

1.Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	10mΩ@10V	18A

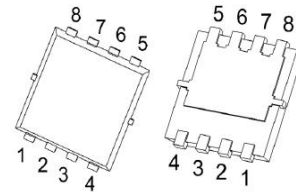
2.Features

- V_{DS} 30V
- I_D 18A
- $R_{DS(ON)}$ (at $V_{GS}=10V$) <13 mohm
- High density cell design for ultra low R_{dson}
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation
- Special process technology for high ESD capability

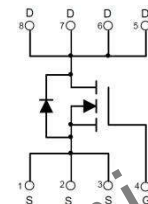
3.Applications

- PWM Application
- Load Switch
- Power Management

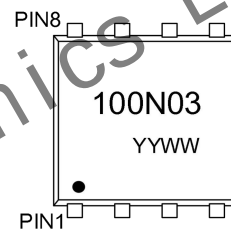
PDFNWB3.3x3.3-8L



Schematic diagram



Marking



100N03 : Device Code
YY : Year Code
WW : Week Code

4.Absolute Maximum rating ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain - Source Voltage	V_{DS}	30	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	18	A
Pulsed Drain Current	I_{DM}	54	A
Single Pulsed Avalanche Energy ¹	E_{AS}	52	mJ
Power Dissipation	P_D	20	W
$T_C = 25^\circ\text{C}$			
Thermal Resistance from Junction to Case	$R_{\theta JC}$	6.25	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

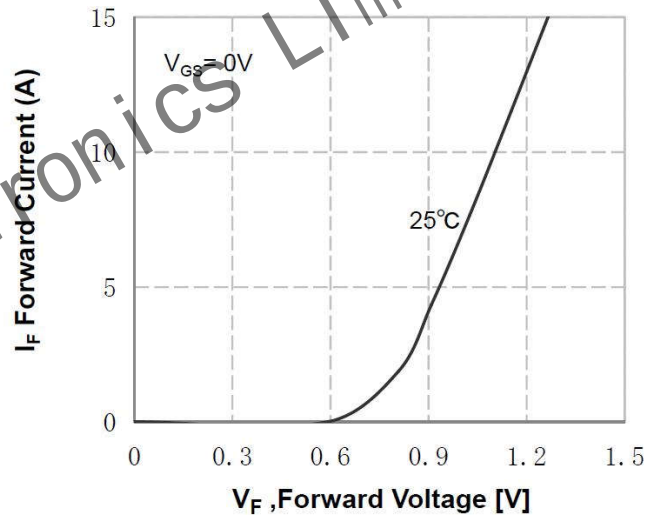
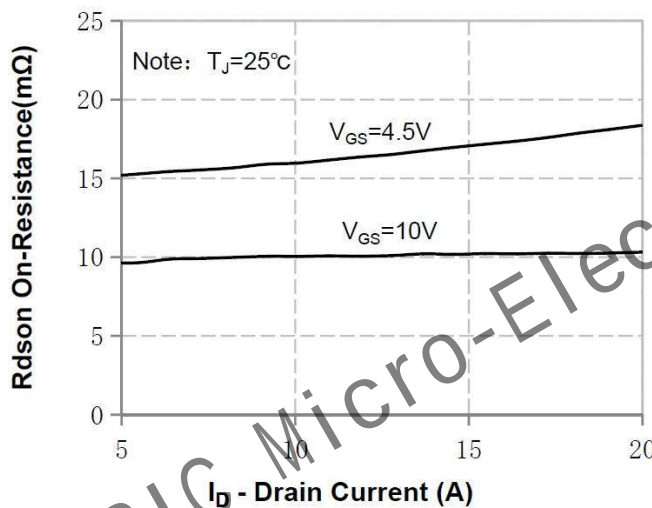
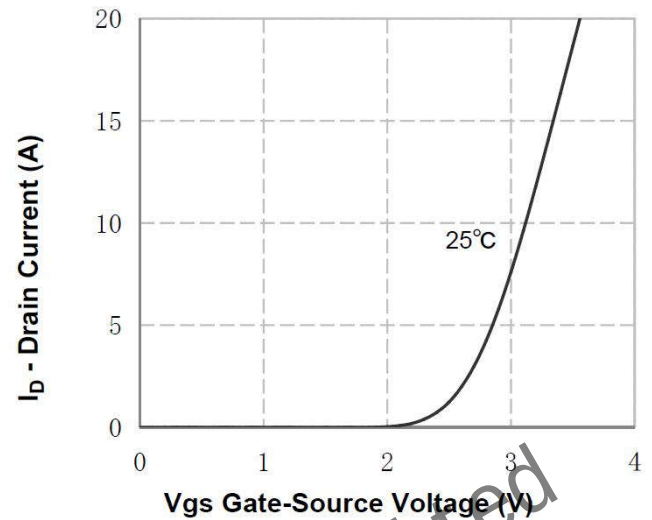
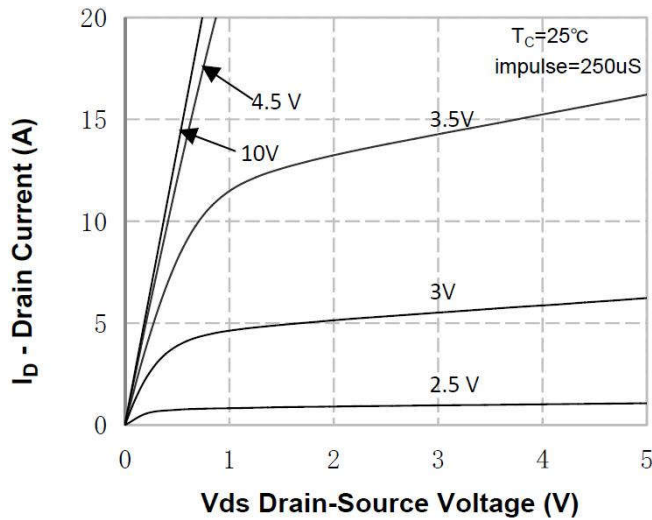
5. Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 30V, V_{GS} = 0V$			1	μA
Gate - Body Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0	1.6	2.5	V
Drain-source On-resistance ²	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 20A$		10	13	m Ω
		$V_{GS} = 4.5V, I_D = 10A$		14	19	m Ω
Dynamic Characteristics ³						
Input Capacitance	C_{iss}	$V_{DS} = 15V, V_{GS} = 0V, f = 1.0$ MHz		865		pF
Output Capacitance	C_{oss}			105		
Reverse Transfer Capacitance	C_{rss}			86		
Switching Characteristics ³						
Total Gate Charge	Q_g	$V_{DS} = 15V, I_D = 10A, V_{GS} = 10V$		17.2		nC
Gate-source Charge	Q_{gs}			2.7		
Gate-drain Charge	Q_{gd}			4.0		
Turn-on Delay Time	$t_{d(on)}$	$V_{GS} = 10V, V_{DS} = 15V,$ $R_L = 3\Omega, I_D = 10A, T_J = 25^\circ C$		5		ns
Turn-on Rise Time	t_r			4		
Turn-off Delay Time	$t_{d(off)}$			22		
Turn-off Fall Time	t_f			6		
Source - Drain Diode Characteristics						
Diode Forward Voltage ²	V_{SD}	$V_{GS} = 0V, I_S = 10A$			1.2	V

