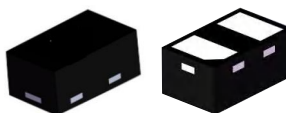
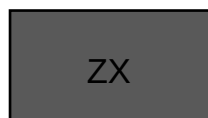


## Features

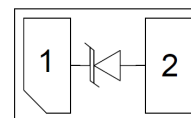
- Ultra small package: 1.0x0.6x0.5mm
- Ultra low capacitance: 0.5pF typical
- Ultra low leakage: nA level
- Low operating voltage: 5V
- Low clamping voltage
- 2-pin leadless package
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm 20\text{kV}$
    - Contact discharge:  $\pm 15\text{kV}$
  - IEC61000-4-5 (Lightning) 4.5A (8/20 $\mu\text{s}$ )
- RoHS Compliant
- Lead Finish: NiPdAu

## Applications

Smart phones  
Display Ports  
MDDI Ports  
USB Ports  
Digital Video Interface (DVI)  
PCI Express and Serial SATA Ports



DFN1006-2L(Pb-Free)



Schematic Diagram

## Absolute Maximum Rating

| Parameter                                | Symbol | Value       | Unit |
|------------------------------------------|--------|-------------|------|
| Peak Pulse Power (8/20 $\mu\text{s}$ )   | Ppk    | 70          | W    |
| Peak Pulse Current (8/20 $\mu\text{s}$ ) | IPP    | 4.5         | A    |
| ESD per IEC 61000-4-2 (Air)              | VESD   | $\pm 20$    | kV   |
| ESD per IEC 61000-4-2 (Contact)          |        | $\pm 15$    |      |
| Operating Temperature Range              | TJ     | -55 to +125 | °C   |
| Storage Temperature Range                | Tstg   | -55 to +150 | °C   |

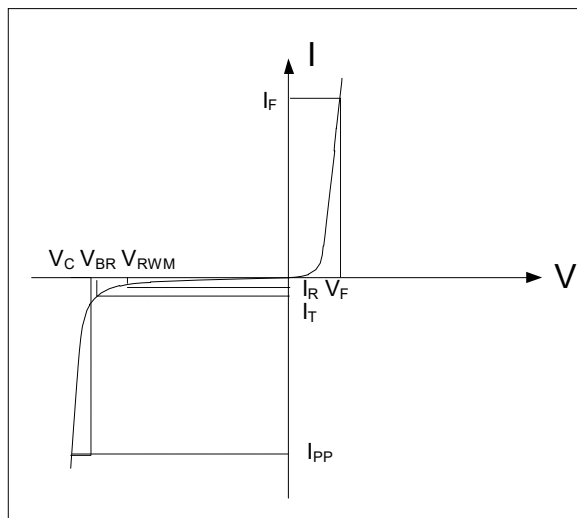
## Characteristics( $T_J = 25^\circ\text{C}$ unless otherwise specified)

| Parameter               | Symbol    | Test Condition                                      | Min | Typ | Max | Unit          |
|-------------------------|-----------|-----------------------------------------------------|-----|-----|-----|---------------|
| Reverse Working Voltage | $V_{RWM}$ |                                                     |     |     | 5.0 | V             |
| Breakdown Voltage       | $V_{BR}$  | $I_T = 1\text{mA}$                                  | 6.0 | 7.0 | 8.5 | V             |
| Reverse Leakage Current | $I_R$     | $V_{RWM} = 5.0\text{V}$                             |     |     | 0.2 | $\mu\text{A}$ |
| Clamping Voltage        | $V_C$     | $I_{PP} = 1\text{A}$ (8 x 20 $\mu\text{s}$ pulse)   |     |     | 9.0 | V             |
| Clamping Voltage        | $V_C$     | $I_{PP} = 4.5\text{A}$ (8 x 20 $\mu\text{s}$ pulse) |     |     | 16  | V             |
| Junction Capacitance    | $C_J$     | $V_R = 0\text{V}$ , $f = 1\text{MHz}$               |     | 0.5 | 0.6 | pF            |

