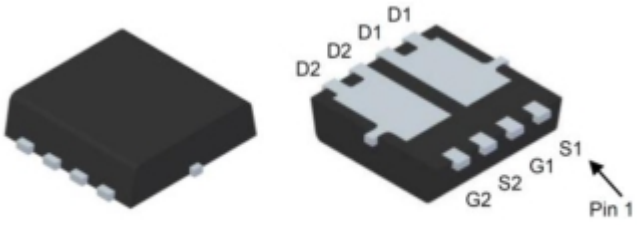
Product Summary

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

Feature

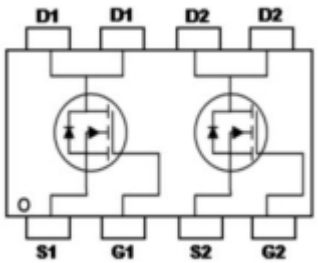
- Enhancement mode
- Low on-resistance $R_{DS(on)}$
- Pb-free lead plating; RoHS compliant

Package

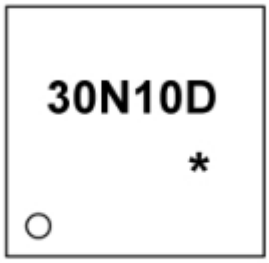


PDFNWB3.3×3.3-8L-B

Circuit diagram



Marking



30N10D =Device Code
* =Month Code

Absolute maximum ratings

(T_a=25℃ unless otherwise noted)

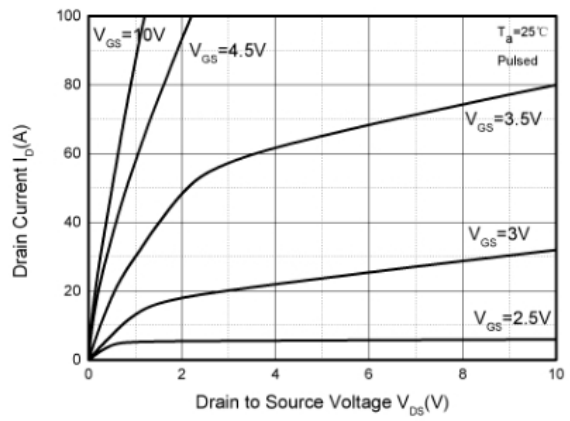
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	12	A
Pulsed Drain Current	I_{DM}	48	A
Total Power Dissipation	P_D@T_C=25℃	22	W
Thermal Resistance from Junction to Case	$R_{\theta JC}$	5.6	℃/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 To 150	℃

Electrical characteristics

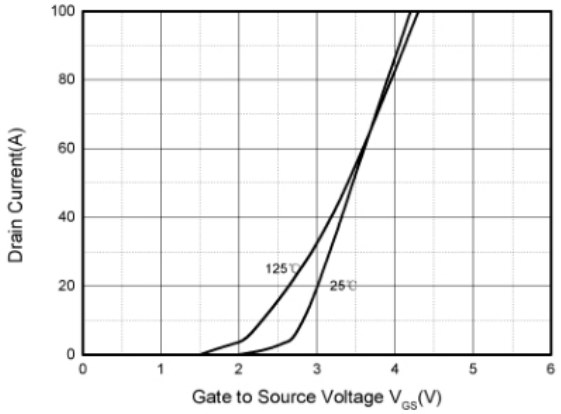
(T_A=25℃, unless otherwise noted)

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
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1	1.5	2.2	V
Drain-Source Leakage Current	I_{DSS}	V_{DS} =24V, V_{GS} = 0V, T_J=25℃			1	uA
Gate-Source Leakage	I_{GSS}	V_{GS} =±20V, V_{DS} =0V			±100	uA
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =12A		10	14	mΩ
		V_{GS} =4.5V, I_D =10A		15	21	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=15V, V_{GS}=0V, f=1MHz		720		pF
Output Capacitance	C_{oss}			100		
Reverse Transfer Capacitance	C_{rss}			85		
Total Gate Charge	Q_g	V_{DS}=15V, V_{GS}=10V, I_D =10A		15		pF
Gate-Source Charge	Q_{gs}			5		
Gate-Drain Charge	Q_{gd}			3.5		
Switching Characteristics						
Turn-on Delay Time	$T_{d(on)}$	V_{DD}=15V, V_{GS}=10V, R_G=3Ω, I_D=20A		5		nS
Turn-on Rise Time	T_r			4		
Turn-off Delay Time	$T_{d(off)}$			20		
Turn-off Fall Time	T_f			5.5		
Source-Drain Diode Characteristics						
Diode Forward Voltage	V_{SD}	I_S=1A, V_{GS} = 0V , T_J=25℃			1.2	V

