Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	0.95mΩ@10V	180A
	1.25mΩ@4.5V	

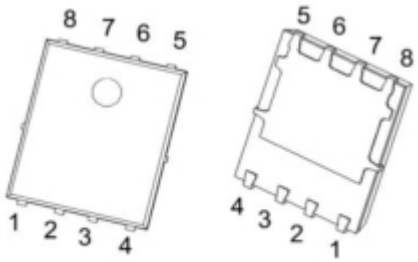
Feature

- Fast Switching
- Low Gate Charge and Rdson
- 100% Single Pulse avalanche energy Test

Application

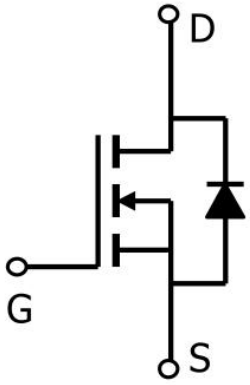
- DC-DC Converter
- Ideal for high-frequency switching and synchronous rectification

Package



PDFNWB5X6-8L

Circuit diagram



Marking

30N01G	**=Device Code**
P	**=Clip**
*	**=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 Current1(TC=25℃)	I_D	180	A
Pulsed Drain Current[2]	I_{DM}	720	A
Single Pulse Avalanche Energy[3]	E_{AS}	1093	mJ
Total Power Dissipation[4](TC=25℃)	P_D	166	W
Thermal Resistance Junction-Case[1]	$R_{\theta JC}$	0.75	℃/W
Storage Temperature Range	T_{STG}	-55 to 150	℃
Operating Junction Temperature Range	T_J	-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
Drain-Source Leakage Current	I_{DSS}	V_{DS} =24V,V_{GS} = 0V, T_J=25℃			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
Static Drain-Source On-Resistance[2]	$R_{DS(on)}$	V_{GS} =10V, I_D =20A		0.95	1.2	mΩ
		V_{GS} =4.5V, I_D =20A		1.25	1.5	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=15V, V_{GS}=0V, f=1MHz		5451		pF
Output Capacitance	C_{oss}			1832		
Reverse Transfer Capacitance	C_{rss}			101		
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS}=15V, V_{DS}=10V, I_D =20A		92		pF
Gate-Source Charge	Q_{gs}			12		
Gate-Drain Charge	Q_{gd}			13		
Turn-On Delay Time	$T_{d(on)}$	V_{DD}=15V, V_{GS}=10V, R_G=1.6Ω, I_D =60A		13		nS
Rise Time	T_r			6		
Turn-Off Delay Time	$T_{d(off)}$			45		
Fall Time	T_f			8		
Diode Characteristics						
Diode Forward Voltage[2]	V_{SD}	V_{GS}=0V , I_S=20A, T_J=25℃			1.2	V

Note：

1. The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper.
2. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
3. The E_{AS} data shows Max. rating . The test condition is V_{DD}=15V,V_{GS}=10V,L=0.5mH,R_G=25Ω

