Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	2mΩ@10V	60A
	3mΩ@4.5V	

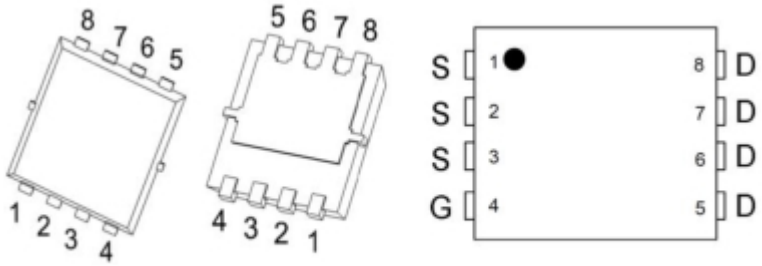
Feature

- V_{DS} =30V,I_D=60A
- $R_{DS(ON)}$ <5mΩ @ V_{GS}=10V
- High density cell design for ultra low Rdson
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation
- Special process technology for high ESD capability
- 100% UIS Tested

Application

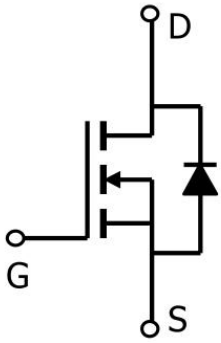
- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

Package



PDFNWB3.3×3.3-8L

Circuit diagram



Marking

30N03A =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
Drain Current-Continuous	I_D	60	A
Pulsed Drain Current	I_{DM}	240	A
Maximum Power Dissipation	P_D	43.4	W
Single pulse avalanche energy [1]	E_{AS}	120	mJ
Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	2.88	℃/W
Operating Junction and Storage Temperature Range	T_{STG}, T_J	-55 To 175	℃

Electrical characteristics

(T_A=25℃, unless otherwise noted)

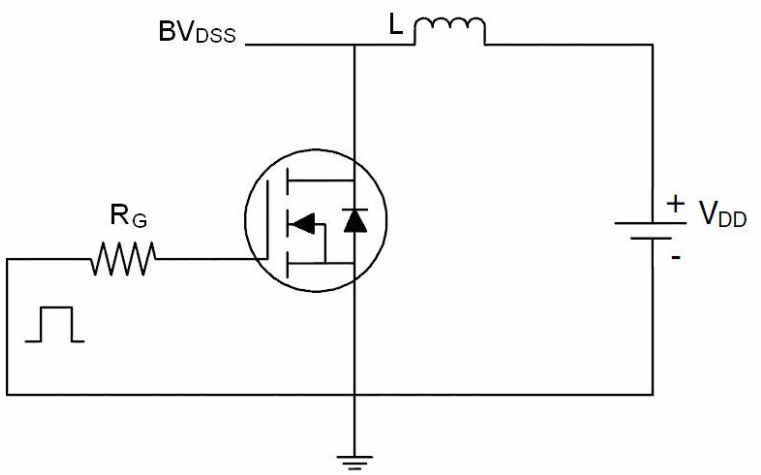
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$BV_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =30V,V_{GS} = 0V			1	uA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V , V_{DS}=0V			±100	uA
Gate-source threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1	1.5	2.5	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =20A		3	5.5	mΩ
		V_{GS} =4.5V, I_D =15A		4.5	7.5	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0V, f=1MHz		2370		pF
Output Capacitance	C_{oss}			1360		
Reverse Transfer Capacitance	C_{rss}			240		
Total Gate Charge	Q_g	V_{DS}=15V, I_D =20A		44		pF
Gate-Source Charge	Q_{gs}			7		
Gate-Drain Charge	Q_{gd}			8		
Switching Characteristics						
Turn-On Delay Time	$T_{d(on)}$	V_{DD}=15V, V_{GS}=10V, R_L=0.75Ω, R_G=3Ω, I_D =20A		6.2		nS
Rise Time	T_r			4.3		
Turn-Off Delay Time	$T_{d(off)}$			21		
Fall Time	T_f			8		
Drain-Source Diode Characteristics						
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=1A			1	V
Reverse Recovery Time	t_{rr}	I_F = 15A, di/dt =500A/μs		25		nS
Reverse Recovery Charge	Q_{rr}			37		nC

