

Product Summary

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

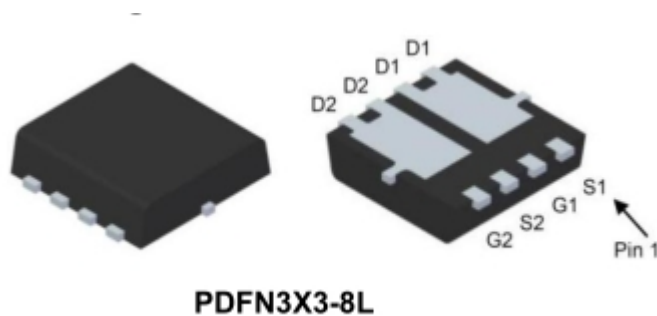
Feature

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

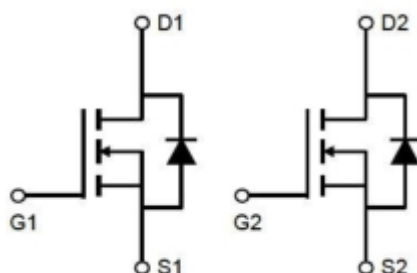
Applications

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

Package



Circuit diagram



Marking



30N08GD =Device Code
* =Month Code

Absolute maximum ratings

(T_a=25°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 (TC=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 (TC=25°C)	P _D	21	W
Thermal Resistance Junction-Case ¹	R _{θJC}	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

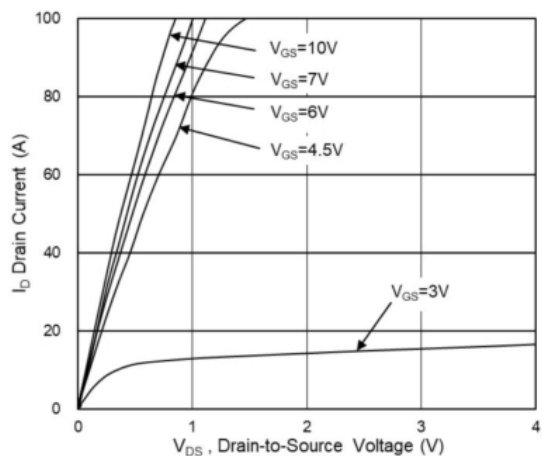
($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$BV_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS} = 30V, V_{GS} = 0V$			1	μA
Gate-Source Leakage	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	μA
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	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	m Ω
		$V_{GS} = 4.5V, I_D = 9A$		12	16	
Dynamic Characteristics						
Total Gate Charge	Q_g	$V_{DS} = 15V, V_{GS} = 10V, I_D = 9A$		7.1		pF
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 Times						
Turn-on Delay Time	$T_{d(on)}$	$V_{DD} = 15V, V_{GS} = 10V, R_G = 3\Omega, I_D = 9A$		7		nS
Turn-on Rise Time	T_r			18.8		
Turn-off Delay Time	$T_{d(off)}$			19.5		
Turn-off 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}	$I_S = 1A, V_{GS} = 0V$		0.75	1	V

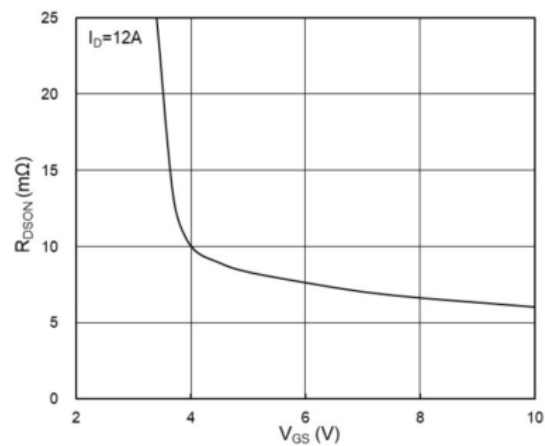
Notes:

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 $\leq 300\mu s$, duty cycle $\leq 2\%$
3. The EAS data shows Max. rating . The test condition is $V_{DD} = 25V, V_{GS} = 10V, L = 0.1mH, I_{AS} = 28A$
4. The power dissipation is limited by 150°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.

