

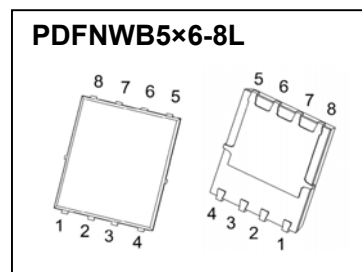


JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD

PDFNWB5×6-8L Plastic-Encapsulate MOSFETS

CJAC40N04 N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
40V	7.0mΩ@10V	40A
	10mΩ@4.5V	



DESCRIPTION

The CJAC40N04 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

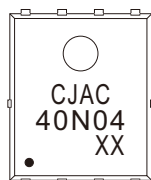
FEATURES

- High Power and current handling 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

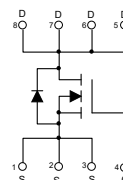


CJAC40N04 = Part No.

Solid dot=Pin1 indicator

XX=Code

EQUIVALENT CIRCUIT



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	±20	
Continuous Drain Current	$I_D^{①}$	40	A
Pulsed Drain Current	$I_{DM}^{②}$	120	
Maximum Power Dissipation	$P_D^{⑥}$	65	W
Single Pulsed Avalanche Energy	$E_{AS}^{③}$	150	mJ
Thermal Resistance from Junction to Case	$R_{\theta JC}^{④}$	1.92	$^{\circ}\text{C/W}$
Thermal Resistance from Junction to Ambient	$R_{\theta JA}^{⑤}$	62.5	$^{\circ}\text{C/W}$
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55~+150	$^{\circ}\text{C}$

MOSFET ELECTRICAL CHARACTERISTICS

$T_a=25^{\circ}\text{C}$ 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 =250uA	40			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =40V, V _{GS} =0V			1.0	μA
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 =250uA	1.0	1.75	2.5	V
Static drain-source on-sate resistance	R _{DS(on)}	V _{GS} =10V, I _D =10A		7.0	9.5	mΩ
		V _{GS} =4.5V, I _D =10A		10	16	mΩ
Forward transconductance	g _{fs}	V _{DS} =5V, I _D =20A		36		S
Dynamic characteristics ④ ⑤						
Input capacitance	C _{iss}	V _{DS} =25V,V _{GS} =0V, f =1MHz		1868		pF
Output capacitance	C _{oss}			175		
Reverse transfer capacitance	C _{rss}			160		
Gate resistance	R _g	f=1MHZ		5.4		Ω
Switching characteristics ④ ⑤						
Total gate charge	Q _g	V _{GS} =10V, V _{DS} =20V, I _D =10A		40		nC
Gate-source charge	Q _{gs}			4.4		
Gate-drain charge	Q _{gd}			10.3		
Turn-on delay time	t _{d(on)}	V _{DS} =25V,R _L =2.5Ω, V _{GS} =10V,R _G =10Ω		19		ns
Turn-on rise time	t _r			38		
Turn-off delay time	t _{d(off)}			52		
Turn-off fall time	t _f			14		
Drain-Source Diode Characteristics						
Drain-source diode forward voltage	V _{SD} ④	V _{GS} =0V, I _S =20A			1.2	V
Continuous drain-source diode forward current	I _S ①				25	A
Pulsed drain-source diode forward current	I _{SM} ②				100	A

Notes:

1. $T_C = 25^{\circ}\text{C}$ Limited only by maximum temperature allowed.

2. $P_W \leq 10\mu s$, Duty cycle $\leq 1\%$.