Note：

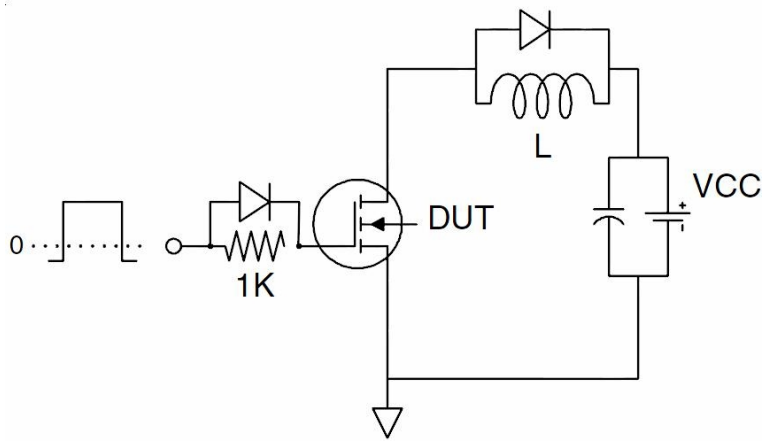
1. E_{AS} condition： T_j=25℃, V_{DD}=25V,V_G=10V,L=0.1mH

Test Circuit

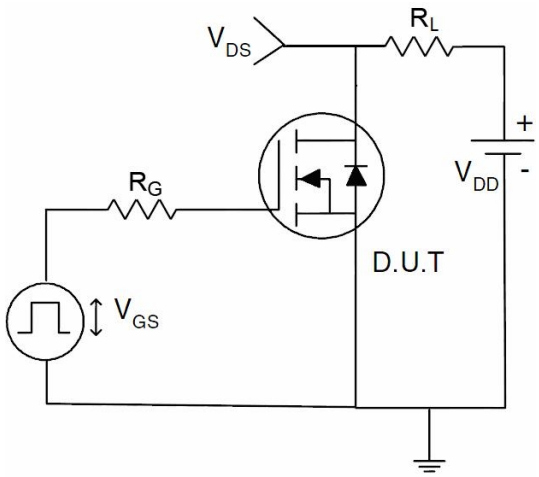
- EAS Test Circuits



- Gate Charge Test Circuit



- Switch Time Test Circuit



Typical Characteristics

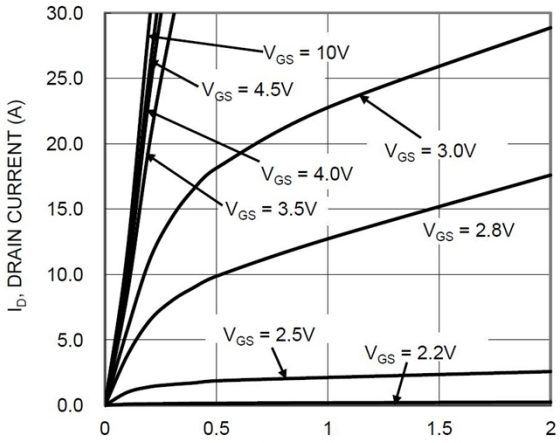


Figure 1. Typical Output Characteristic

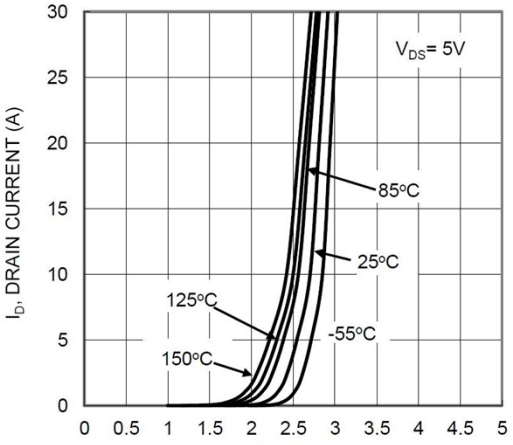


Figure 2. Typical Transfer Characteristic

