

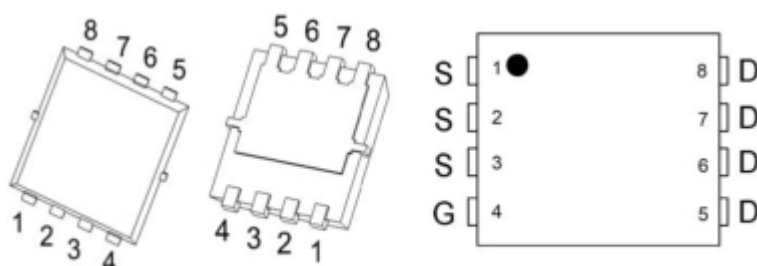
## Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
30V	15m $\Omega$ @10V	12A
	20m $\Omega$ @4.5V	

## Feature

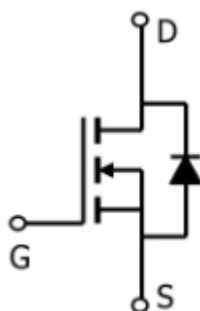
- Enhancement mode
- Low on-resistance  $R_{DS(on)}$
- Pb-free lead plating; RoHS compliant

## Package

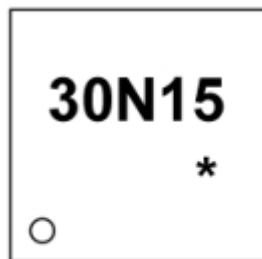


PDFNWB3.3×3.3-8L

## Circuit diagram



## Marking



30N15 =Device Code  
\* =Month Code

## Absolute maximum ratings

(T<sub>a</sub>=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V <sub>DS</sub>	30	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Continuous Drain Current	I <sub>D</sub>	12	A
Pulsed Drain Current	I <sub>DM</sub>	48	A
Single Pulse Avalanche Energy <sup>1</sup>	E <sub>AS</sub>	22.1	mJ
Total Power Dissipation	P <sub>D</sub>	20	W
Thermal Resistance from Junction to Ambient	R <sub>θJA</sub>	6	°C/W
Storage Temperature Range	T <sub>STG</sub>	-55 to 150	°C/W
Operating Junction Temperature Range	T <sub>J</sub>	-55 to 150	°C

## Electrical characteristics

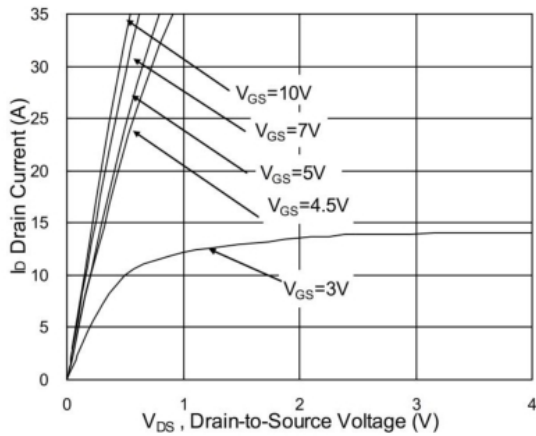
(T<sub>A</sub>=25°C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV (BR)DSS	V <sub>GS</sub> = 0V, I <sub>D</sub> =250μA	30			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> = 0V			1	uA
Gate-Source Leakage	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V			±100	uA
Gate-Source Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1.0	1.5	2.2	V
Drain-Source On-Resistance <sup>1</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =8A		15	20	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =6A		20	26	
Dynamic Characteristics						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, f=1MHz		583		pF
Output Capacitance	C <sub>Oss</sub>			77		
Reverse Transfer Capacitance	C <sub>rss</sub>			59		
Switching Characteristics						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =15V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =7A		6		pF
Gate-Source Charge	Q <sub>gs</sub>			2.2		
Gate-Drain Charge	Q <sub>gd</sub>			2		
Turn-on Delay Time	T <sub>d(on)</sub>	V <sub>DD</sub> =15V, V <sub>GS</sub> =10V, R <sub>GEN</sub> =3.3Ω, I <sub>D</sub> =7A		1.2		nS
Turn-on Rise Time	T <sub>r</sub>			40		
Turn-off Delay Time	T <sub>d(off)</sub>			18		
Turn-off Fall Time	T <sub>f</sub>			7.2		
Source-Drain Diode Characteristics						
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =1A, V <sub>GS</sub> = 0V, T <sub>J</sub> =25°C			1	V

