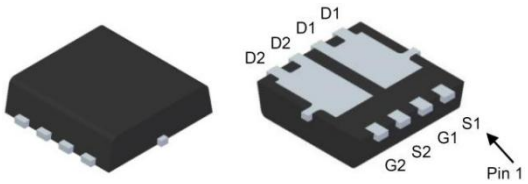
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
40V	11mΩ@10V	22A
	14mΩ@4.5V	

Feature

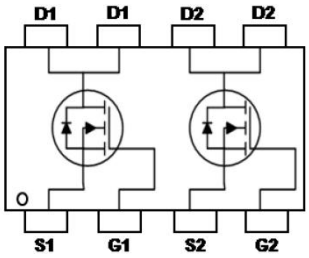
- High power and current handing capability
- Lead free product is acquired
- Surface mount package

Package

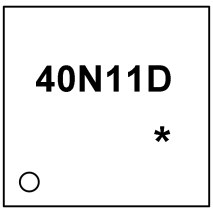


PDFN3X3-8L

Circuit diagram



Marking



40N11D =Device Code
* =Month Code

Absolute maximum ratings (Ta=25℃ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	22	A
Pulsed Drain Current	I_{DM}	88	A
Maximum Power Dissipation	P_D	26	W
Single Pulse Avalanche Energy[1]	E_{AS}	20	mJ
Thermal Resistance,Junction-to-Ambient	$R_{\theta JA}$	4.8	℃/W
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 To 150	℃

Electrical characteristics (T_A=25 °C, unless otherwise noted)

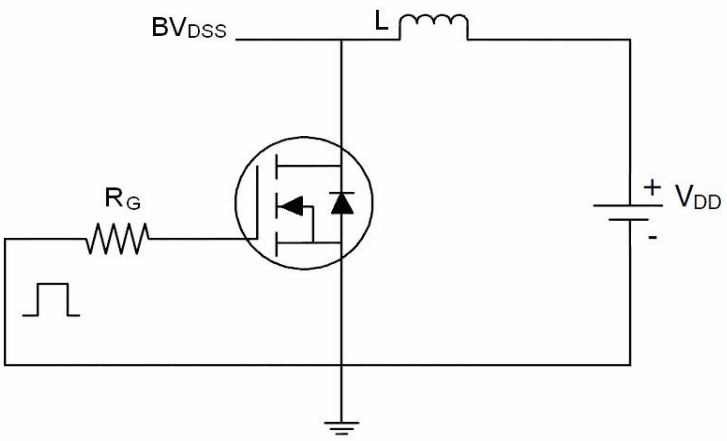
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	VGS=0V ID=250μA	40	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	VDS=40V,VGS=0V	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	VGS=±20V,VDS=0V	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	VDS=VGS,ID=250μA	1	1.5	2.5	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	VGS=10V, ID=8A	-	11	14	mΩ
		VGS=4.5V, ID=4A	-	14	20	mΩ
Dynamic Characteristics						
Input Capacitance	C_{lss}	VDS=20V,VGS=0V, F=1.0MHz	-	964	-	PF
Output Capacitance	C_{oss}		-	109	-	
Reverse Transfer Capacitance	C_{rss}		-	96	-	
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	VDD=20V, RL=2.5Ω VGS=10V,RGEN=3Ω	-	5.5	-	nS
Turn-on Rise Time	t_r		-	14	-	
Turn-Off Delay Time	$t_{d(off)}$		-	24	-	
Turn-Off Fall Time	t_f		-	12	-	
Total Gate Charge	Q_g	VDS=20V,ID=8A, VGS=10V	-	22.9	-	nC
Gate-Source Charge	Q_{gs}		-	3.5	-	
Gate-Drain Charge	Q_{gd}		-	5.3	-	
Drain-Source Diode Characteristics						
Diode Forward Voltage	V_{SD}	VGS=0V,IS=9A	-	0.8	1.2	V

Note :