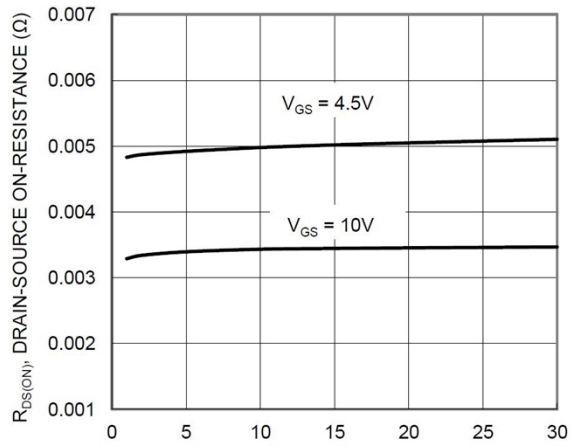


Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

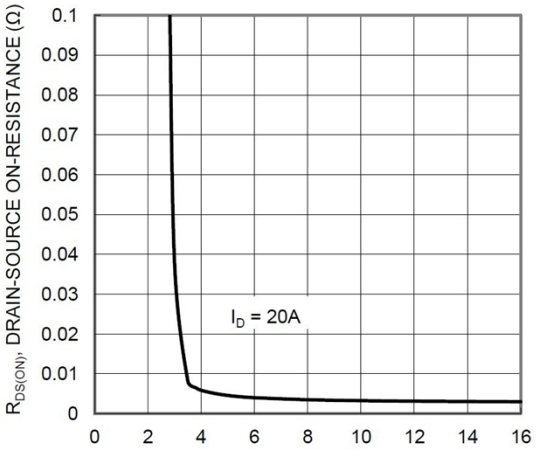


Figure 4. Typical Transfer Characteristic

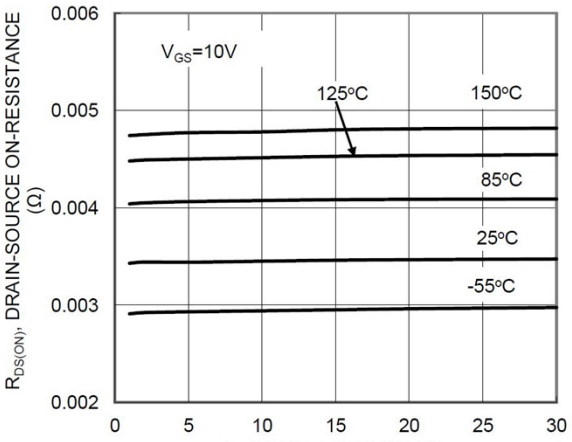


Figure 5. Typical On-Resistance vs. Drain Current and Junction Temperature

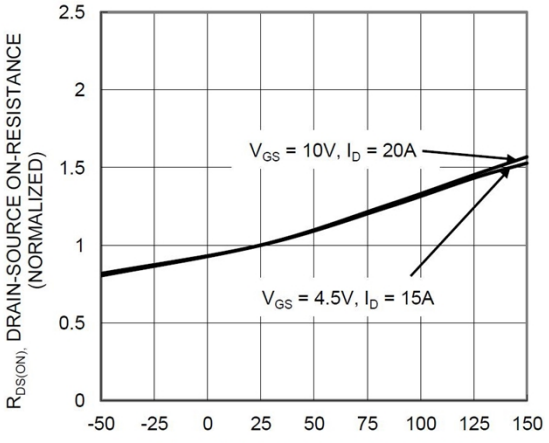


Figure 6. On-Resistance Variation with Junction Temperature

