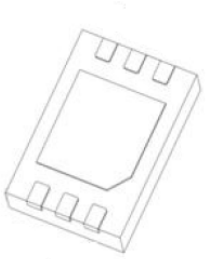
DFNWB2×3-6L Plastic-Encapsulate MOSFETS

CD2003 Dual N-Channel MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$TYP	I_D
18V	6.2 mΩ@4.5V	12A
	6.4 mΩ@4.0V	
	6.8 mΩ@3.8V	
	7.2 mΩ@3.1V	
	8.2 mΩ@2.5V	

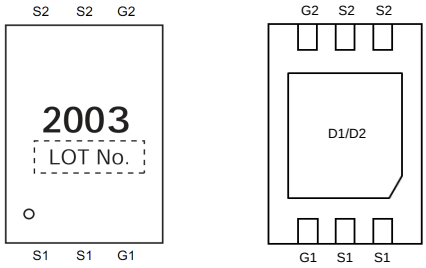
DFNWB2×3-6L



DESCRIPTION

The CD2003 uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge. It is ESD protected. This device is suitable for use as a uni-directional or bi-directional load switch,facilitated by its common-drain configuration.

MARKING:



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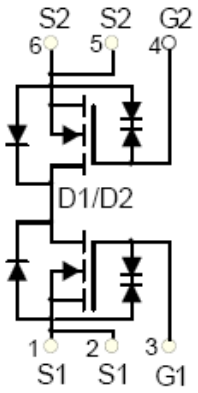
Equivalent Circuit



MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	18	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	I_D ①	12	A
Pulsed Drain Current	I_{DM} ②	50	A
Power Dissipation	P_D ①	2	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$ ⑤	62.5	℃/W
Junction Temperature 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} =±4.5V			±1	
		V_{DS} =0V, V_{GS} =±8V			±10	
On characteristics ③						
Gate-threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.4		1.0	V
Static drain-source on-sate resistance	$R_{DS(on)}$	V_{GS} =4.5V, I_D =3A	4.5	6.2	7.2	mΩ
		V_{GS} =4.0V, I_D =3A	4.8	6.4	7.5	
		V_{GS} =3.8V, I_D =3A	5.0	6.8	8.2	
		V_{GS} =3.1V, I_D =3A	5.5	7.2	9.2	
		V_{GS} =2.5V, I_D =3A	6.2	8.2	10.5	
Forward transconductance	g_{FS}	V_{DS} =5V, I_D =7A	9	36		S
Dynamic characteristics ③④						
Input capacitance	C_{iss}	V_{DS} =10V,V_{GS} =0V, f =1MHz		1950		pF
Output capacitance	C_{oss}			250		
Reverse transfer capacitance	C_{rss}			210		
Switching characteristics ③④						
Total gate charge	Q_g	V_{GS}=4.5V, V_{DS}=10V, I_D=7A		17		nC
Gate-source charge	Q_{gs}			2.0		
Gate-drain charge	Q_{gd}			5.1		
Turn-on delay time	$t_{d(on)}$	V_{DS}=10V, V_{GS}=5V,R_G=3Ω, R_L=1.35Ω		2.2		ns
Turn-on rise time	t_r			5.9		
Turn-off delay time	$t_{d(off)}$			40		
Turn-off fall time	t_f			90		
Drain-Source Diode Characteristics						
Drain-source diode forward voltage	V_{SD} ③	V_{GS} =0V, I_S=1.0A			1.0	V
Continuous drain-source diode forward current	I_S ①				12	A
Pulsed drain-source diode forward current	I_{SM} ②				50	A

Notes:

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

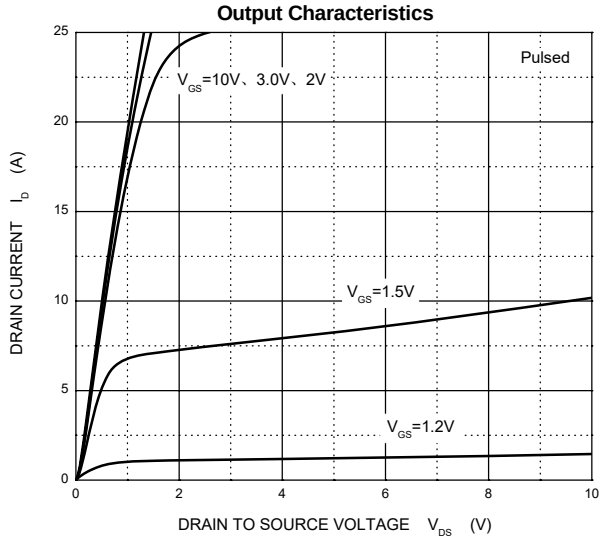
2.P_W≤10μs, Duty cycle≤1%.

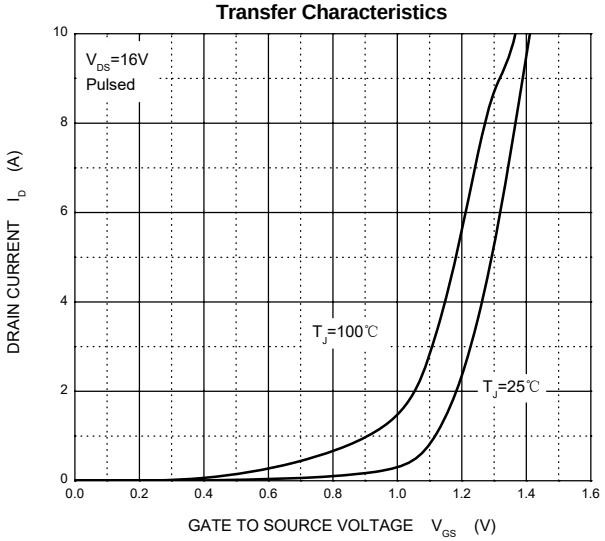
3.Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.

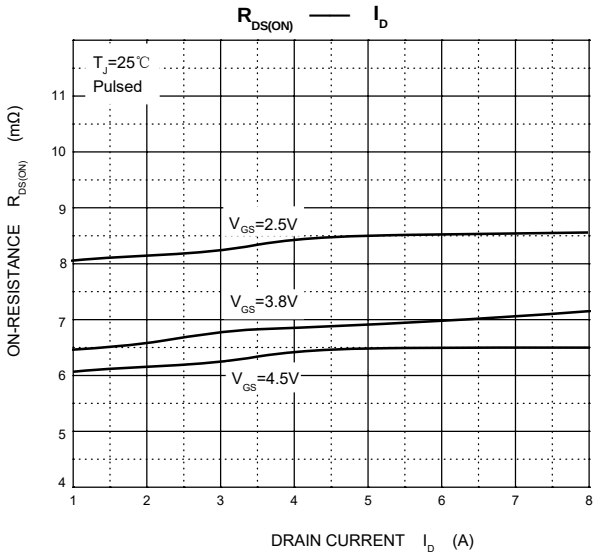
4.Guaranteed by design, not subject to production.

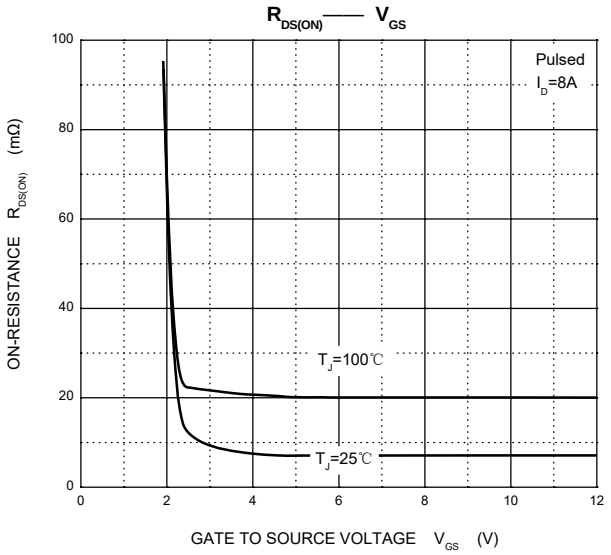
5.The value of RθJA is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with Ta=25℃,t ≤10sec.

