

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	8.5mΩ@10V	18A
	12mΩ@4.5V	



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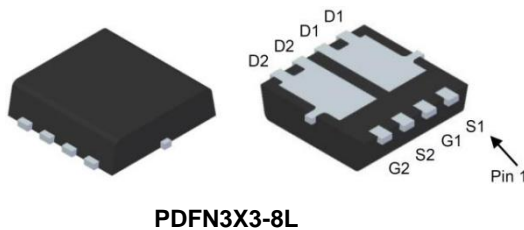
Feature

- Fast Switching
- Low Gate Charge and Rds on
- Low Reverse transfer capacitances
- 100% Single Pulse avalanche energy Test

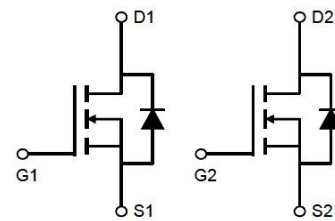
Applications

- Power switching application
- Isolated DC/DC Converters in Telecom and Industrial

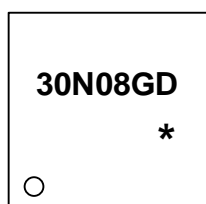
Package



Circuit diagram



Marking



30N08GD =Device Code
* =Month Code

Order Information

Device	Package	Unite/Tape
SP30N08GDNJ	PDFN3 × 3-8L	5000

Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (T _C =25°C)	I_D	18	A
Pulsed Drain Current ²	I_{DM}	72	A
Single Pulse Avalanche Energy ³	E_{AS}	39.2	mJ
Total Power Dissipation ⁴ (T _C =25°C)	P_D	21	W
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	5.95	°C/W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C

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

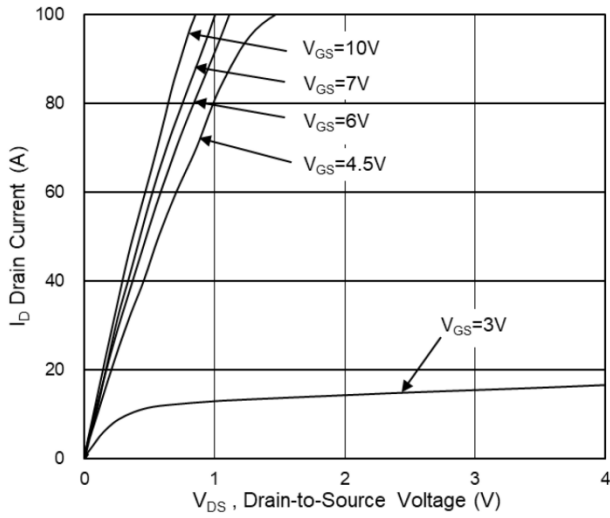
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	30	---	---	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$	---	---	1	uA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	1.0	1.7	2.5	V
Static Drain-Source On-Resistance ²	$R_{DS(on)}$	$V_{GS}=10V, I_D=9A$	---	8.5	11	mΩ
		$V_{GS}=4.5V, I_D=9A$	---	12	16	
Dynamic Characteristics						
Total Gate Charge (4.5V)	Q_g	$V_{DS}=15V, V_{GS}=10V, I_D=9A$	---	7.1	---	nC
Gate-Source Charge	Q_{gs}		---	2.2	---	
Gate-Drain Charge	Q_{gd}		---	3.1	---	
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V, f=1MHz$	---	1109	---	pF
Output Capacitance	C_{oss}		---	240	---	
Reverse Transfer Capacitance	C_{rss}		---	220	---	
Switching Characteristics						
Turn-On Delay Time	$T_{d(on)}$	$V_{DD}=15V, V_{GS}=10V, R_G=3\Omega, I_D=9A$	---	7	---	ns
Rise Time	T_r		---	18.8	---	
Turn-Off Delay Time	$T_{d(off)}$		---	19.5	---	
Fall Time	T_f		---	3.4	---	
Source-Drain Diode Characteristics						
Continuous Source Current ^{1,5}	I_S	$V_G=V_D=0V, \text{Force Current}$	---	---	12	A
Diode Forward Voltage ²	V_{SD}	$V_{GS}=0V, I_S=1A, T_J=25^\circ C$	---	---	1	V

