



JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD.

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

CJAB25N04A N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
40V	6.5mΩ@10V	25A
	8.4mΩ@4.5V	

DESCRIPTION

The CJAB25N04A 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.

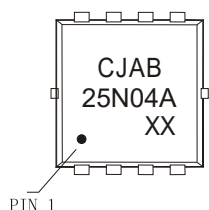
FEATURES

- High Power and current handing capability
- Load switch
- High density cell design for ultra low $R_{DS(ON)}$
- Lead free product is acquired
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation

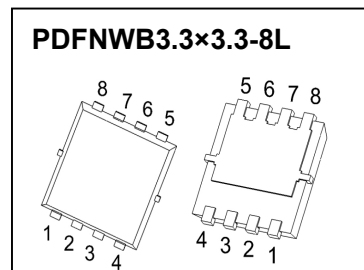
APPLICATIONS

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

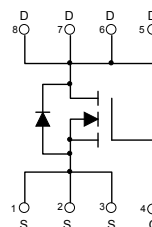
MARKING



CJAB25N04A = Part No.
Solid dot = Pin1 indicator.
XX = Code.



EQUIVALENT CIRCUIT



ABSOLUTE MAXIMUM RATINGS ($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	$I_D^{①}$	25	A
Pulsed Drain Current	$I_{DM}^{①②}$	100	A
Single Pulsed Avalanche Energy	$E_{AS}^{③}$	137	mJ
Power Dissipation	$P_D^{①}$	50	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}^{⑤}$	83.3	$^{\circ}\text{C/W}$
Thermal Resistance from Junction to Case	$R_{\theta JC}^{①}$	2.5	$^{\circ}\text{C/W}$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150	$^{\circ}\text{C}$