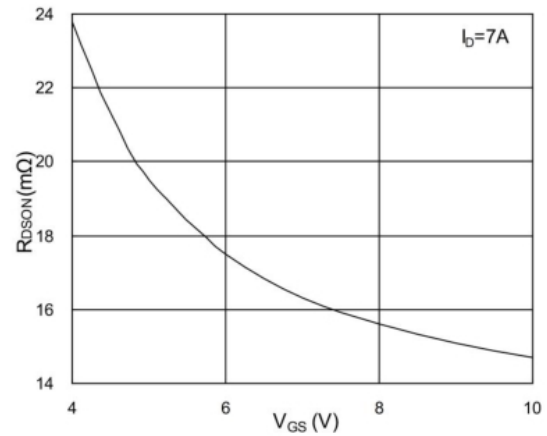
### Note :

1. T<sub>J</sub> = 25°C, V<sub>DD</sub> = 25V, V<sub>G</sub> = 10V, L = 0.1mH

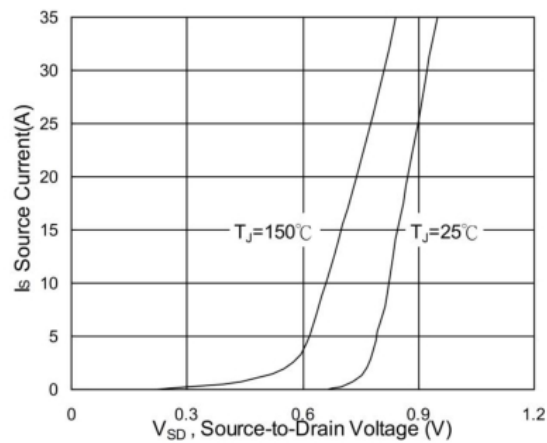
## Typical Characteristics



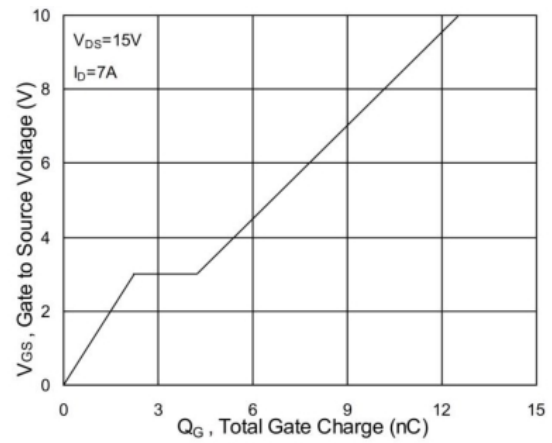
Typical Output Characteristics



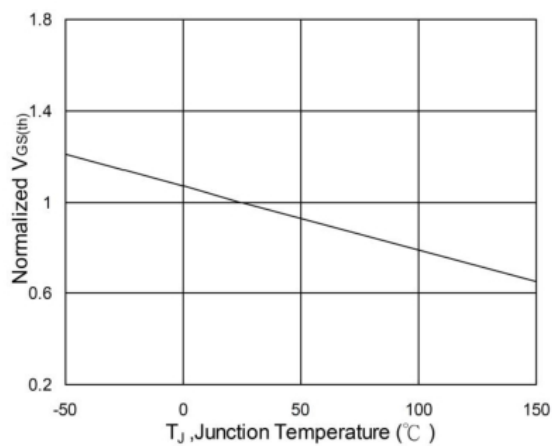
