Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
40V	8mΩ@10V	30A
	11mΩ@4.5V	

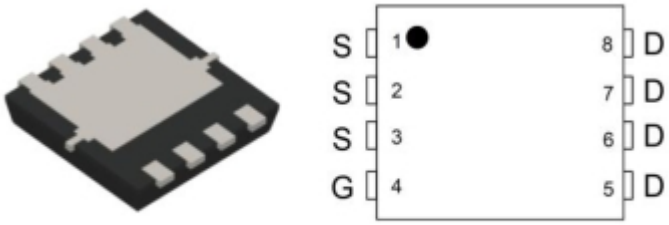
Feature

- V_{DS} =40V,I_D =30A
- $R_{DS(ON)}$ <12mΩ @ V_{GS}=10V (Typ. 8 mΩ)
  $R_{DS(ON)}$ <18mΩ @ V_{GS}=4.5V (Typ. 11 mΩ)
- High density cell design for ultra low Rdson
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high EAS
- Excellent package for good heat dissipation
- Special process technology for high ESD capability

Application

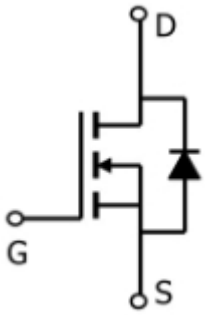
- Load switching
- Hard switched and high frequency circuits
- Uninterruptible power supply

Package



PDFNWB3.3×3.3-8L

Circuit diagram



Marking

40N08 : Product code
*** : Month code**

Absolute maximum ratings

(T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	30	A
Pulsed Drain Current	I_{DM}	120	A
Maximum Power Dissipation	P_D	3	W
Thermal Resistance,Junction-to-Ambient(1)	$R_{\theta JA}$	41.7	℃/W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 175	℃

Electrical characteristics

(T_A=25℃, unless otherwise noted)

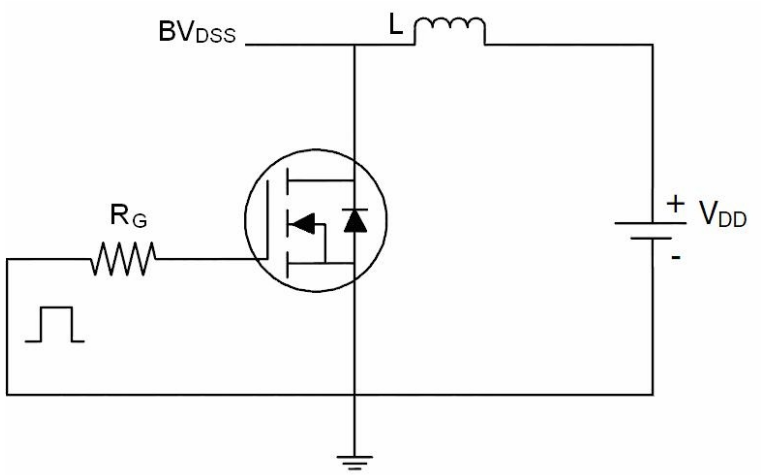
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	$BV_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	40	45		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =40V,V_{GS} = 0V			1	uA
Gate-Body Leakage Current	I_{GSS}	V_{GS} =±20V , V_{DS}=0V			±100	uA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1.0	1.5	2.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =10A		8	12	mΩ
		V_{GS} =4.5V, I_D =8A		11	18	
Forward Transconductance	g_{FS}	V_{DS}=5V,I_D=10A		75		S
Dynamic Characteristics (3)						
Input Capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0V, f=1MHz		1200		pF
Output Capacitance	C_{oss}			124		
Reverse Transfer Capacitance	C_{rss}			58		
Switching Characteristics (3)						
Turn-On Delay Time	$T_{d(on)}$	V_{DD}=20V, R_L =2Ω, V_{GS}=10V, R_G =3Ω		6.4		nS
Rise Time	T_r			17.2		
Turn-Off Delay Time	$T_{d(off)}$			29.6		
Fall Time	T_f			16.8		
Total Gate Charge	Q_g	V_{DS}=20V, I_D =10A, V_{GS}=10V		30		pF
Gate-Source Charge	Q_{gs}			4.2		
Gate-Drain Charge	Q_{gd}			9.5		
Diode Characteristics						
Diode Forward Voltage (2)	V_{SD}	V_{GS}=0V,I_S=10A			1.2	V
Diode Forward Current (1)	I_S				12	A
Reverse Recovery Time	t_{rr}	T_J = 25°C, I_F = 10A di/dt = 100A/μs(2)		29		nS
Reverse Recovery Charge	Q_{rr}			26		nC

Notes:

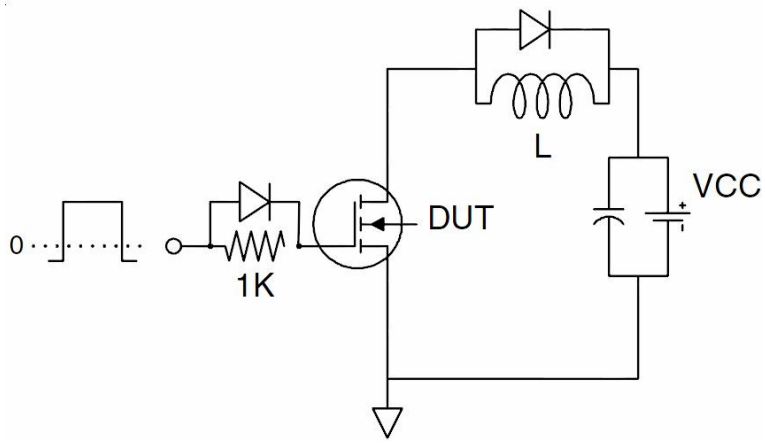
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production

Test Circuits

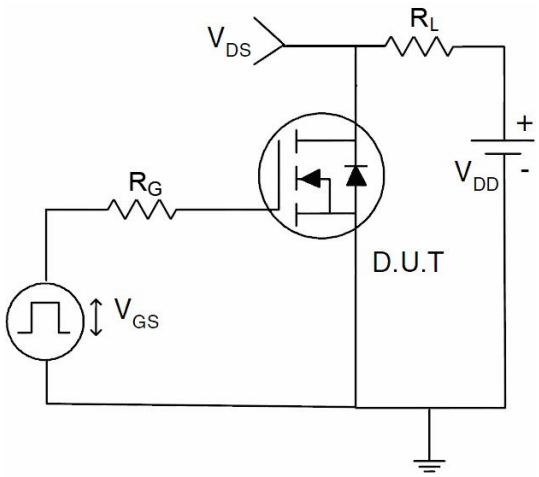
- EAS Test Circuits



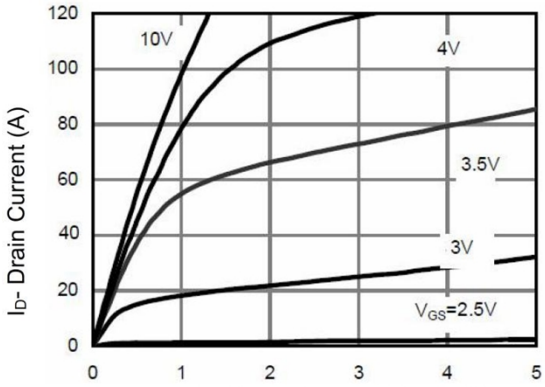
- Gate Charge Test Circuit



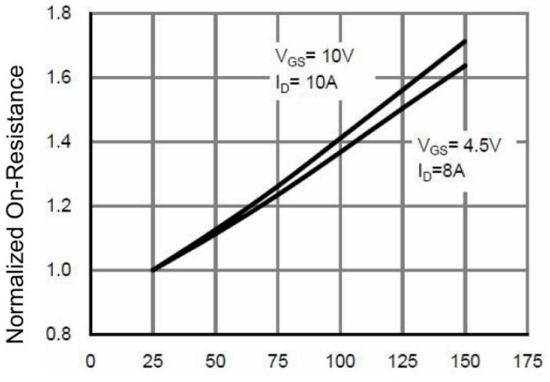
- Switch Time Test Circuit



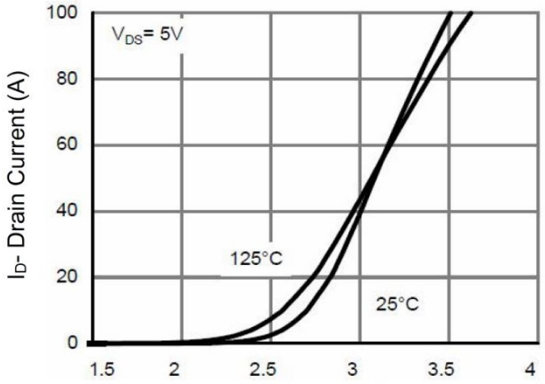