MOSFET ELECTRICAL CHARACTERISTICS

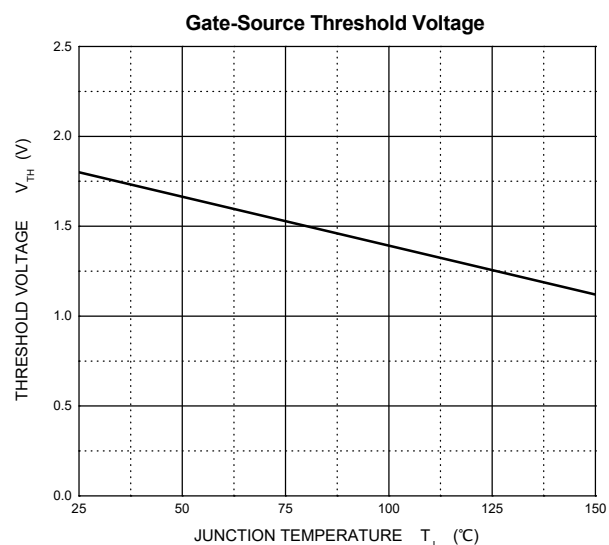
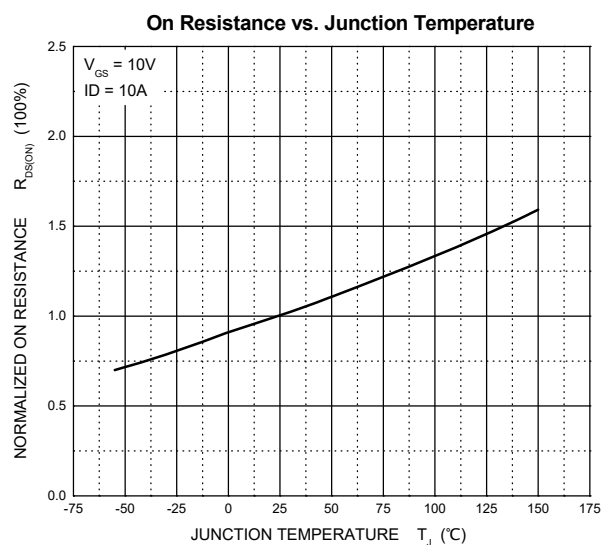
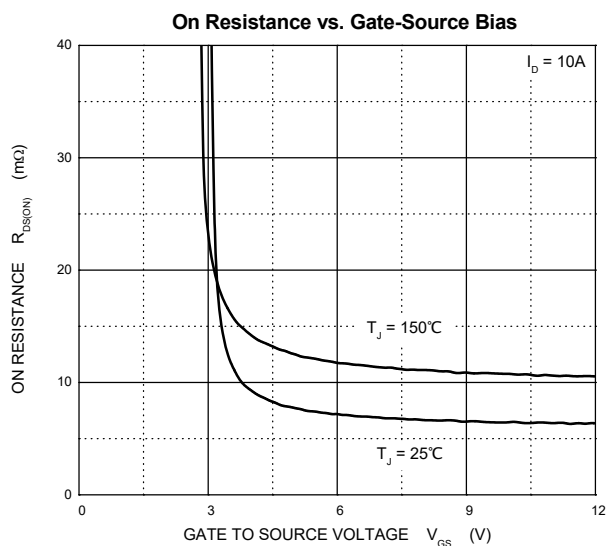
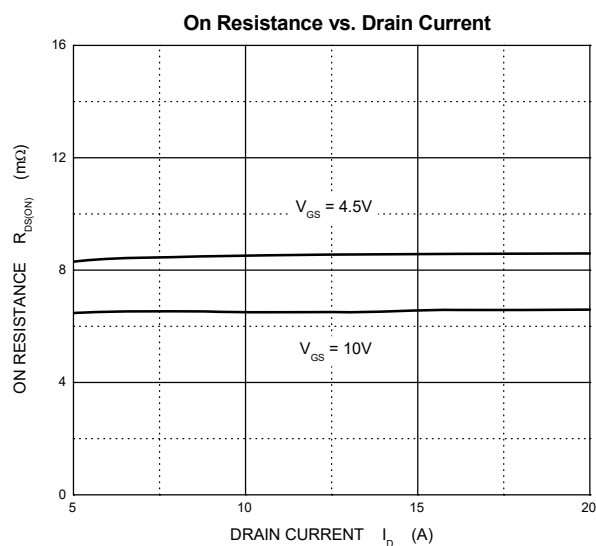
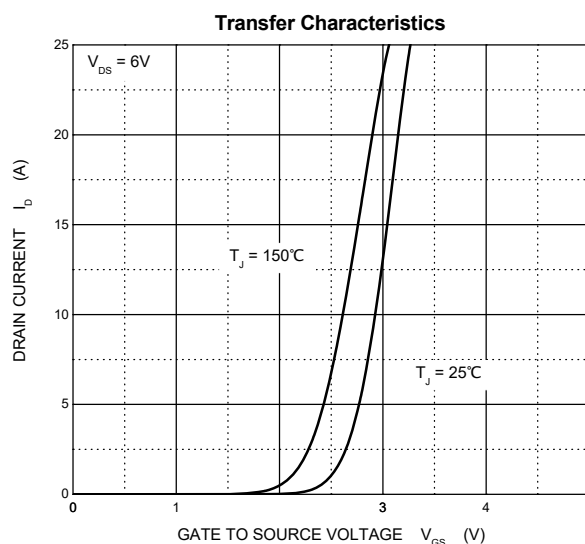
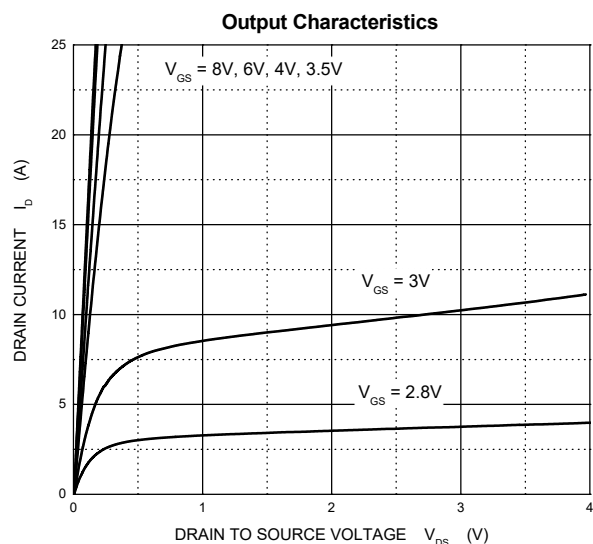
$T_J=25^{\circ}\text{C}$ unless otherwise specified

