

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
40V	0.75m Ω @10V	200A
	1.1m Ω @4.5V	

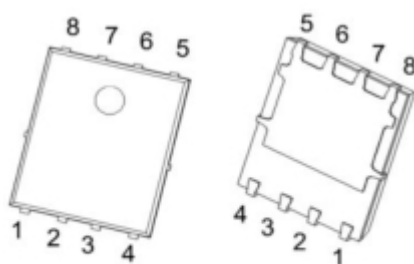
Feature

- Fast Switching
- Low Gate Charge and Rdson
- Advanced Split Gate Trench Technology
- 100% Single Pulse avalanche energy Test

Application

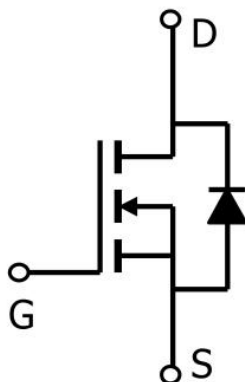
- PWM Application
- Hard switched and high frequency circuits
- Power Management

Package

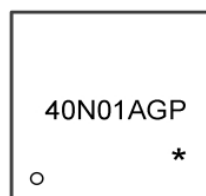


PDFNWB5X6-8L

Circuit diagram



Marking



40N01AG =Device Code
P =Clip Process
***** =Month Code

Absolute maximum ratings

(T_a=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	40	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current(T _C =25°C)	I _D	200	A
Pulsed Drain Current	I _{DM}	800	A
Single Pulse Avalanche Energy ¹	E _{AS}	420	mJ
Avalanche Current	I _{AS}	41	A
Total Power Dissipation ² (T _C =25°C)	P _D	180	W
Thermal Resistance Junction-Case	R _{θJC}	0.67	°C/W
Storage Temperature Range	T _{STG}	-55 to 150	°C
Operating Junction Temperature Range	T _J	-55 to 150	°C

Electrical characteristics

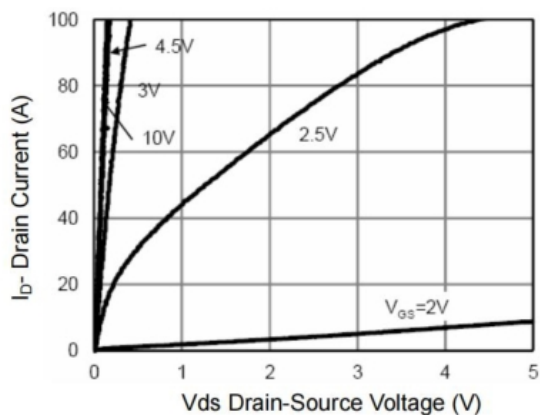
($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$BV_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	40			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS} = 32V, V_{GS} = 0V, T_J = 25^{\circ}C$			1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	μA
Gate-source threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.6	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 30A$		0.75	1.1	m Ω
		$V_{GS} = 4.5V, I_D = 20A$		1.1	1.5	
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 20V, V_{GS} = 0V, f = 1MHz$		7515		pF
Output Capacitance	C_{oss}			1854		
Reverse Transfer Capacitance	C_{rss}			122		
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS} = 20V, V_{GS} = 10V, I_D = 85A$		128		pF
Gate-Source Charge	Q_{gs}			19		
Gate-Drain Charge	Q_{gd}			12		
Turn-On Delay Time	$T_{d(on)}$	$V_{DD} = 20V, V_{GS} = 10V, R_G = 1.6\Omega, I_D = 85A$		13.5		nS
Rise Time	T_r			8.8		
Turn-Off Delay Time	$T_{d(off)}$			52		
Fall Time	T_f			9.6		
Diode Characteristics						
Diode Forward Voltage ²	V_{SD}	$V_{GS} = 0V, I_S = 20A, T_J = 25^{\circ}C$			1.2	V

