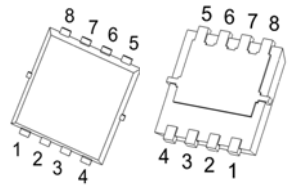
SZCJ Shenzhen Changji Semiconductor Co., LTD.

PDFNWB3.3×3.3-8L Plastic-Encapsulate MOSFET

CJAB50N02S N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$TYP	I_D
18V	2.8mΩ@4.5V	50A
	3.4mΩ@2.5V	
	4.9mΩ@1.8V	

PDFNWB3.3×3.3-8L



DESCRIPTION

The CJAB50N02S uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications

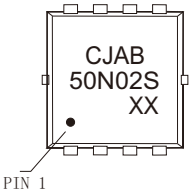
FEATURES

- Battery switch
- Load switch
- High density cell design for ultra low $R_{DS(ON)}$
- 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

APPLICATIONS

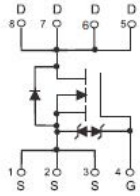
- SMPS and general purpose applications
- Hard switched and high frequency circuits
- Uninterruptible Power Supply

MARKING



CJAB50N02S = Part No.
Solid dot = Pin1 indicator.
XX = Code.

EQUIVALENT CIRCUIT



ABSOLUTE MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	18	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	I_D ①	50	A
Pulsed Drain Current	I_{DM} ②	200	A
Single Pulsed Avalanche Energy	E_{AS} ③	160	mJ
Maximum Power Dissipation	P_D ①	50	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$ ⑥	83.3	℃/W
Thermal Resistance from Junction to Case	$R_{\theta JC}$ ①	2.5	℃/W
Operating Junction and Storage Temperature Range	T_J ,T_{stg}	-55~+150	℃

MOSFET ELECTRICAL CHARACTERISTICS

T_a=25℃ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	18			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =16V, V_{GS} =0V			1	μA
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±10V			±10	μA
On characteristics ④						
Gate-threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.4	0.8	1.0	V
Static drain-source on-sate resistance	$R_{DS(on)}$	V_{GS} =4.5V, I_D =25A		2.8	3.2	mΩ
		V_{GS} =2.5V, I_D =10A		3.4	5.0	mΩ
		V_{GS} =1.8V, ID =2A		4.9	8.0	mΩ
Dynamic characteristics ⑤						
Input capacitance	C_{iss}	V_{DS} =10V,V_{GS} =0V, f =1MHz		3707		pF
Output capacitance	C_{oss}			553		
Reverse transfer capacitance	C_{rss}			542		
Gate resistance	R_g	f =1MHz		1.7		Ω
Switching characteristics ⑤						
Total gate charge	Q_g	V_{GS}=4.5V, V_{DS}=10V, I_D=25A		45		nC
Gate-source charge	Q_{gs}			5		
Gate-drain charge	Q_{gd}			15		
Turn-on delay time	$t_{d(on)}$	V_{DS}=10V,R_L=1.6Ω, V_{GS}=5V,R_G=10Ω		22		ns
Turn-on rise time	t_r			58		
Turn-off delay time	$t_{d(off)}$			92		
Turn-off fall time	t_f			105		
Drain-Source Diode Characteristics						
Drain-source diode forward voltage	V_{SD} ④	V_{GS} =0V, I_S=10A			1.2	V
Continuous drain-source diode forward current	I_S ①				50	A
Pulsed drain-source diode forward current	I_{SM} ②				200	A

Notes:

1.T_C=25℃ Limited only by maximum temperature allowed.

2.P_W≤10μs, Duty cycle≤1%.

3.EAS condition: V_{DD}=30V,V_{GS}=10V,L=0.1mH, R_g=25Ω Starting T_J = 25℃.