Parameter	Symbol	Test Condition		Min	Typ	Max	Unit
Off characteristics							
Drain-source breakdown voltage	V _{(BR) DSS}	V _{GS} = 0V, I _D =250μA		40	-	-	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =40V, V _{GS} =0V	T _J =25 ℃	-	-	1.0	μA
			T _J =125 ℃	-	-	100	
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V		-	-	±100	nA
On characteristics ^④							
Gate-threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA		1.0	1.8	2.5	V
Static drain-source on-sate resistance	R _{DS(on)}	V _{GS} =10V, I _D =10A			6.6	8.5	mΩ
		V _{GS} =4.5V, I _D =10A			8.5	12	mΩ
Dynamic characteristics							
Input capacitance	C _{iss}	V _{DS} =20V, V _{GS} =0V, f =1MHz		-	2893	-	pF
Output capacitance	C _{oss}			-	189	-	
Reverse transfer capacitance	C _{rss}			-	154	-	
Gate resistance	R _g	f =1MHz		-	3.0	-	Ω
Switching characteristics							
Total gate charge	Q _g	V _{GS} =4.5V, V _{DS} =20V, I _D =10A		-	24	-	nC
Total gate charge	Q _g	V _{GS} =10V, V _{DS} =20V, I _D =10A		-	51	-	
Gate-source charge	Q _{gs}			-	7.3	-	
Gate-drain charge	Q _{gd}			-	8.2	-	
Turn-on delay time	t _{d(on)}	V _{DS} =20V, V _{GS} =10V, R _L =2.7Ω , R _g =10Ω		-	40	-	ns
Turn-on rise time	t _r			-	41	-	
Turn-off delay time	t _{d(off)}			-	402	-	
Turn-off fall time	t _f			-	116	-	
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			-	-	25	A
Pulsed drain-source diode forward current	I _{SM} ^{①②}			-	-	100	A
Reverse recovery time	trr	di _S /dt = 100A/μs, I _S = 13A, V _{DD} = 30V		-	23	-	ns
Reverse recovery charge	Qrr			-	13	-	nC

Notes:

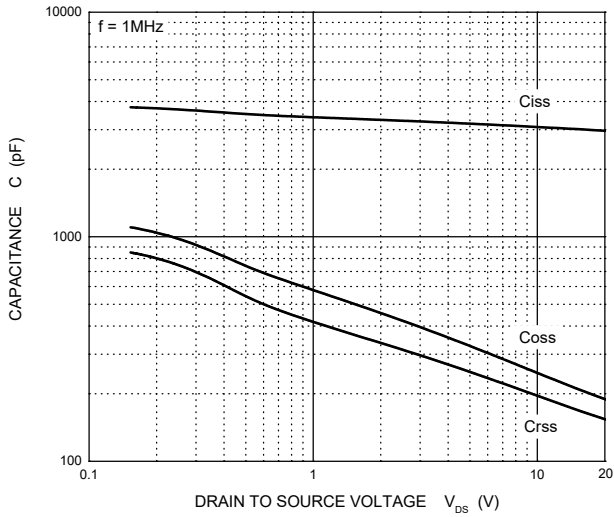
- $T_C = 25^{\circ}\text{C}$.
- Limited only by maximum temperature allowed.
- $V_{DD} = 20V, V_{GS} = 10V, L = 0.5\text{mH}, R_g = 25\Omega$ Starting $T_J = 25^{\circ}\text{C}$.
- Pulse Test : Pulse Width $\leq 380\mu s$, duty cycle $\leq 2\%$.
- Device mounted on 1 in² FR-4 board with 2oz. single-sided Copper, in a still air environment with $T_A = 25^{\circ}\text{C}$.