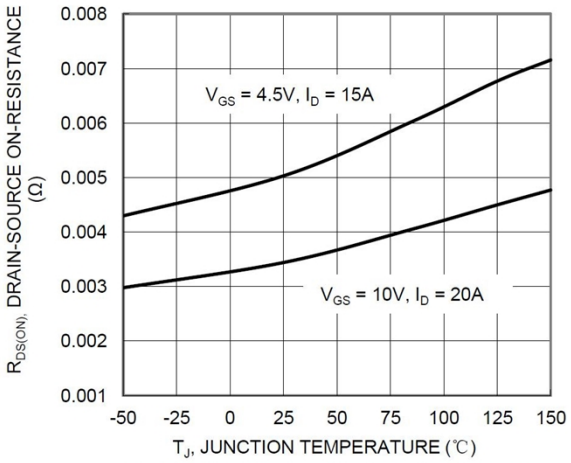


Figure 7. On-Resistance Variation with Junction Temperature

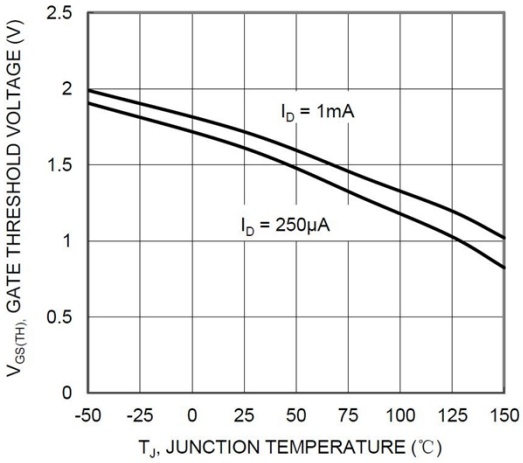


Figure 8. Gate Threshold Variation vs. Junction Temperature

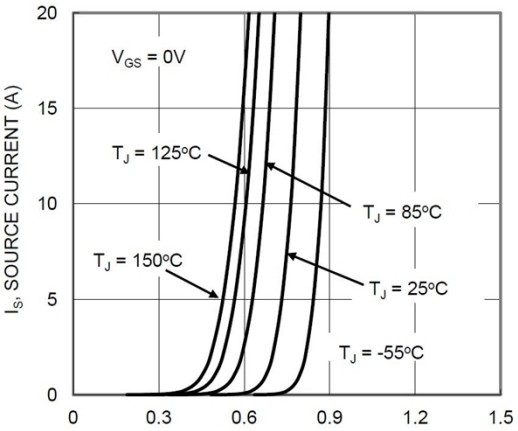


Figure 9. Diode Forward Voltage vs. Current

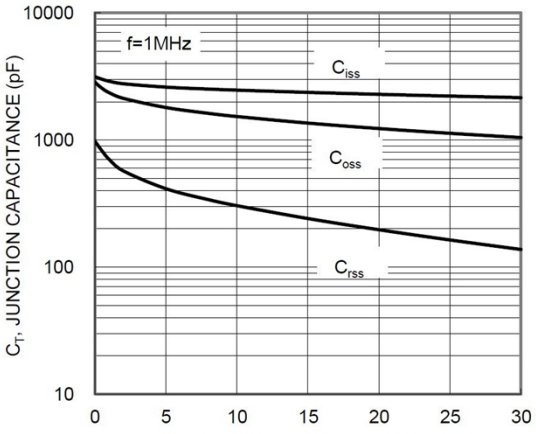


Figure 10. Typical Junction Capacitance

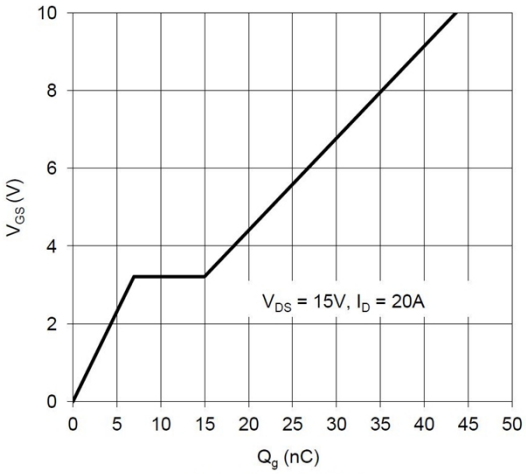


Figure 11. Gate Charge