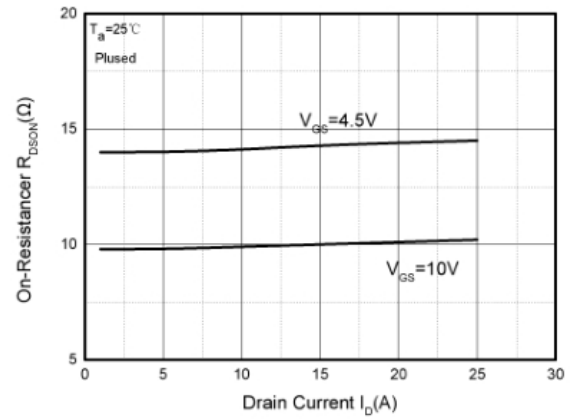
Typical Characteristics



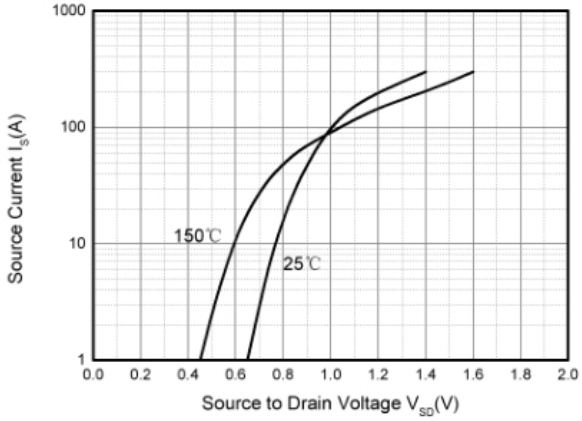
Output Characteristics



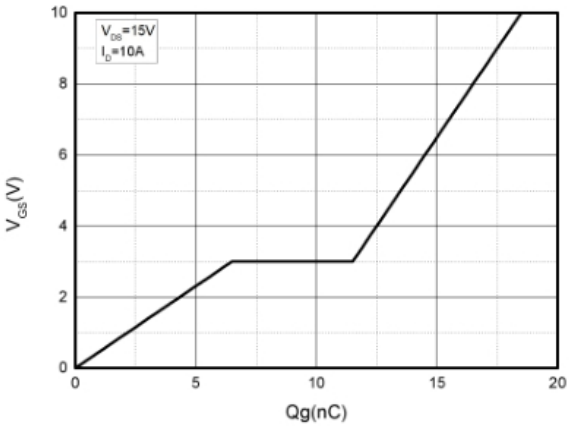
Transfer Characteristics



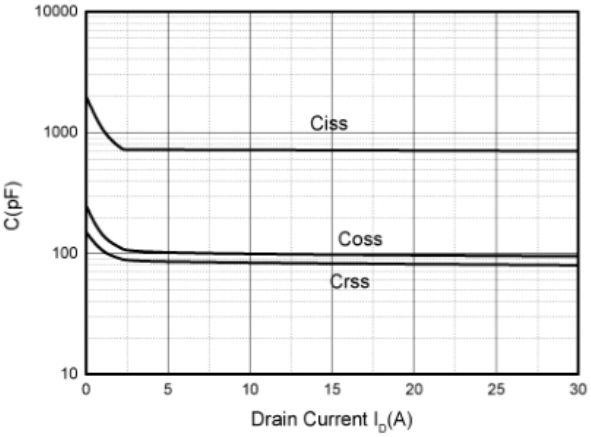
On-Resistance vs. Drain current



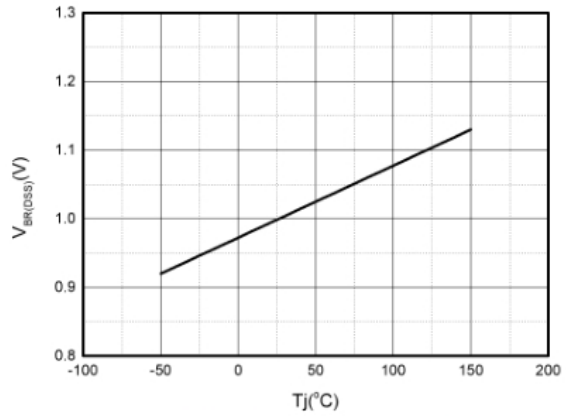
Source Current vs. Source to Drain Voltage



