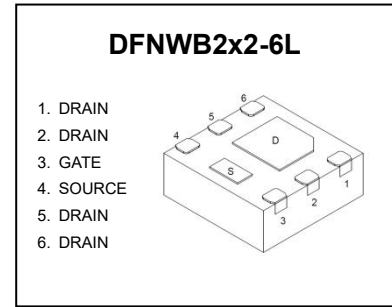


**DFNWB2x2-6L Plastic-Encapsulate MOSFET**

**CJM5R7SN03B** N-Channel Power MOSFET

**Key Performance Parameters**

<b>V<sub>BR(DSS)</sub></b>	<b>R<sub>DS(on)TYP</sub></b>	<b>I<sub>D</sub></b>
<b>30V</b>	<b>3.7mΩ@10V</b>	<b>19A</b>
	<b>6.0mΩ@4.5V</b>	



**DESCRIPTION**

The N-Channel enhancement mode power field effect transistors is using SGT technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance. These devices are well suited for high efficiency fast switching applications.

**FEATURES**

- 100% Avalanche Tested
- Low drain-source on-resistance:  
R<sub>DS(ON)</sub> = 3.7 mΩ (typ.) (V<sub>GS</sub> = 10V)

**APPLICATIONS**

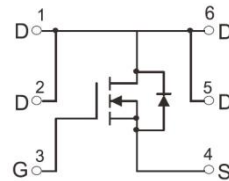
- High-Efficiency DC-DC Converters
- Switching Voltage Regulators
- Motor Drivers

**MARKING**



XXXXX = 5R7SN03B  
Solid dot = Pin1 indicator.  
YY = Code.

**EQUIVALENT CIRCUIT**



**ABSOLUTE MAXIMUM RATINGS ( T<sub>A</sub>=25°C unless otherwise specified )**

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V <sub>DS</sub>	30	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Continuous Drain Current	I <sub>D</sub> <sup>⑥</sup>	T <sub>A</sub> =25°C	19
		T <sub>A</sub> =75°C	14.8
Avalanche Current	I <sub>AS</sub> <sup>③</sup>	24	A
Single Pulsed Avalanche Energy	E <sub>AS</sub> <sup>③</sup>	29	mJ
Pulsed Drain Current	I <sub>DM</sub> <sup>①②</sup>	76	A
Power Dissipation	P <sub>D</sub> <sup>①⑥</sup>	3.3	W
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55~+150	°C

**Thermal Characteristics**

Parameter	Symbol	Value		Unit
		Typ	Max	
Thermal Resistance from Junction to Ambient	R <sub>θJA</sub> <sup>⑥</sup>	t≤10s	30	°C/W
		Steady State	60	°C/W

# Typical Characteristics

## ELECTRICAL CHARACTERISTICS (T<sub>J</sub>=25°C unless otherwise specified)

### Static Characteristics

Parameter	Symbol	Test Condition	Value			Unit	
			Min	Typ	Max		
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	30	-	-	V	
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = 30V, V <sub>GS</sub> = 0V	T <sub>J</sub> = 25°C	-	-	1.0	μA
			T <sub>J</sub> = 125°C	-	-	100	
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V	-	-	±100	nA	
Gate-threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	1.2	1.7	2.2	V	
Static drain-source on-state resistance	R <sub>DS(on)</sub> <sup>④</sup>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 10A	T <sub>J</sub> = 25°C	-	3.7	5.7	mΩ
			T <sub>J</sub> = 125°C	-	5.3	8.2	
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 10A	-	6.0	9.5		
Forward transconductance	g <sub>FS</sub>	V <sub>DS</sub> = 5V, I <sub>D</sub> = 10A	-	45	-	S	

