

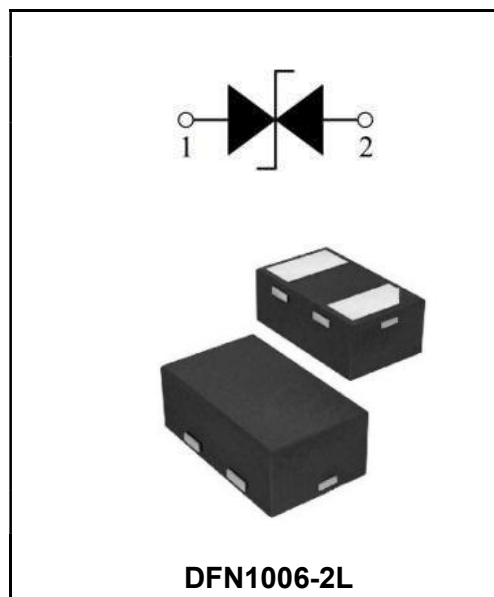
Bi-directional ESD Protection Diode

Features

- ◆Capacitance: 3.5pF(typ.)
- ◆Reverse Working Voltage: 5V
- ◆IEC 61000-4-2(ESD Air): $\pm 25\text{kV}$
- ◆IEC 61000-4-2(ESD Contact): $\pm 20\text{kV}$
- ◆IEC61000-4-5(Lightning 8/20us): 2.5A

Application

- ◆Cellular phones
- ◆Portable devices
- ◆Digital cameras
- ◆Power supplies



Marking Code

| | |
|--------------|----|
| ESD1006B5V0B | 5A |
|--------------|----|

Limiting Values(TA = 25 °C, unless otherwise specified)

| Symbol | Parameter | Conditions | Min | Max | Unit |
|------------------|---------------------------------|----------------------------------|-----|----------|------|
| V _{ESD} | Electrostatic Discharge Voltage | IEC 61000-4-2; Contact Discharge | - | ± 20 | kV |
| | | IEC 61000-4-2; Air Discharge | - | ± 25 | kV |
| P _{PP} | Peak Pulse Power | tP = 8/20 μs | - | 40 | W |
| I _{PPM} | Rated Peak Pulse Current | tP = 8/20 μs | - | 2.5 | A |
| T _A | Operating Temperature Range | - | -55 | 150 | °C |
| T _{stg} | Storage Temperature Range | - | -55 | 150 | °C |

Electrical Characteristics(TA = 25 °C unless otherwise specified)

| Symbol | Parameter | Conditions | Min | Typ. | Max | Unit |
|------------------|-------------------------|---|-----|------|-----|------|
| V _{RWM} | Reverse Working Voltage | TA = 25 °C | - | - | 5.0 | V |
| V _{BR} | Breakdown Voltage | I _R = 1mA; TA = 25 °C | 5.6 | - | 9.0 | V |
| I _R | Reverse Leakage Current | V _{RWM} = 5 V; TA = 25 °C | - | - | 100 | nA |
| V _C | Clamping Voltage | I _{PP} = 1A, tP = 8/20 μs | - | - | 13 | V |
| | | I _{PP} = 2.5A, tP = 8/20 μs | - | - | 16 | V |
| C _J | Junction Capacitance | V _R = 0V, f = 1 MHz | - | 3.5 | 4.0 | pF |

Typical Characteristics

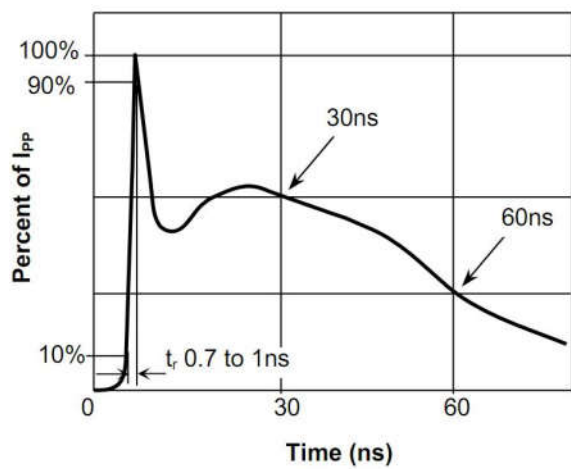


Fig.1 Pulse Waveform-ESD (IEC61000-4-2)

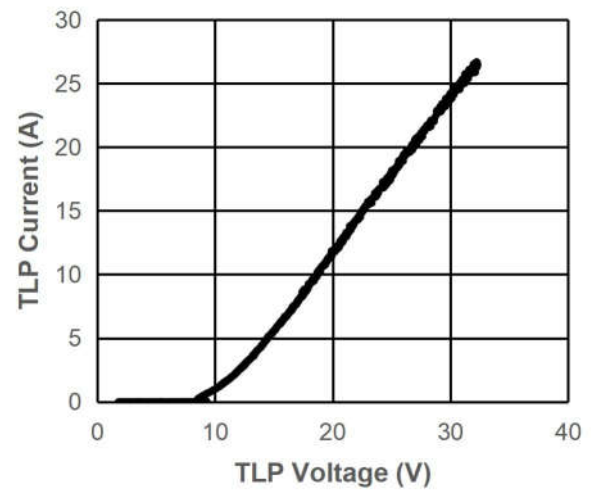


Fig.2 Transmission Line Pulse (TLP)

