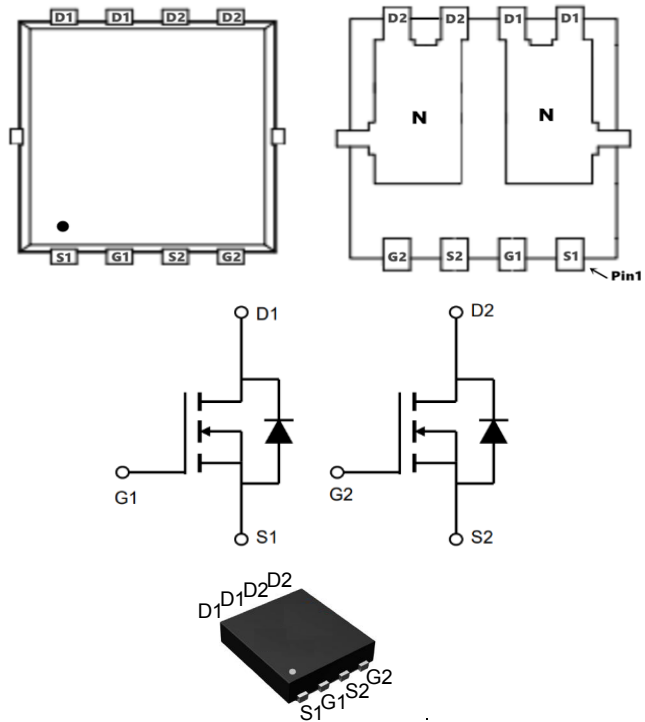


Features

- 30V/20A,
 $R_{DS(ON)} = 8.5m\Omega(\text{typ.}) @ V_{GS} = 10V$
 $R_{DS(ON)} = 10m\Omega(\text{typ.}) @ V_{GS} = 4.5V$
- 100% UIS + R_g Tested
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)

Pin Description



Applications

- Power Management in Notebook Computer, Portable Equipment and Battery Powered Systems.

Top View of DFN3.3x3.3-8-EP

Product ID	Pack	Marking	Qty(PCS)
XPX30NN8U5RX	PDFN3*3-8L		5000

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

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_C=25^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10V^1$	20	A
$I_D @ T_C=100^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10V^1$	13	A
$I_D @ T_A=25^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10V^1$	12	A
$I_D @ T_A=70^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10V^1$	8.6	A
I_{DM}	Pulsed Drain Current ²	81	A
EAS	Single Pulse Avalanche Energy ³	26	mJ
I_{AS}	Avalanche Current	25	A
$P_D @ T_C=25^\circ\text{C}$	Total Power Dissipation ⁴	29	W
$P_D @ T_A=25^\circ\text{C}$	Total Power Dissipation ⁴	2.1	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance Junction-Ambient ¹	78	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction-Case ¹	5.3	$^\circ\text{C/W}$

Electrical Characteristics (T_J=25 °C, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	30	---	---	V
ΔBV _{DSS} /ΔT _J	BVDSS Temperature Coefficient	Reference to 25 °C, I _D =1mA	---	0.023	---	V/°C
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =10V, I _D =15A	---	8.5	10	mΩ
		V _{GS} =4.5V, I _D =10A	---	10	14	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	1.0	---	2.5	V
ΔV _{GS(th)}	V _{GS(th)} Temperature Coefficient		---	-5.03	---	mV/°C
I _{DSS}	Drain-Source Leakage Current	V _{DS} =24V, V _{GS} =0V, T _J =25°C	---	---	1	uA
		V _{DS} =24V, V _{GS} =0V, T _J =55°C	---	---	5	
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V, V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =5V, I _D =15A	---	24.3	---	S
R _g	Gate Resistance	V _{DS} =0V, V _{GS} =0V, f=1MHz	---	1.7	---	Ω
Q _g	Total Gate Charge (4.5V)	V _{DS} =15V, V _{GS} =4.5V, I _D =12A	---	9.82	---	nC
Q _{gs}	Gate-Source Charge		---	2.24	---	
Q _{gd}	Gate-Drain Charge		---	5.54	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =15V, V _{GS} =10V, R _G =1.5Ω I _D =20A	---	6.4	---	ns
T _r	Rise Time		---	39	---	
T _{d(off)}	Turn-Off Delay Time		---	21	---	
T _f	Fall Time		---	4.7	---	
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	---	913	---	pF
C _{oss}	Output Capacitance		---	131	---	
C _{rss}	Reverse Transfer Capacitance		---	106	---	
I _S	Continuous Source Current ^{1,5}	V _G =V _D =0V, Force Current	---	---	37	A
I _{SM}	Pulsed Source Current ^{2,5}		---	---	75	A
V _{SD}	Diode Forward Voltage ²	V _{GS} =0V, I _S =1A, T _J =25°C	---	---	1	V

