

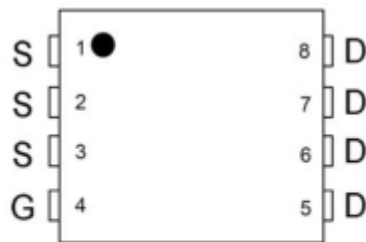
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-30V	6mΩ@-10V	-42A
	9mΩ@-4.5V	

Feature

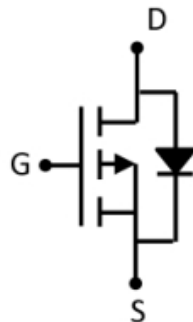
- Enhancement mode
- Low on-resistance $R_{DS(on)}$
- Pb-free lead plating; RoHS compliant

Package



PDFNWB3.3×3.3-8L

Circuit diagram



Marking



30P06 =Device Code
* =Month Code

Absolute maximum ratings

(T_a=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	-30	V
Gate-Source Voltage	V _{GS}	±25	V
Drain Current-Continuous(T _C =25°C)	I _D	-42	A
Drain Current-Pulsed ¹	I _{DM}	-170	A
Single Pulse Avalanche Energy ²	E _{AS}	65	mJ
Maximum Power Dissipation(T _C =25°C)	P _D	96	W
Thermal Resistance,Junction-to-Ambient	R _{θJA}	75	°C/W
Thermal Resistance,Junction-to-Case	R _{θJC}	1.3	°C/W
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55~+150	°C

Electrical characteristics

($T_A=25^{\circ}\text{C}$, 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-Source Leakage	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 = -15A		6	9	mΩ
		V _{GS} = -4.5V, I _D = -10A		9	13	
		V _{DS} = -10V, I _D = -15A	30			
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = -15V, V _{GS} =0V, f=1MHz		2900		pF
Output Capacitance	C _{oss}			410		
Reverse Transfer Capacitance	C _{rss}			280		
Switching Characteristics						
Turn-on Delay Time	T _{d(on)}	V _{DD} = -15V, , I _D = -10A V _{GS} = -10V, R _{GEN} =3Ω		15		nS
Turn-on Rise Time	T _r			11		
Turn-off Delay Time	T _{d(off)}			44		
Turn-off Fall Time	T _f			21		
Total Gate Charge	Q _g	V _{DS} = -15V, I _D = -10A , V _{GS} = -10V		48		nC
Gate-Source Charge	Q _{gs}			12		
Gate-Drain Charge	Q _{gd}			14		
Drain-Source Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V,I _S = -2A			-1.2	V

Note:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. E_{AS} data shows Max. rating . The test condition is $V_{DD} = -50V, V_{GS} = -10V, L = 0.1mH, I_{AS} = -35A$
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production