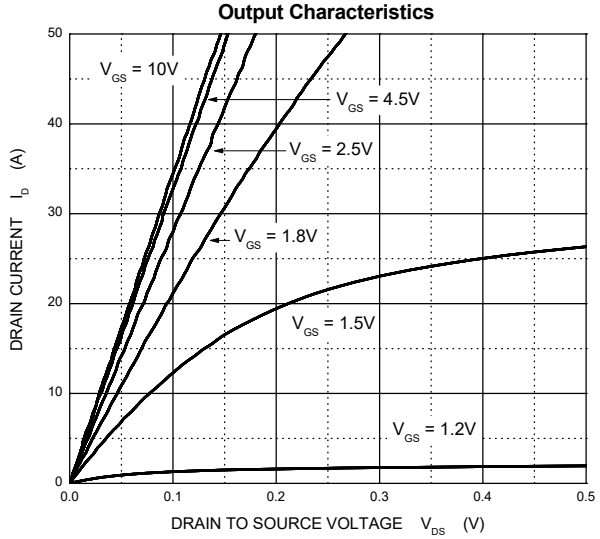
4.Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.

5.Guaranteed by design, not subject to production.

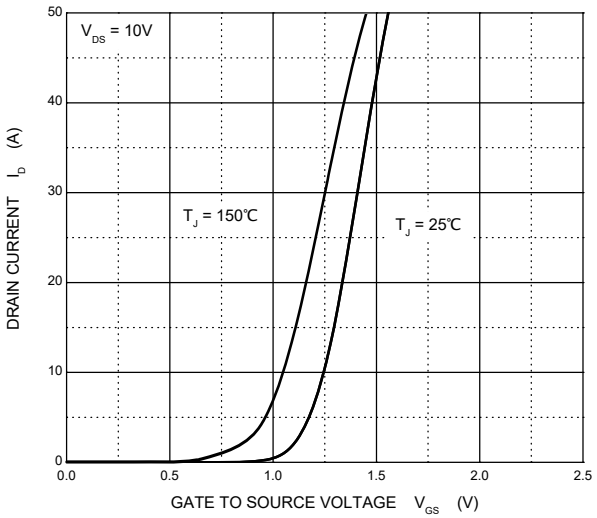
6.The value of $R_{\theta JA}$ is measured with the device mounted on 1 in^2 FR-4 board with 2oz. Copper, in a still air environment with T_a=25℃.

Typical Characteristics (T_J = 25℃, unless otherwise specified)

