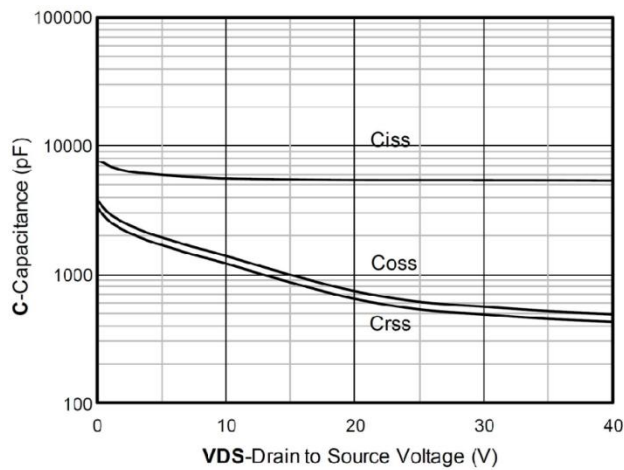
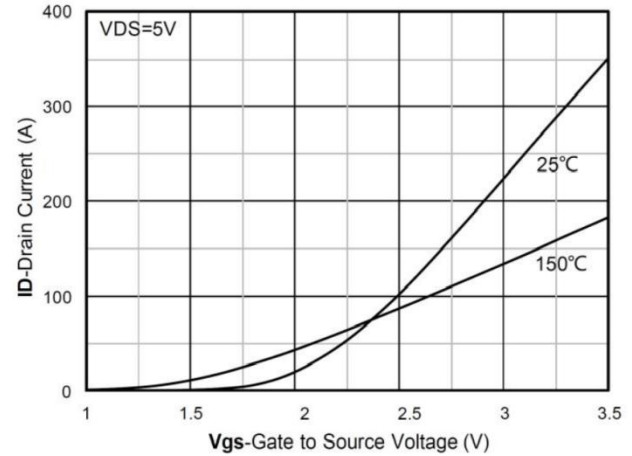
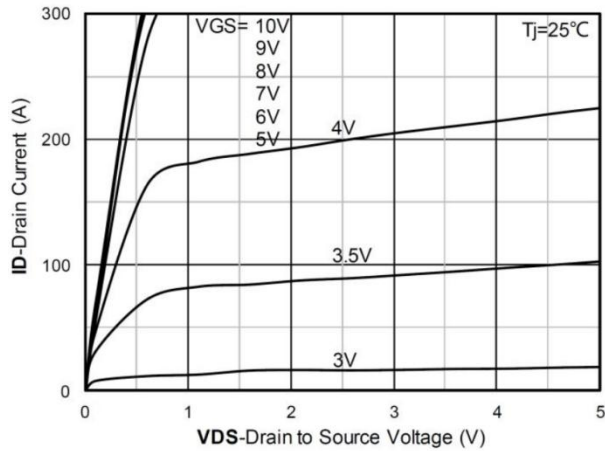
Electrical characteristics ($T_A=25^\circ\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =24V,V _{GS} = 0V,T _J =25°C			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±20V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.3	1.8	2.3	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =30A		1.5	2.0	mΩ
		V _{GS} =4.5V, I _D =20A		2.5	3.2	
Dynamic characteristics ²⁾						
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, f =1MHz		5896		pF
Output Capacitance	C _{oss}			745		
Reverse Transfer Capacitance	C _{rss}			604		
Total Gate Charge	Q _g	V _{DS} =15V, V _{GS} =10V, I _D =20A		83		nC
Gate-Source Charge	Q _{gs}			13		
Gate-Drain Charge	Q _{gd}			19		
Turn-on delay time	t _{d(on)}	V _{DD} =15V, V _{GS} =10V, I _D =20A, R _G =3Ω		12		nS
Turn-on rise time	t _r			16		
Turn-off delay time	t _{d(off)}			43		
Turn-off fall time	t _f			13		
Source-Drain Diode characteristics						
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =1A,T _J =25°C			1.2	V
Diode Forward Current	I _S				120	A
Reverse Recovery Time	T _{rr}	I _S =20A,di/dt = 100A/μs, T _J =25°C		51		nS
Reverse Recovery Charge	Q _{rr}			39		nC

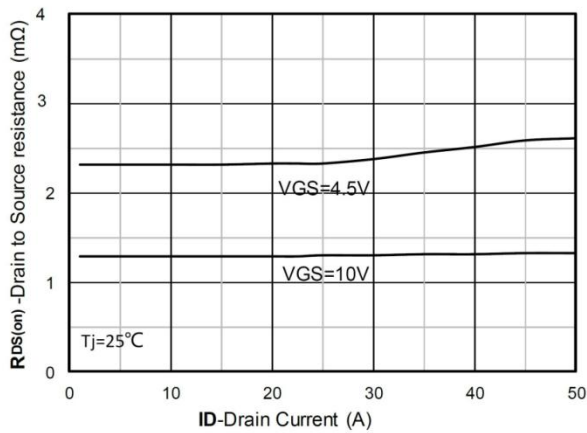
Notes:

- 1) The EAS Test condition is $V_{DD}=20V, V_{GS}=10V, L=0.1\text{mH}, R_G=25\Omega$.
- 2) Guaranteed by design, not subject to production.

