

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	8.5mΩ@10V	24A
	12mΩ@4.5V	

Feature

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

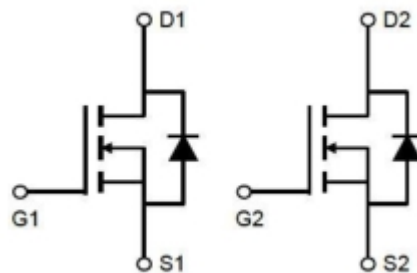
Applications

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

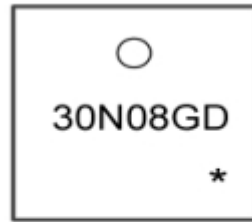
Package



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	24	A
Pulsed Drain Current ²	I _{DM}	96	A
Single Pulse Avalanche Energy ³	E _{AS}	39.2	mJ
Total Power Dissipation ⁴ (TC=25°C)	P _D	28	W
Thermal Resistance Junction-Case ¹	R _{θJC}	4.5	°C/W
Storage Temperature Range	T _{STG}	-55 to 150	°C
Operating Junction Temperature Range	T _J	-55 to 150	°C

Electrical characteristics

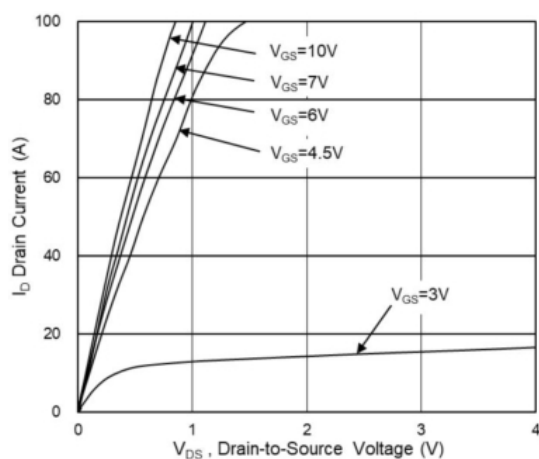
($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV (BR)DSS	V _{GS} = 0V, I _D =250μA	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} = 0V			1	uA
Gate-Source Leakage	I _{GSS}	V _{GS} = ±20V, V _{DS} =0V			±100	uA
Gate-Source Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0	1.7	2.5	V
Static Drain-Source On-Resistance	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		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 Characteristics						
Turn-on Delay Time	T _{d(on)}	V _{DD} =15V, V _{GS} =10V, R _G =3Ω, 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,Force Current			12	A
Body Diode Voltage ²	V _{SD}	I _S =1A, V _{GS} = 0V ,T _J =25℃			1	V

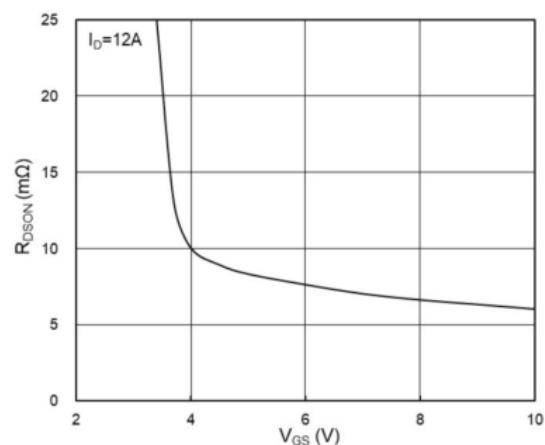
Notes:

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.