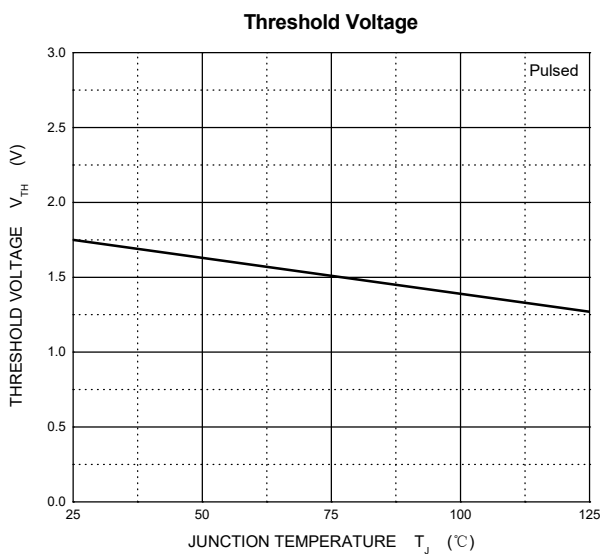
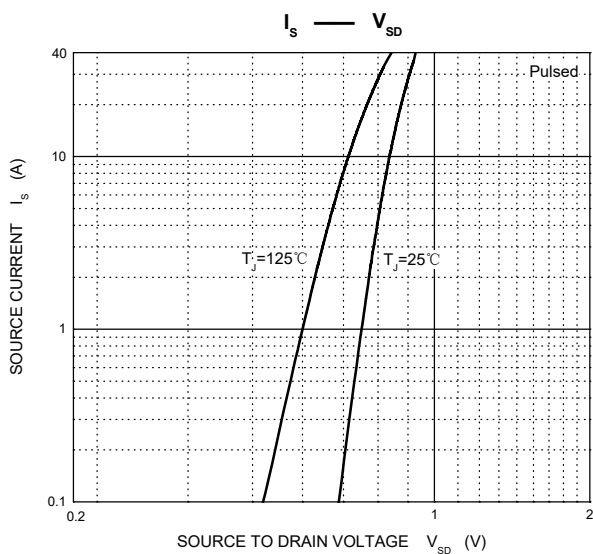
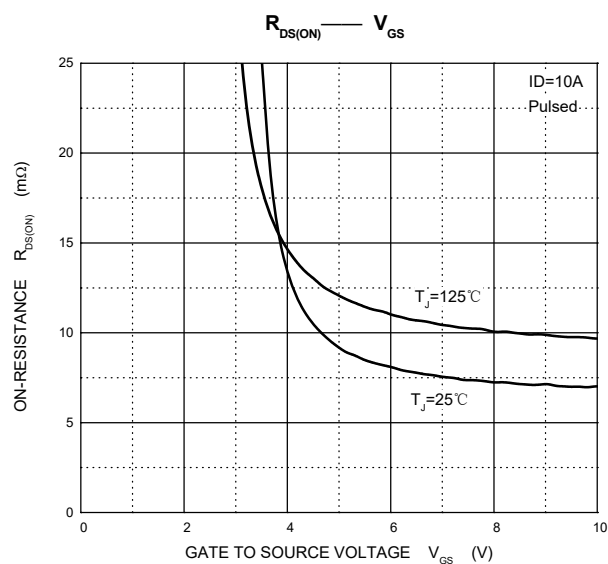
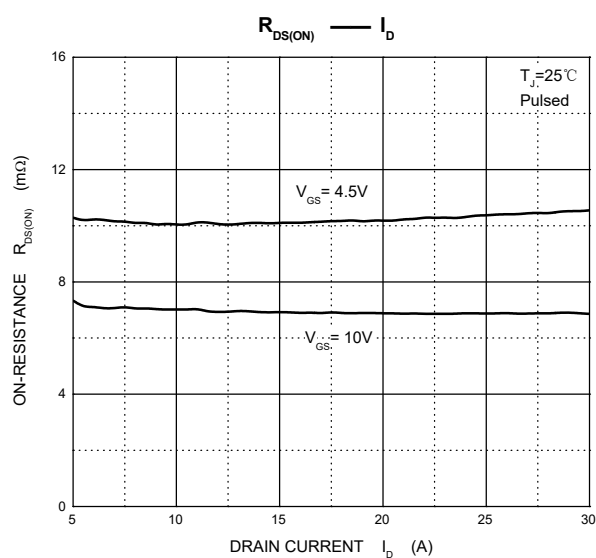