Note :

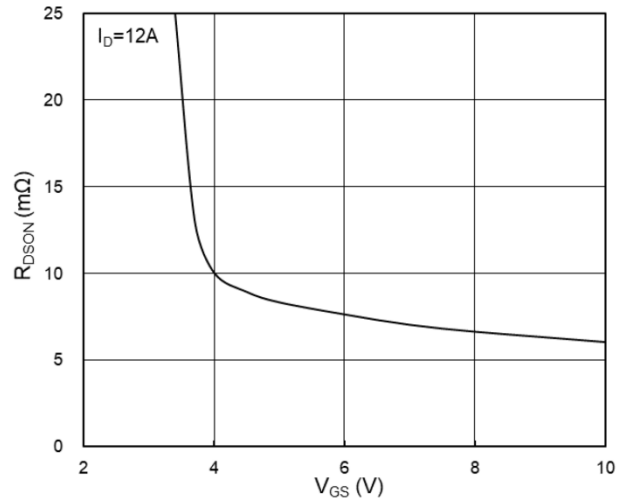
- The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
- The EAS data shows Max. rating . The test condition is $V_{DD}=25V, V_{GS}=10V, L=0.1mH, I_{AS}=28A$
- The power dissipation is limited by 150°C junction temperature
- The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.



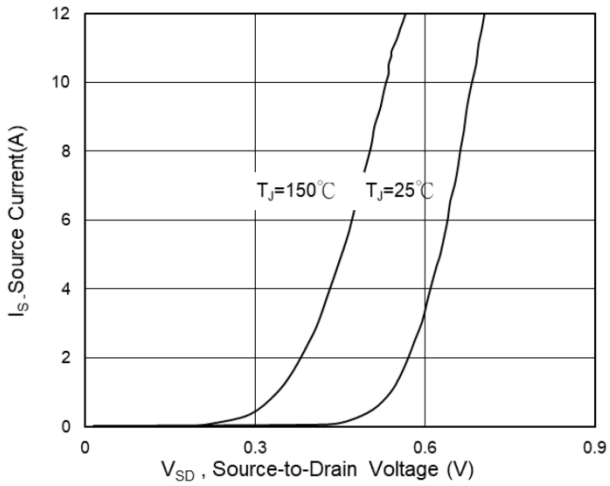
Typical Characteristics



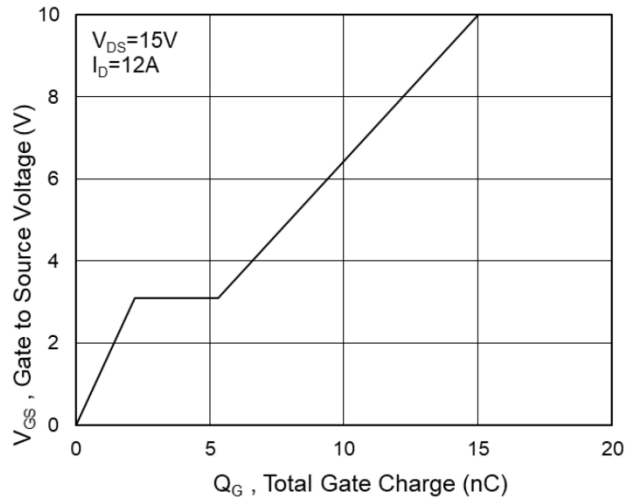
Typical Output Characteristics



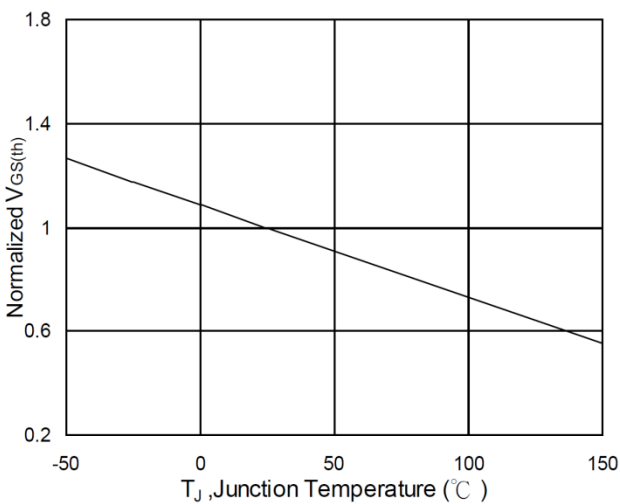
On-Resistance vs G-S Voltage



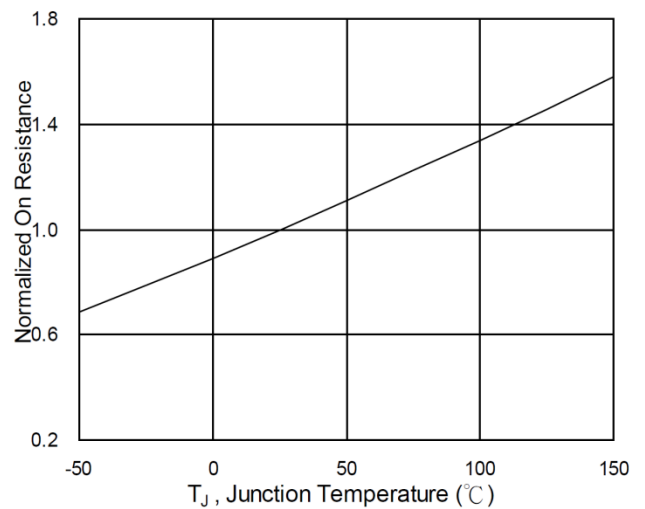
Source Drain Forward Characteristics



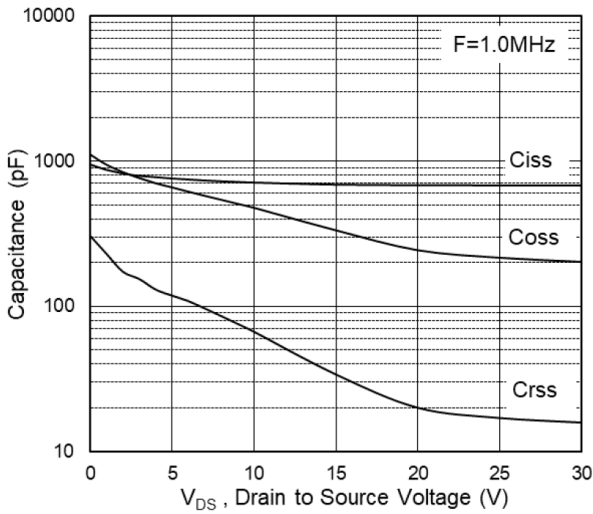