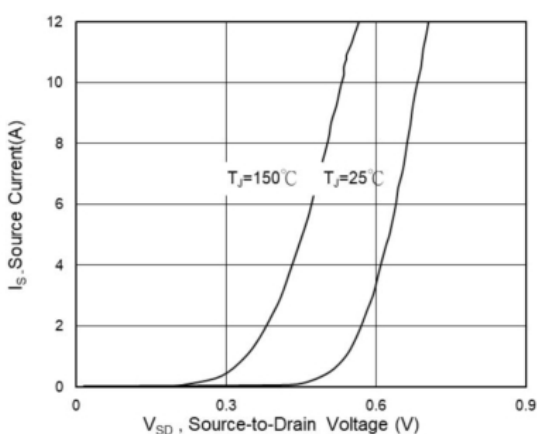
Typical Characteristics



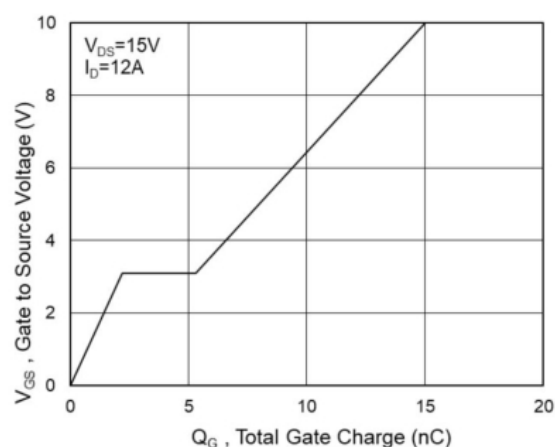
Typical Output Characteristics



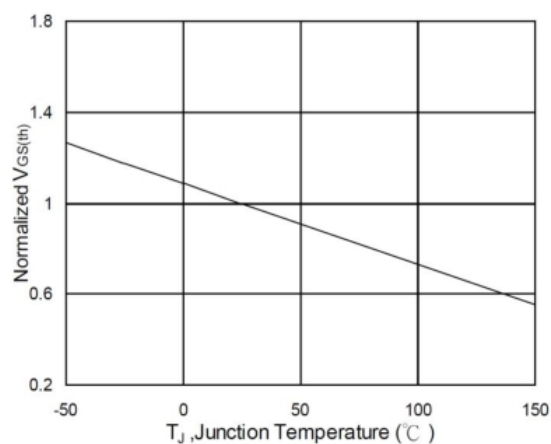
On-Resistance vs G-S Voltage



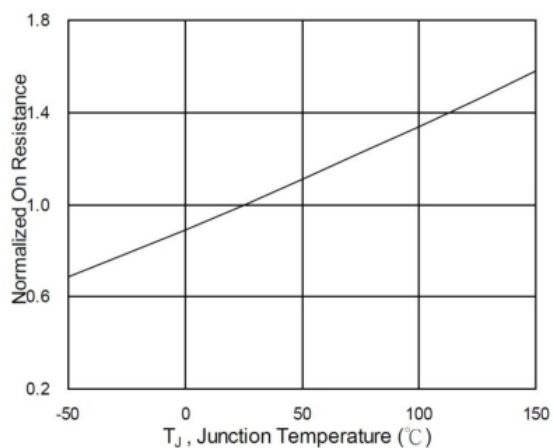
Source Drain Forward Characteristics



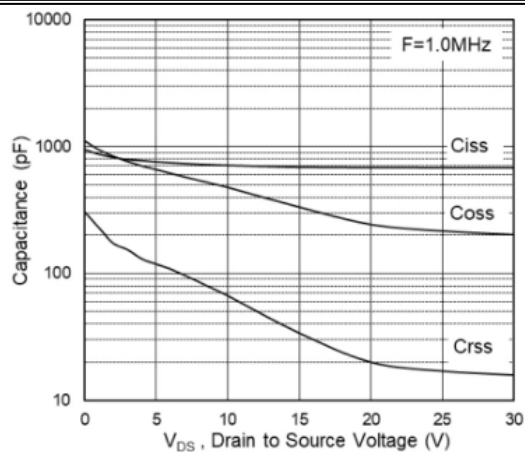
Gate-Charge Characteristics



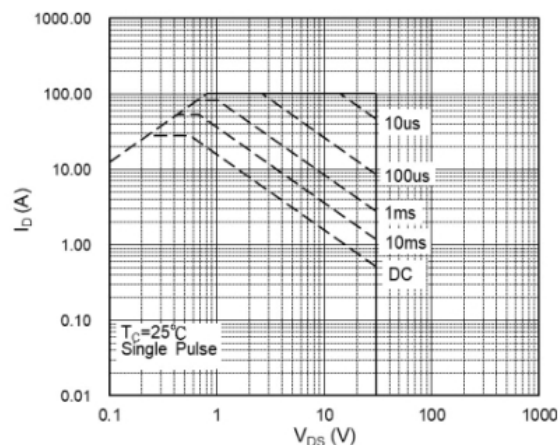
Normalized $V_{GS(th)}$ vs T_J



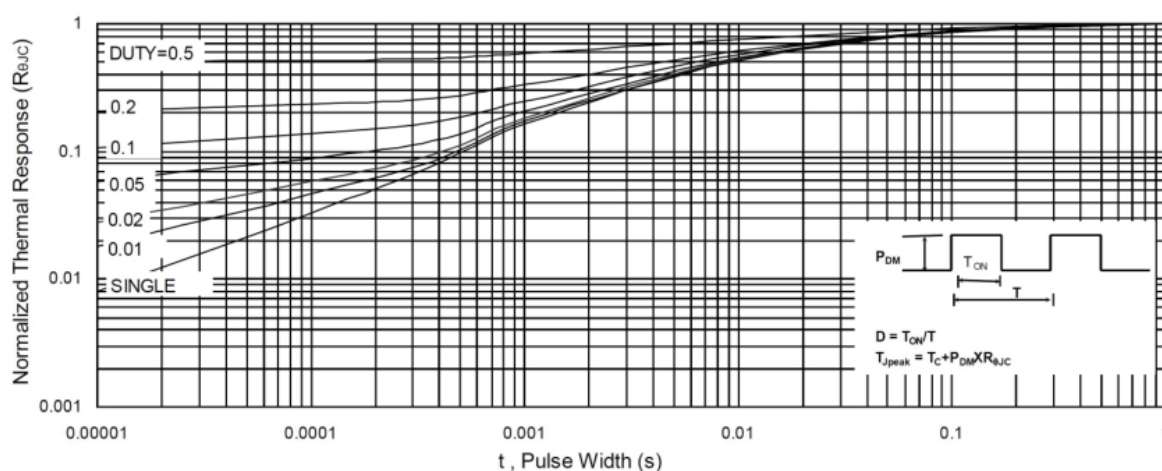
Normalized $R_{DS(on)}$ vs T_J