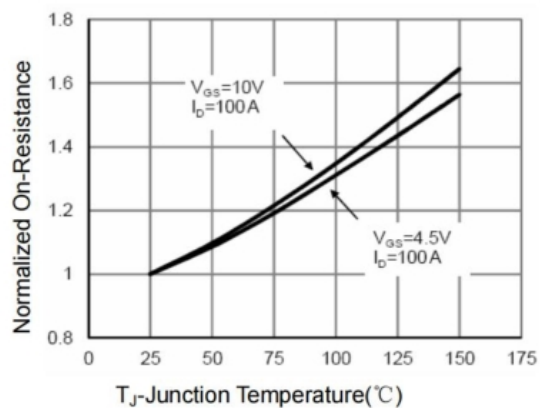
Note:

1. The EAS data shows Max. rating . The test condition is $V_{DD} = 20V, V_{GS} = 10V, L = 0.5\text{mH}, R_G = 25\Omega$
2. The power dissipation is limited by 150°C junction temperature

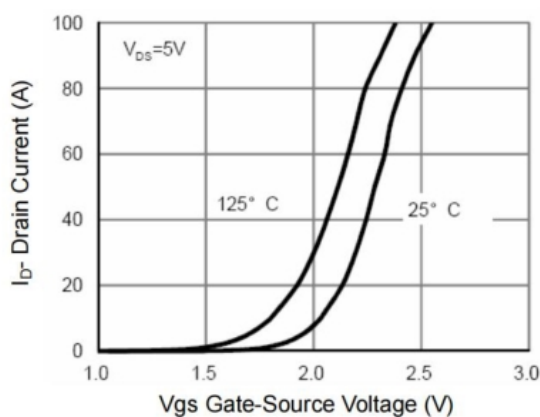
Typical Characteristics



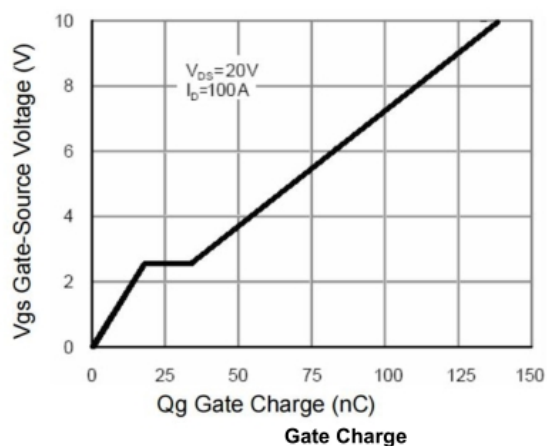