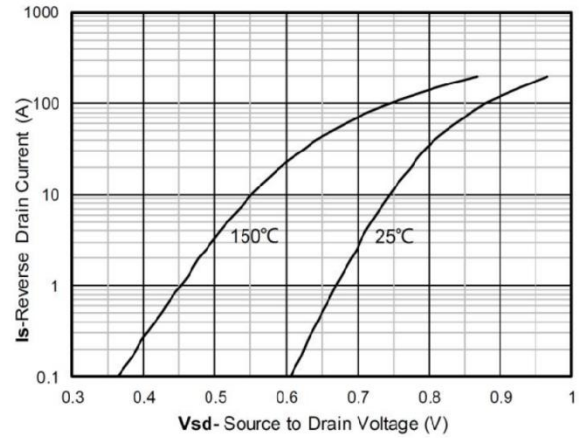
Typical Characteristics



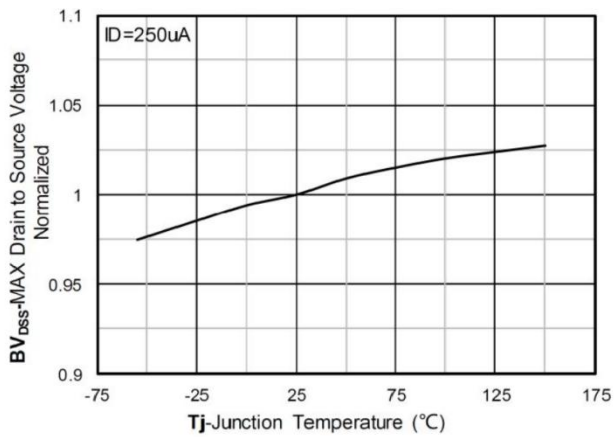
Typical Characteristics



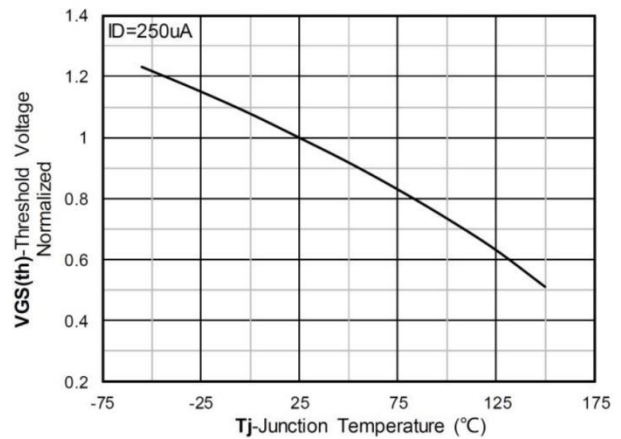
RDS(on) VS Drain Current



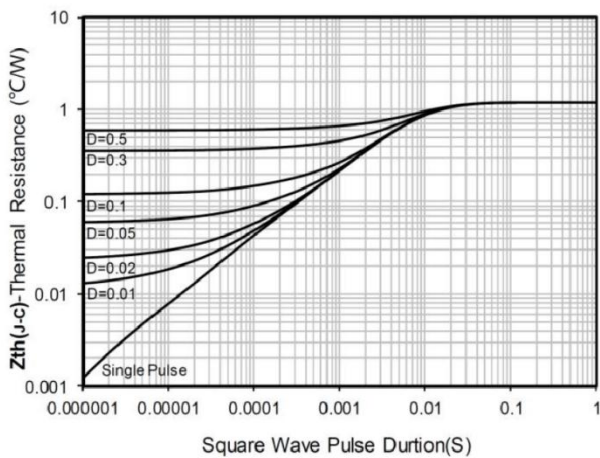
Forward characteristics of reverse diode



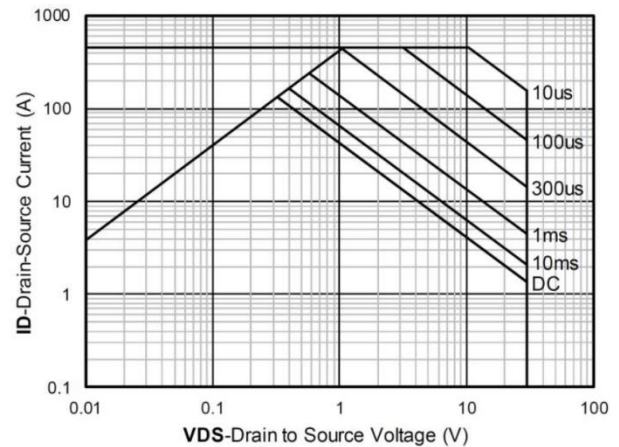
Normalized breakdown voltage



Normalized Threshold voltage

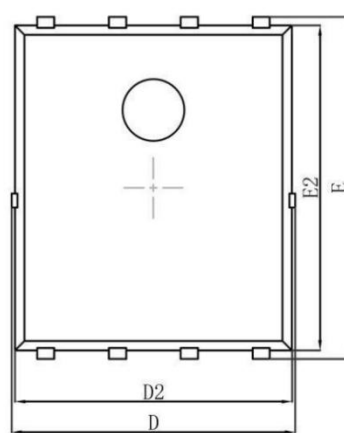


Maximum Transient Thermal Impedance

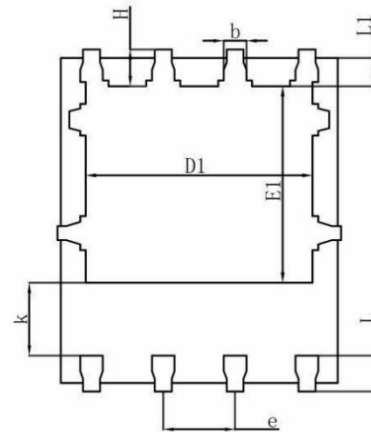


Safe Operation Area

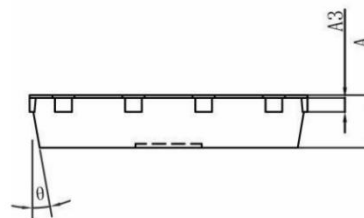
PDFN5*6-8L Package Information



Top View



Bottom View



Side View

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254 REF.		0.010 REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270 TYP.		0.050 TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°