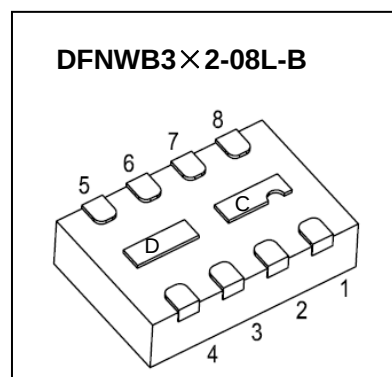


## DFNWB3×2-08L-B Power Management MOSFETs-Schottky

### CJ5853DC P-channel MOSFET and Schottky Barrier Diode

| $V_{(BR)DSS}/V_R$ | $R_{DS(on)MAX}$ | $I_D/I_O$ |
|-------------------|-----------------|-----------|
| -20V              | 110mΩ@-4.5V     | -2.7A     |
|                   | 160mΩ@-2.5V     |           |
|                   | 240mΩ@-1.8V     |           |
| 20V               | /               | 1 A       |



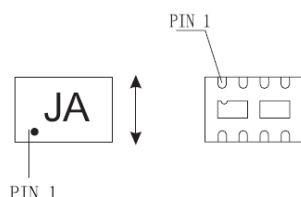
#### FEATURES

- Independent Pinout to Each Device to Ease Circuit Design
- Ultra low  $V_F$
- Including a CJ2301 MOSFET and a MBR0520 Schottky (independently) in a package

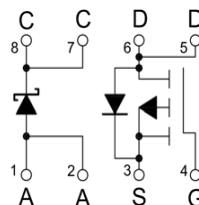
#### APPLICATIONS

- Li-Ion Battery Charging
- High Side DC-DC Conversion Circuits
- High Side Drive for Small Brushless DC Motors
- Power Management in Portable, Battery Powered Products

#### MARKING:



#### Equivalent Circuit



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

| Symbol                                                       | Parameter                                                        | Value    | Unit               |
|--------------------------------------------------------------|------------------------------------------------------------------|----------|--------------------|
| <b>P-MOSFET</b>                                              |                                                                  |          |                    |
| $V_{DS}$                                                     | Drain-Source Voltage                                             | -20      | V                  |
| $V_{GS}$                                                     | Gate-Source Voltage                                              | ±8       | V                  |
| $I_D$                                                        | Continuous Drain Current                                         | -2.7     | A                  |
| $I_{DM}^*$                                                   | Pulse Drain Current                                              | -10      | A                  |
| <b>Schottky Barrier Diode</b>                                |                                                                  |          |                    |
| $V_{RRM}$                                                    | Peak Repetitive Reverse Voltage                                  | 20       | V                  |
| $V_R$                                                        | DC Blocking Voltage                                              | 20       | V                  |
| $I_O$                                                        | Average Rectified Forward Current                                | 1        | A                  |
| <b>Power Dissipation, Temperature and Thermal Resistance</b> |                                                                  |          |                    |
| $P_D$                                                        | Power Dissipation                                                | 1.1      | W                  |
| $R_{\theta JA}$                                              | Thermal Resistance from Junction to Ambient                      | 114      | $^\circ\text{C/W}$ |
| $T_j$                                                        | Junction Temperature                                             | 150      | $^\circ\text{C}$   |
| $T_{stg}$                                                    | Storage Temperature                                              | -55~+150 | $^\circ\text{C}$   |
| $T_L$                                                        | Lead Temperature for Soldering Purposes(1/8" from case for 10 s) | 260      | $^\circ\text{C}$   |

\*Repetitive rating: Pluse width limited by junction temperature.