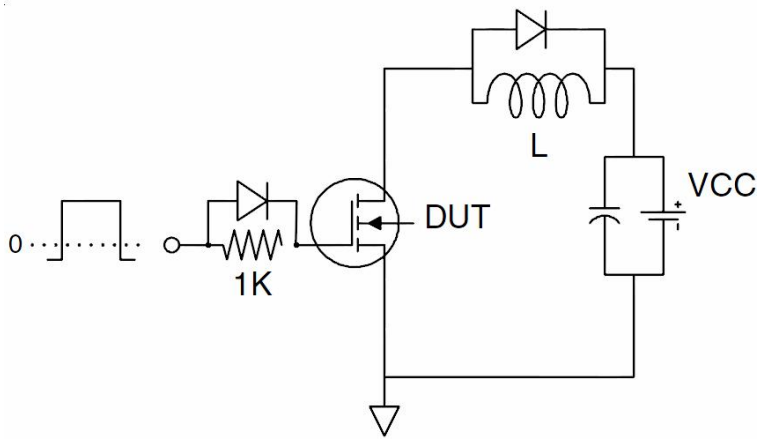
1. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
2. The EAS data shows Max. rating . The test condition is VDD=25V,VGS=10V,L=0.1mH
3. The power dissipation is limited by 150℃ junction temperature