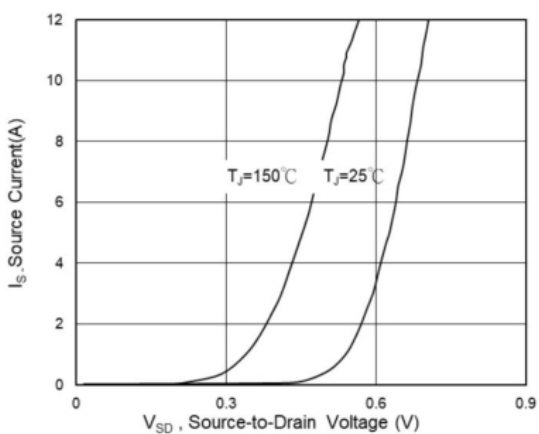
Typical Characteristics



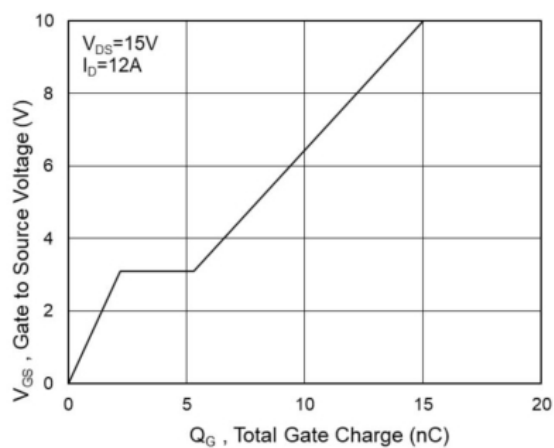
Typical Output Characteristics



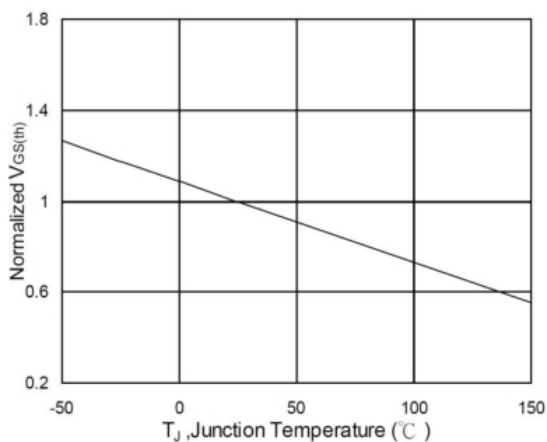
On-Resistance vs G-S Voltage



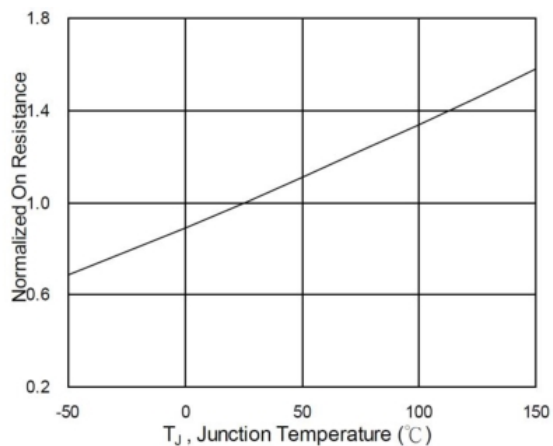