Typical Characteristics



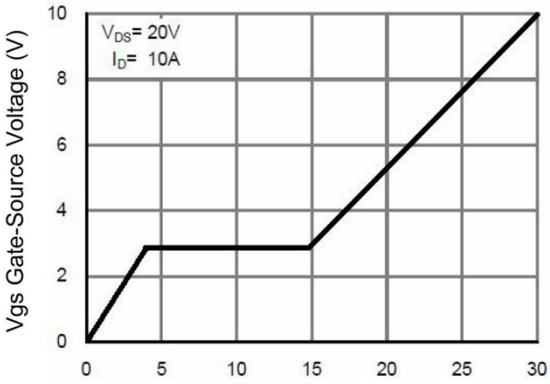
Output Characteristics



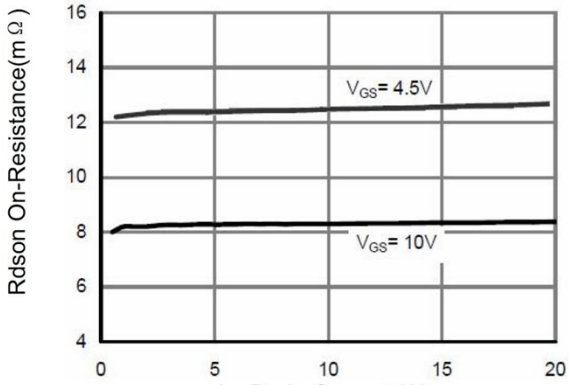
Rdson-JunctionTemperature



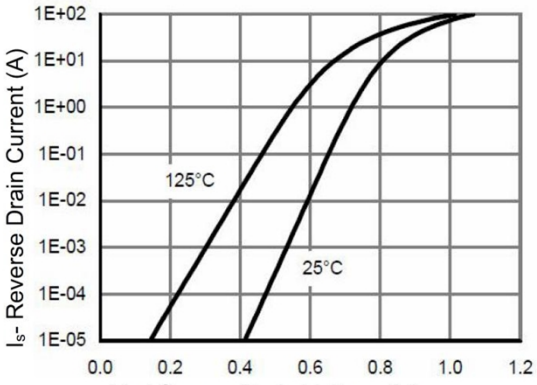
Transfer Characteristics



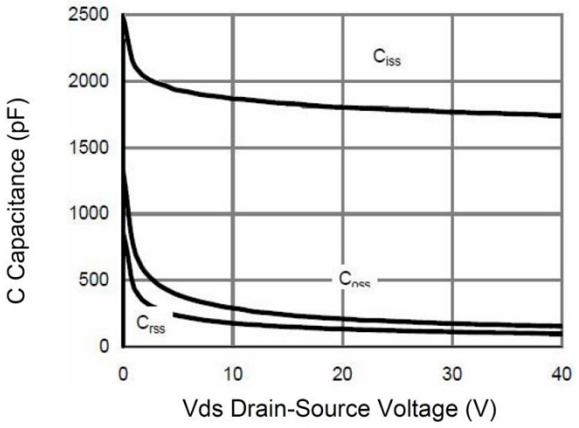
Gate Charge



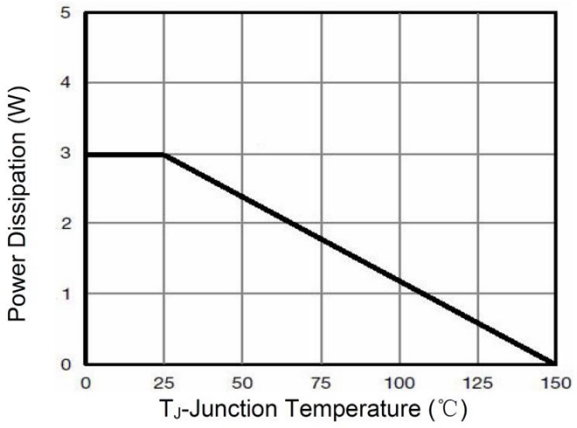
Rdson- Drain Current