Typical Characteristics

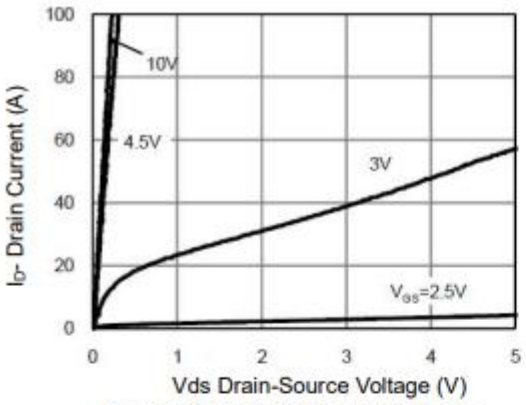


Figure 1 Output Characteristics

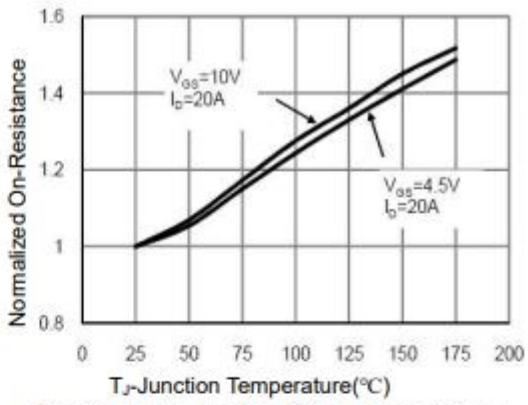


Figure 4 Rdson-Junction Temperature

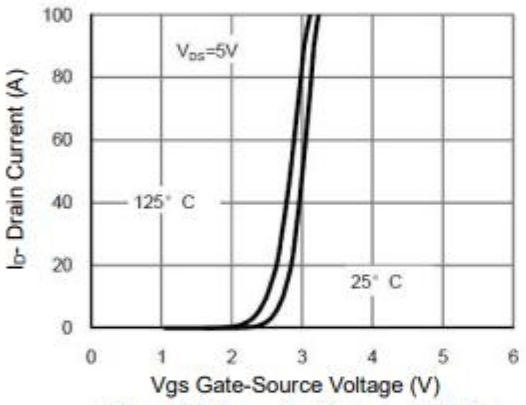


Figure 2 Transfer Characteristics

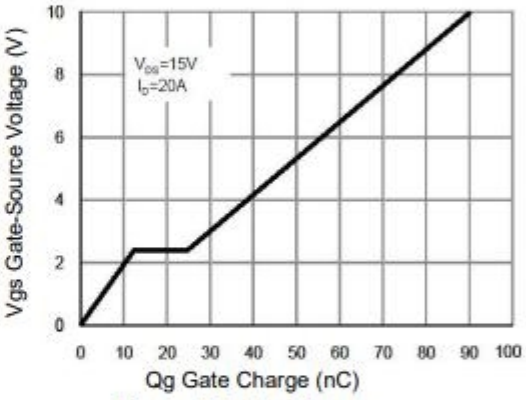


Figure 5 Gate Charge

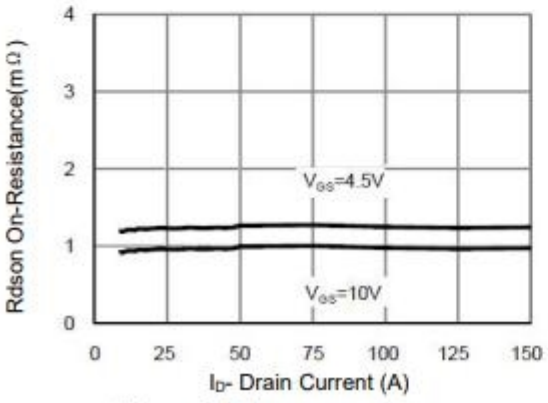


Figure 3 Rdson- Drain Current

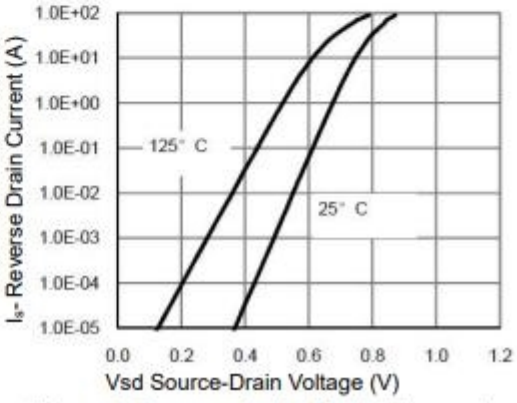


Figure 6 Source- Drain Diode Forward

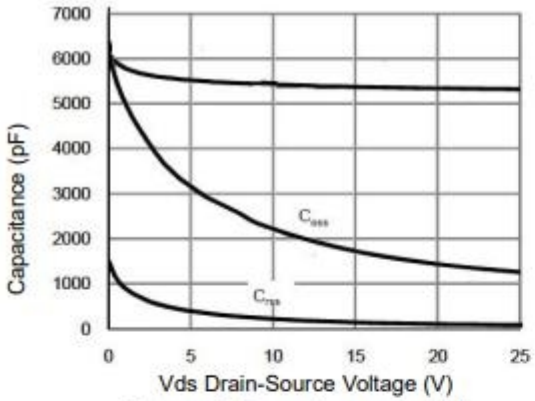


Figure 7 Capacitance vs Vds

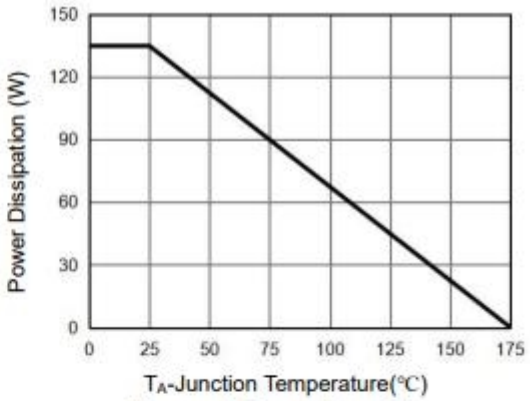


Figure 9 Power De-rating