Source Drain Forward Characteristics



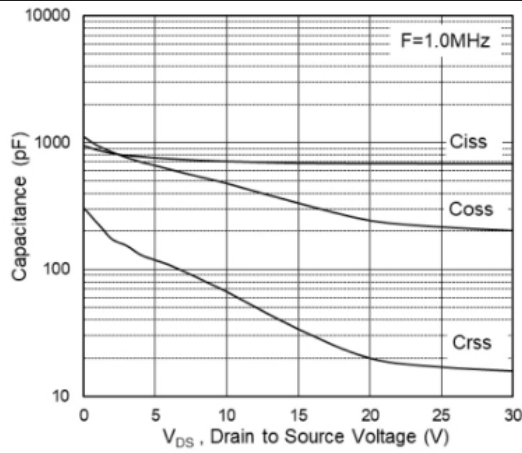
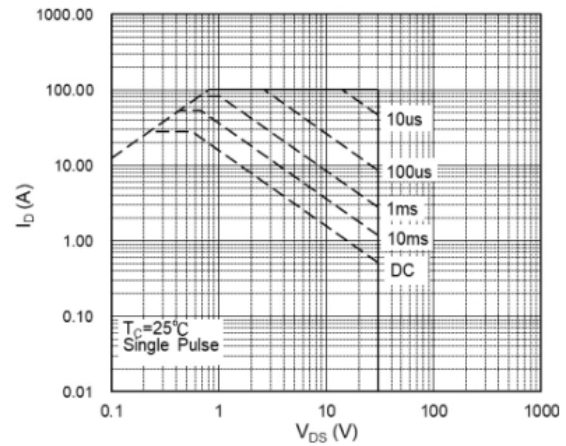
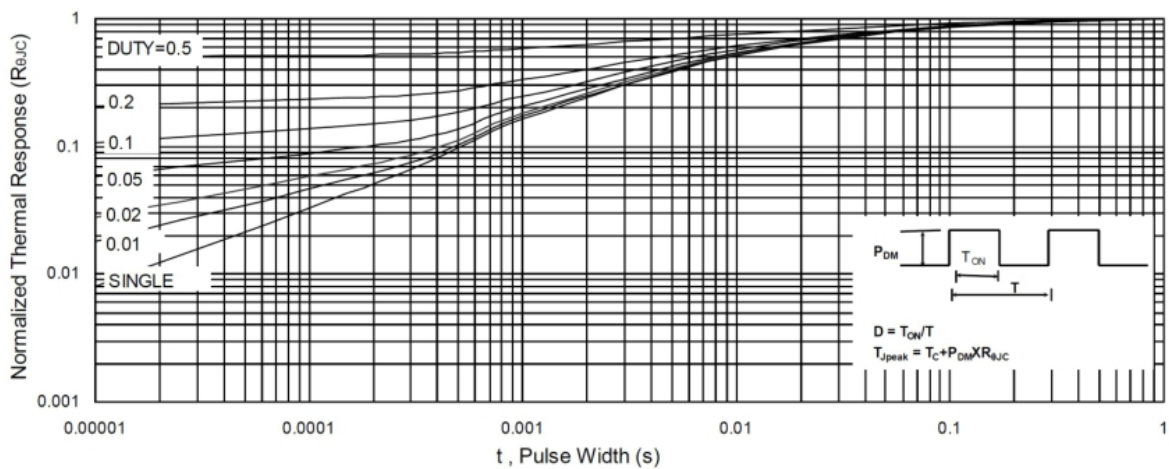
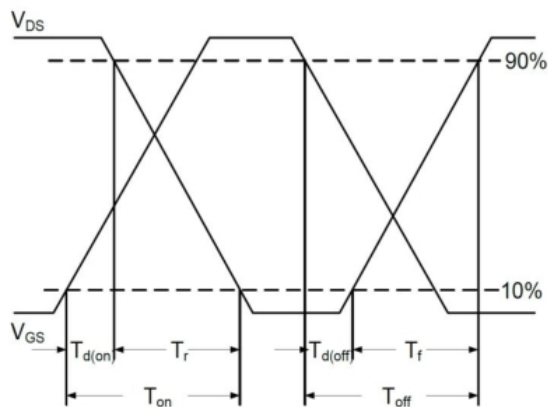
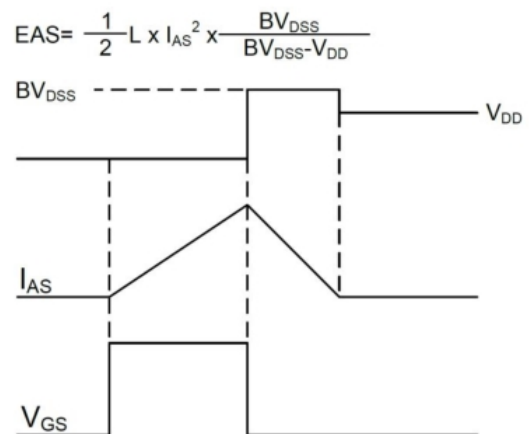
Gate-Charge Characteristics