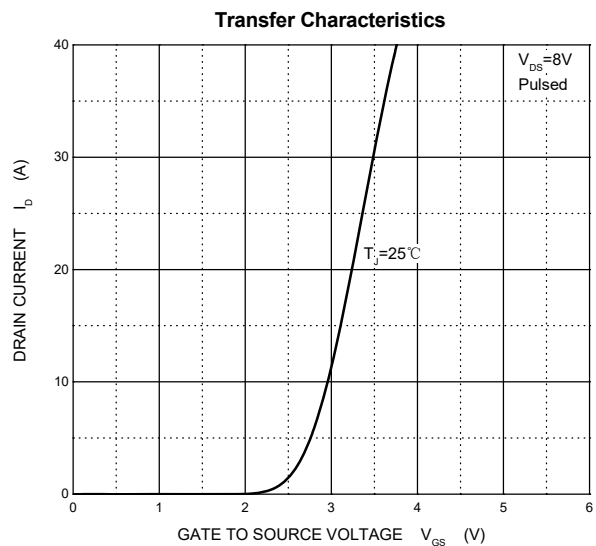
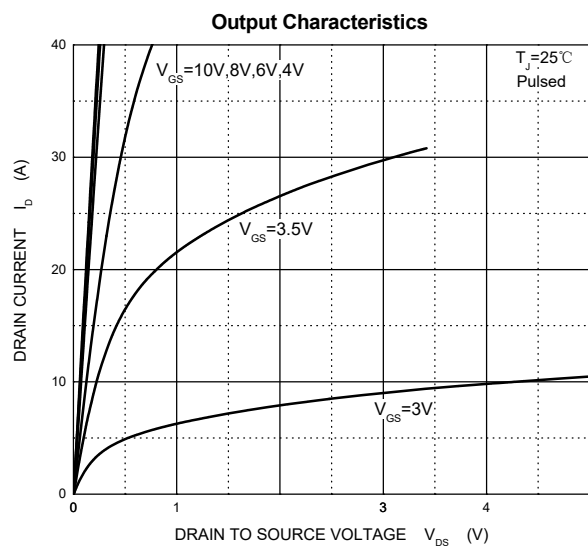
3. EAS condition: $V_{DD} = 20V, V_{GS} = 10V, L = 0.5mH, R_g = 25\Omega$ Starting $T_J = 25^{\circ}\text{C}$.

4. Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.

5. Guaranteed by design, not subject to production.

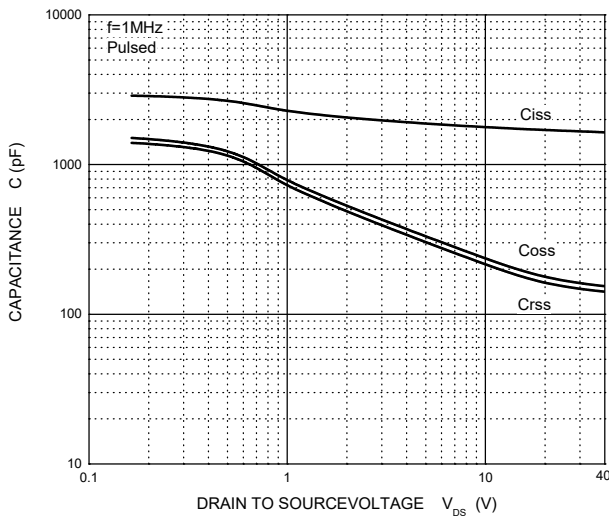
6. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with $T_a = 25^{\circ}\text{C}$.

Typical Characteristics

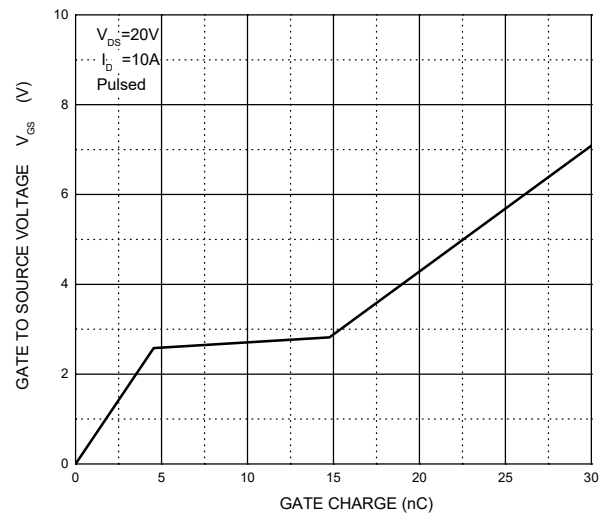


Typical Characteristics