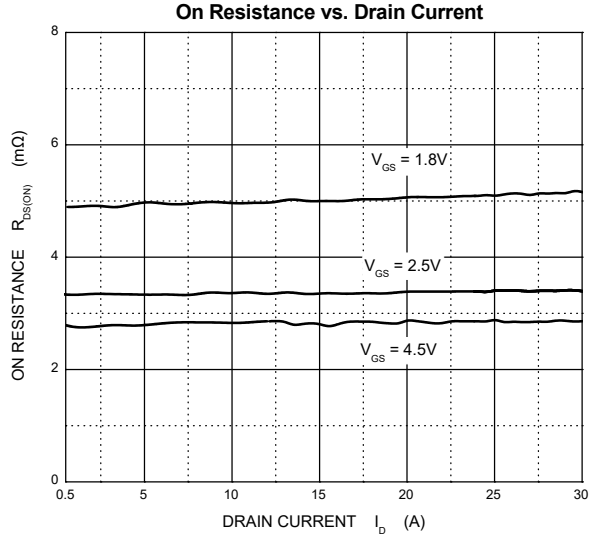
Output Characteristics



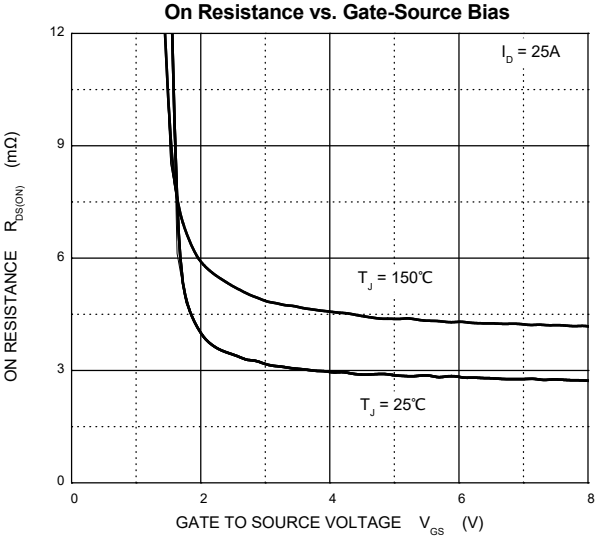
Transfer Characteristics



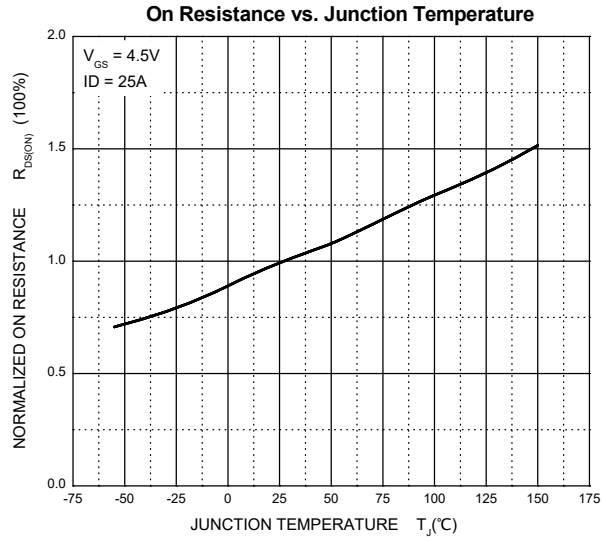
On Resistance vs. Drain Current



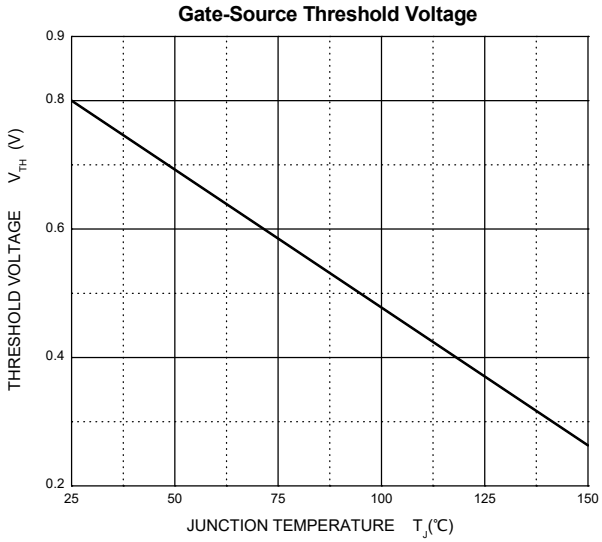
On Resistance vs. Gate-Source Bias



On Resistance vs. Junction Temperature

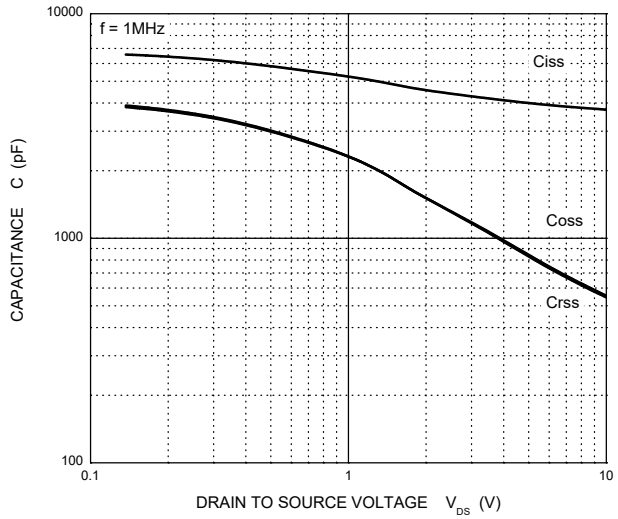


Gate-Source Threshold Voltage

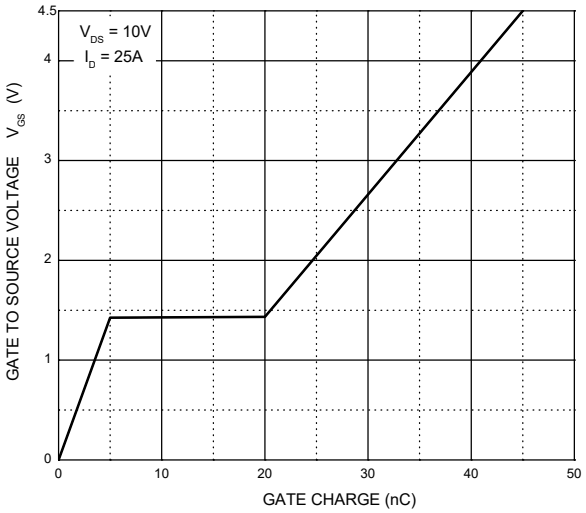


Typical Characteristics (T_J = 25℃, unless otherwise specified)

