

## Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
100V	4.5mΩ@10V	100A
	6mΩ@4.5V	

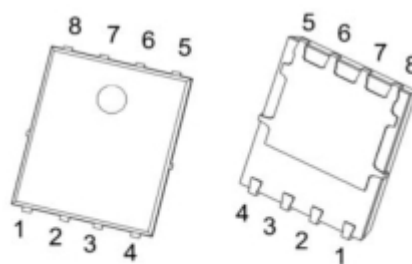
## Feature

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

## Application

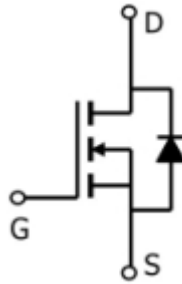
- Power switching application
- PWM Application
- DC-DC Converter

## Package

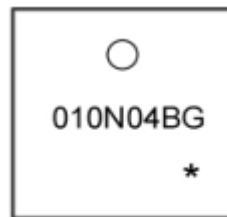


**PDFNWB5X6-8L**

## Circuit diagram



## Marking



**010N04BG** =Device Code  
**\*** =Month Code

## Absolute maximum ratings

(T<sub>a</sub>=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V <sub>DS</sub>	100	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Continuous Drain Current (T <sub>C</sub> =25°C)	I <sub>D</sub>	100	A
Pulsed Drain Current	I <sub>DM</sub>	400	A
Single Pulse Avalanche Energy <sup>1</sup>	E <sub>AS</sub>	20	mJ
Total Power Dissipation(T <sub>C</sub> =25°C)	P <sub>D</sub>	150	W
Thermal Resistance Junction-Case	R <sub>θJC</sub>	0.83	°C/ W
Storage Temperature Range	T <sub>STG</sub>	-55~ +150	°C
Operating Junction Temperature Range	T <sub>J</sub>	-55~ +150	°C

## Electrical characteristics

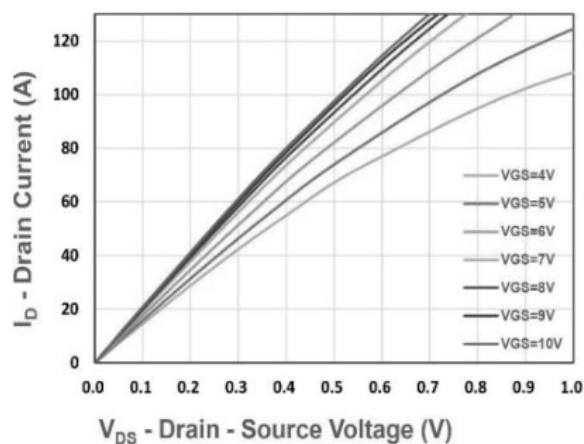
( $T_A=25^{\circ}\text{C}$ , unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$BV_{DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	100			V
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS} = 80V, V_{GS} = 0V, T_J = 25^{\circ}C$			1	$\mu A$
Gate-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			$\pm 100$	$\mu A$
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	2	3	V
Static Drain-Source on-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 30A$		4.5	5.7	$m\Omega$
		$V_{GS} = 4.5V, I_D = 20A$		6	8	
Dynamic characteristics						
Total Gate Charge (4.5V)	$Q_g$	$V_{DS} = 50V, V_{GS} = 10V, I_D = 50A$		97		nC
Gate-Source Charge	$Q_{gS}$			27		
Gate-Drain Charge	$Q_{gd}$			30		
Input Capacitance	$C_{iss}$	$V_{DS} = 50V, V_{GS} = 0V, f = 1MHz$		4850		pF
Output Capacitance	$C_{oss}$			480		
Reverse Transfer Capacitance	$C_{rss}$			34		
Switching Characteristics						
Turn-On Delay Time	$T_{d(on)}$	$V_{GS} = 50V, V_{GS} = 10V, R_G = 3\Omega, I_D = 50A$		24		nS
Rise Time	$T_r$			13		
Turn-Off Delay Time	$T_{d(off)}$			47		
Fall Time	$T_f$			11		
Diode Characteristics						
Diode Forward Voltage <sup>2</sup>	$V_{SD}$	$V_{GS} = 0V, I_S = 1A, T_J = 25^{\circ}C$			1.2	V