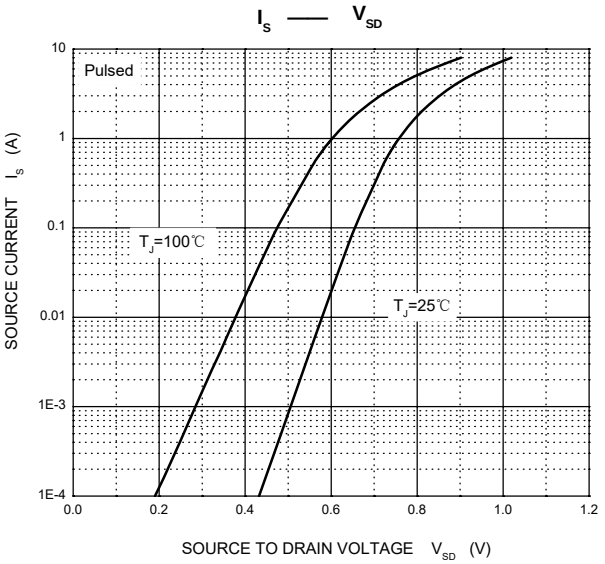
Typical Characteristics

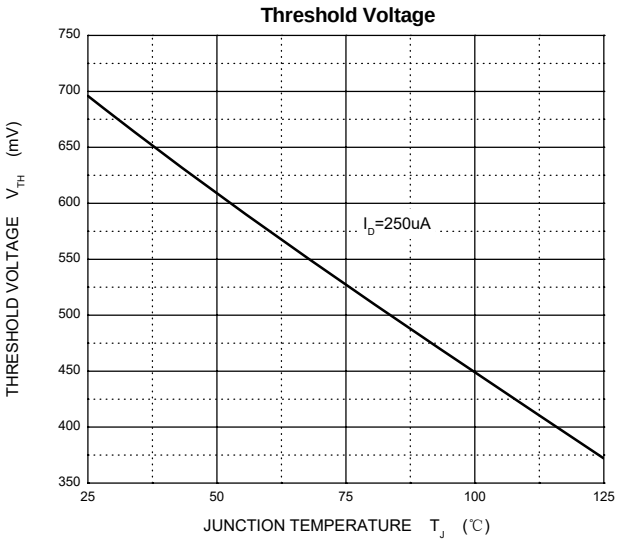












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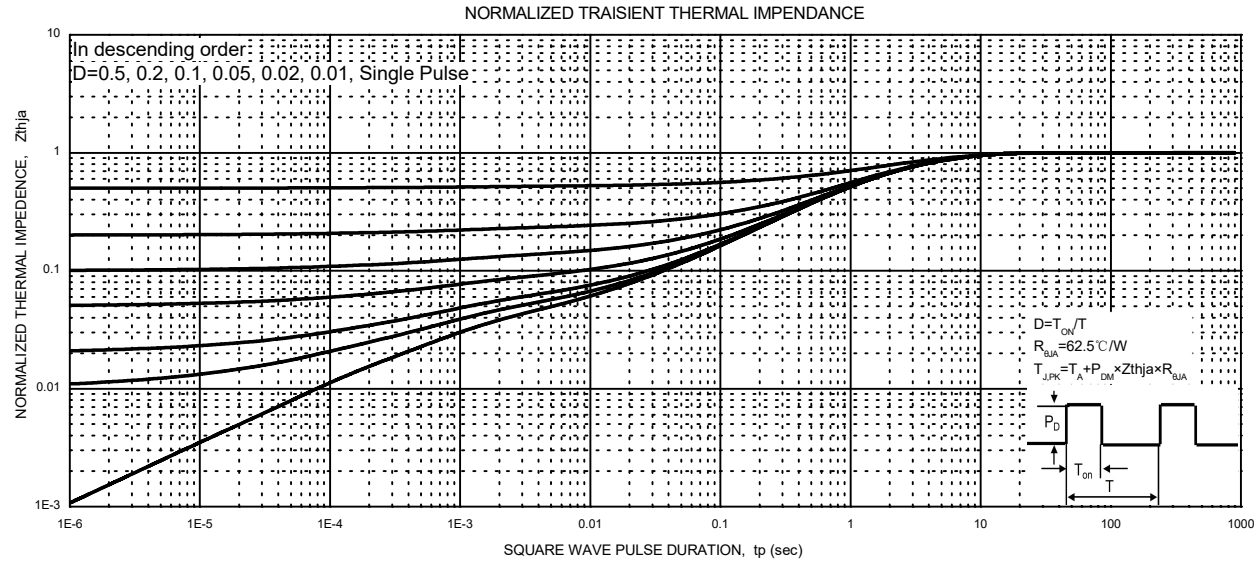