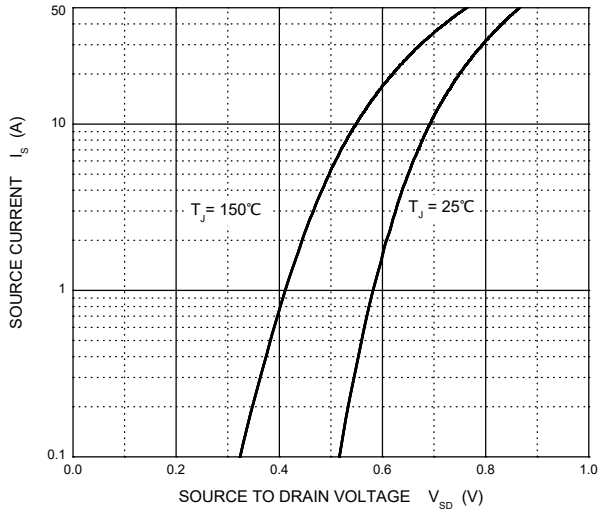
Typical Capacitances



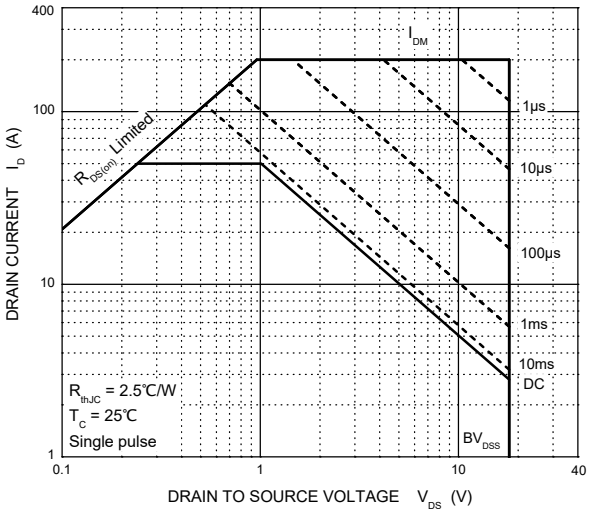
Gate Charge



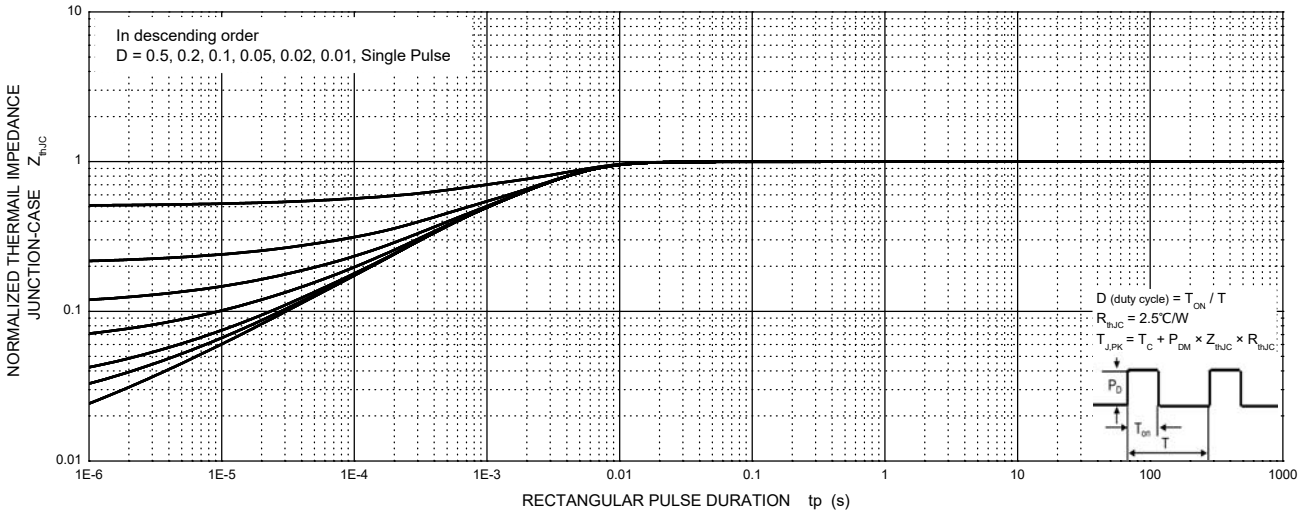
Source-Drain Diode Forward Characteristics



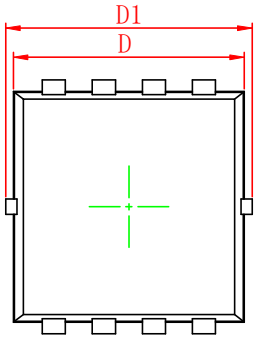
Maximum Safe Operating Area

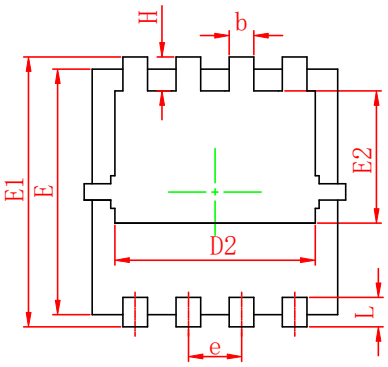


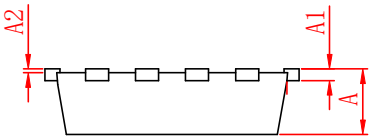
Transient Thermal Impedance, Junction-Case



PDFNWB3.3×3.3-8L PACKAGE OUTLINE DIMENSIONS



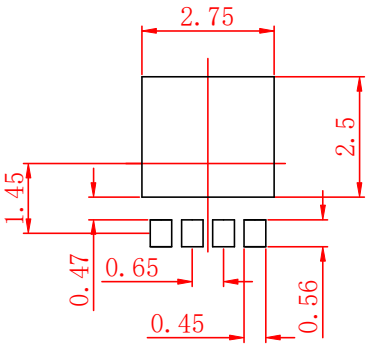




Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.65	0.90	0.026	0.035
A1	0.15 REF.		0.006 REF.	