Note :

- 1.The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 2.The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%
- 3 .The EAS data shows Max. rating . The test condition is V_{DD}=25V,V_{GS}=10V,L=0.1mH,I_{AS}=22A
- 4.The power dissipation is limited by 175°C junction temperature
- 5 .The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

Typical Characteristics

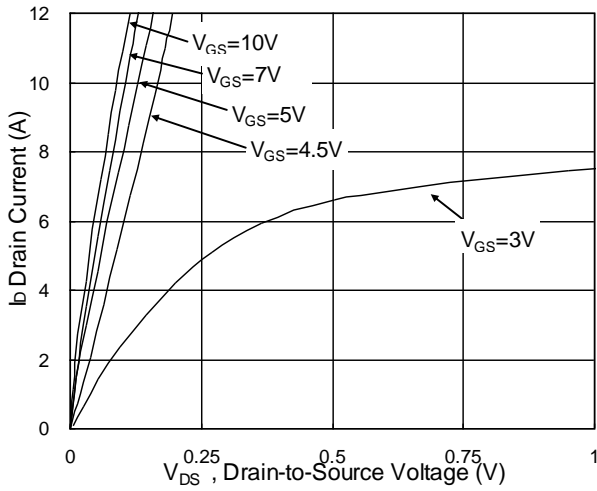