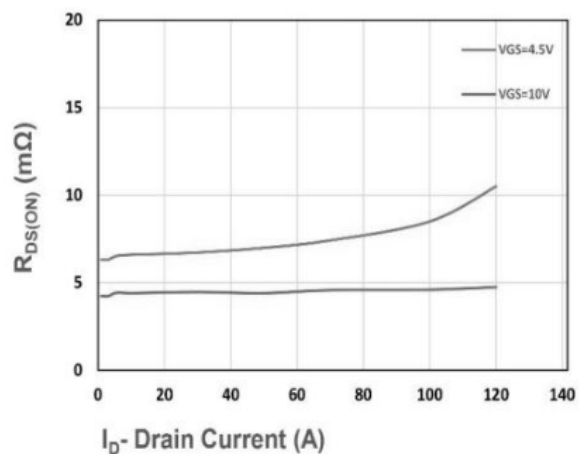
### Notes:

1. The data tested by surface mounted on a 1 inch<sup>2</sup> FR-4 board with 2OZ copper.
2. The data tested by pulsed , pulse width  $\leq 300\mu s$  , duty cycle  $\leq 2\%$
3. The EAS data shows Max. rating . The test condition is  $V_{DD} = 50V, V_{GS} = 10V, L = 0.5mH, I_{AS} = 20A$
4. The power dissipation is limited by  $150^{\circ}\text{C}$  junction temperature