Typical Characteristics

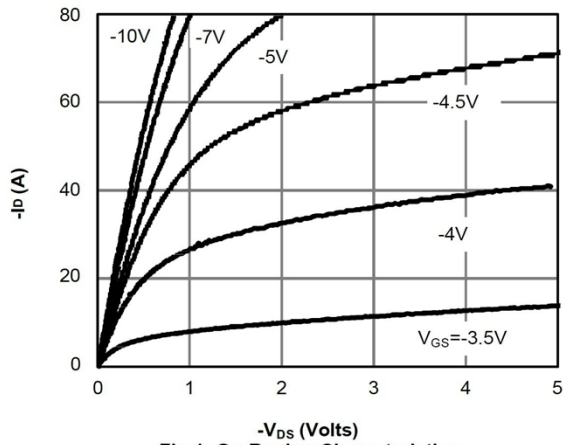


Fig 1: On-Region Characteristics

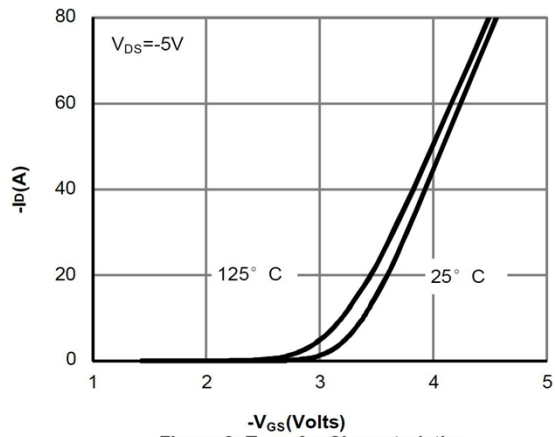


Figure 2: Transfer Characteristics

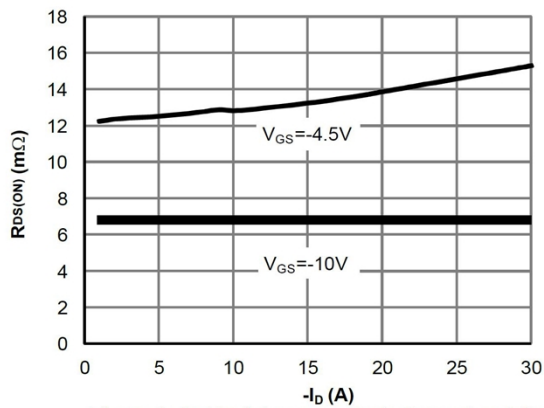


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

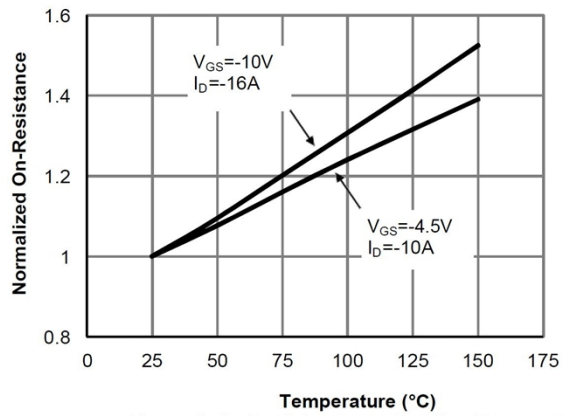


Figure 4: On-Resistance vs. Junction Temperature

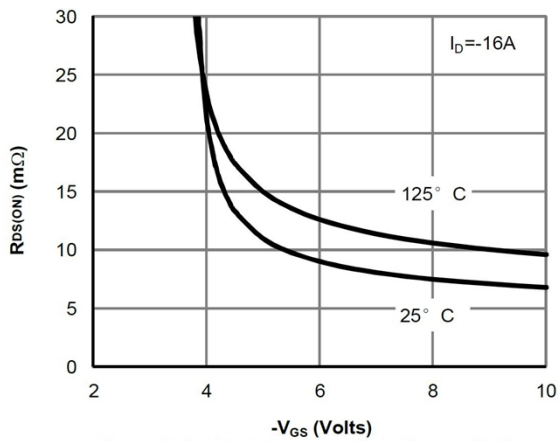


Figure 5: On-Resistance vs. Gate-Source Voltage

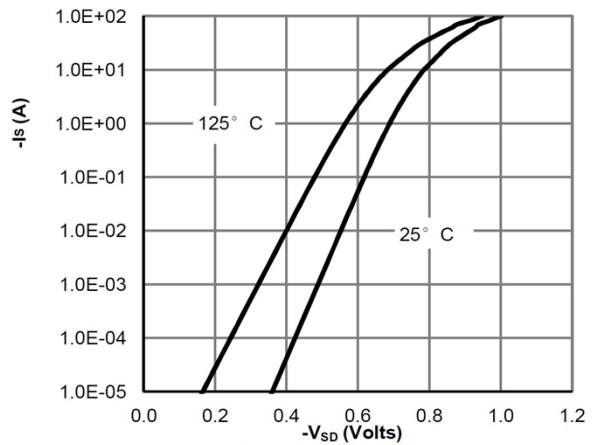
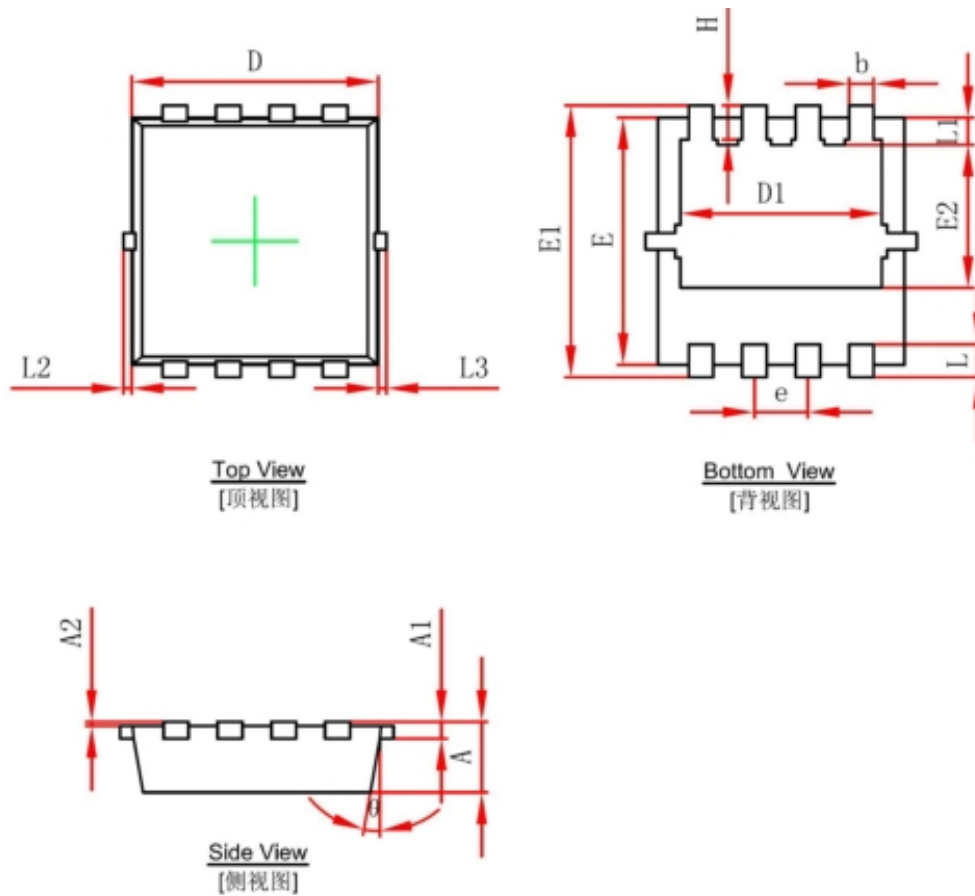


Figure 6: Body-Diode Characteristics

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°