On-Resistance vs. Gate-Source



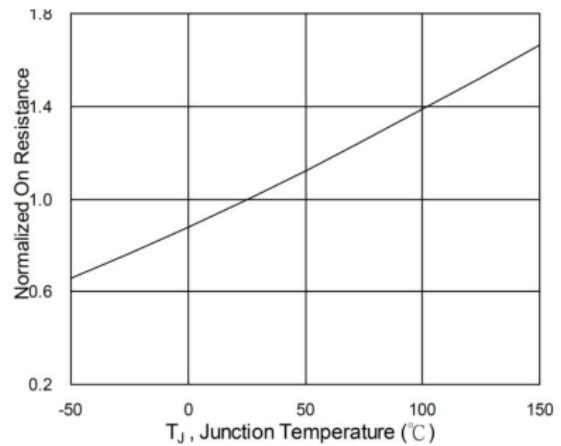
Forward Characteristics Of Reverse



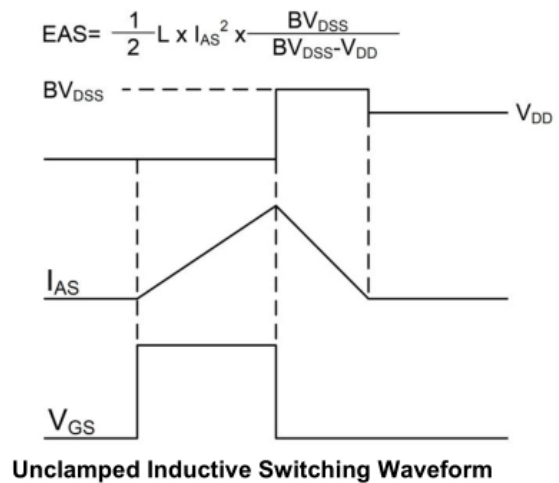
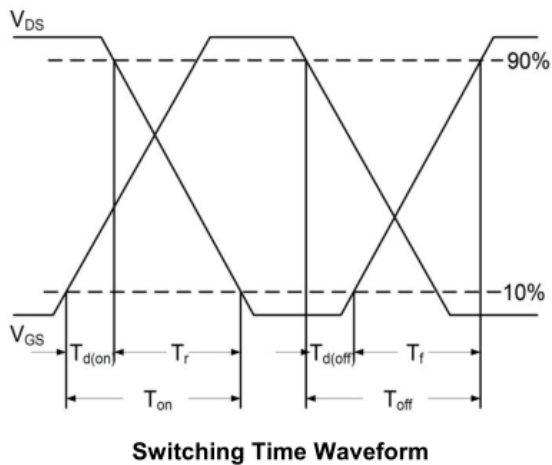
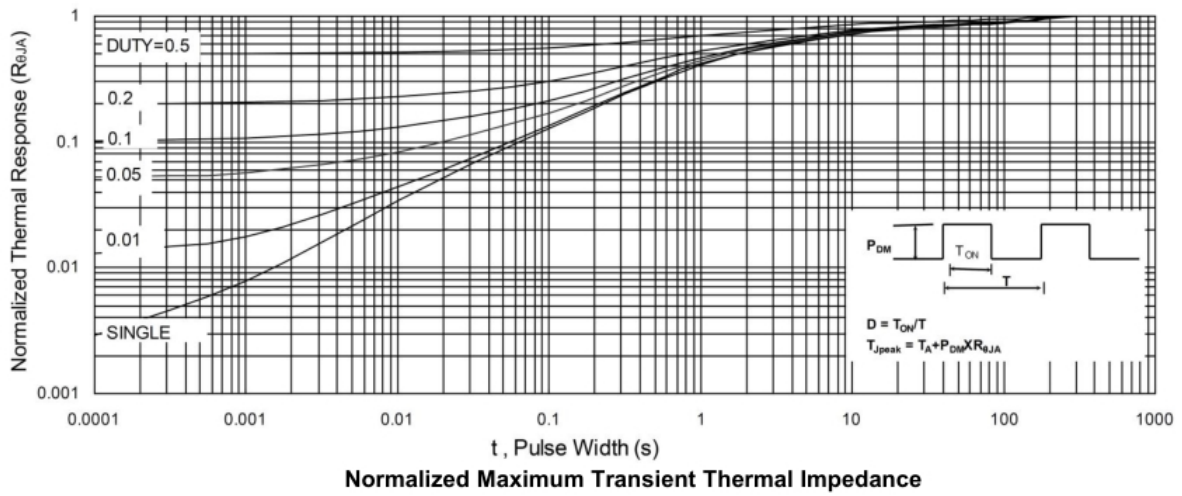
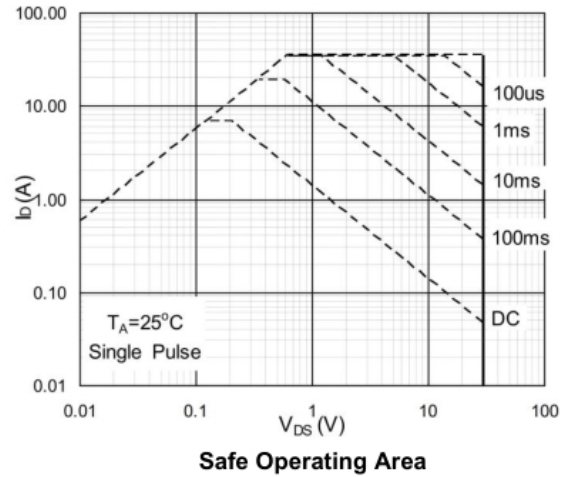
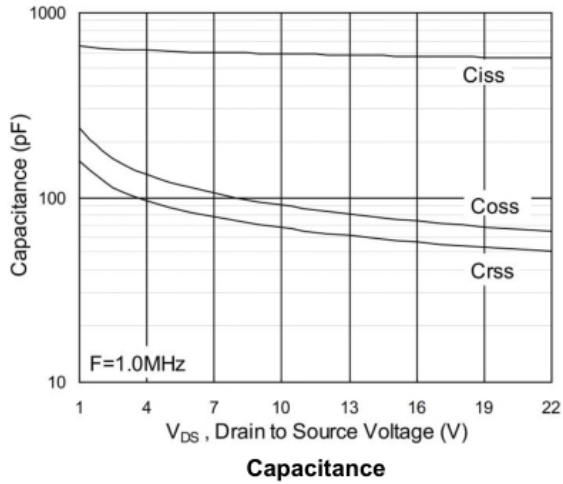
Gate-Charge Characteristics