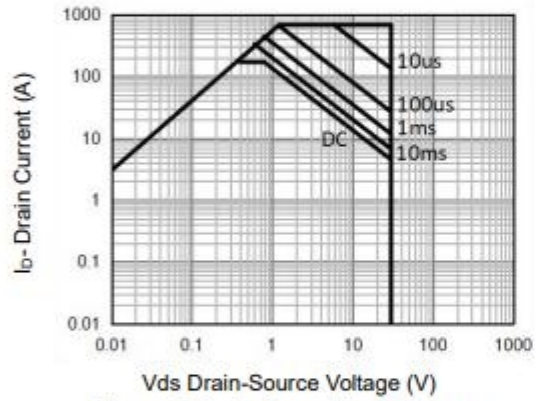


Figure 8 Safe Operation Area (Note3)

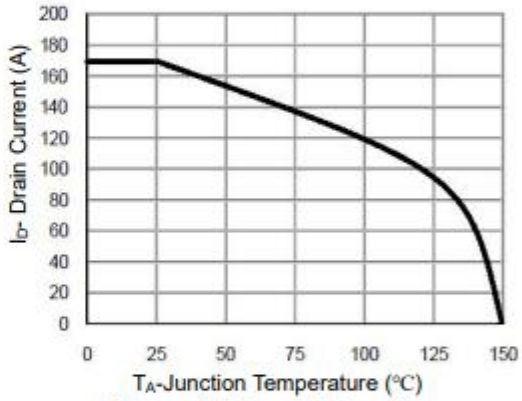


Figure 10 Current De-rating

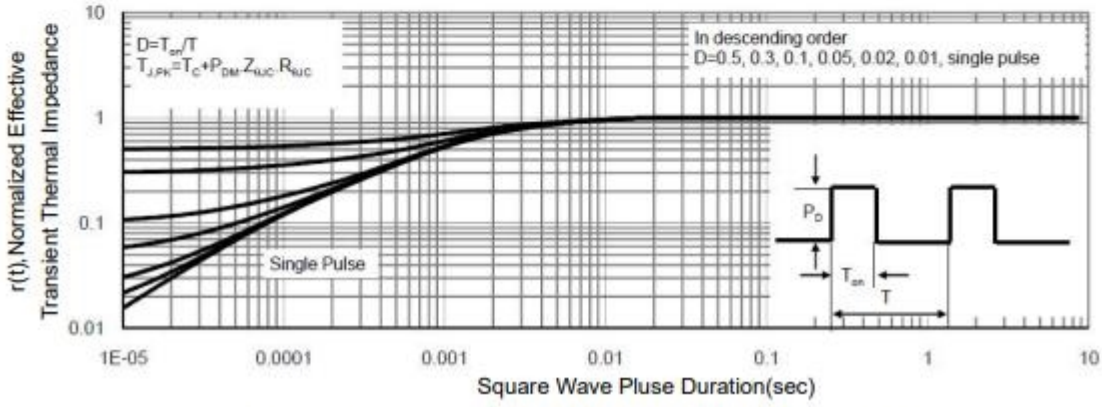
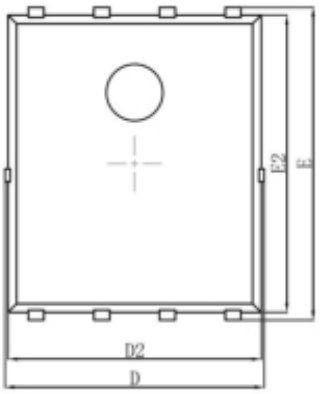
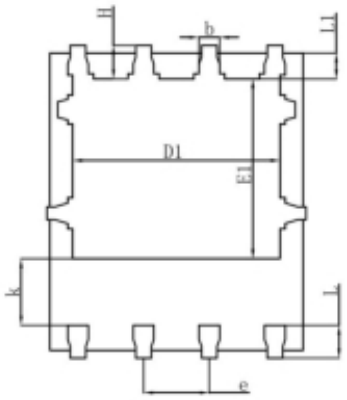


Figure 11 Normalized Maximum Transient Thermal Impedance

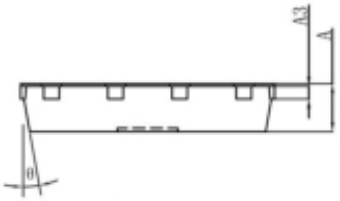
PDFNWB5X6-8L Package Information



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	0.900	1.000	0.035	0.039
A3	0.254REF.		0.010REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270TYP.		0.050TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°