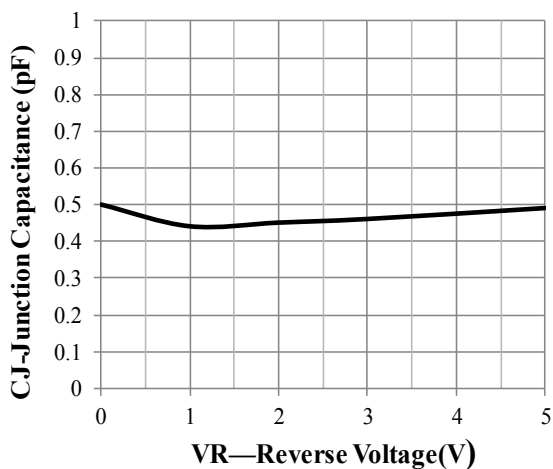
## Electrical Parameters ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| Symbol    | Parameter                                   |
|-----------|---------------------------------------------|
| $I_{PP}$  | Maximum Reverse Peak Pulse Current          |
| $V_C$     | Clamping Voltage @ $I_{PP}$                 |
| $V_{RWM}$ | Working Peak Reverse Voltage                |
| $I_R$     | Maximum Reverse Leakage Current @ $V_{RWM}$ |
| $V_{BR}$  | Breakdown Voltage @ $I_T$                   |
| $I_T$     | Test Current                                |
|           |                                             |
|           |                                             |

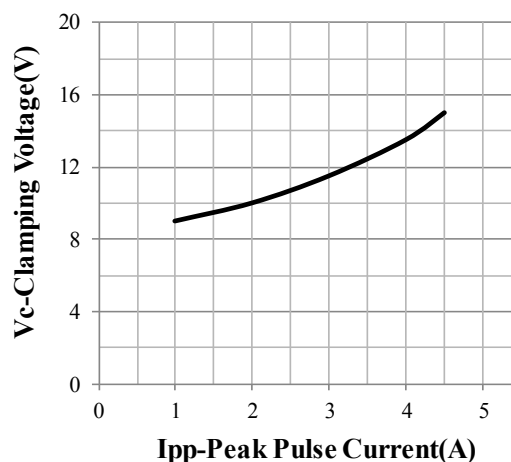
Note: 8/20 $\mu\text{s}$  pulse waveform.



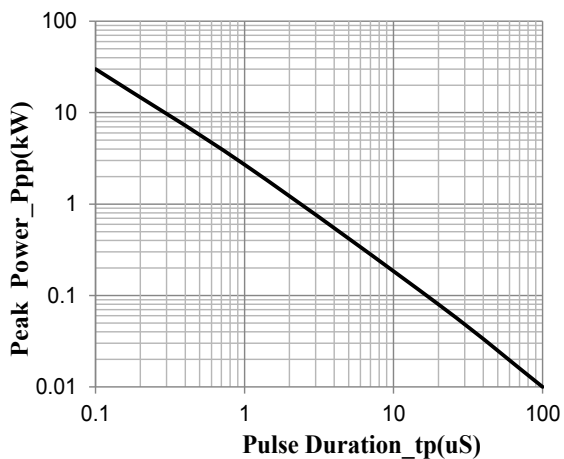
## RATING AND CHARACTERISTIC CURVES



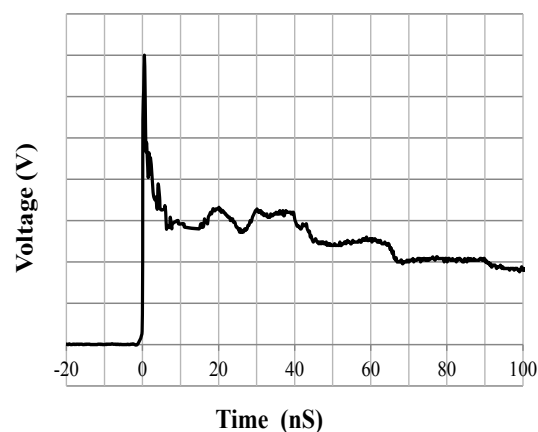
Junction Capacitance vs. Reverse Voltage