Output Characteristics



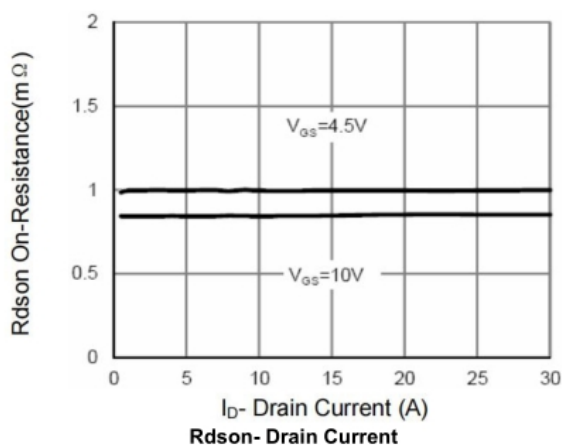
Rdson-Junction Temperature



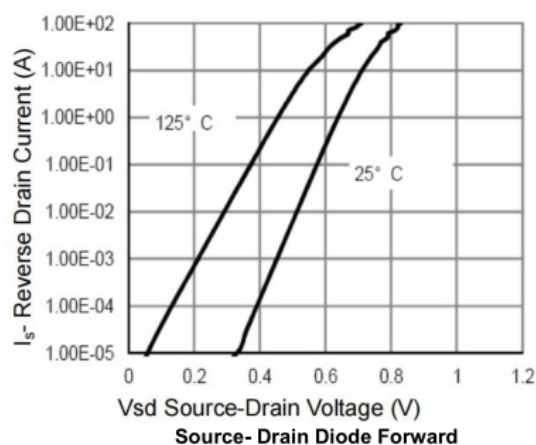
Transfer Characteristics



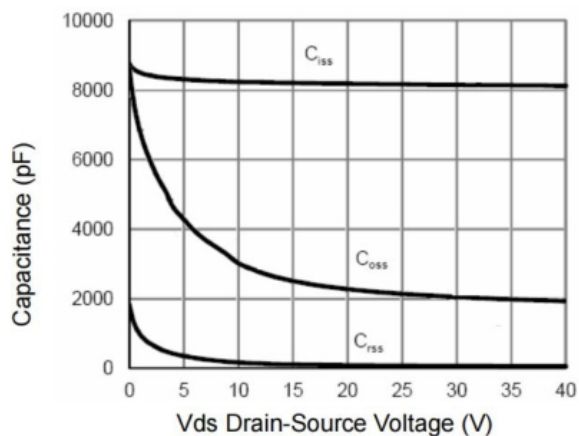
Gate Charge



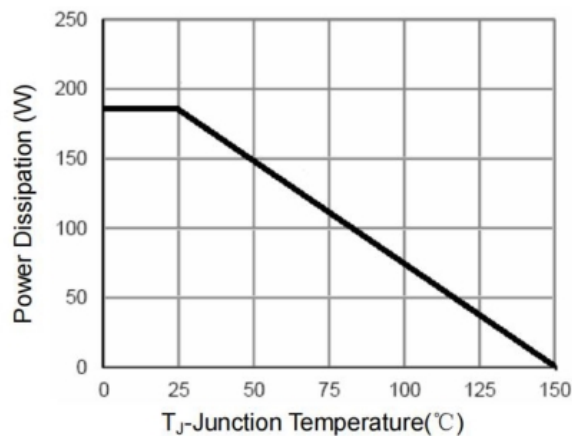
Rdson- Drain Current



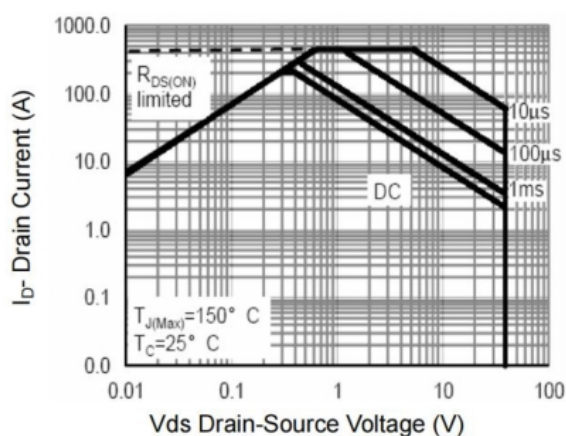