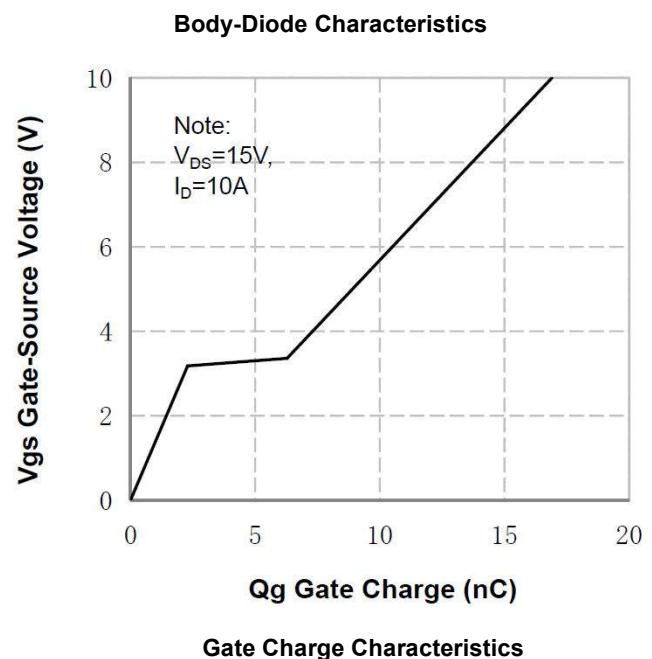
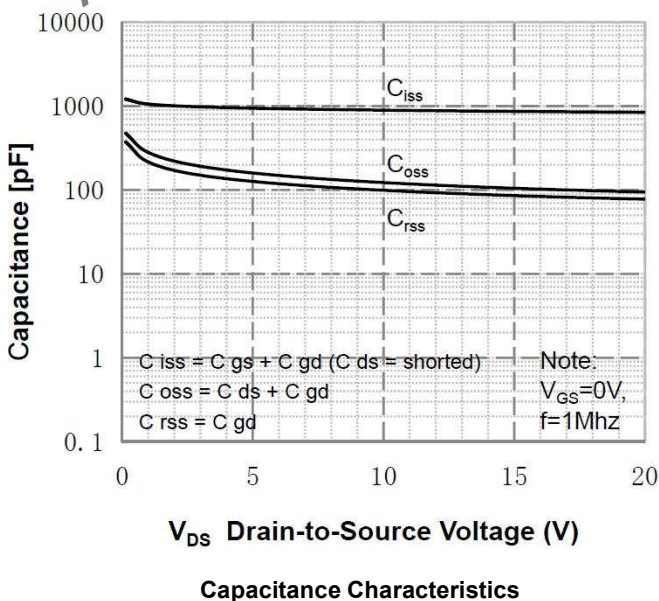
Notes:

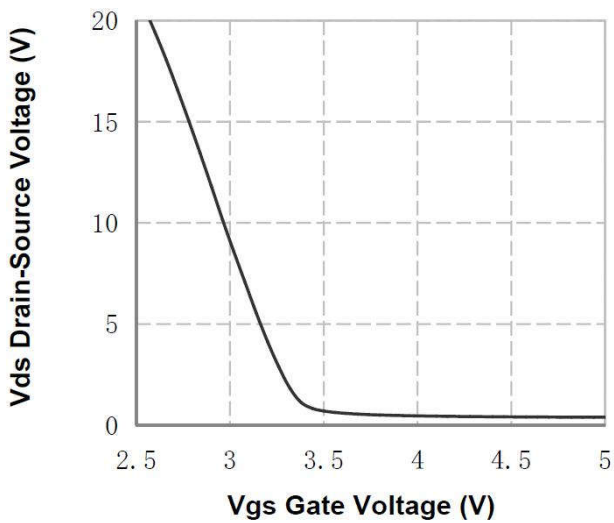
1. EAS condition: $V_{DD} = 15V, V_{GS} = 10V, L = 0.5mH, R_g = 25\Omega$ Starting $T_j = 25^\circ\text{C}$
2. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
3. Guaranteed by design, not subject to production