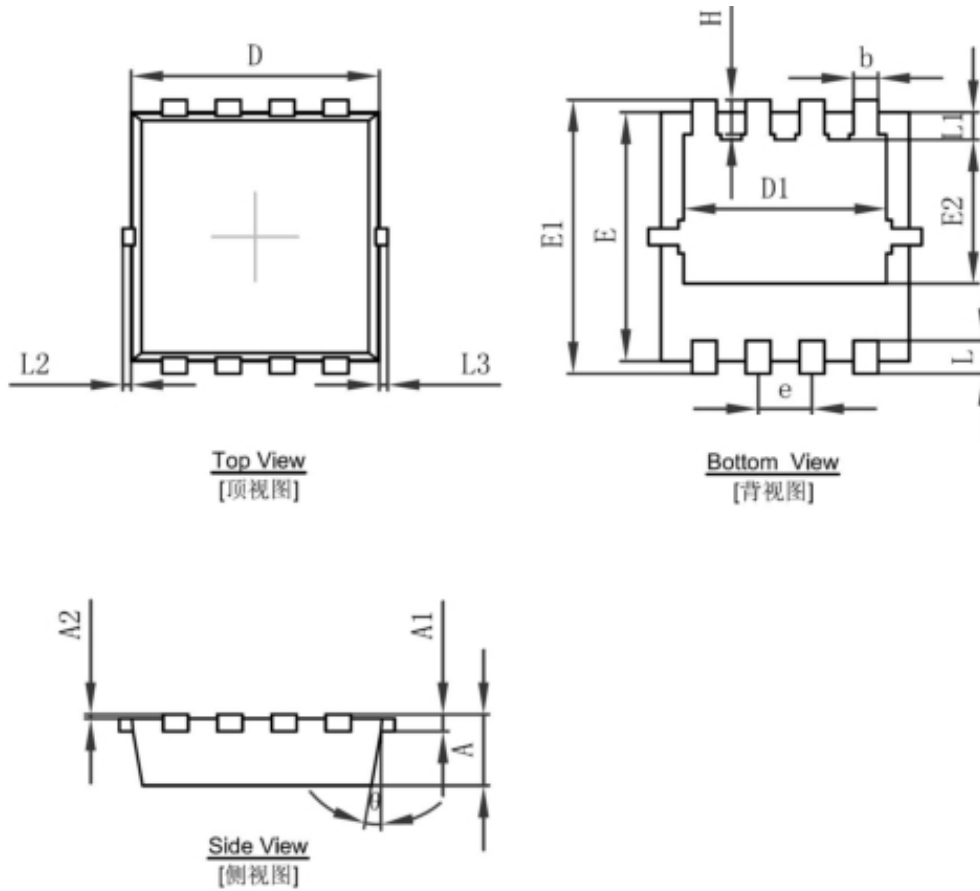
Normalized $V_{GS(th)}$ vs T_J



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°