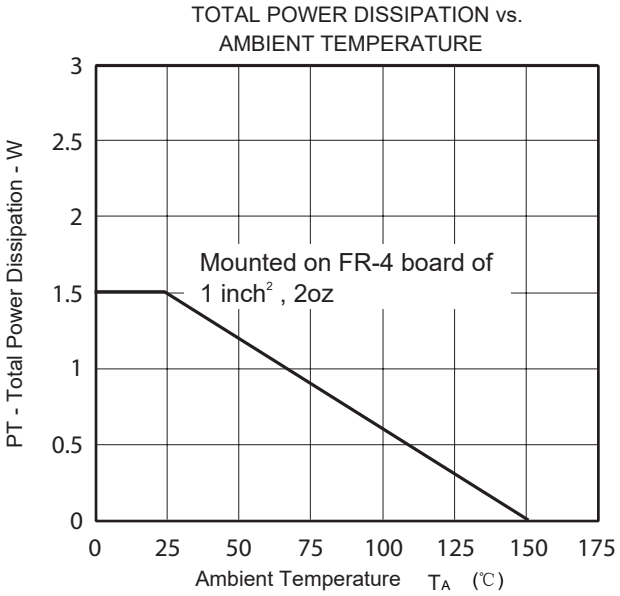
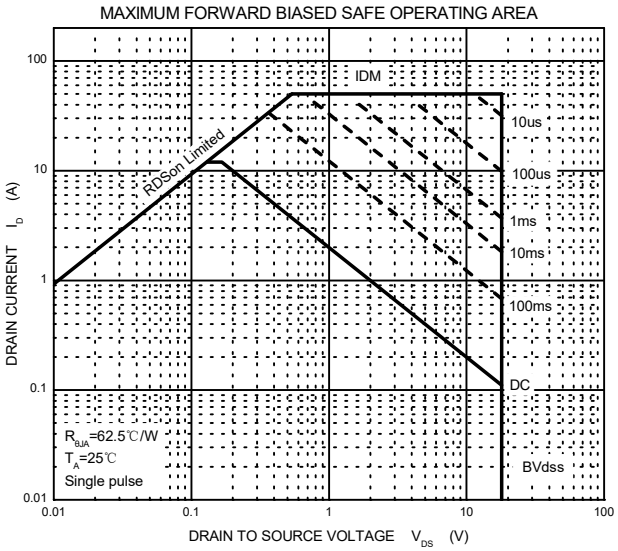
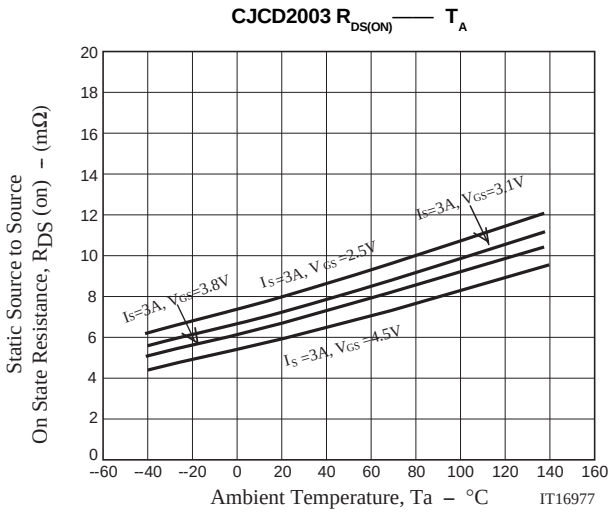
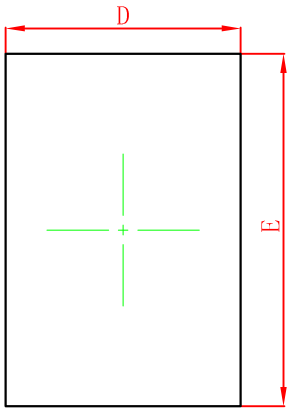