# ELECTRICAL CHARACTERISTICS

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

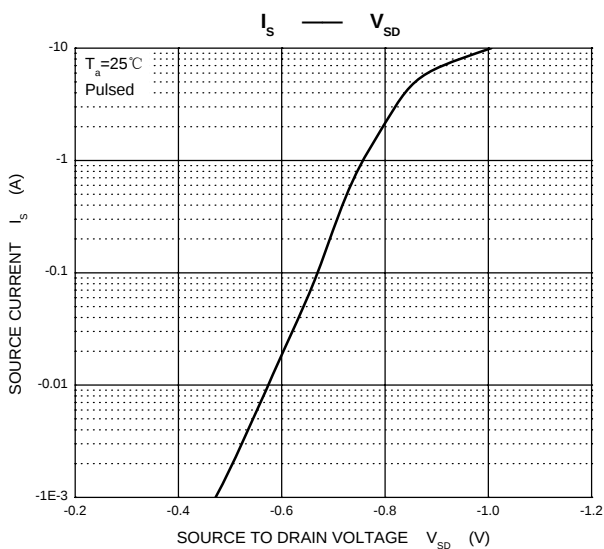
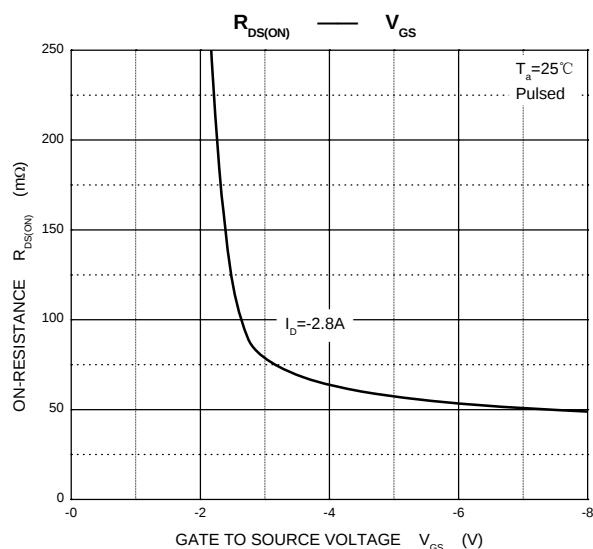
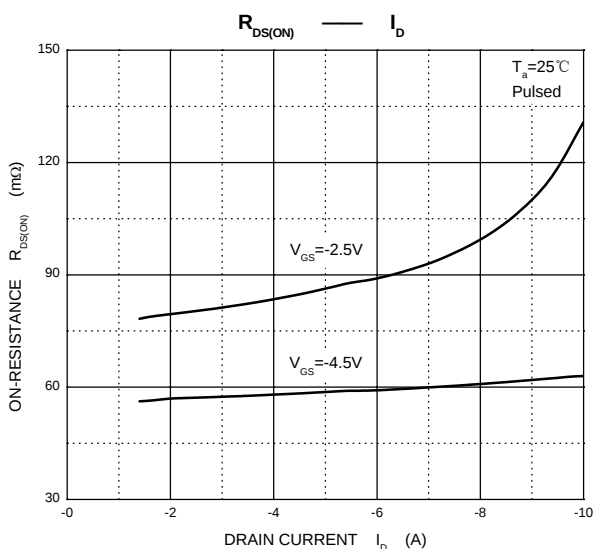
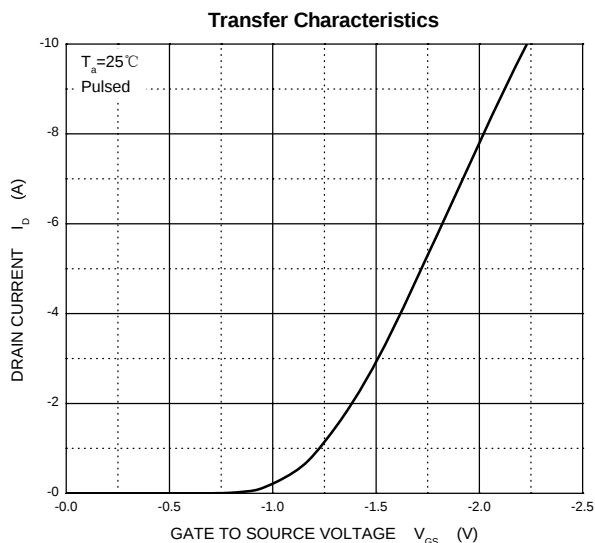
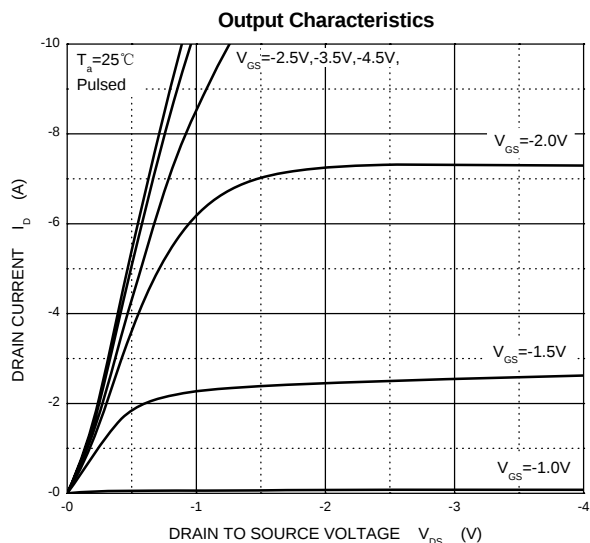
| Parameter                         | Symbol               | Test conditions                                                                                                | Min   | Typ  | Max  | Unit |
|-----------------------------------|----------------------|----------------------------------------------------------------------------------------------------------------|-------|------|------|------|
| P-MOSFET                          |                      |                                                                                                                |       |      |      |      |
| STATIC PARAMETERS                 |                      |                                                                                                                |       |      |      |      |
| Drain-source breakdown voltage    | V <sub>(BR)DSS</sub> | V <sub>GS</sub> =0V, I <sub>D</sub> =-250μA                                                                    | -20   |      |      | V    |
| Zero gate voltage drain current   | I <sub>DSS</sub>     | V <sub>DS</sub> =-16V, V <sub>GS</sub> = 0V                                                                    |       |      | -1   | μA   |
| Gate-body leakage current         | I <sub>GSS</sub>     | V <sub>GS</sub> =±8V, 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                                                      | -0.45 |      |      | V    |
| Drain-source on-resistance(note1) | R <sub>DS(on)</sub>  | V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-2.7A                                                                  |       |      | 110  | mΩ   |
|                                   |                      | V <sub>GS</sub> =-2.5V, I <sub>D</sub> =-2.2A                                                                  |       |      | 160  | mΩ   |
|                                   |                      | V <sub>GS</sub> =-1.8V, I <sub>D</sub> =-1A                                                                    |       |      | 240  | mΩ   |
| Forward transconductance(note1)   | g <sub>FS</sub>      | V <sub>DS</sub> =-10V, I <sub>D</sub> =-2.7A                                                                   |       | 7    |      | S    |
| Diode forward voltage(note1)      | V <sub>SD</sub>      | I <sub>S</sub> =-0.9A, V <sub>GS</sub> = 0V                                                                    |       |      | -1.2 | V    |
| DYNAMIC PARAMETERS (note 2)       |                      |                                                                                                                |       |      |      |      |
