

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

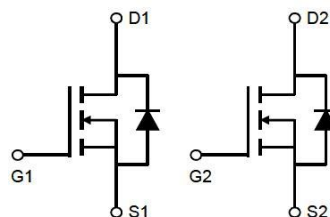
Applications

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

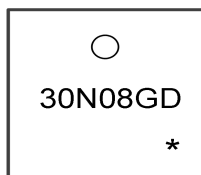
Package



Circuit diagram



Marking



30N08GD =Device Code
* =Month Code

**Absolute maximum ratings (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 ($T_C=25^\circ\text{C}$)	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 ($T_C=25^\circ\text{C}$)	P_D	28	W
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	4.5	$^\circ\text{C/W}$
Storage Temperature Range	T_{STG}	-55 to 150	$^\circ\text{C}$
Operating Junction Temperature Range	T_J	-55 to 150	$^\circ\text{C}$

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

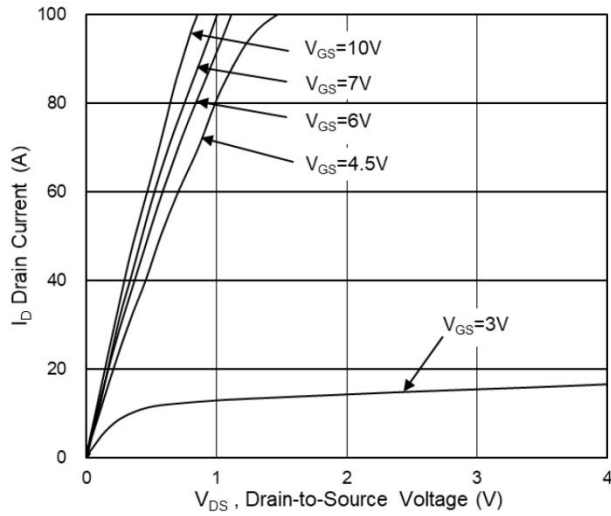
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V , ID=250uA	30	---	---	V
Drain-Source Leakage Current	IDSS	VDS=30V , VGS=0V	---	---	1	uA
Gate-Source Leakage Current	IGSS	VGS=±20V , VDS=0V	---	---	±100	nA
Gate Threshold Voltage	VGS(th)	VGS=VDS , ID =250uA	1.0	1.7	2.5	V
Static Drain-Source On-Resistance ²	RDS(ON)	VGS=10V , ID=9A	---	8.5	11	mΩ
		VGS=4.5V , ID=9A	---	12	16	
Dynamic Characteristics						
Total Gate Charge (4.5V)	Qg	VDS=15V , VGS=10V , ID=9A	---	7.1	---	nC
Gate-Source Charge	Qgs		---	2.2	---	
Gate-Drain Charge	Qgd		---	3.1	---	
Input Capacitance	Ciss	VDS=15V , VGS=0V , f=1MHz	---	1109	---	pF
Output Capacitance	Coss		---	240	---	
Reverse Transfer Capacitance	Crss		---	220	---	
Switching Characteristics						
Turn-On Delay Time	Td(on)	VDD=15V , VGS=10V , RG=3Ω , ID=9A	---	7	---	ns
Rise Time	Tr		---	18.8	---	
Turn-Off Delay Time	Td(off)		---	19.5	---	
Fall Time	Tf		---	3.4	---	
Source-Drain Diode Characteristics						
Continuous Source Current ^{1,5}	Is	VG=VD=0V , Force Current	---	---	12	A
Diode Forward Voltage ²	VSD	VGS=0V , IS=1A , TJ=25℃	---	---	1	V

Note :

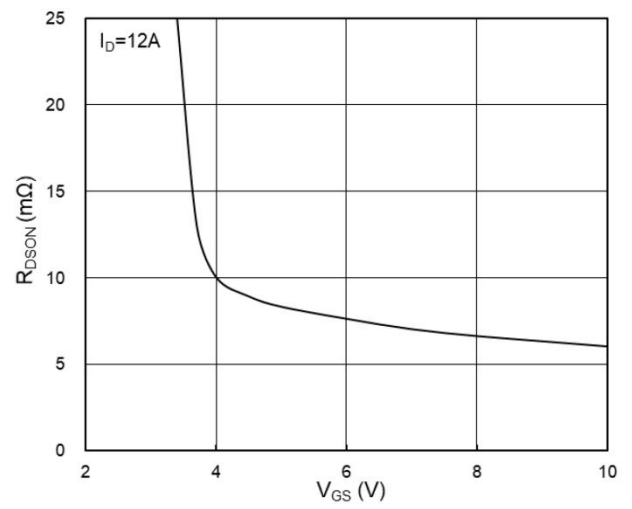
1. The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.
2. The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
3. The EAS data shows Max. rating . The test condition is $V_{DD}=25V$, $V_{GS}=10V$, $L=0.1mH$, $I_{AS}=28A$
4. The power dissipation is limited 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.