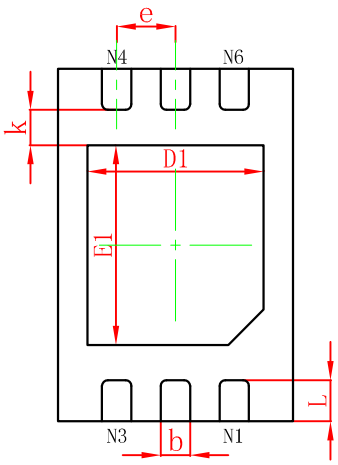




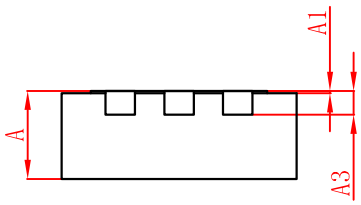
DFNWB2×3-6L Package Outline Dimensions(Unit:mm)



TOP VIEW



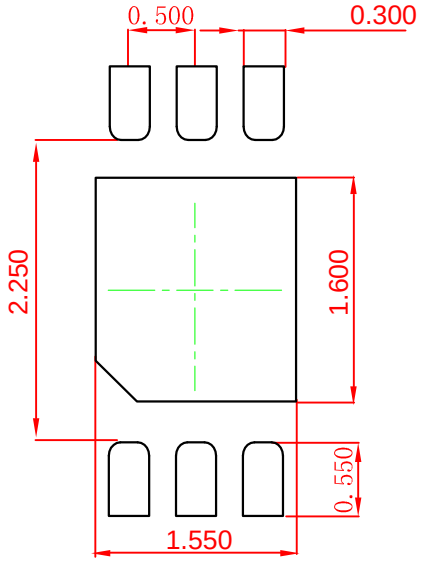
BOTTOM VIEW



SIDE VIEW

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.950	2.050	0.077	0.081
E	2.950	3.050	0.116	0.120
D1	1.450	1.550	0.057	0.061
E1	1.650	1.750	0.065	0.069
k	0.200MIN.		0.008MIN.	
b	0.200	0.300	0.008	0.012
e	0.500TYP.		0.020TYP.	
L	0.300	0.400	0.012	0.016

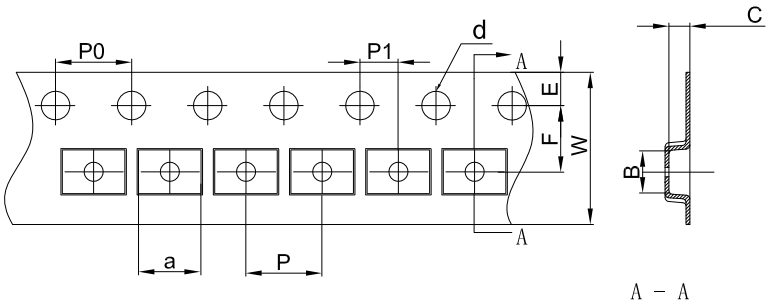
DFNWB2×3-6L Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.050mm.
3.The pad layout is for reference purposes only.