### Dynamic Characteristics<sup>⑤</sup>

Input capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 15V, f = 1MHz	-	783	-	pF
Output capacitance	C <sub>oss</sub>		-	696	-	
Reverse transfer capacitance	C <sub>rss</sub>		-	67	-	
Gate resistance	R <sub>g</sub>	f = 1MHz	-	3.5	-	Ω
Total gate charge	Q <sub>g</sub>	V <sub>GS</sub> = 4.5V, V <sub>DS</sub> = 15V, I <sub>D</sub> = 10A	-	9.9	-	nC
Total gate charge	Q <sub>g</sub>	V <sub>GS</sub> = 10V, V <sub>DS</sub> = 15V, I <sub>D</sub> = 10A	-	18.5	-	
Gate charge at threshold	Q <sub>G(th)</sub>		-	1.3	-	
Gate-source charge	Q <sub>gs</sub>		-	2.0	-	
Gate-drain charge	Q <sub>gd</sub>		-	5.7	-	
Turn-on delay time	t <sub>d(on)</sub>	V <sub>DD</sub> = 15V, V <sub>GS</sub> = 10V, I <sub>D</sub> = 10A, R <sub>g</sub> = 6Ω	-	4.0	-	ns
Turn-on rise time	t <sub>r</sub>		-	3.2	-	
Turn-off delay time	t <sub>d(off)</sub>		-	23.5	-	
Turn-off fall time	t <sub>f</sub>		-	16.3	-	