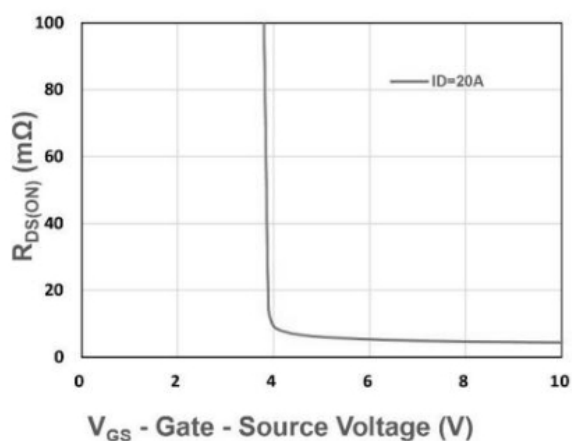
## Typical Characteristics



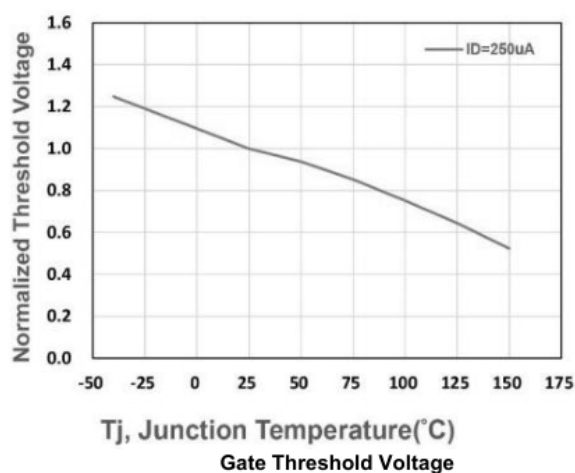
Typical Output Characteristics



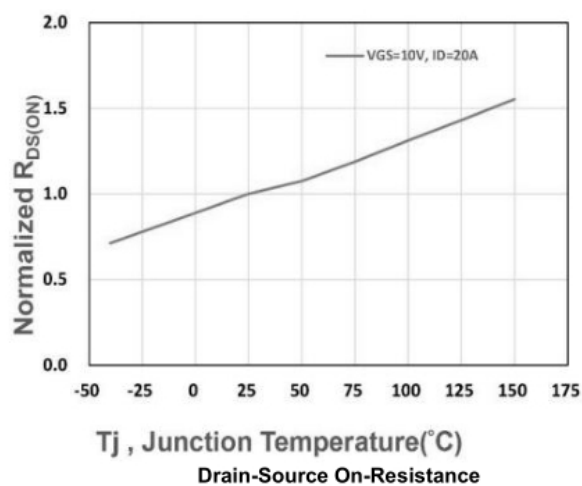
On-Resistance vs.  $I_D$



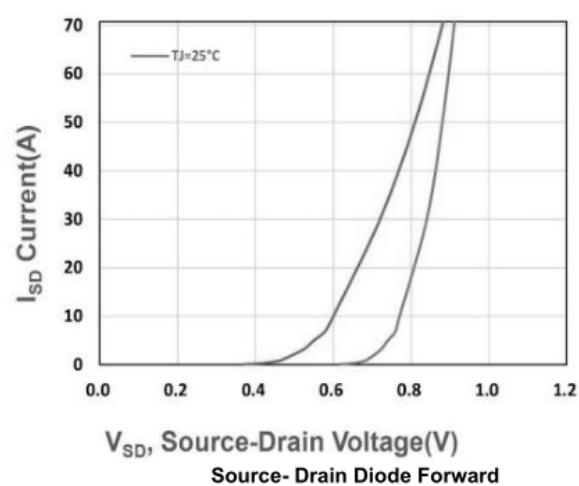
On-Resistance vs.  $V_{GS}$



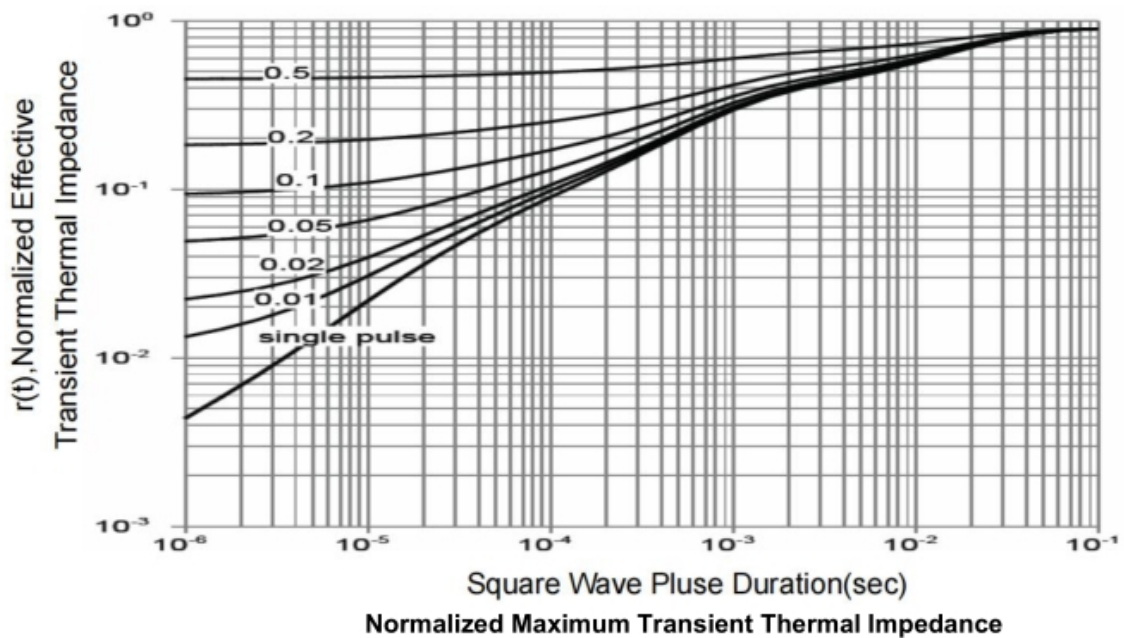
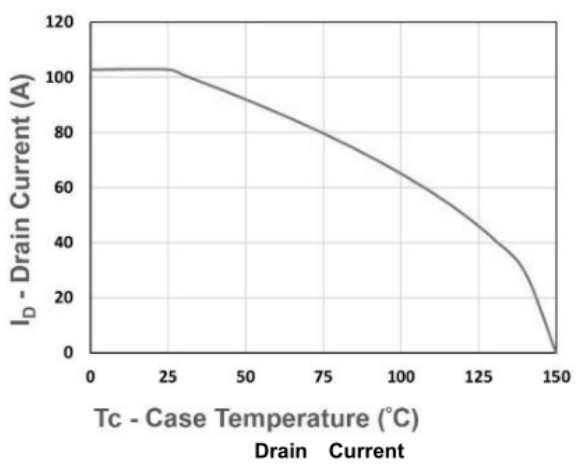
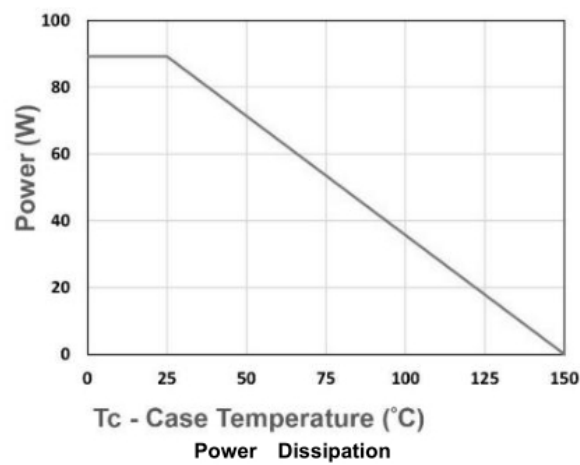