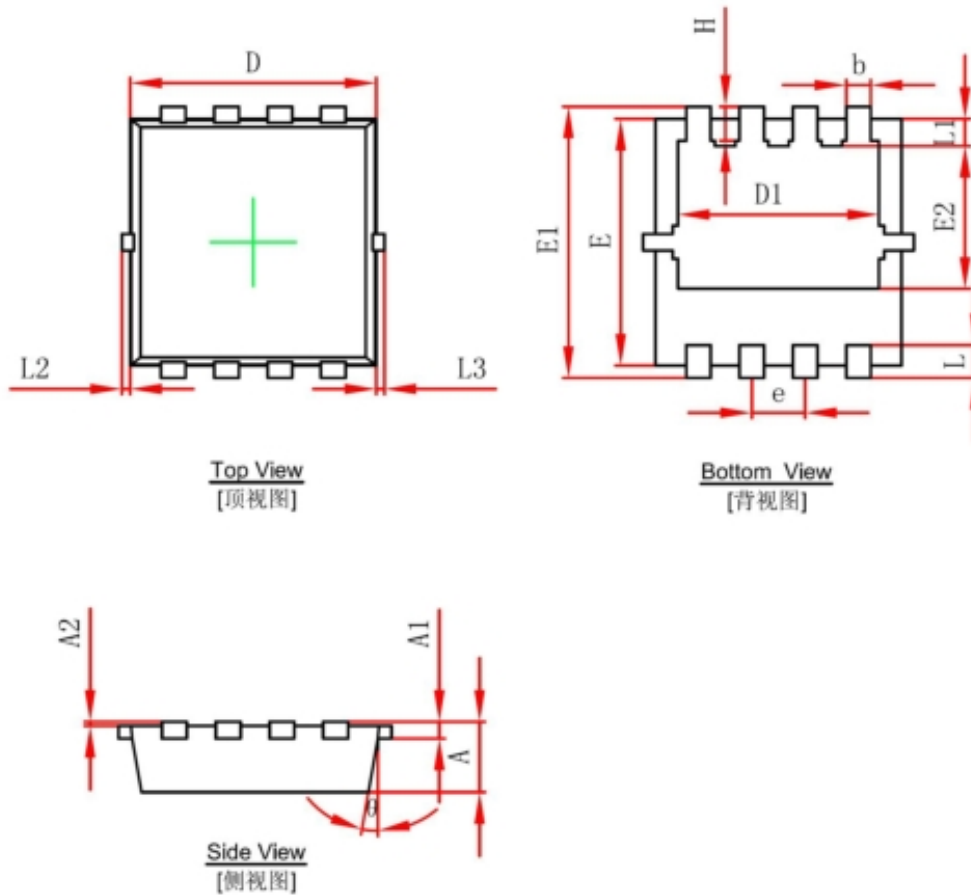
Normalized  $V_{GS(th)}$  vs.  $T_J$



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



## PDFNWB3.3×3.3-8L 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°