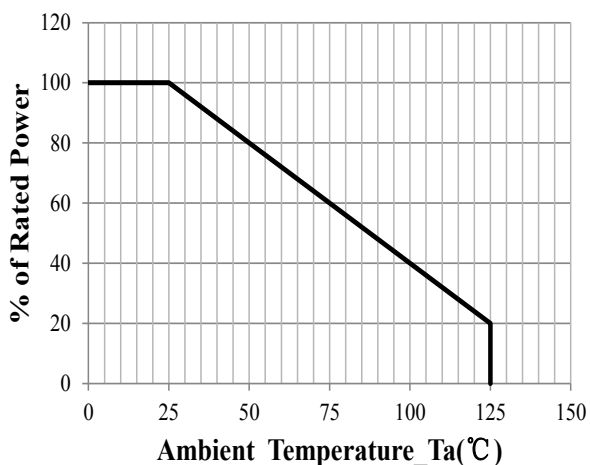
Clamping Voltage vs. Peak Pulse Current



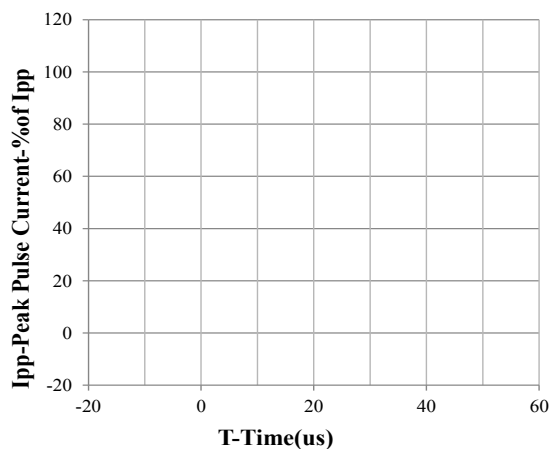
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform



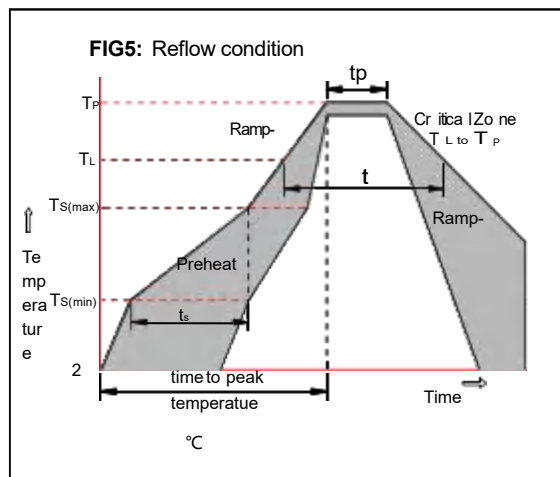
Power Derating Curve



8 X 20us Pulse Waveform

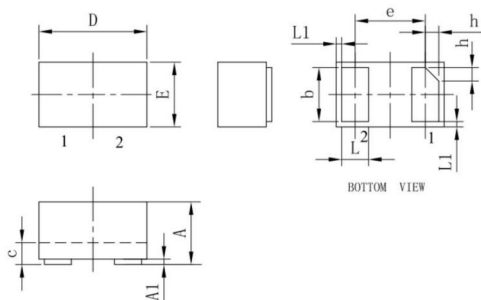
## Soldering parameters

| Reflow Condition                                        |                                   | Pb-Free assembly<br>(see as below) |
|---------------------------------------------------------|-----------------------------------|------------------------------------|
| Pre Heat                                                | -Temperature Min ( $T_{s(min)}$ ) | +150 °C                            |
|                                                         | -Temperature Max( $T_{s(max)}$ )  | +200 °C                            |
|                                                         | -Time (Min to Max) (ts)           | 60-180 secs.                       |
| Average ramp up rate (Liquid us Temp ( $T_L$ ) to peak) |                                   | 3 °C/sec. Max                      |
| $T_{s(max)}$ to $T_L$ - Ramp-up Rate                    |                                   | 3 °C/sec. Max                      |
| Reflow                                                  | -Temperature( $T_L$ )(Liquid us)  | +217 °C                            |
|                                                         | -Temperature( $t_L$ )             | 60-150 secs.                       |
| Peak Temp ( $T_P$ )                                     |                                   | +260(+0/-5) °C                     |
| Time within 5 °C of actual Peak Temp ( $t_P$ )          |                                   | 30 secs. Max                       |
| Ramp-down Rate                                          |                                   | 6 °C/sec. Max                      |
| Time 25 °C to Peak Temp ( $T_P$ )                       |                                   | 8 min. Max                         |
| Do not exceed                                           |                                   | +260 °C                            |



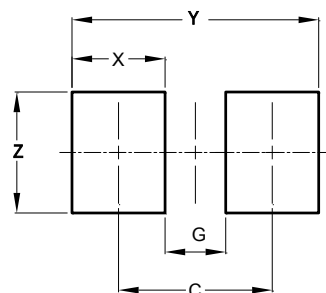
## Package Dimensions & Suggested Pad Layout