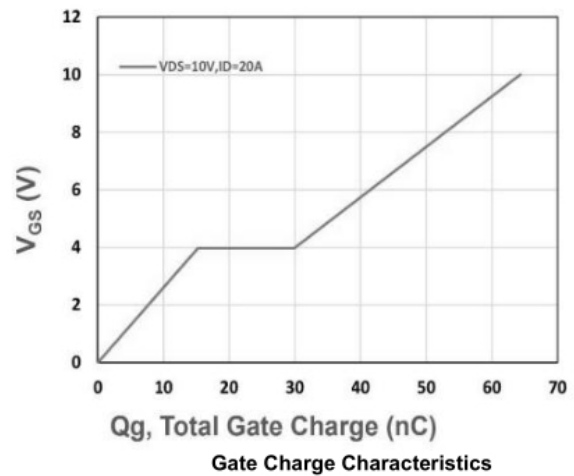
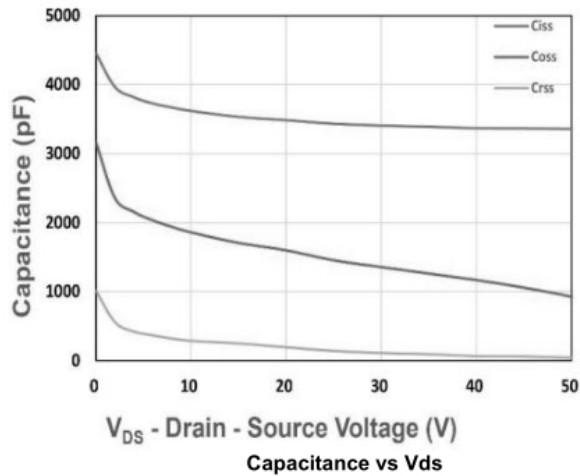
Gate Threshold Voltage



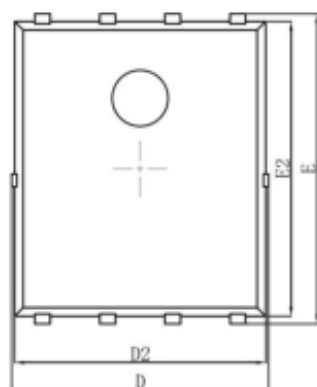
Drain-Source On-Resistance



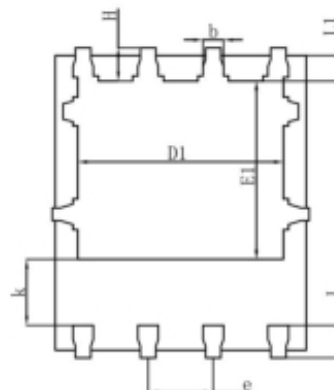
Source- Drain Diode Forward



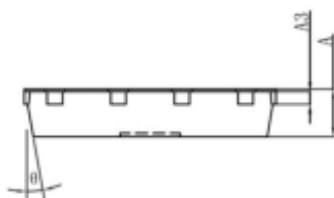
## PDFNWB5X6-8L Package Information



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°