Typical Characteristics ($T_J = 25^\circ\text{C}$, unless otherwise specified)

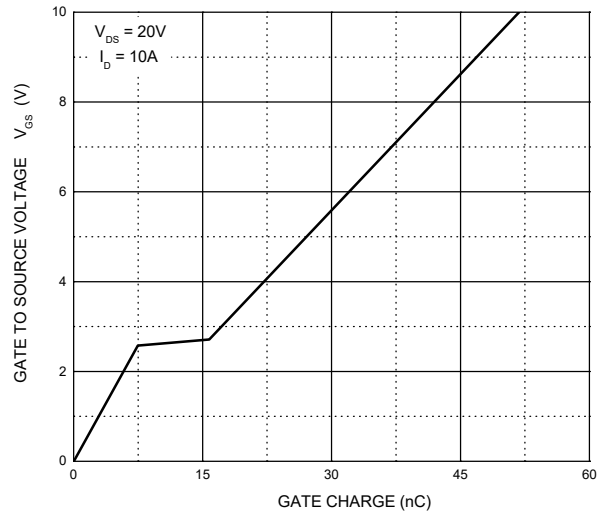


Typical Characteristics (T_J = 25°C, unless otherwise specified)

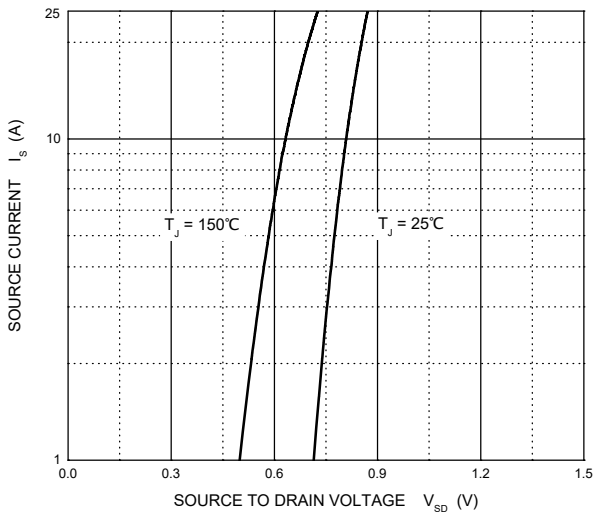
Typical Capacitances



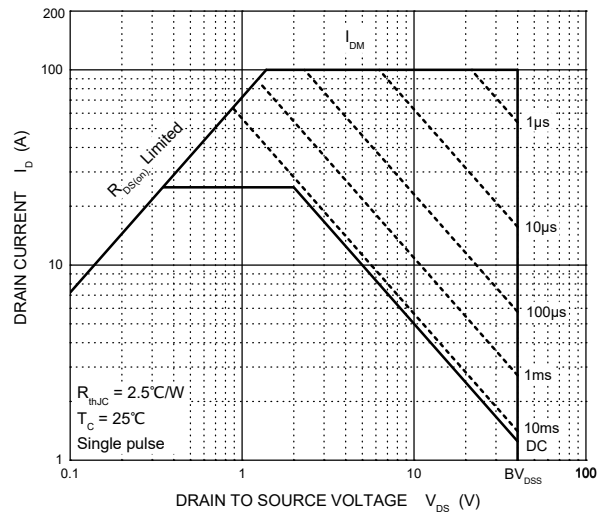
Gate Charge



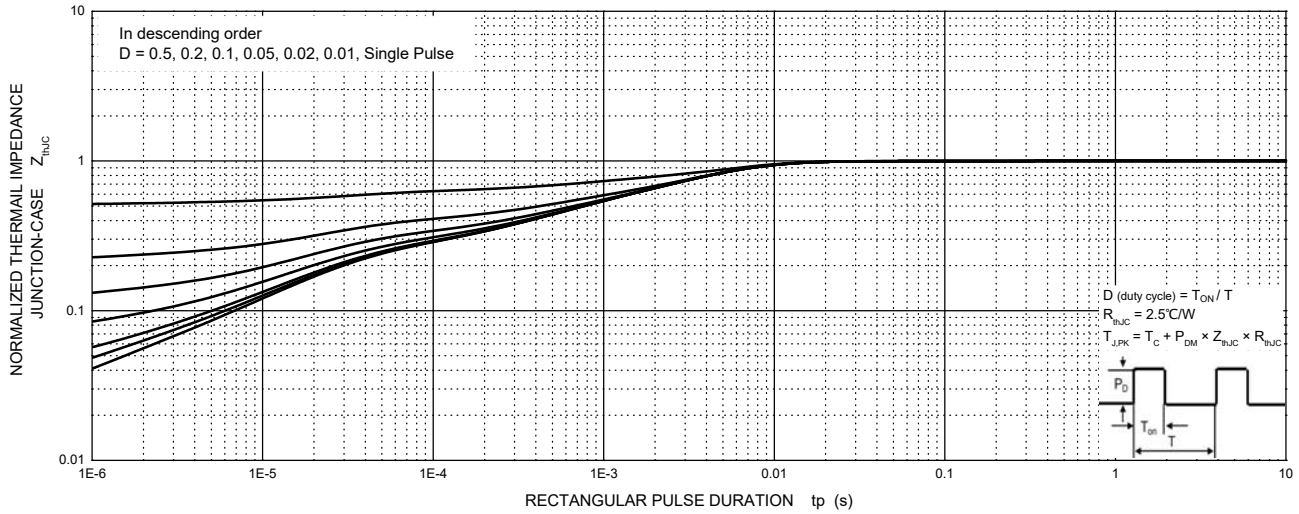
Source-Drain Diode Forward Characteristics