| Input capacitance                 | C <sub>iss</sub>     | V <sub>DS</sub> =-10V, V <sub>GS</sub> =0V, f =1MHz                                                            |       |      | 300  | pF   |
| Output capacitance                | C <sub>oss</sub>     |                                                                                                                |       |      | 150  | pF   |
| Reverse transfer capacitance      | C <sub>rss</sub>     |                                                                                                                |       |      | 50   | pF   |
| SWITCHING PARAMETERS (note 2)     |                      |                                                                                                                |       |      |      |      |
| Turn-on delay time                | t <sub>d(on)</sub>   | V <sub>GS</sub> =-4.5V, V <sub>DD</sub> =-10V,<br>R <sub>L</sub> =10Ω, R <sub>G</sub> =6Ω, I <sub>D</sub> =-1A |       |      | 25   | ns   |
| Turn-on rise time                 | t <sub>r</sub>       |                                                                                                                |       |      | 45   | ns   |
| Turn-off delay time               | t <sub>d(off)</sub>  |                                                                                                                |       |      | 45   | ns   |
| Turn-off fall time                | t <sub>f</sub>       |                                                                                                                |       |      | 40   | ns   |
| Total Gate Charge                 | Q <sub>g</sub>       | V <sub>DS</sub> =-10V, V <sub>GS</sub> =-4.5V,<br>I <sub>D</sub> =-2.7A                                        |       |      | 6.5  | nC   |
| Gate-Source Charge                | Q <sub>gs</sub>      |                                                                                                                |       | 1.4  |      | nC   |
| Gate-Drain Charge                 | Q <sub>gd</sub>      |                                                                                                                |       | 0.65 |      | nC   |
| SCHOTTKY BARRIER DIODE            |                      |                                                                                                                |       |      |      |      |
| Forward voltage                   | V <sub>F</sub>       | I <sub>F</sub> =0.5A                                                                                           |       |      | 0.48 | V    |
| Reverse current                   | I <sub>R</sub>       | V <sub>R</sub> =20V                                                                                            |       |      | 100  | μA   |
| Junction capacitance              | C <sub>j</sub>       | V <sub>R</sub> =10V, f=1MHz                                                                                    |       | 41   |      | pF   |