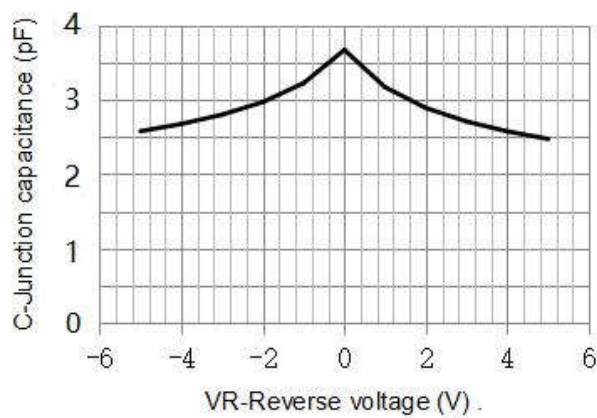


Fig.3 Capacitance vs. Reverse Voltage

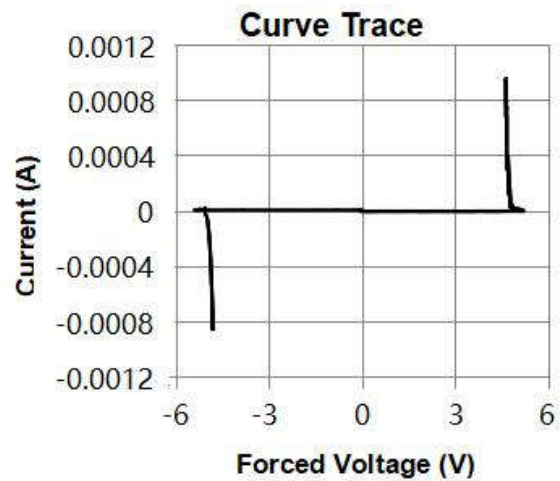
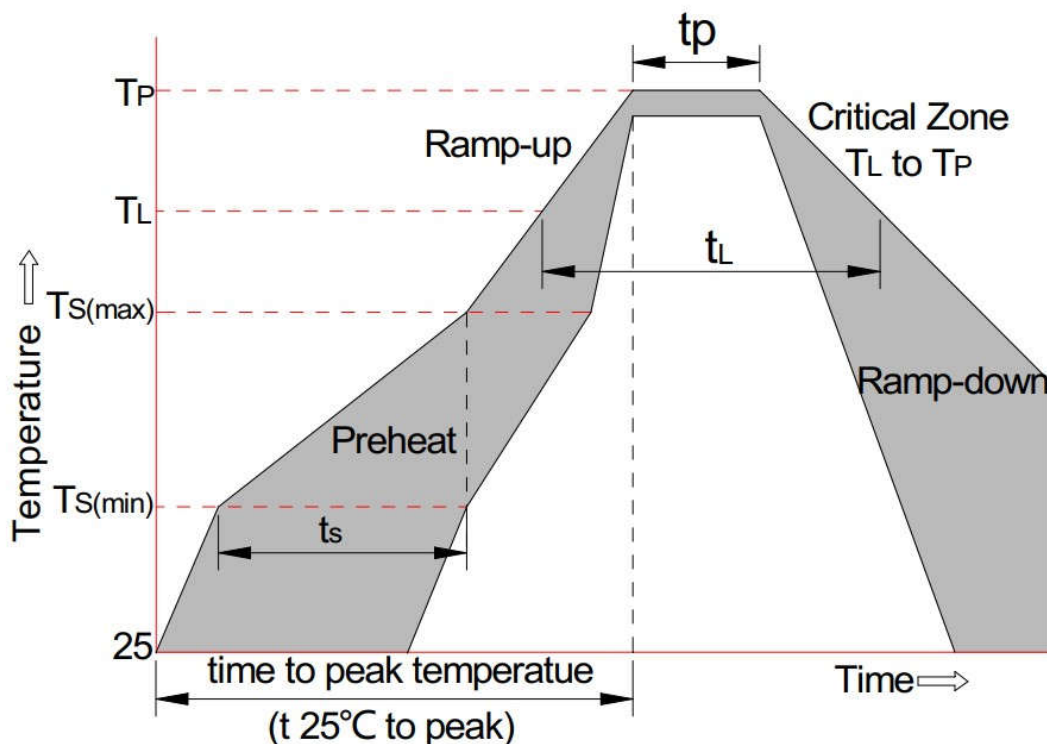


Fig.4 IV Curve (Forward Voltage)

Soldering Parameters



| Reflow Condition | | Pb-Free Assembly |
|---|-----------------------------------|------------------|
| Pre-heat | -Temperature Min ($T_{S(min)}$) | +150°C |
| | -Temperature Max($T_{S(max)}$) | +200°C |
| | -Time (Min to Max) (t_s) | 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 |
| xTime 25°C to Peak Temp (TP) | | 8 min. Max |
| Do not exceed | | +260°C |

Ordering information

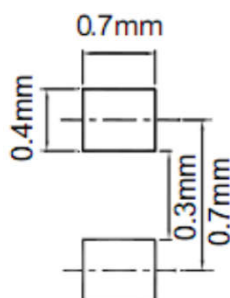
| Package | Packing Description | Packing Quantity |
|------------|---------------------|--------------------------------|
| DFN1006-2L | Tape/Reel, 7" reel | 10000PCS/Reel 400000PCS/Carton |

Package Dimensions

DFN1006-2L

| Dim. | Millimeter(mm) | | Inches | |
|------|----------------|-------|--------|-------|
| | Min. | Max. | Min. | Max. |
| A | 0.350 | 0.450 | 0.014 | 0.018 |
| D | 0.550 | 0.650 | 0.022 | 0.026 |
| E | 0.950 | 1.050 | 0.037 | 0.041 |
| D1 | 0.420 | 0.520 | 0.017 | 0.020 |
| E1 | 0.550 | 0.650 | 0.022 | 0.026 |
| L | 0.270 | 0.370 | 0.011 | 0.015 |
| L1 | - | 0.100 | - | 0.004 |

The recommended mounting pad size



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