Maximum Safe Operating Area

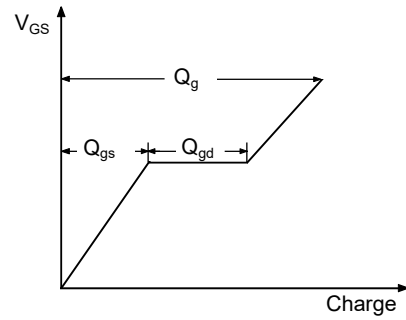
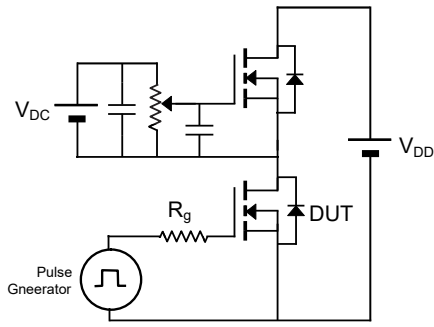


Transient Thermal Impedance, Junction-Case

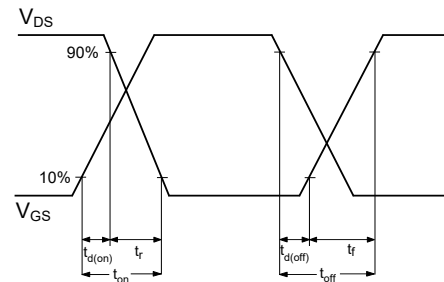
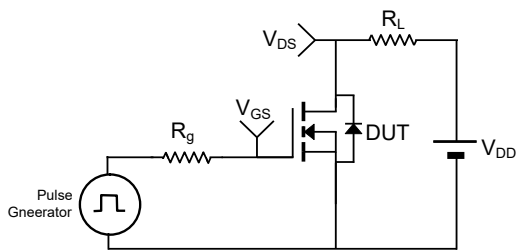


TEST CIRCUIT AND WAVEFORMS

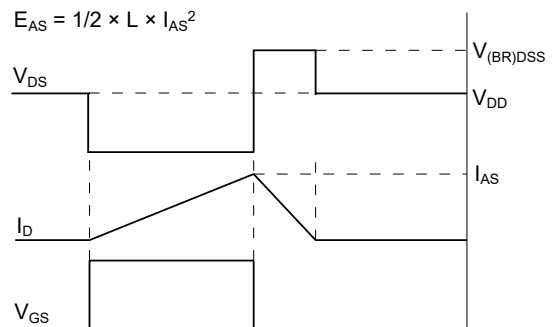
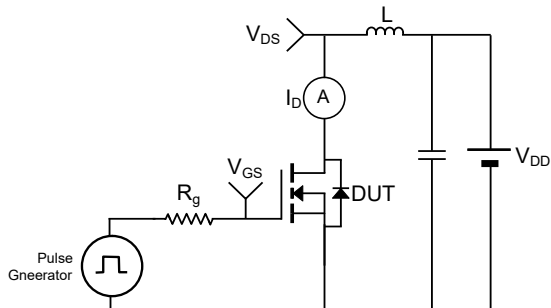
Gate Charge