Fig.1 Typical Output Characteristics

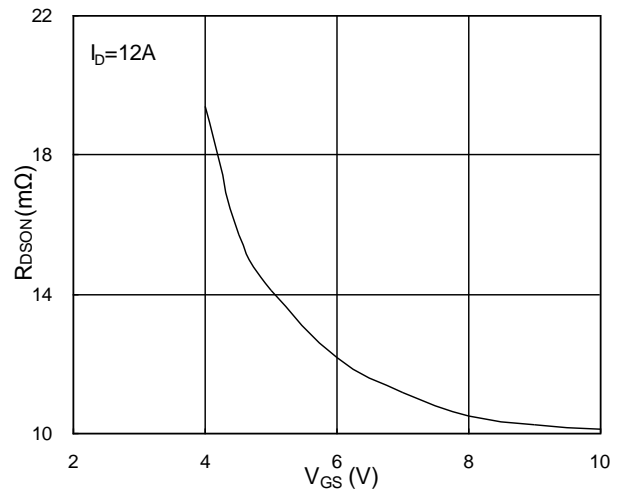


Fig.2 On-Resistance vs. G-S Voltage

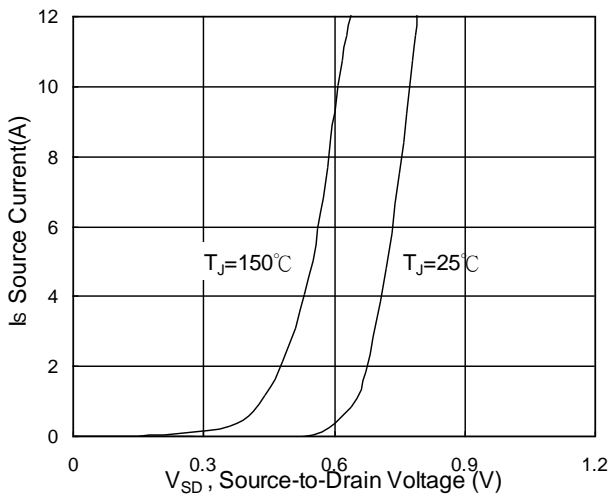


Fig.3 Forward Characteristics of Reverse

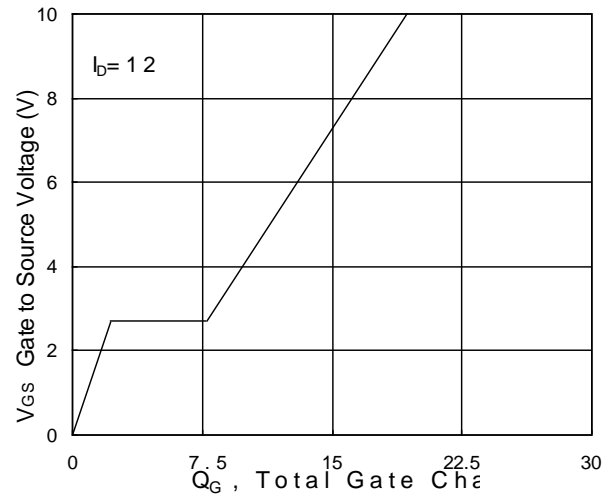


Fig.4 Gate-charge Characteristics

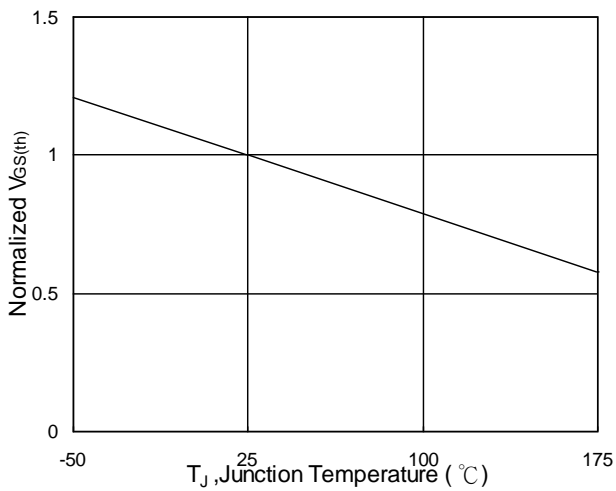


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

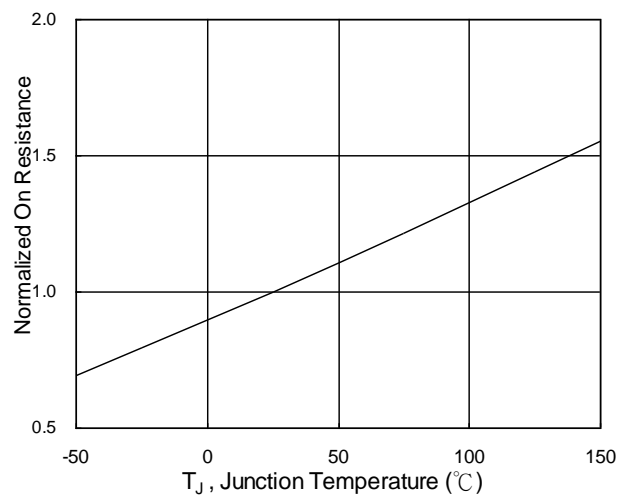