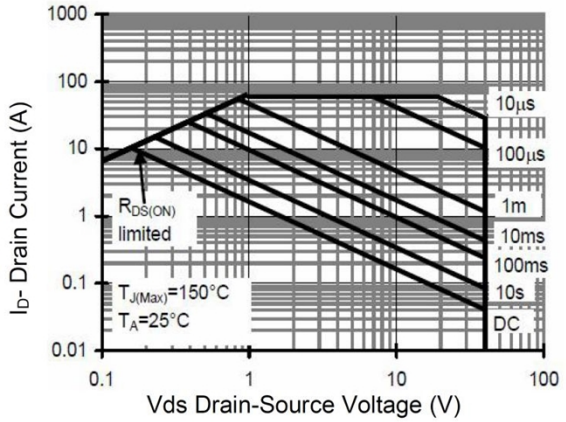
Source- Drain Diode Forward



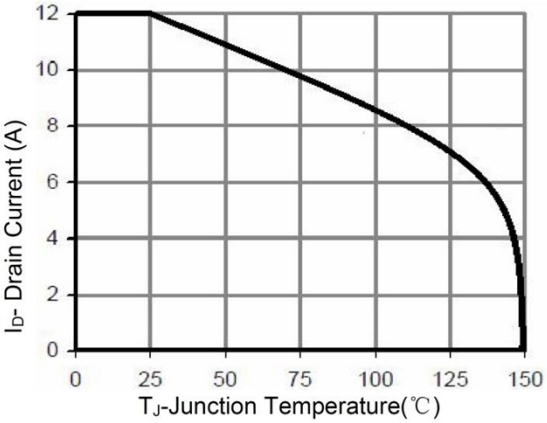
Capacitance vs Vds



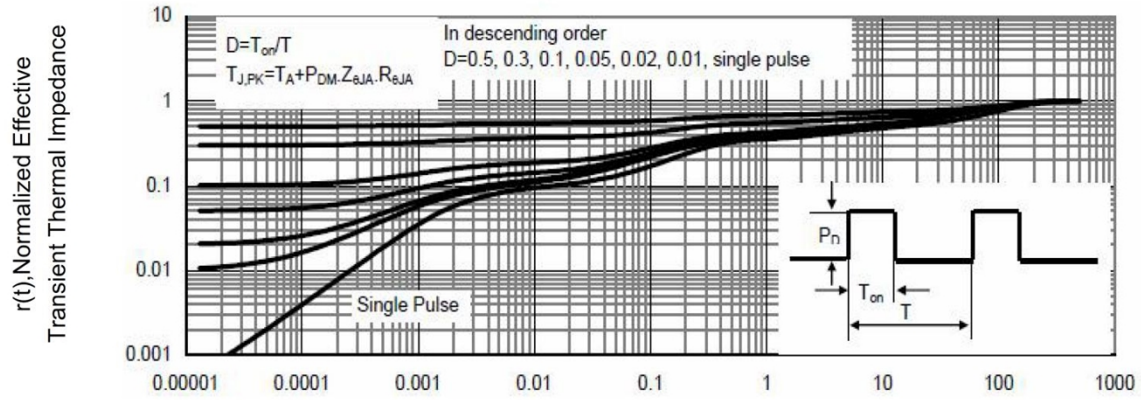
Power De-rating



Safe Operation Area

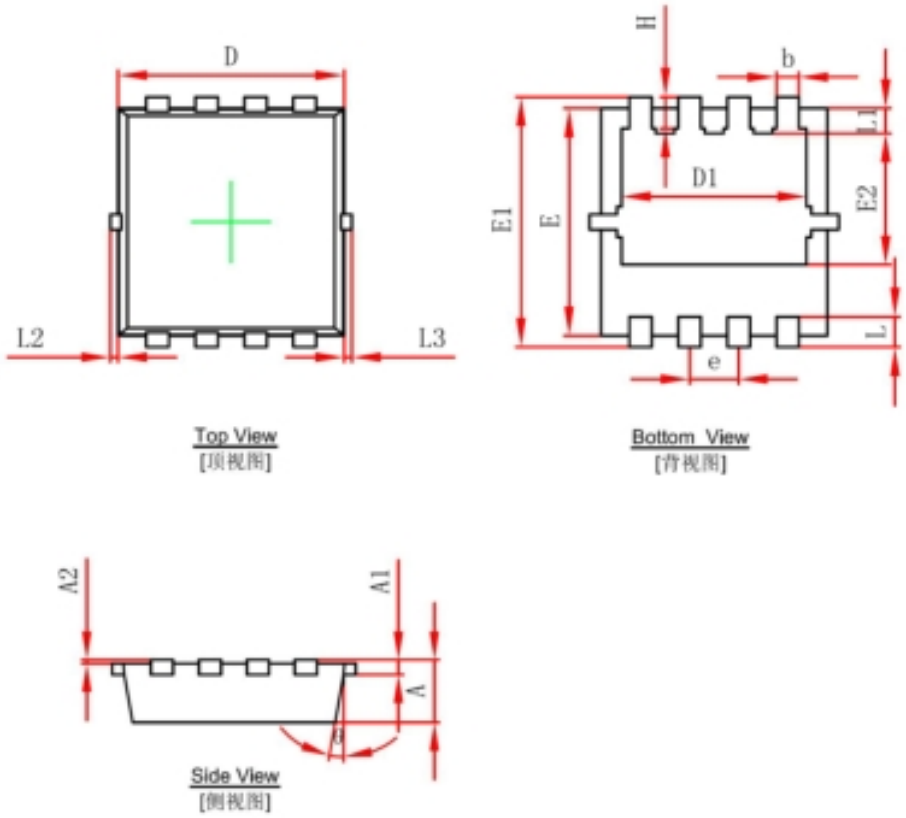


Current De-rating



Normalized Maximum Transient Thermal Impedance

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°