Test Circuit

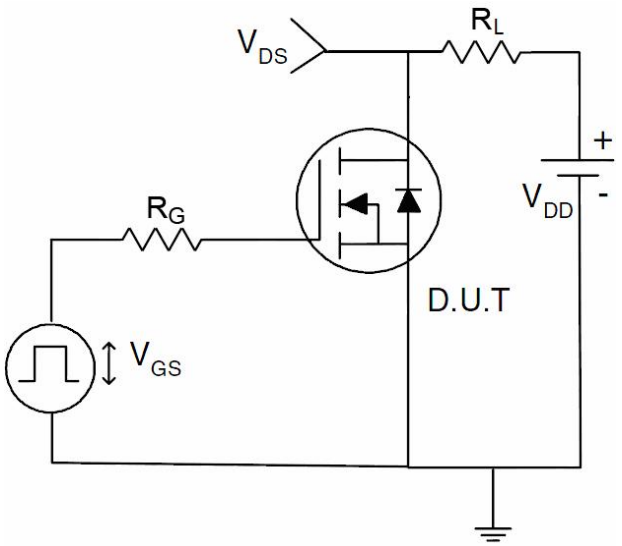
1) EAS Test Circuits



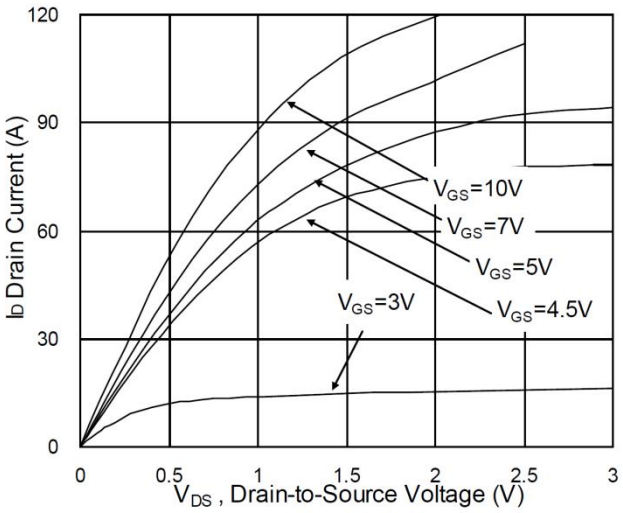
2) Gate Charge Test Circuit



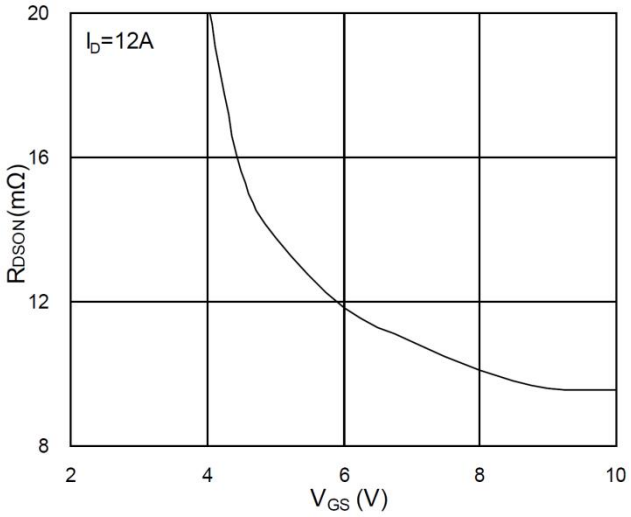
3) Switch Time Test Circuit



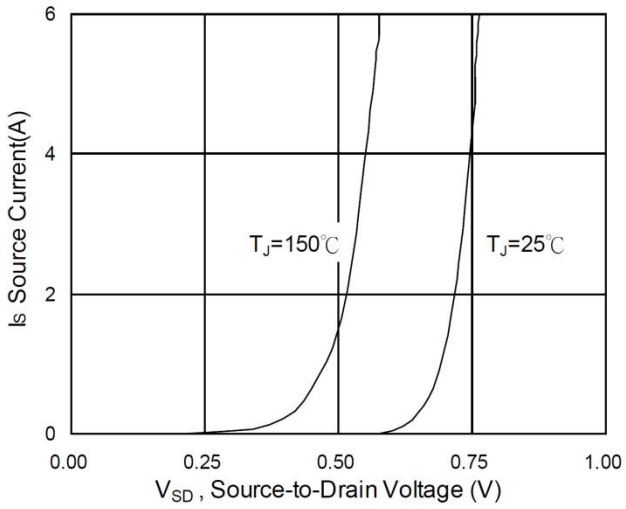
Typical Characteristics



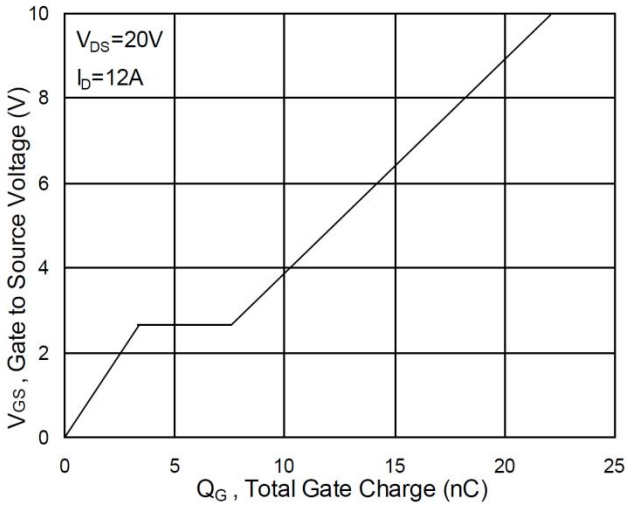
Typical Output Characteristics



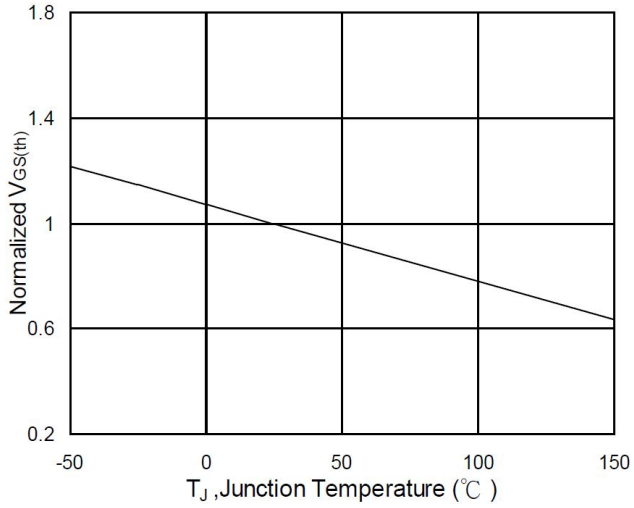
On-Resistance vs. G-S Voltage



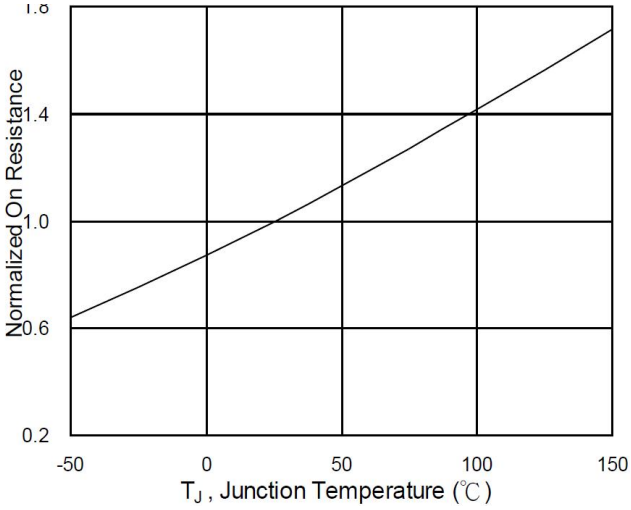
Forward Characteristics of Reverse



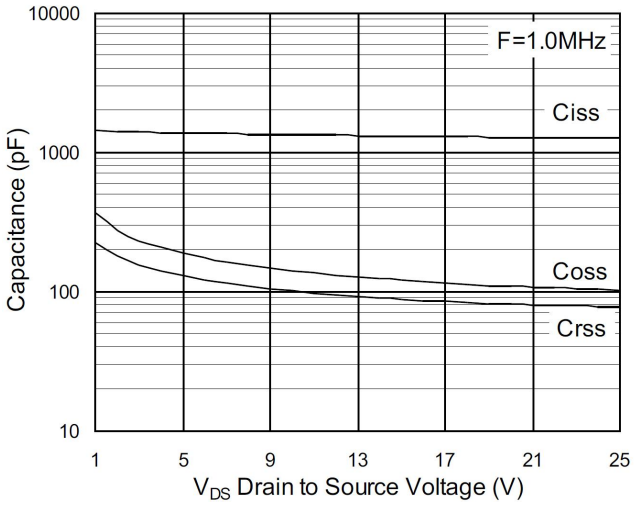