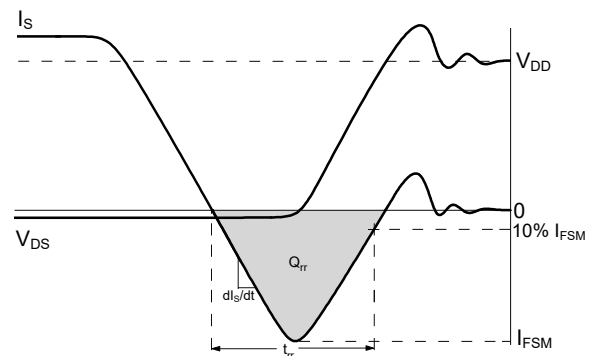
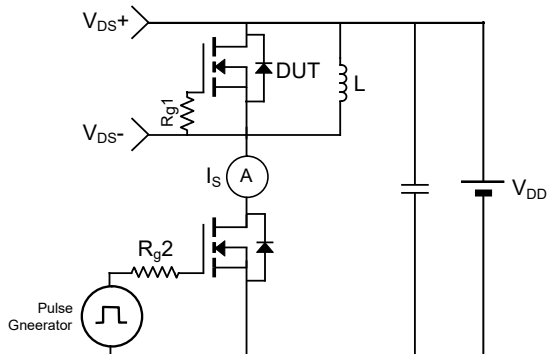
Resistive Load Switching Time



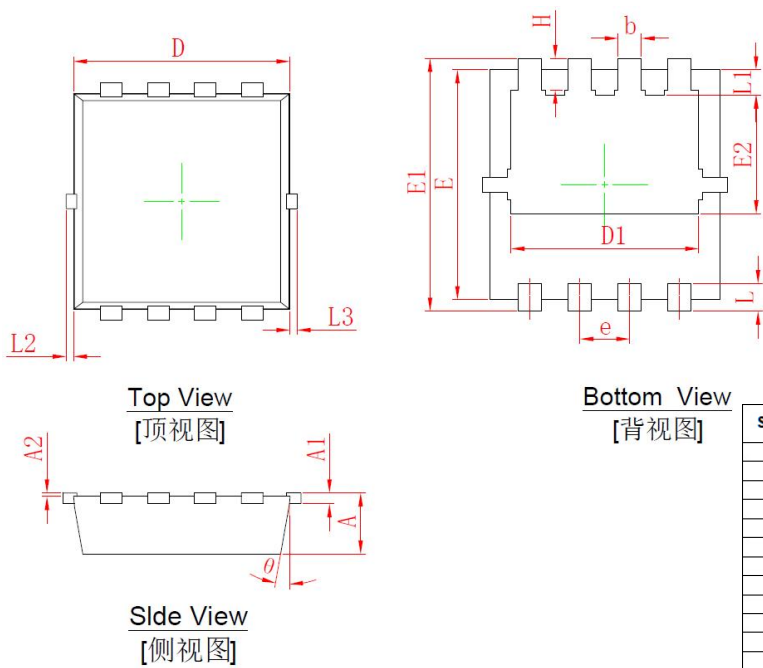
Un-clamped Inductive Load Switching



Drain-Source Body Diode Reverse Recovery

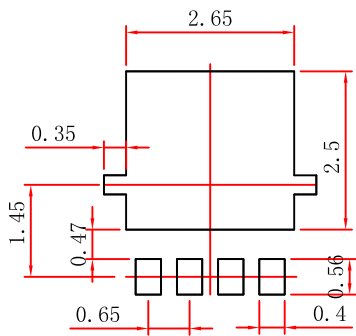


PDFNWB3.3×3.3-8L-A Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.650	0.850	0.026	0.033
A1	0.203 REF.		0.008 REF.	
A2	0~0.05		0~0.002	
D	2.900	3.100	0.114	0.122
D1	2.050	2.550	0.081	0.100
E	2.900	3.100	0.114	0.122
E1	3.150	3.450	0.124	0.136
E2	1.450	1.650	0.057	0.065
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
Φ	9°	13°	9°	13°