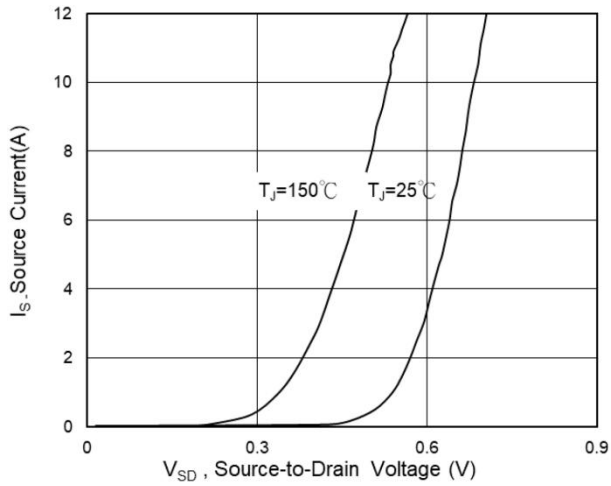
Typical Characteristics



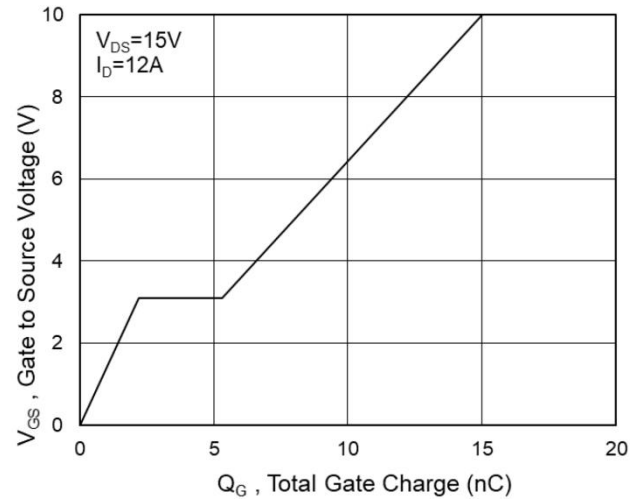
Typical Output Characteristics



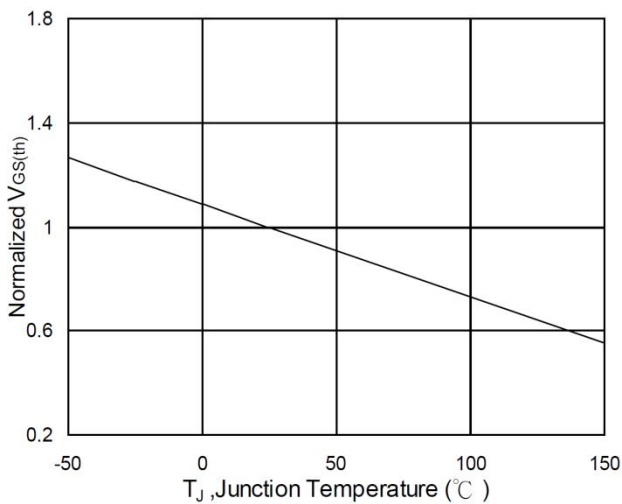
On-Resistance vs G-S Voltage



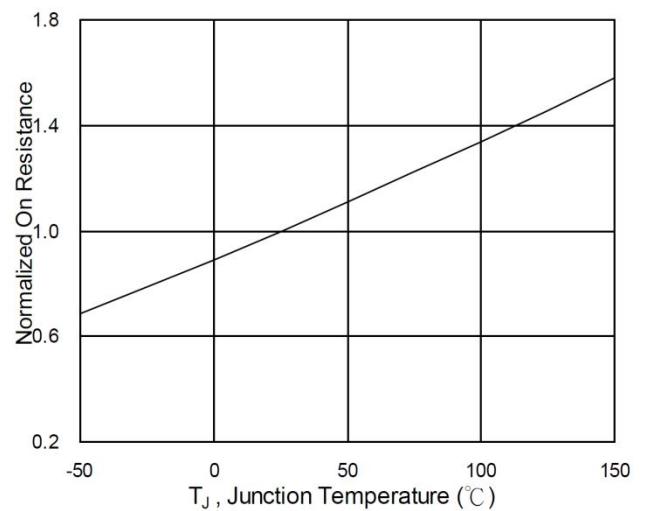
Source Drain Forward Characteristics



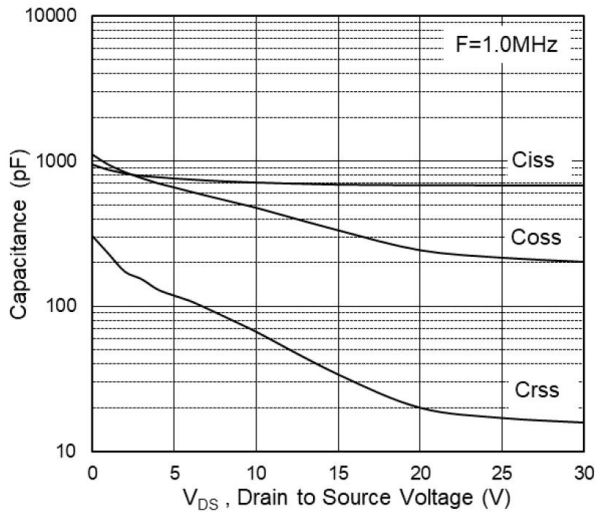
Gate-Charge Characteristics