6. Typical Characteristic

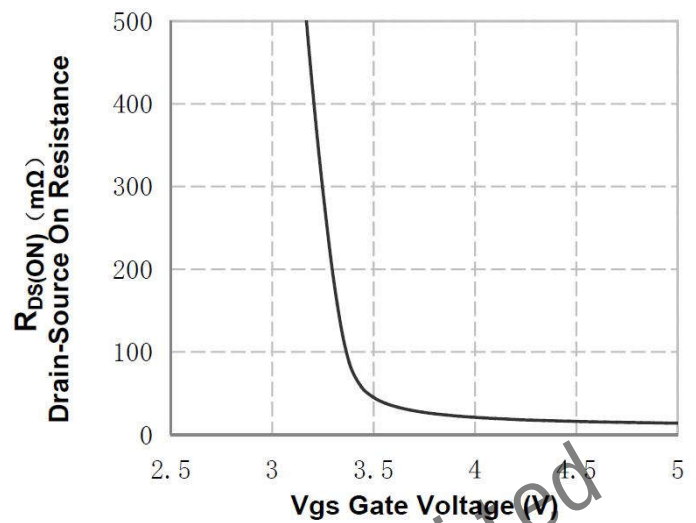


On-Resistance Variation vs Drain Current and Gate Voltage

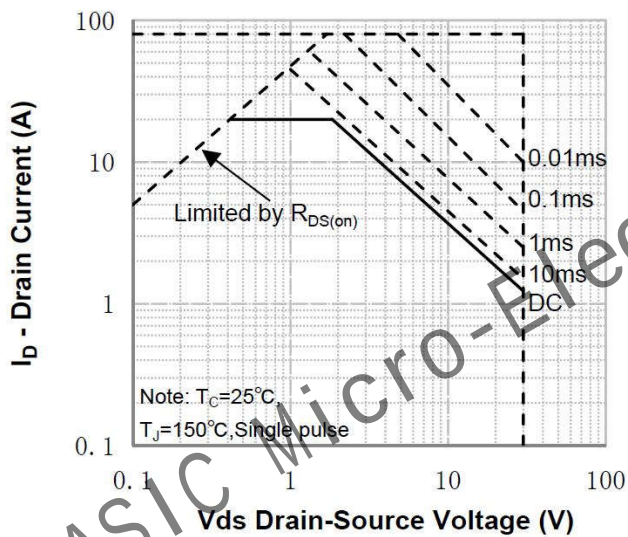




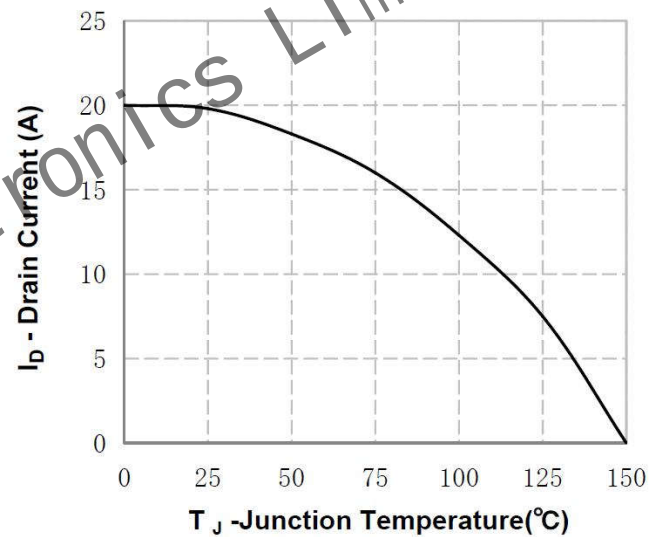
Breakdown Voltage Variation vs Gate-Voltage