PDFNWB3.3x3.3-8L Suggested Pad Layout

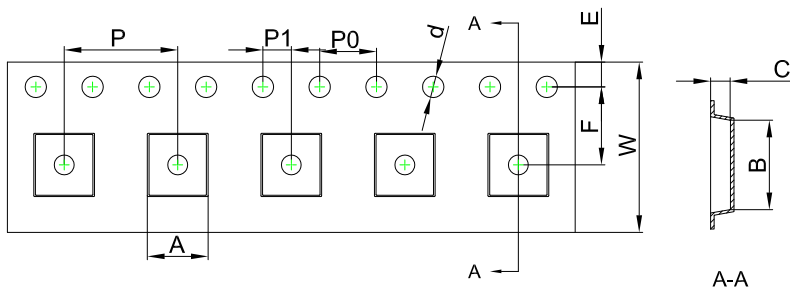


Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.05mm.
3.The pad layout is for reference purposes only.

NOTICE

JSCJ reserves the right to make modifications,enhancements,improvements,corrections or other changes without further notice to any product herein. JSCJ 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

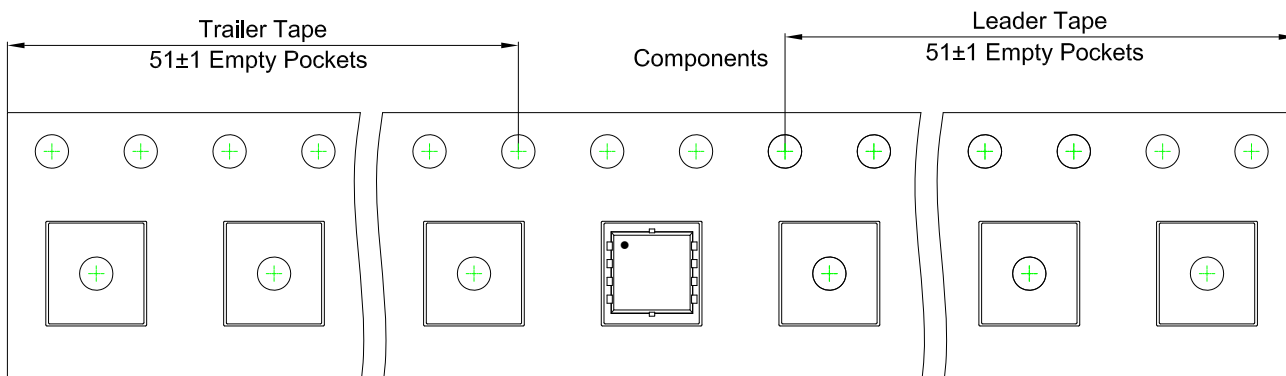


Packaging Description:

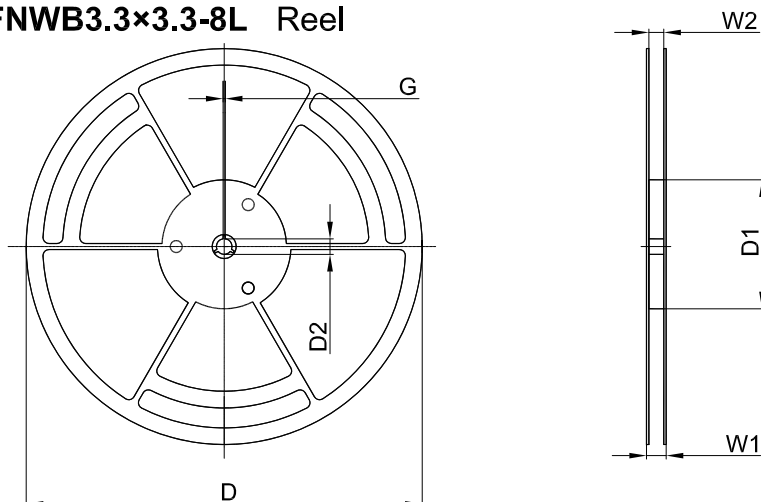
PDFNWB3.3×3.3-8L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled 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	Ø330.00	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	340×336×29	50,000 pcs	353×346×365