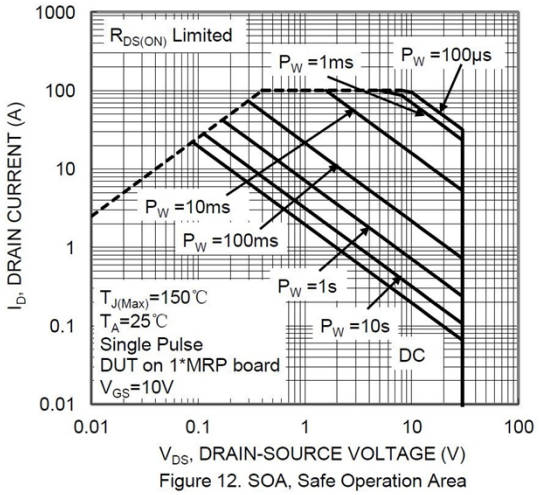


Figure 12. SOA, Safe Operation Area

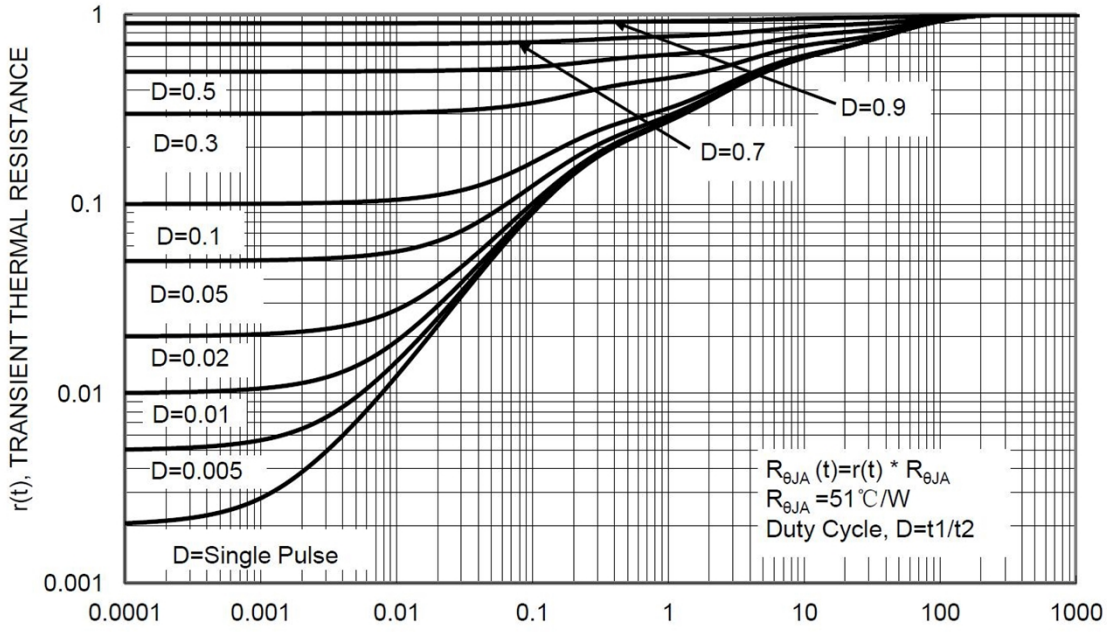
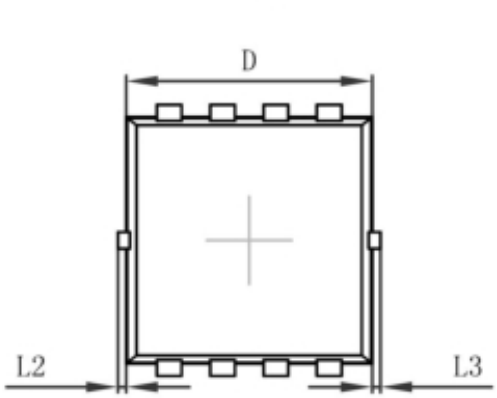
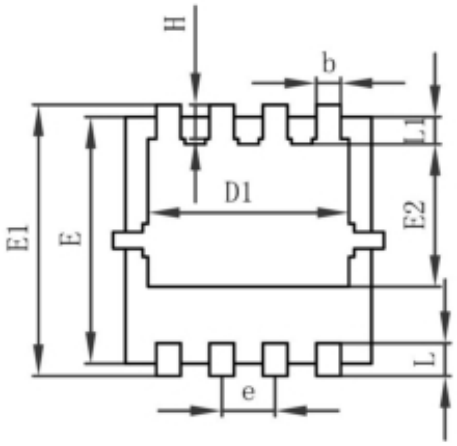


Figure 13. Transient Thermal Resistance

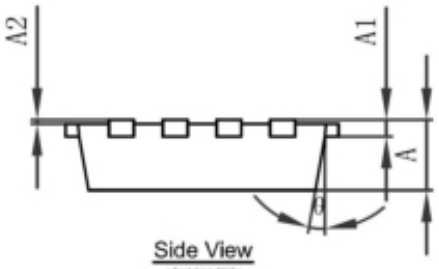
PDFNWB3.3×3.3-8L Package Information



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	0.650	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°