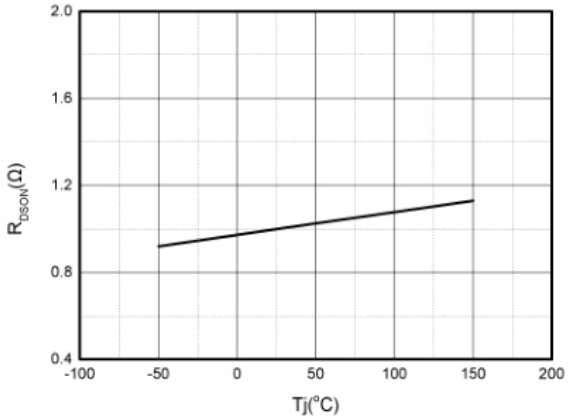
Gate Charge Characteristics



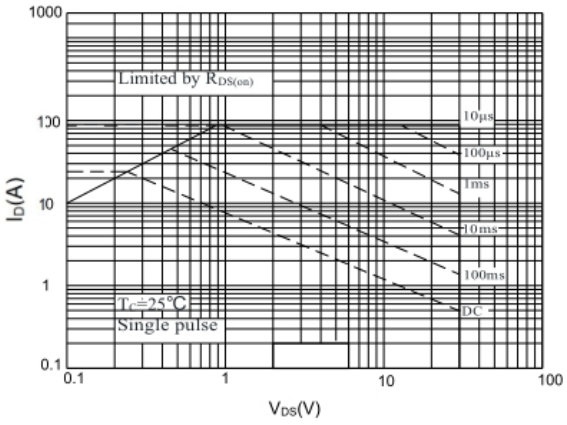
Capacitance Characteristics



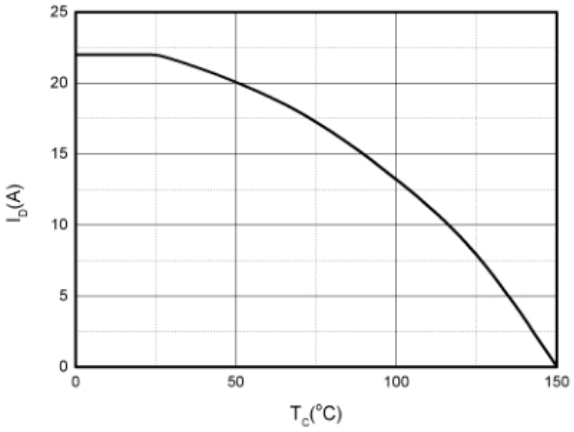
Normalized Breakdown Voltage vs.Junction Temperature



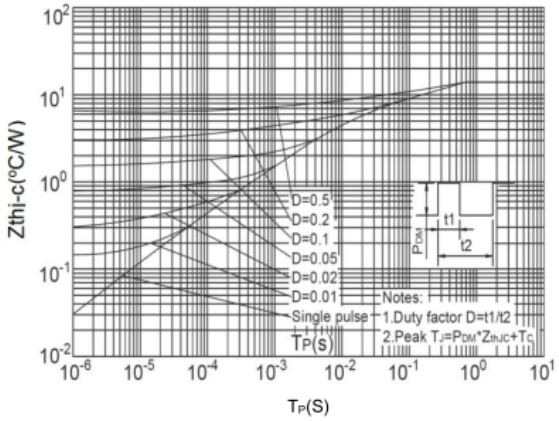
Normalized on Resistance vs.Junction Temperature



Maximum Safe Operating Area

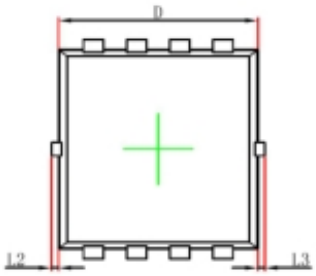


Maximum Continuous Drain Current vs. Case Temperature

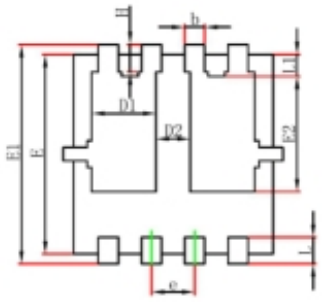


Maximum Effective Transient Thermal Impedance, Junction-to-Case

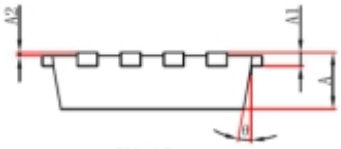
PDFNWB3.3×3.3-8L-B Package Information



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	0.650	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	0.935	1.135	0.037	0.045
D2	0.280	0.480	0.011	0.019
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°