### DFN1006-2L



DFN1006-2L

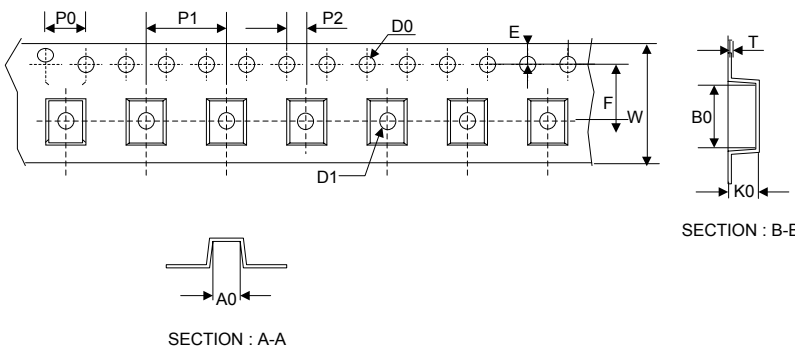
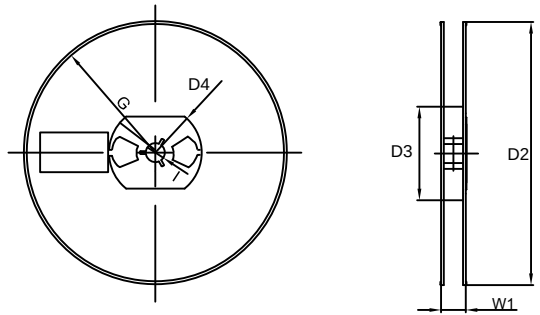
|    | Millimeters  |              |              | Inches       |              |              |
|----|--------------|--------------|--------------|--------------|--------------|--------------|
|    | Min.<br>(mm) | Typ.<br>(mm) | Max.<br>(mm) | Min.<br>(mm) | Typ.<br>(mm) | Max.<br>(mm) |
| A  | 0.45         | 0.50         | 0.55         | 0.018        | 0.020        | 0.022        |
| A1 | 0.00         | 0.02         | 0.05         | 0.000        | 0.001        | 0.002        |
| b  | 0.45         | 0.50         | 0.55         | 0.018        | 0.020        | 0.022        |
| c  | 0.12         | 0.15         | 0.18         | 0.005        | 0.006        | 0.007        |
| D  | 0.95         | 1.00         | 1.05         | 0.037        | 0.039        | 0.041        |
| e  | 0.59BSC      |              |              | 0.026BSC     |              |              |
| E  | 0.55         | 0.60         | 0.65         | 0.022        | 0.024        | 0.026        |
| L  | 0.25         | 0.30         | 0.35         | 0.010        | 0.012        | 0.013        |
| L1 | 0.05REF      |              |              | 0.002REF     |              |              |
| h  | 0.07         | 0.12         | 0.17         | 0.003        | 0.005        | 0.007        |



| Dimensions | Value<br>(in mm) |
|------------|------------------|
| C          | 0.70             |
| G          | 0.30             |
| X          | 0.40             |
| Y          | 1.10             |
| Z          | 0.65             |



## Tape & reel specification

| Tape                                                                                                                        |  | Symbol            | Dimension (mm) |
|-----------------------------------------------------------------------------------------------------------------------------|--|-------------------|----------------|
|  <p>SECTION : A-A</p> <p>SECTION : B-B</p> |  | P0                | 4.00±0.20      |
|                                                                                                                             |  | P1                | 2.00±0.20      |
|                                                                                                                             |  | P2                | 1.55±0.20      |
|                                                                                                                             |  | D0                | 1.55±0.20      |
|                                                                                                                             |  | D1                | 0.40±0.20      |
|                                                                                                                             |  | E                 | 1.55±0.25      |
|                                                                                                                             |  | F                 | 3.60±0.20      |
|                                                                                                                             |  | W                 | 8.00±0.20      |
|                                                                                                                             |  | A0                | 1.00±0.20      |
|                                                                                                                             |  | B0                | 1.40±0.20      |
|                                                                                                                             |  | K0                | 0.75±0.20      |
|                                                                                                                             |  | T                 | 0.20±0.20      |
|                                                                                                                             |  | D2                | 177.0±5.0      |
|                                                                                                                             |  | D3                | 55Min.         |
|                                                                                                                             |  | D4                | R24.6±2.0      |
| 7" Reel                                                                                                                     |  | G                 | R82.0±2.0      |
|                                          |  | I                 | 13.0±2.0       |
|                                                                                                                             |  | W1                | 10.20±3.0      |
|                                                                                                                             |  | Quantity: 3000PCS |                |