Source- Drain Diode Forward



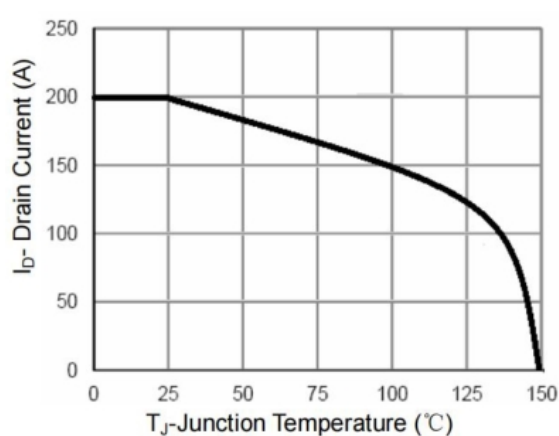
Capacitance vs Vds



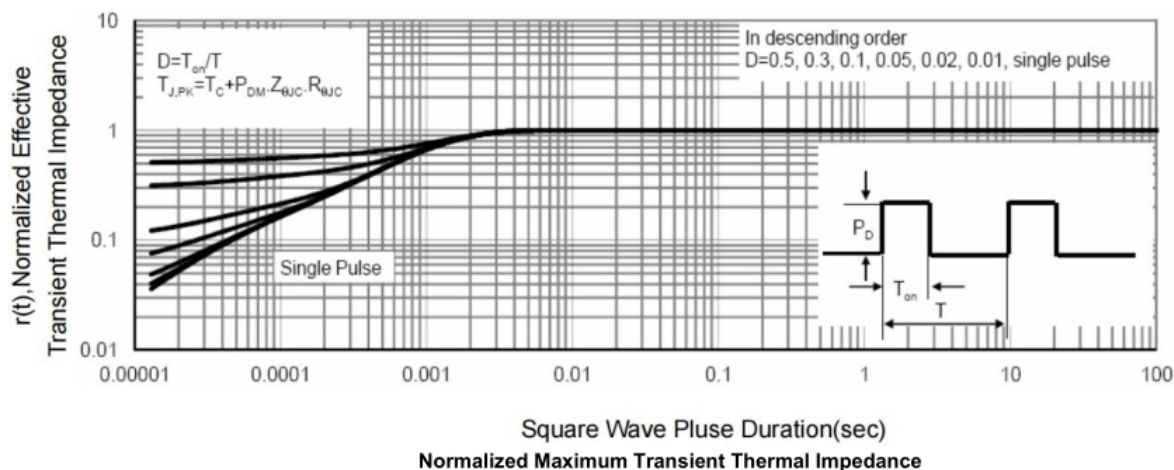
Power De-rating



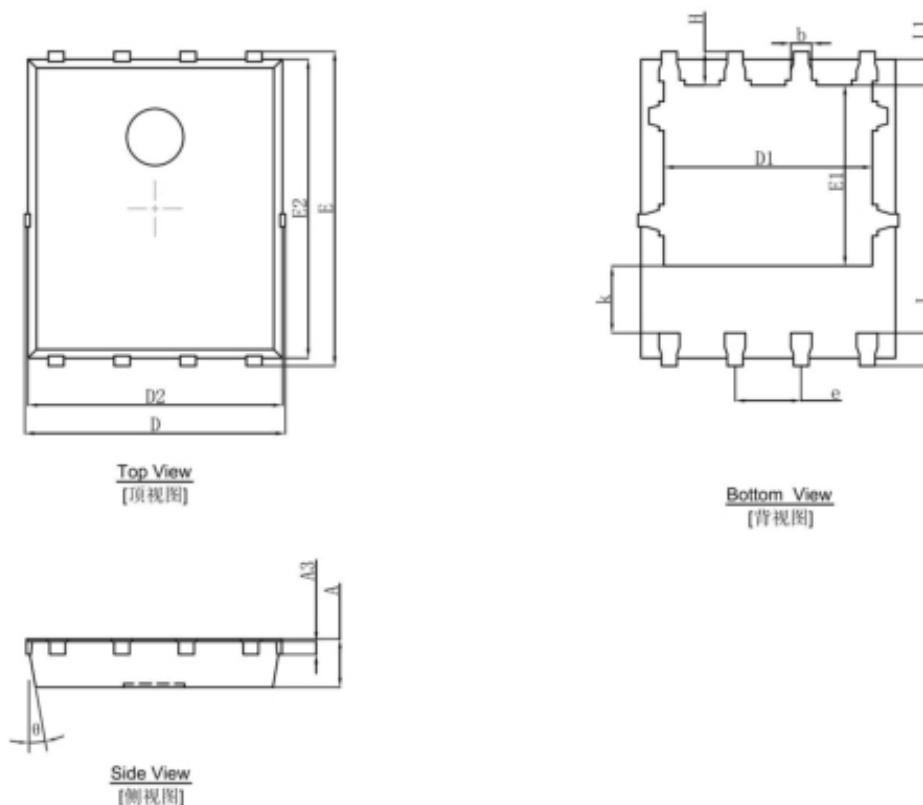
Safe Operation Area



Current De-rating



PDFNWB5X6-8L Package Information



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°