Gate-Charge Characteristics



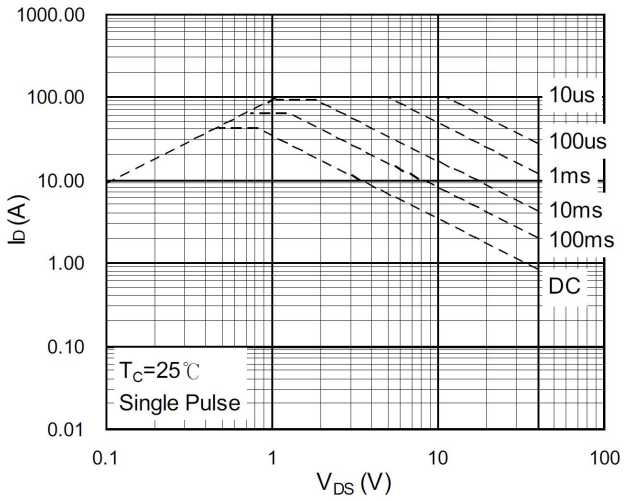
$V_{GS(th)}$ vs. T_J



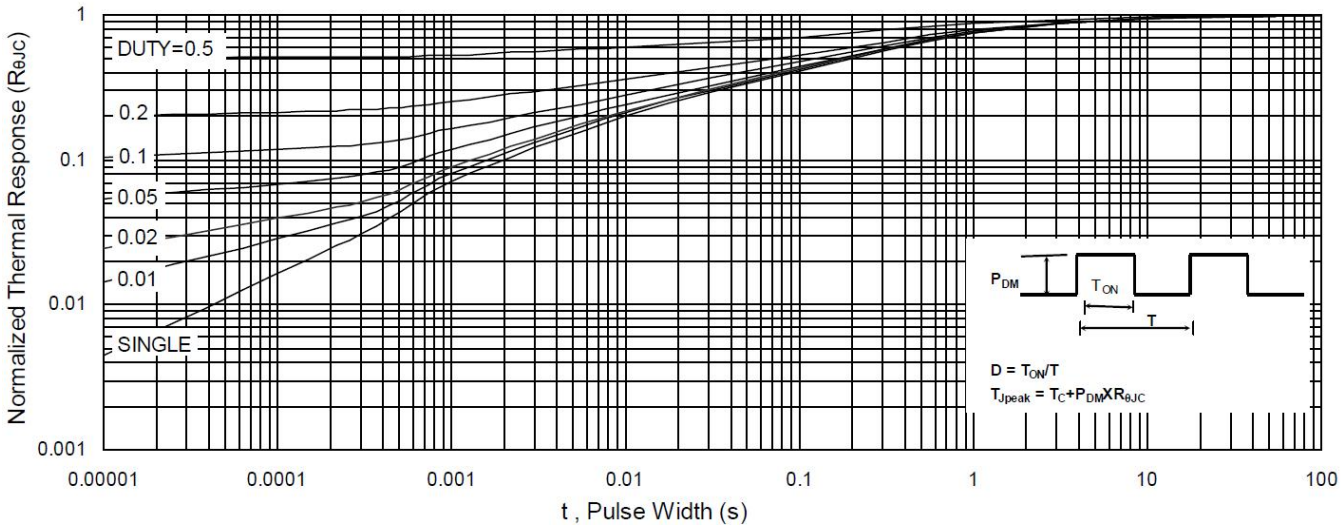
Normalized R_{DSON} vs. T_J



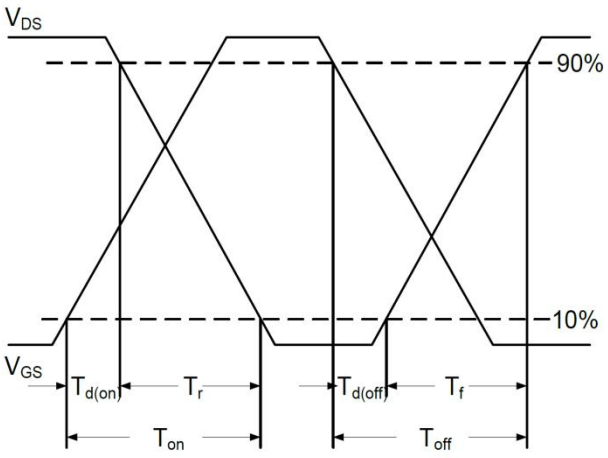
Capacitance



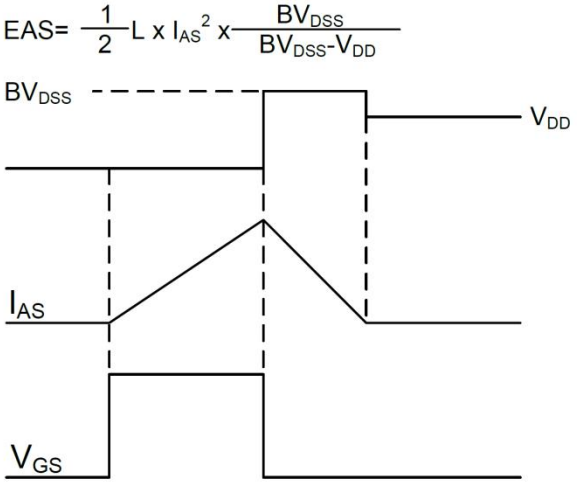
Safe Operating Area



Normalized Maximum Transient Thermal Impedance

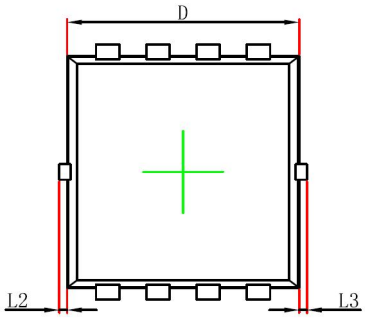


Switching Time Waveform

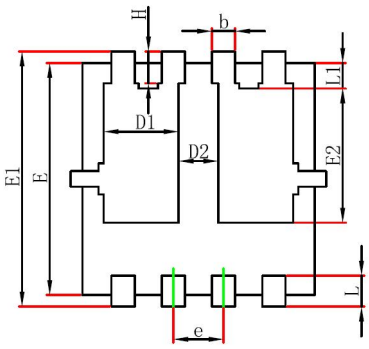


Unclamped Inductive Switching Waveform

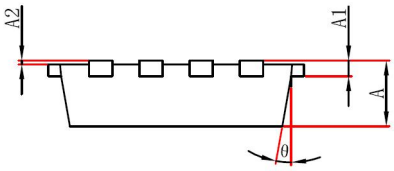
PDFNWB3.3×3.3-8L-B Package Information



Top View
[顶视图]



Bottom View
[背视图]



Side View
[侧视图]

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.650	0.850	0.026	0.033
A1	0.152 REF.		0.006 REF.	
A2	0~0.05		0~0.002	
D	2.900	3.100	0.114	0.122
D1	0.935	1.135	0.037	0.045
D2	0.280	0.480	0.011	0.019
E	2.900	3.100	0.114	0.122
E1	3.150	3.450	0.124	0.136
E2	1.535	1.935	0.060	0.076
b	0.200	0.400	0.008	0.016
e	0.550	0.750	0.022	0.030
L	0.300	0.500	0.012	0.020
L1	0.180	0.480	0.007	0.019
L2	0~0.100		0~0.004	
L3	0~0.100		0~0.004	
H	0.315	0.515	0.012	0.020
θ	9°	13°	9°	13°