## Note:

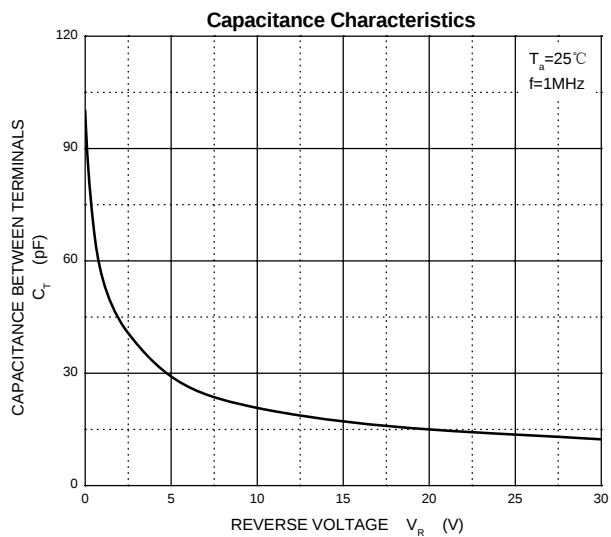
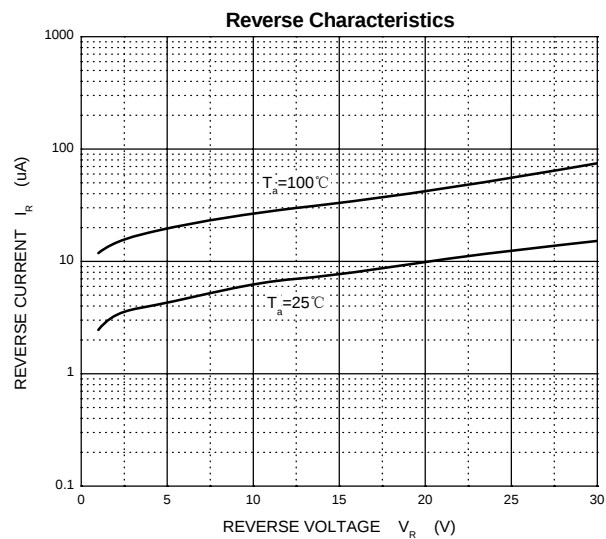
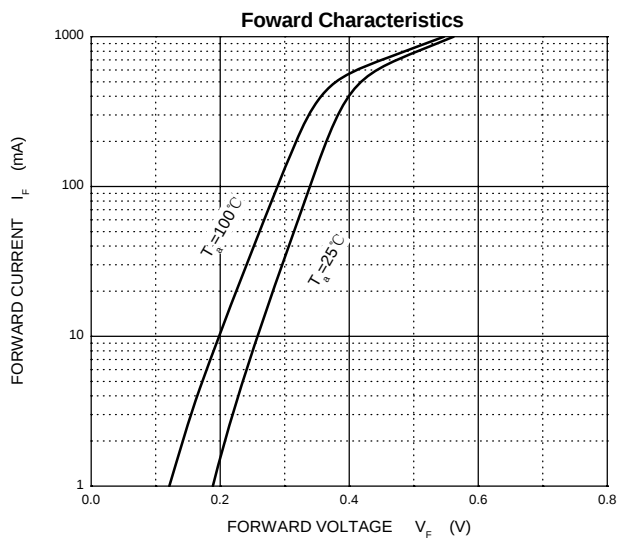
- 1.Pulse test: pulse width =300 $\mu s$ , duty cycles $\leq 2\%$
- 2.These parameters have no way to verify.