Fig.6 Normalized $R_{DS(on)}$ vs. T_J

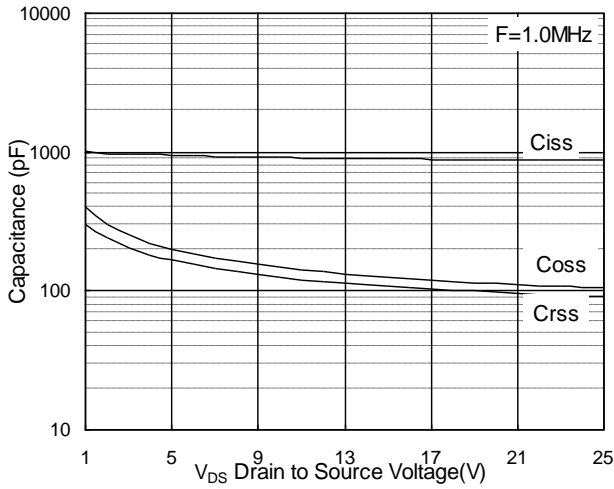


Fig.7 Capacitance

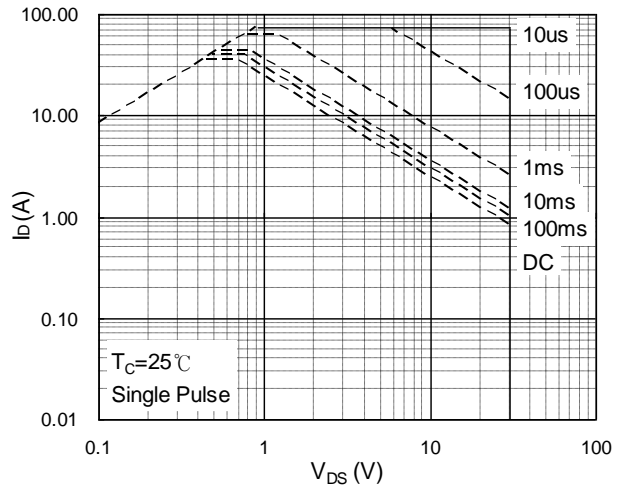


Fig.8 Safe Operating Area

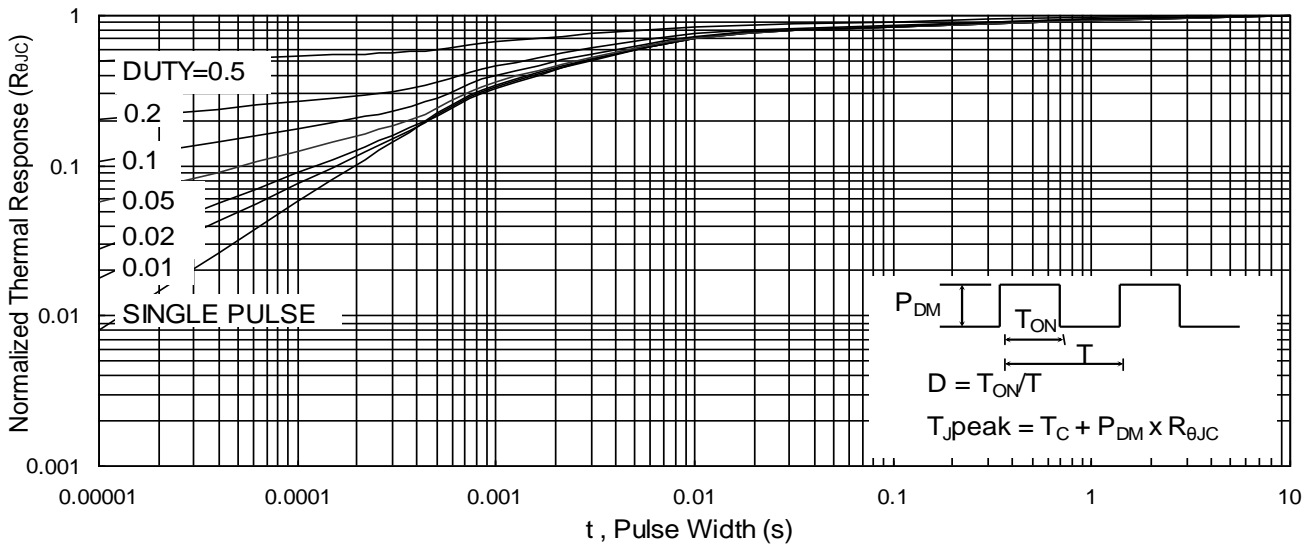


Fig.9 Normalized Maximum Transient Thermal Impedance

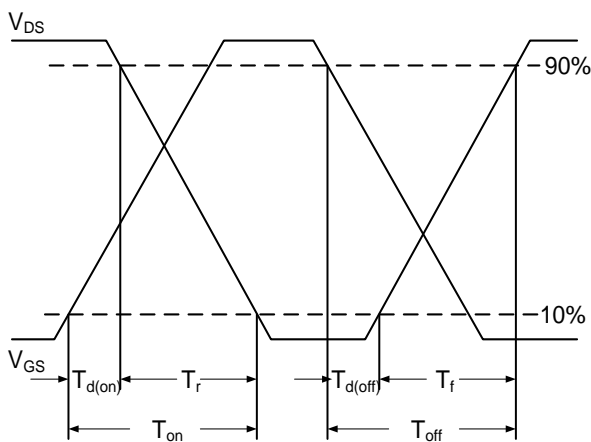


Fig.10 Switching Time Waveform

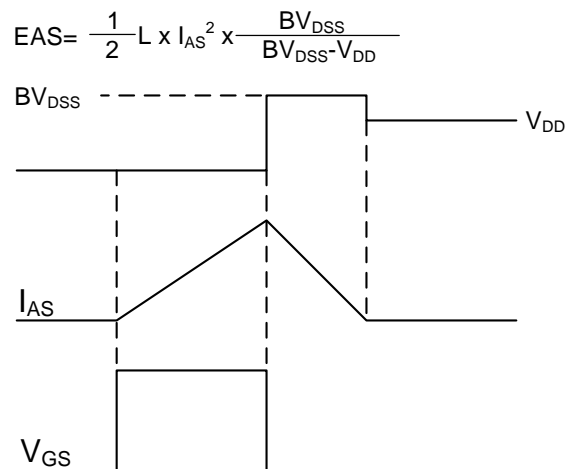


Fig.11 Unclamped Inductive Waveform