Gate-Charge Characteristics



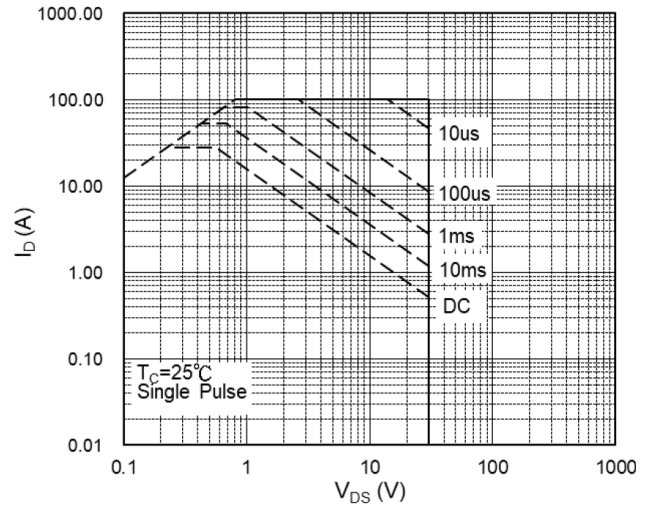
Normalized $V_{GS(th)}$ vs T_J



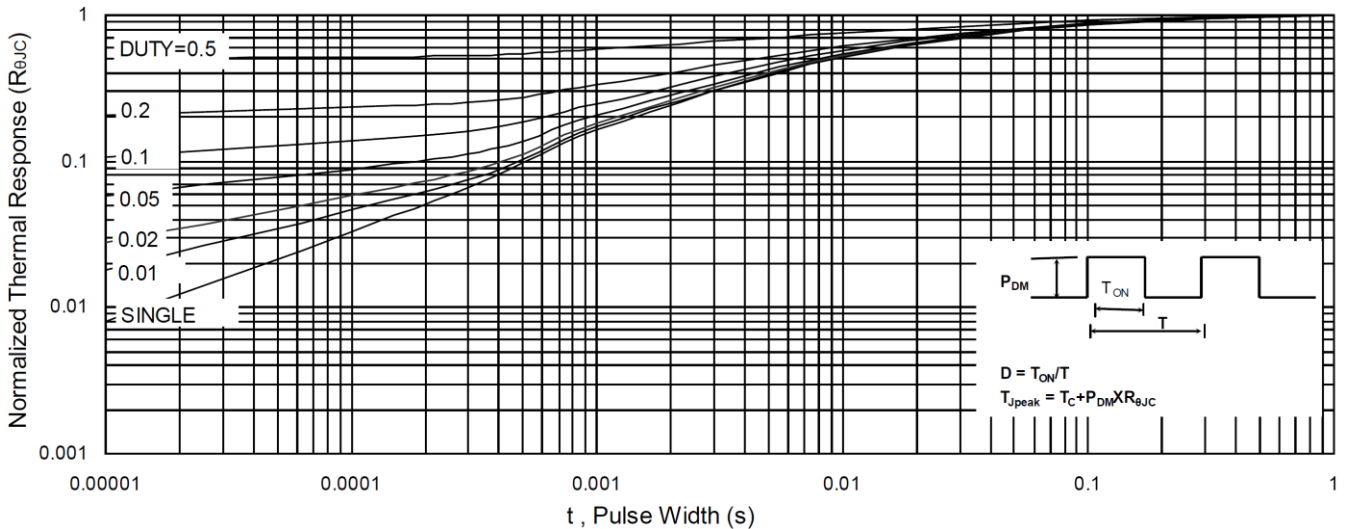
Normalized $R_{DS(on)}$ vs T_J



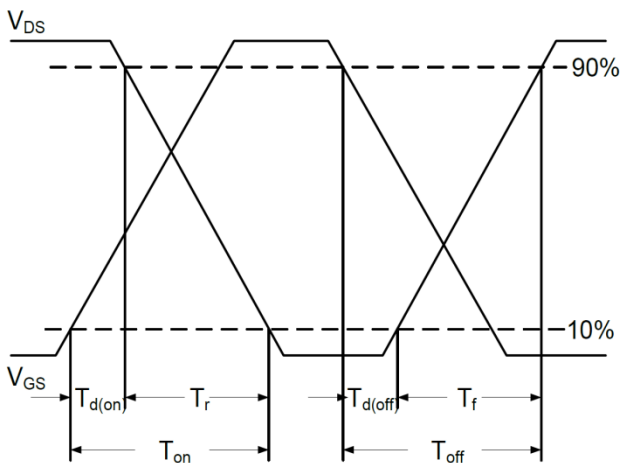
Capacitance



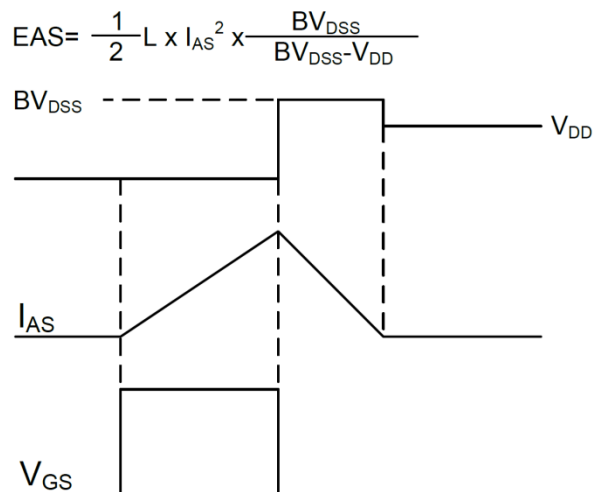
Safe Operating Area



Normalized Maximum Transient Thermal Impedance