# Typical Characteristics

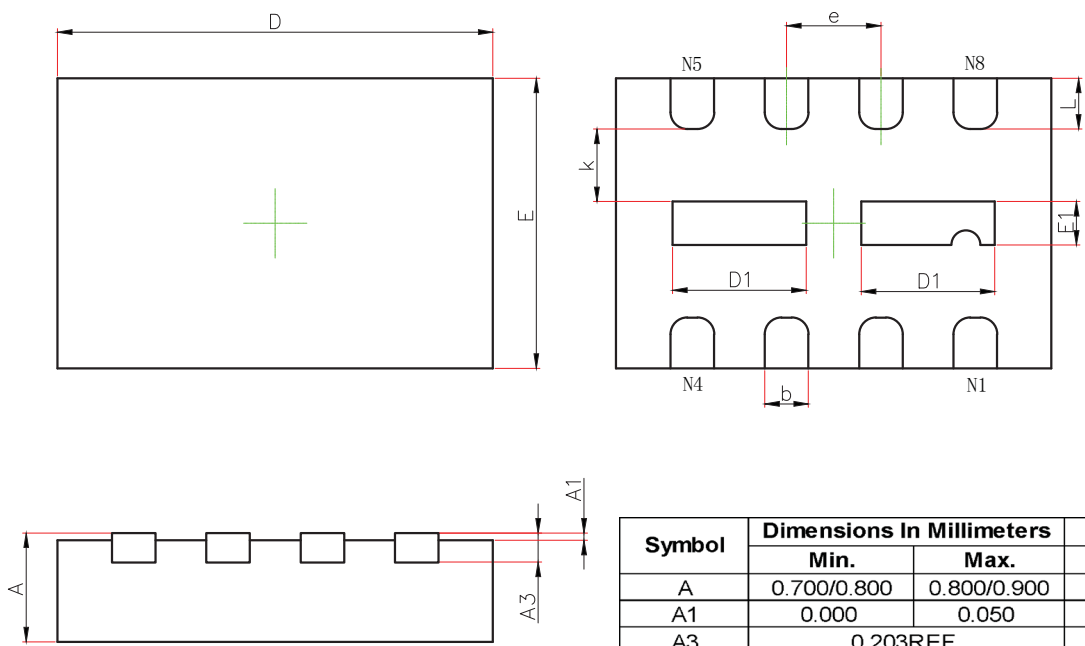
## P-channel Characteristics



## Schottky Characteristics

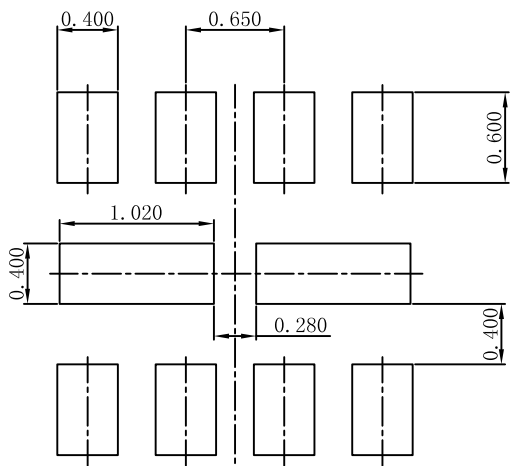


DFNWB3X2-8L-B Package Outline Dimensions



| Symbol | Dimensions In Millimeters |             | Dimensions In Inches |             |
|--------|---------------------------|-------------|----------------------|-------------|
|        | Min.                      | Max.        | Min.                 | Max.        |
| A      | 0.700/0.800               | 0.800/0.900 | 0.028/0.031          | 0.031/0.035 |
| A1     | 0.000                     | 0.050       | 0.000                | 0.002       |
| A3     | 0.203REF.                 |             | 0.008REF.            |             |
| D      | 2.924                     | 3.076       | 0.115                | 0.121       |
| E      | 1.924                     | 2.076       | 0.076                | 0.082       |
| D1     | 0.820                     | 1.020       | 0.032                | 0.040       |
| E1     | 0.200                     | 0.400       | 0.008                | 0.016       |
| k      | 0.200MIN.                 |             | 0.008MIN.            |             |
| b      | 0.250                     | 0.350       | 0.010                | 0.014       |
| e      | 0.650TYP.                 |             | 0.026TYP.            |             |
| L      | 0.274                     | 0.426       | 0.011                | 0.017       |

DFNWB3X2-8L-B Suggested Pad Layout



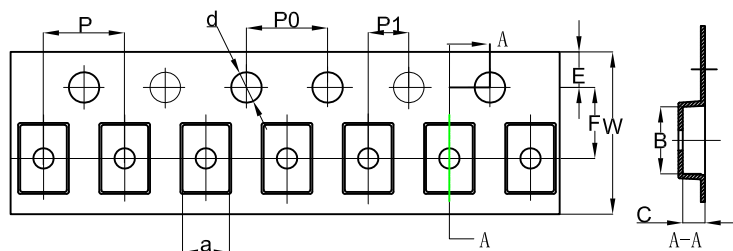
**Note:**  
1.Controlling dimension:in millimeters.  
2.General tolerance:±0.050mm.  
3.The pad layout is for reference purposes only.