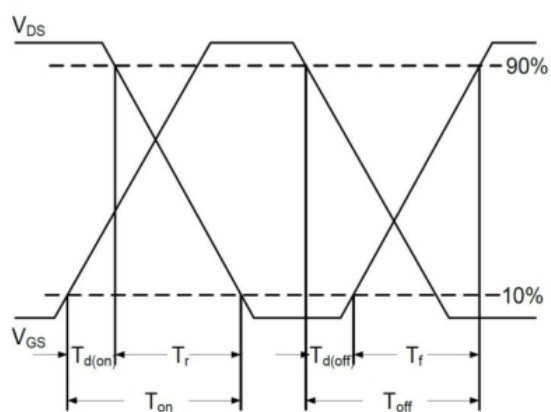
Capacitance



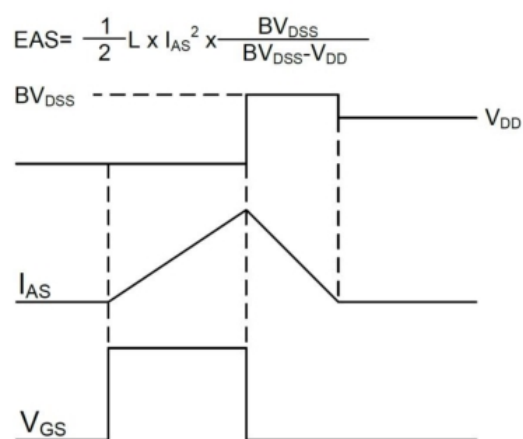
Safe Operating Area



Normalized Maximum Transient Thermal Impedance

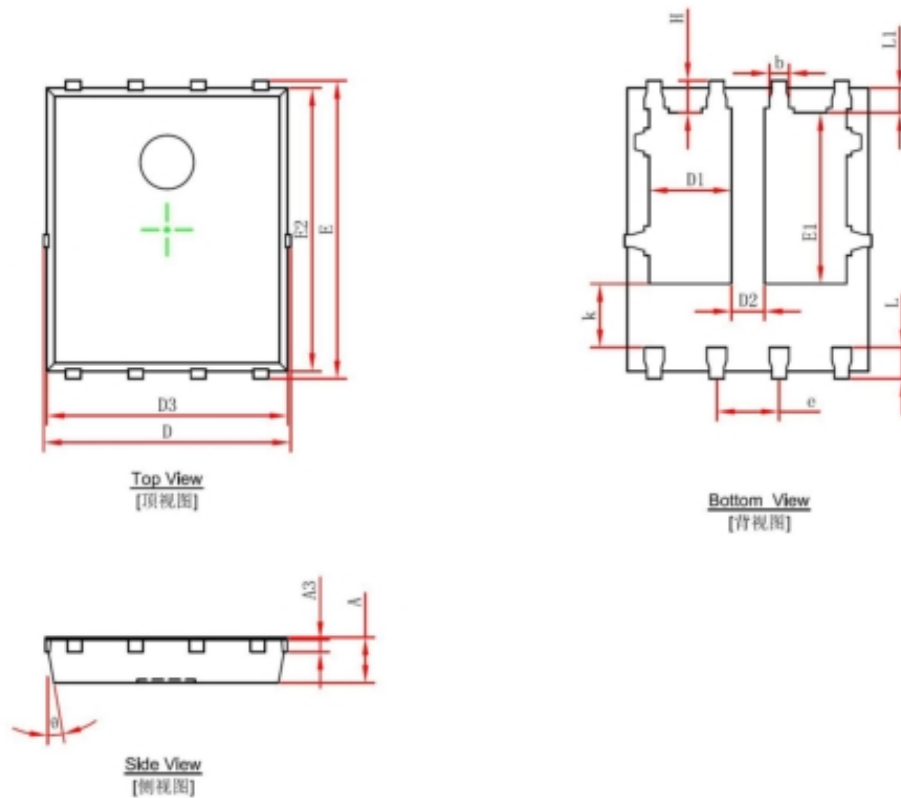


Switching Time Waveform



Unclamped Inductive Switching Waveform

PDFN5X6-8L Package Information



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	1.470	1.870	0.058	0.074
D2	0.470	0.870	0.019	0.034
E1	3.375	3.575	0.133	0.141
D3	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°