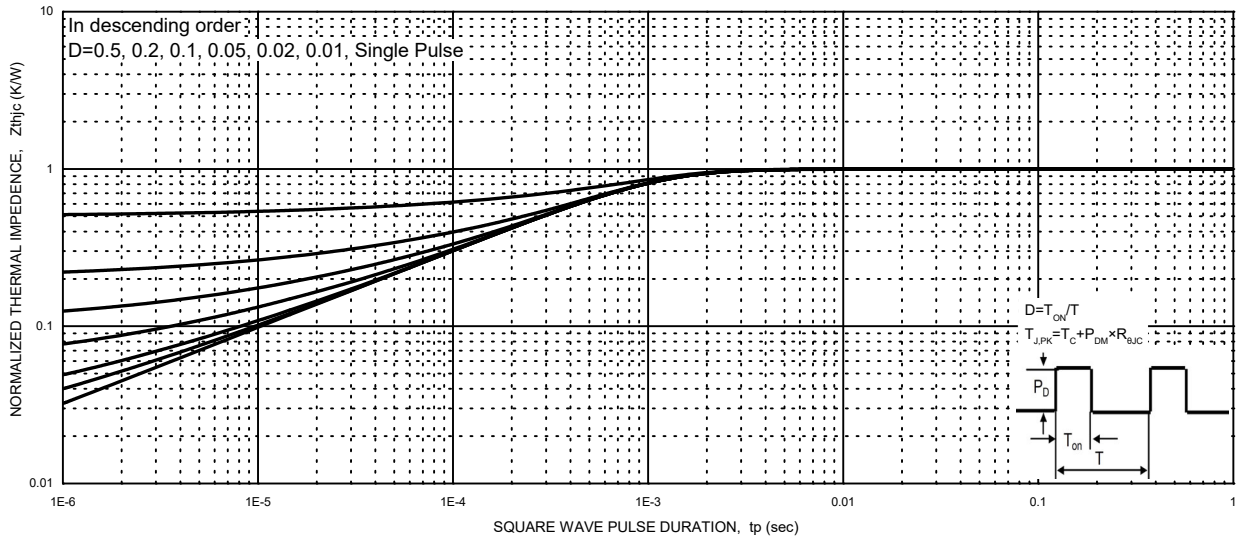
Capacitances



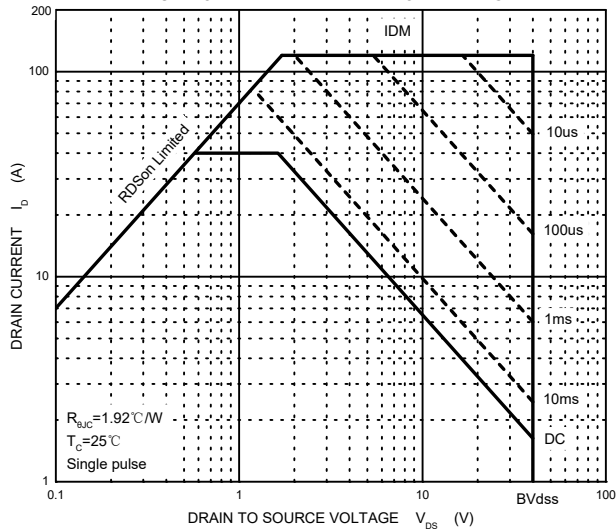
Gate Charge



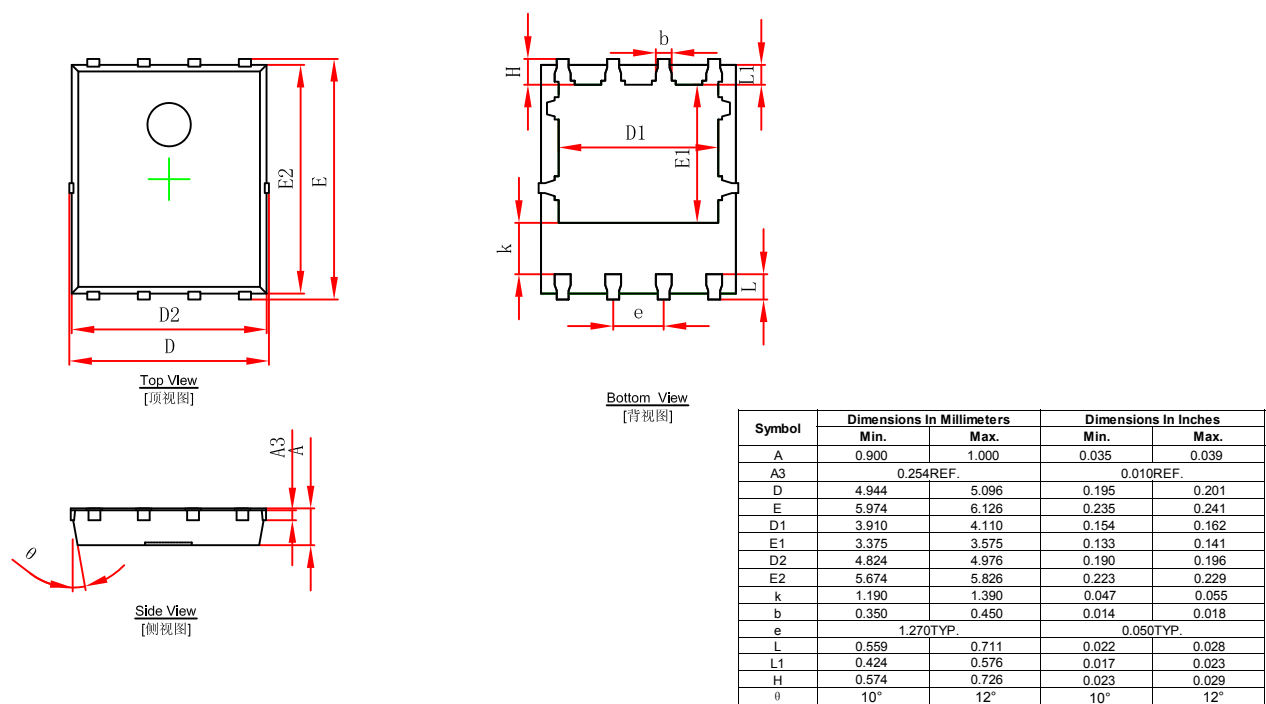
NORMALIZED TRANSIENT THERMAL IMPEDANCE



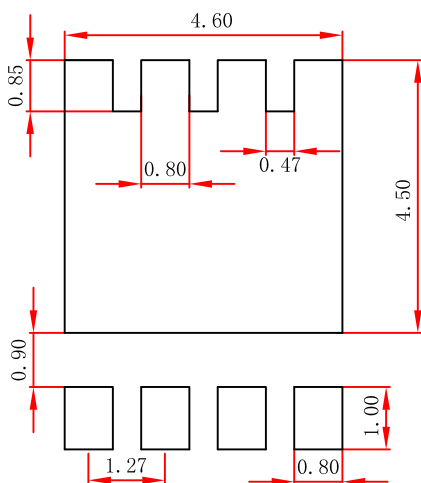
MAXIMUM FORWARD BIASED SAFE OPERATING AREA



PDFNWB5x6-8L Package Outline Dimensions



PDFNWB5x6-8L Suggested Pad Layout



Note:

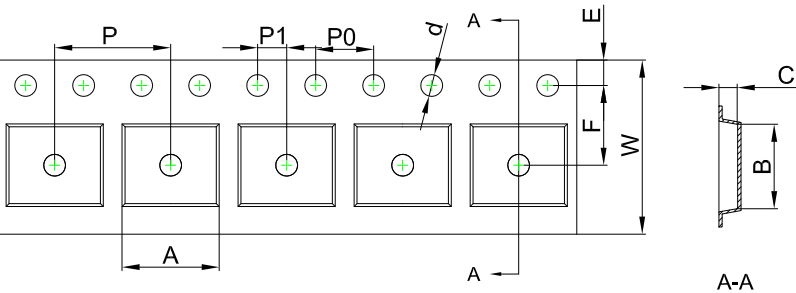
- 1.Controlling dimension;in millimeters.
- 2.General tolerance:±0.05mm.
- 3.The pad layout is for reference purposes only.

NOTICE

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

PDFNWB5×6 Tape and Reel

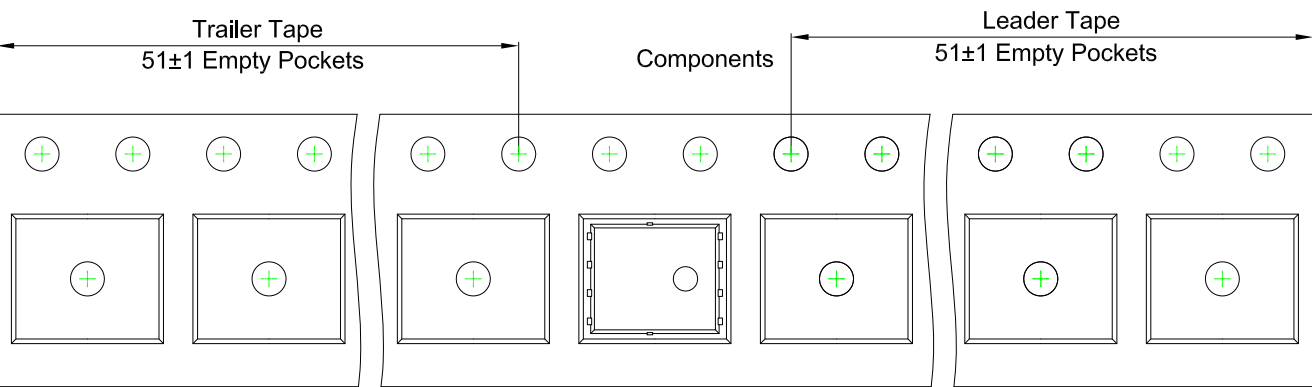
PDFNWB5×6-8L Embossed Carrier Tape



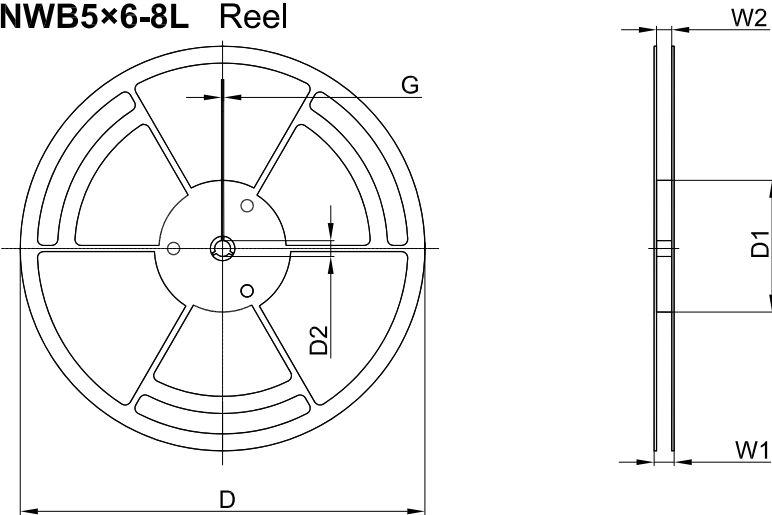
Packaging Description:
PDFNWB5×6-8L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed 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
PDFNWB5×6-8L	6.30	5.30	1.10	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00

PDFNWB5×6-8L Tape Leader and Trailer



PDFNWB5×6-8L 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