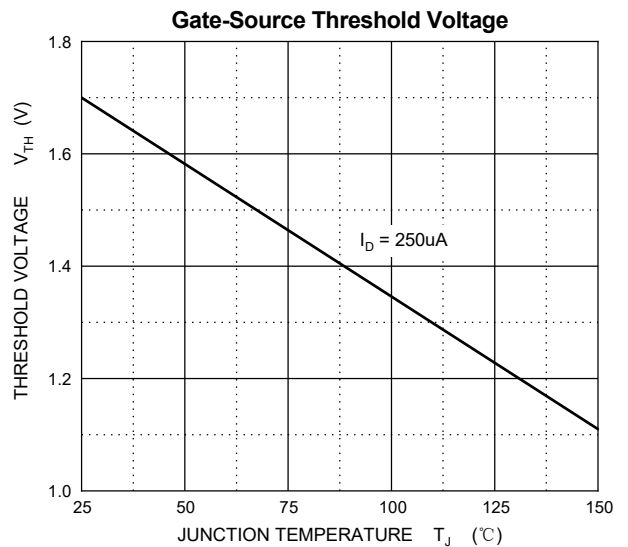
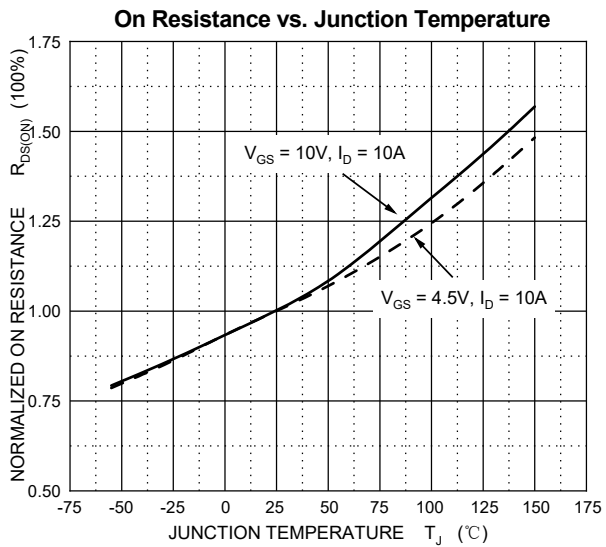
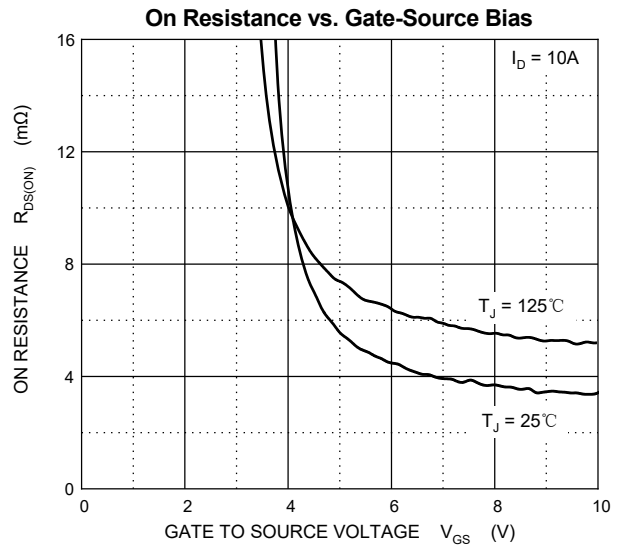
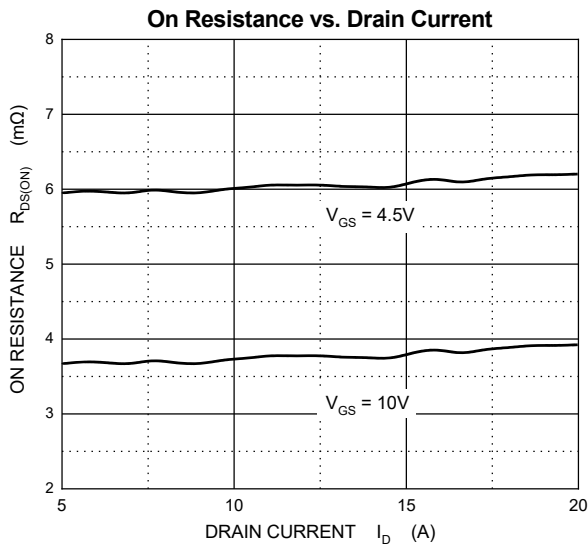
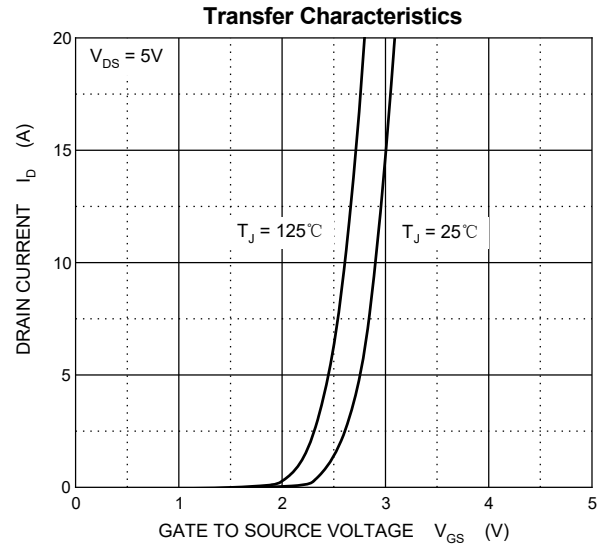
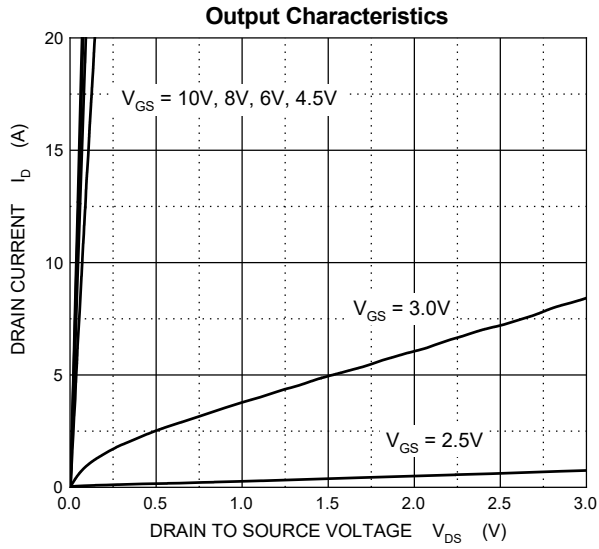
### Reverse Diode Characteristics

Drain-source diode forward voltage	V <sub>SD</sub> <sup>④</sup>	V <sub>GS</sub> = 0V, I <sub>S</sub> = 10A	-	-	1.2	V
Continuous drain-source diode forward current	I <sub>S</sub> <sup>①</sup>		-	-	19	A
Pulsed drain-source diode forward current	I <sub>SM</sub> <sup>①②</sup>		-	-	76	A