A2	0~0.05		0~0.002	
D	2.90	3.20	0.114	0.126
D1	3.00	3.40	0.118	0.134
D2	2.30	2.60	0.091	0.102
E	2.90	3.20	0.114	0.126
E1	3.00	3.40	0.118	0.134
E2	1.40	1.70	0.055	0.067
b	0.20	0.40	0.008	0.016
e	0.65 BSC.		0.026 BSC.	
L	0.20	0.50	0.008	0.020
H	0.32	0.52	0.012	0.020

Notes：
1 Dimensions exclusive of mold gate burrs.
2 Dimensions exclusive of mold flash and cutting burrs.

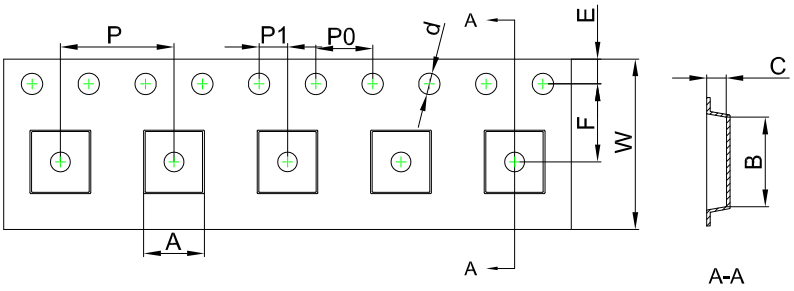
PDFNWB3.3×3.3-8L Suggested Pad Layout



Notes：
1 Controlling dimension：in millimeters.
2 General tolerance:±0.05mm.
2 The pad layout is for referance purpose only.