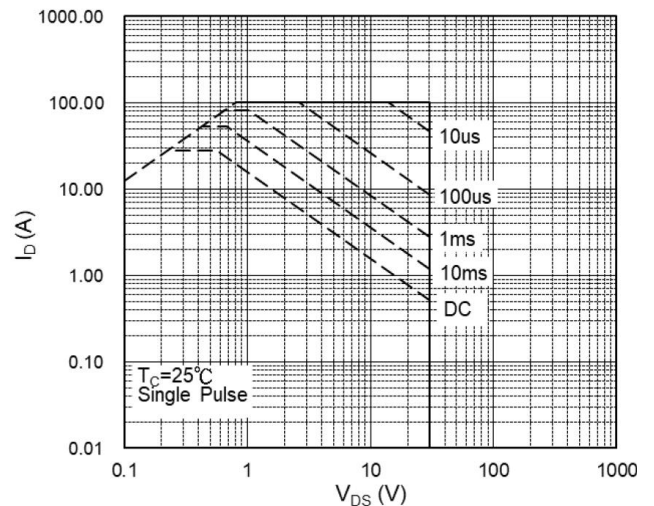
Normalized $V_{GS(th)}$ vs T_J



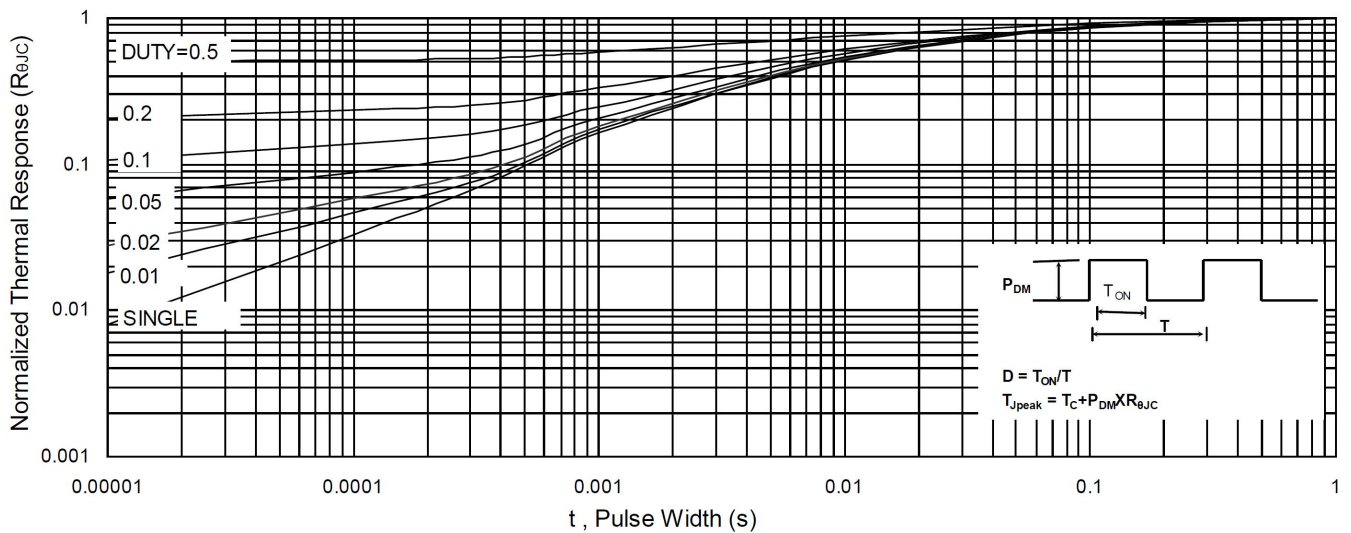
Normalized $R_{DS(on)}$ vs T_J



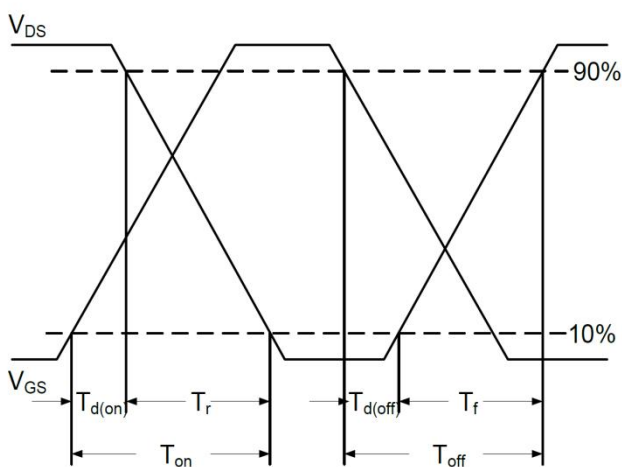
Capacitance



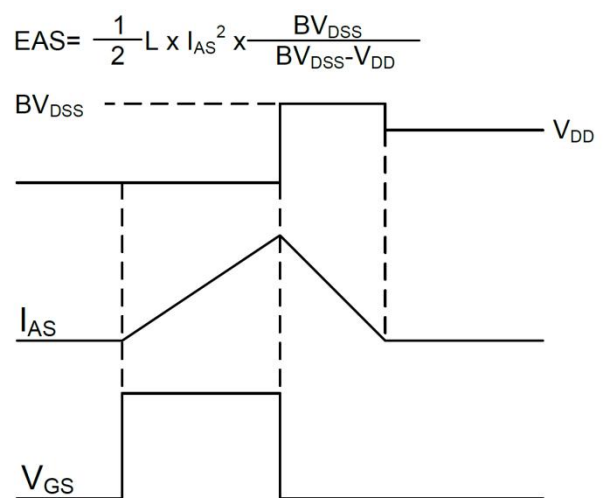
Safe Operating Area



Normalized Maximum Transient Thermal Impedance



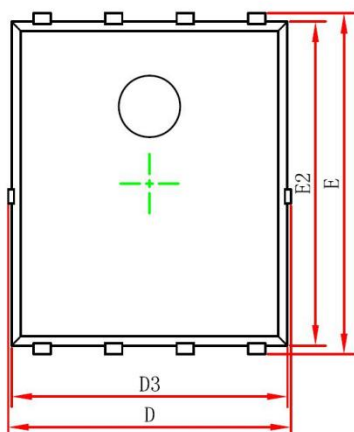
Switching Time Waveform



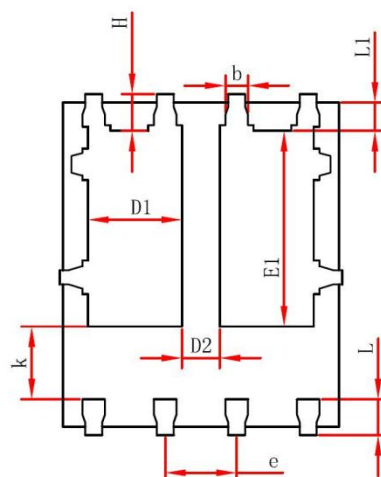
Unclamped Inductive Switching Waveform



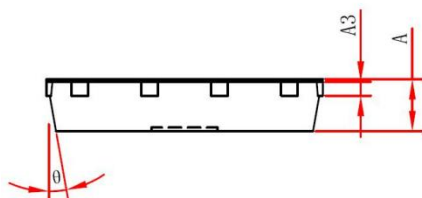
PDFN5X6-8L Package Information



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	0.900	1.000	0.035	0.039
A3	0.254 REF.		0.010REF.	
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	1.270TYP.		0.050TYP.	
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°