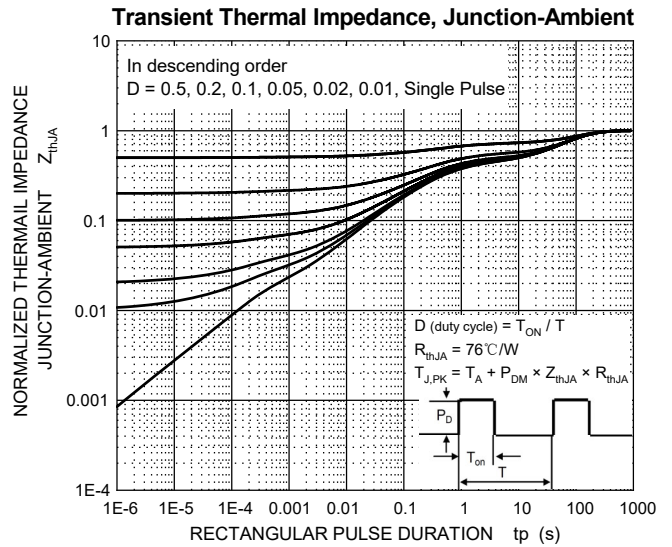
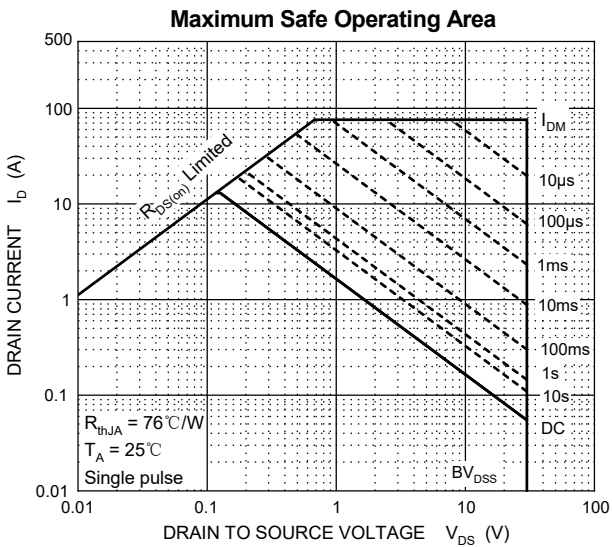
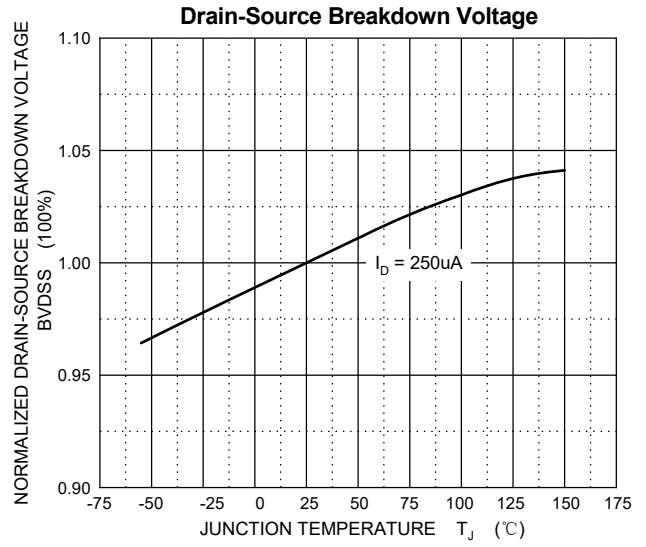
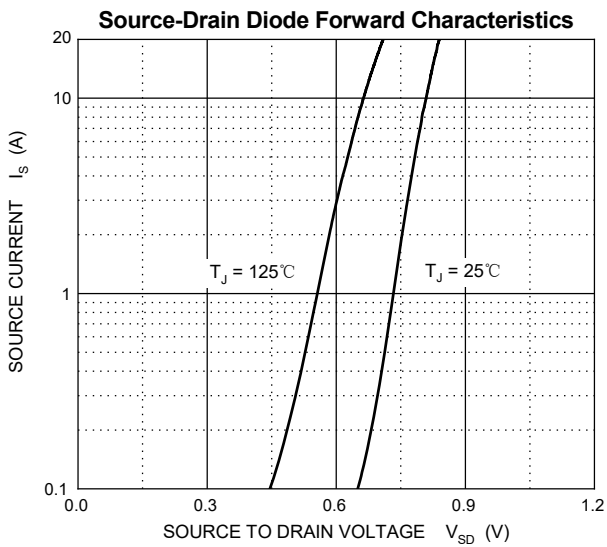
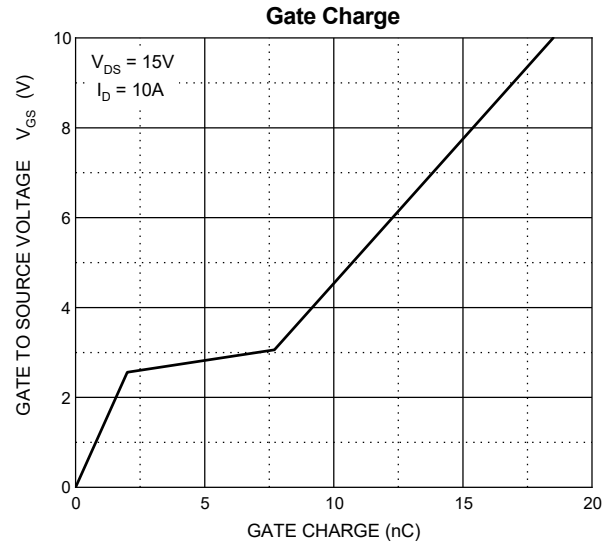
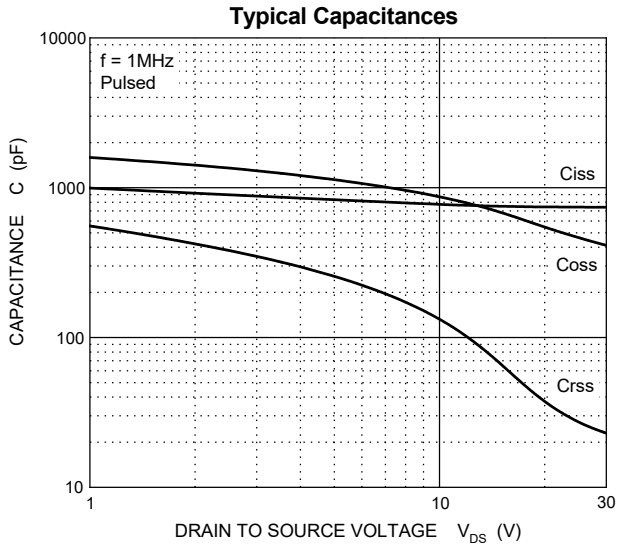
Notes:

- ①. Limited only by maximum temperature allowed.
- ②. P<sub>w</sub> ≤ 10μs, Duty cycle ≤ 1%.
- ③. EAS condition: V<sub>DD</sub> = 15V, V<sub>GS</sub> = 10V, L = 0.1mH, R<sub>g</sub> = 25Ω Starting T<sub>J</sub> = 25°C.
- ④. Pulse Test : Pulse Width ≤ 380μs, duty cycle ≤ 2%.
- ⑤. Guaranteed by design, not subject to production.
- ⑥. Device mounted on 1 in<sup>2</sup> FR-4 board with 2oz. double-sided Copper, in a still air environment with T<sub>A</sub> = 25°C. The current rating is based on the t ≤ 10s thermal resistance rating.

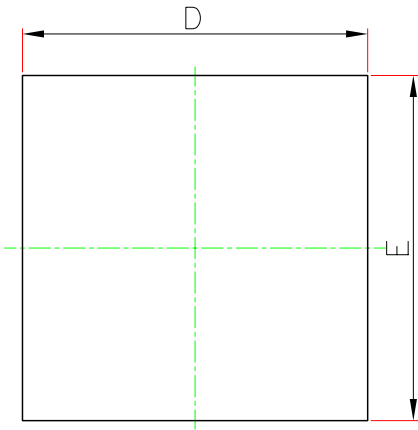
# Typical Characteristics



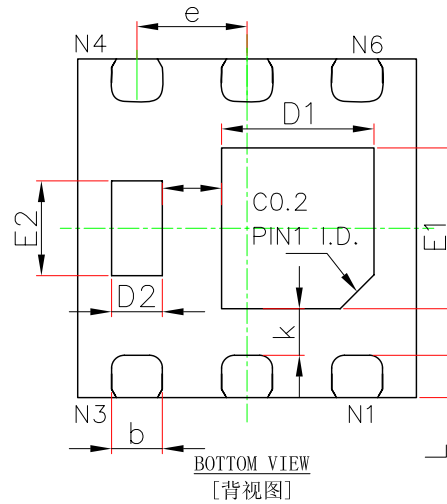
# Typical Characteristics



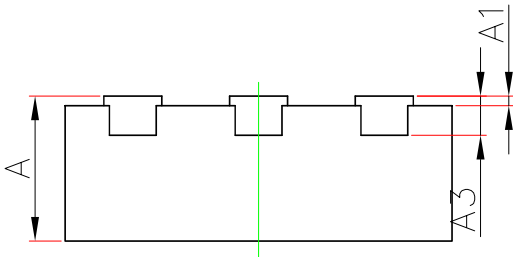
## DFNWB2X2-6L Package Outline Dimensions



TOP VIEW  
[顶视图]



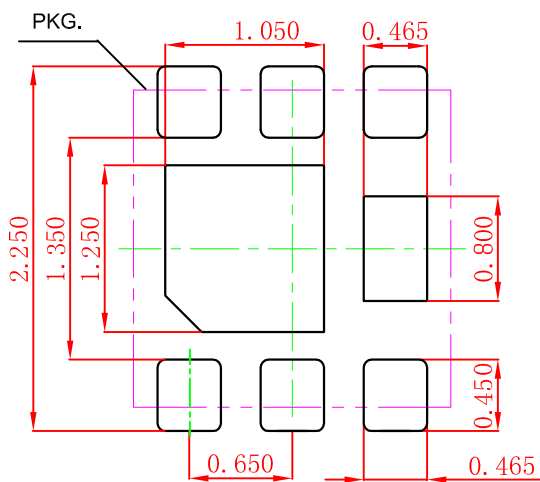
BOTTOM VIEW  
[背视图]



SIDE VIEW  
[侧视图]

Symbols	Dimensions in Millimeters		Dimensions in Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.032
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.950	2.050	0.078	0.082
E	1.950	2.050	0.078	0.082
D1	0.850	1.050	0.034	0.042
E1	1.050	1.250	0.042	0.050
D2	0.265	0.465	0.011	0.019
E2	0.600	0.800	0.024	0.032
b	0.250	0.350	0.010	0.014
e	0.650BSC.		0.026BSC.	
k	0.150REF.		0.006REF.	
k1	0.360REF.		0.014REF.	
L	0.225	0.325	0.009	0.013

## DFNWB2X2-6L Suggested Pad Layout



Note:

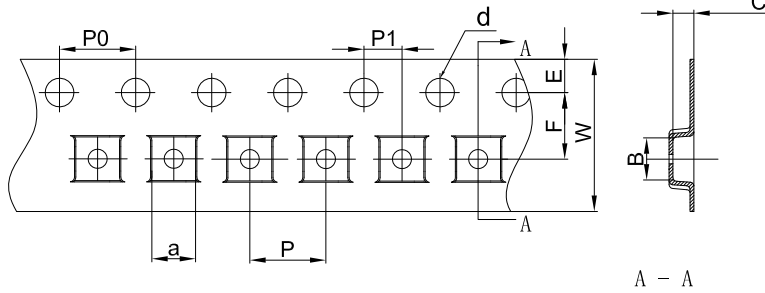
1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.050\text{mm}$ .
3. The pad layout is for reference purposes only.