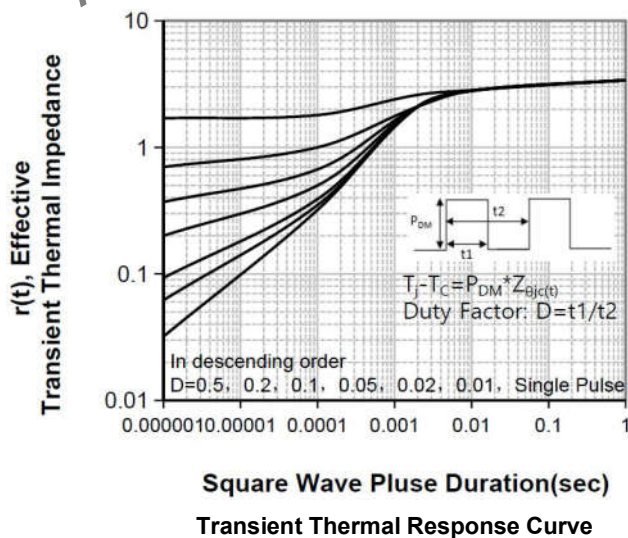
On-Resistance vs Gate Voltage



Maximum Safe Operating Area

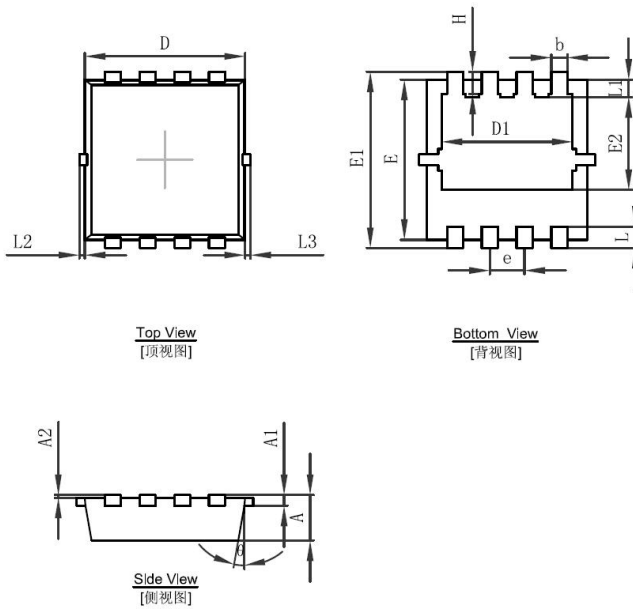


Current De-rating



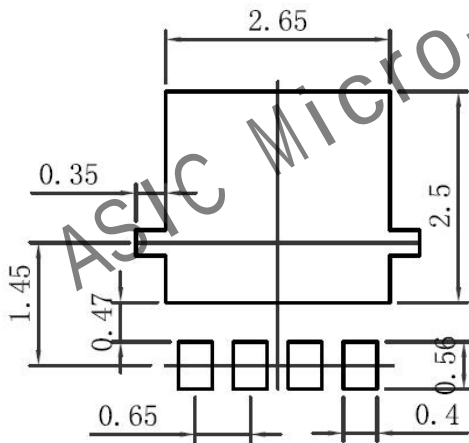
Transient Thermal Response Curve

7.Dimension



Symbol	Dimensions		Dimensions	
	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°

8.Recommended Land Pattern

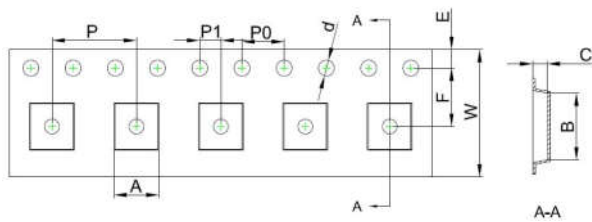


Note:

1. Controlling dimension: in millimeters
2. General tolerance: $\pm 0.05\text{mm}$
3. The pad layout is for reference only
4. Unit: mm

9. Tape and Reel

PDFNWB3.3x3.3-8L Embossed Carrier Tape

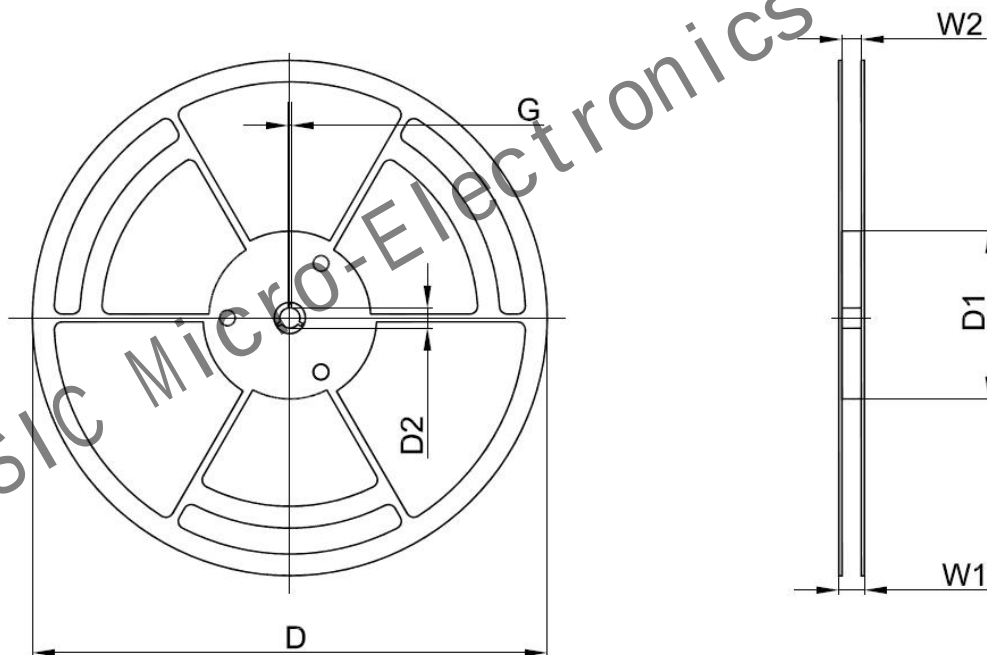


Packaging Description:

PDFNWB3.3x3.3-8L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 5,000 units per 13" or 33.0 cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated)

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
PDFNWB3.3x3.3-8L	3.55	3.55	1.10	Φ1.50	1.75	5.50	4.00	8.00	2.00	12.00

PDFNWB3.3x3.3-8L Reel



Dimensions are in millimeter						
Reel Option	D	D1	D2	G	W1	W2
13" Dia	Φ330.00	100.00	13.00	1.90	17.60	12.40

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)
5,000 pcs	13 inch	5.000 pcs	340x336x29	50,000 pcs	353x346x365

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