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.

## DFNWB3X2-8L Tape and Reel

### DFNWB3\*2-8L Embossed Carrier Tape



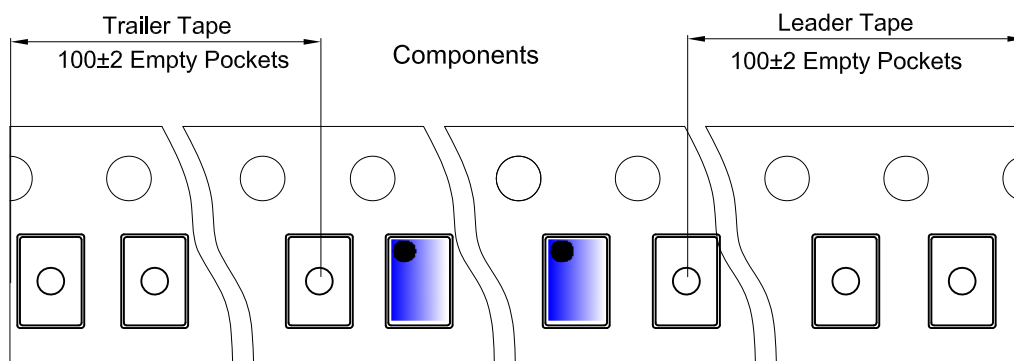
#### Packaging Description:

DFNWB3\*2-8L 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 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).

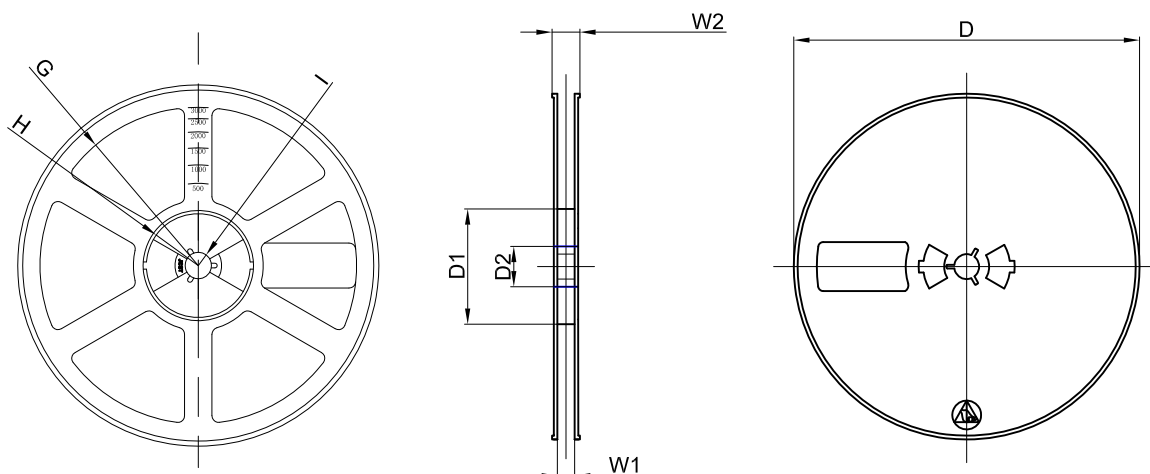
ALL DIM IN mm

| Dimensions are in millimeter |      |      |      |       |      |      |      |      |      |      |
|------------------------------|------|------|------|-------|------|------|------|------|------|------|
| Pkg type                     | a    | B    | C    | d     | E    | F    | P0   | P    | P1   | W    |
| DFNWB3*2-8L                  | 2.30 | 3.30 | 1.10 | Ø1.50 | 1.75 | 3.50 | 4.00 | 4.00 | 2.00 | 8.00 |

### DFNWB3\*2-8L Tape Leader and Trailer



### DFNWB3\*2-8L 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) |
|-----------|-----------|------------|--------------|-------------|-----------------|----------|
| 3,000 pcs | 7 inch    | 30,000 pcs | 203×203×195  | 120,000 pcs | 438×438×220     |          |