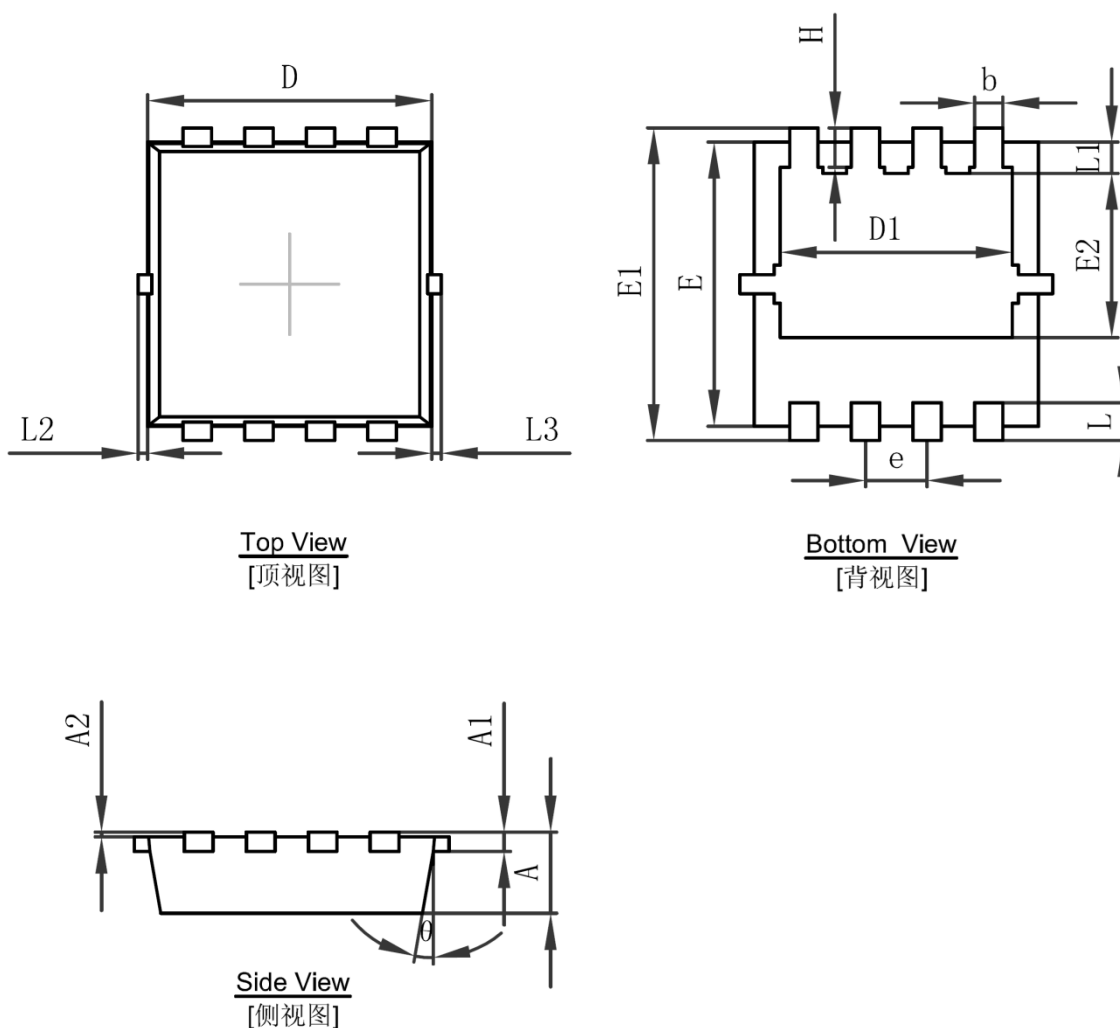
Switching Time Waveform



Unclamped Inductive Switching Waveform



PDFN3X3-8L Package Information



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	2.300	2.600	0.091	0.102
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°

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