NOTICE
SZCJ reservesthe right to make modifications,enhancements,improvements,corrections or other changes without further notice to any product herein.SZCJ does not assume any liability arising out of the application or use of any product described herein.

PDFNWB3.3×3.3-8L Embossed Carrier Tape

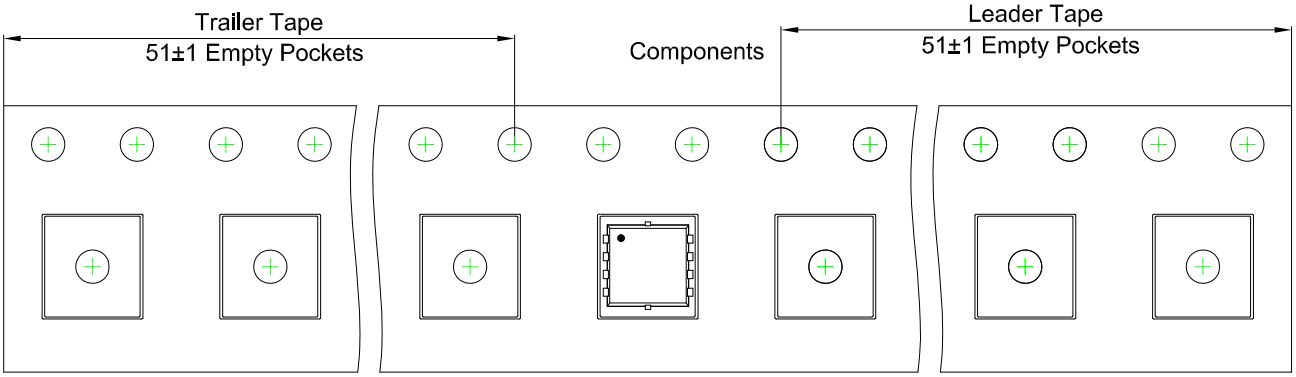


Packaging Description:

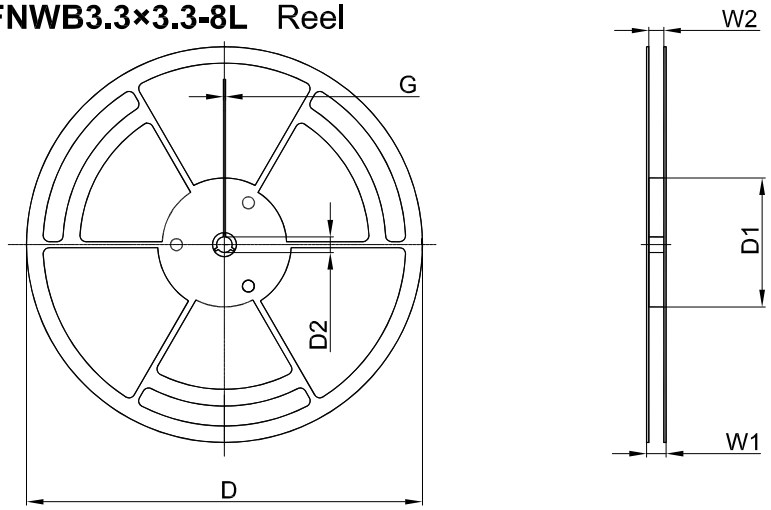
PDFNWB3.3x3.3-8L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled 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
PDFNWB3.3×3.3-8L	3.55	3.55	1.10	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00

PDFNWB3.3×3.3-8L Tape Leader and Trailer



PDFNWB3.3×3.3-8L 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	10,000 pcs	360×360×65	50,000 pcs	378×358×382