DFNWB2X3-6L Tape and Reel

DFNWB2X3-6L Embossed Carrier Tape

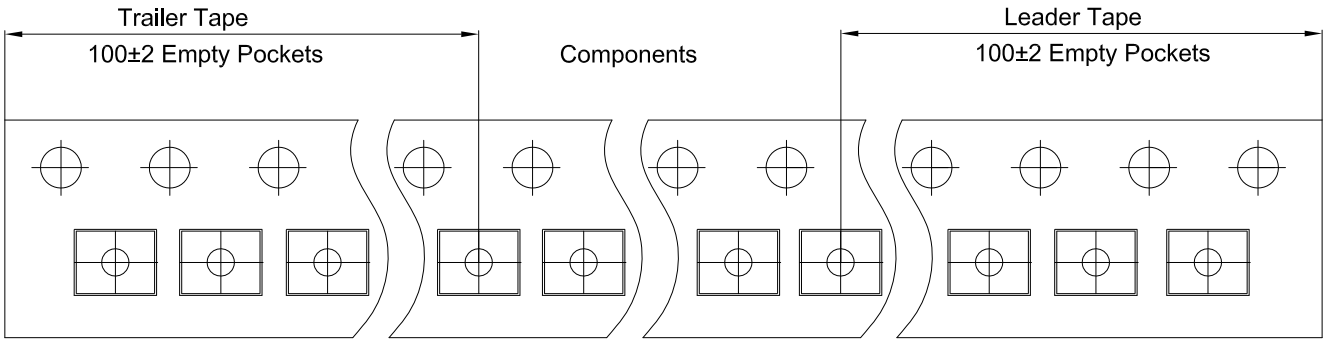


Packaging Description:

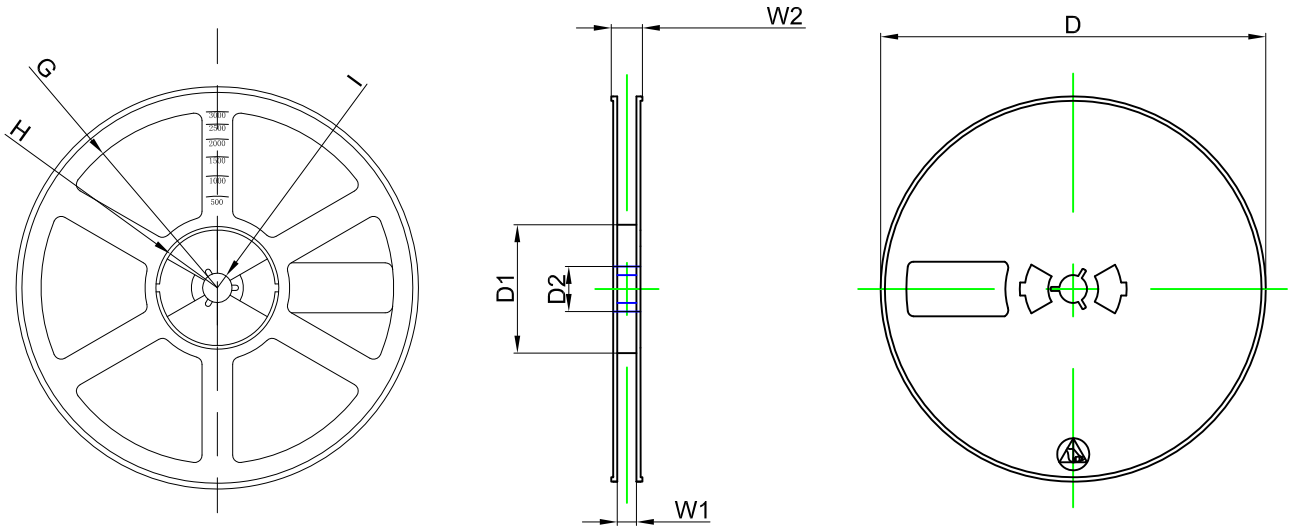
DFNWB2X3-6L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 18.0cm 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
DFNWB2X3-6L	**3.30**	2.30	1.10	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

DFNWB2X3-6L Tape Leader and Trailer



DFNWB2X3-6L Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø180.00	60.00	13.00	R78.00	R25.60	R6.50	9.50	13.10

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	30,000 pcs	203×203×195	120,000 pcs	438×438×220	