### 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.

# DFNWB2X2-6L Tape and Reel

## DFNWB2×2-6L Embossed Carrier Tape



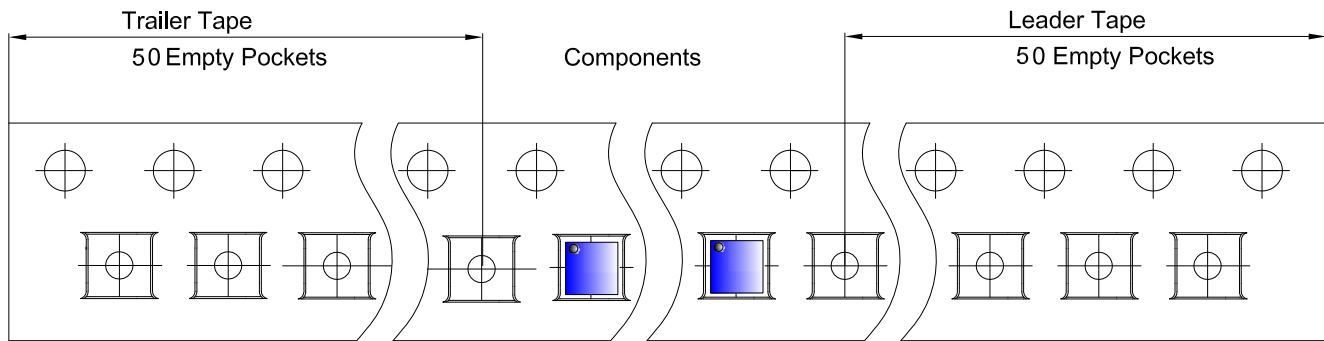
### Packaging Description:

DFNWB2×2-6L 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).

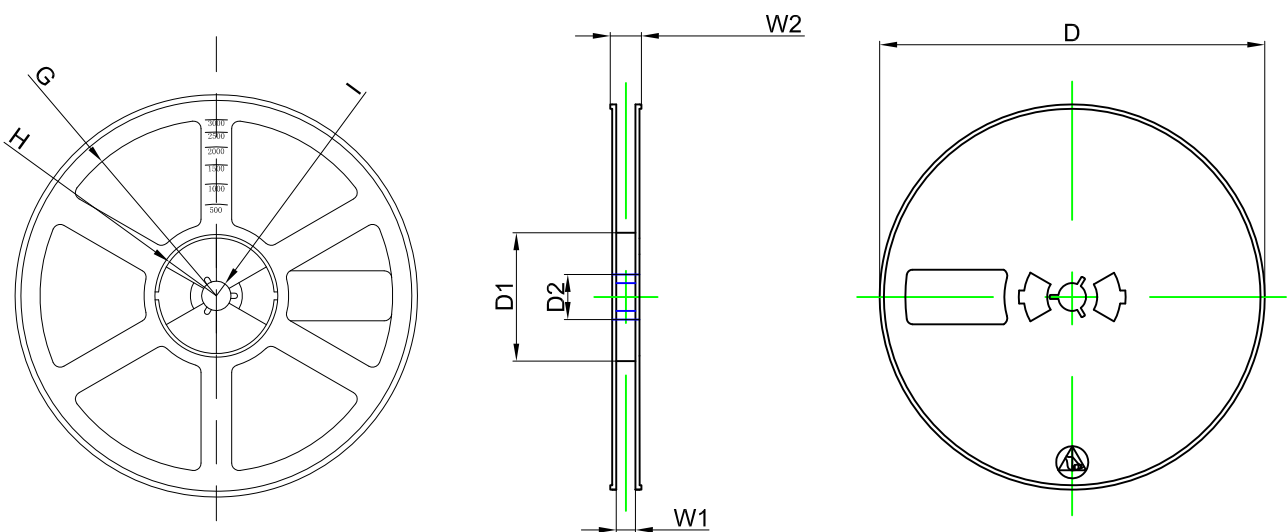
Dimensions are in millimeter

Pkg type	a	B	C	d	E	F	P0	P	P1	W
DFNWB2×2-6L	2.25	2.20	0.95	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

## DFNWB2×2-6L Tape Leader and Trailer



## DFNWB2×2-6L Reel



Dimensions are in millimeter

Reel Option	D	D1	D2	G	H	I	W1	W2
7" Dia	Ø178.00	54	%"	R87	R27	R6.65	9.40	%%( )

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
5000 PCS	7 inch	40,000 PCS	210X210X210	160,000 PCS	440X450X240	