

Surface Mount TVS For ESD Protection Diode

 Lead(Pb)-Free

Features:

- * Stand-off Voltage: 3.3 V–12 V
- * Low Leakage
- * Response Time is Typically < 1 ns
- * ESD Rating of Class 3 (> 16 kV) per Human Body Model
- * IEC61000–4–2 Level 4 ESD Protection
- * These are Pb–Free Devices

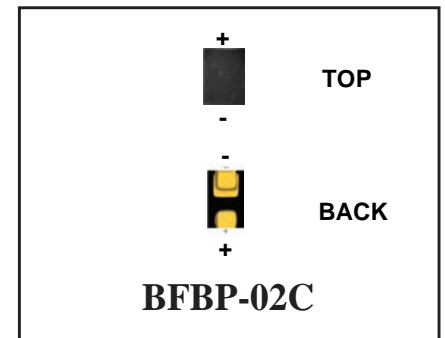
Main Applications:

- * Cellular Handsets & Accessories
- * Personal Digital Assistants (PDAs)
- * Notebooks & Handhelds
- * Portable Instrumentation
- * Digital Cameras
- * Peripherals
- * MP3 Players

Mechanical Characteristics:

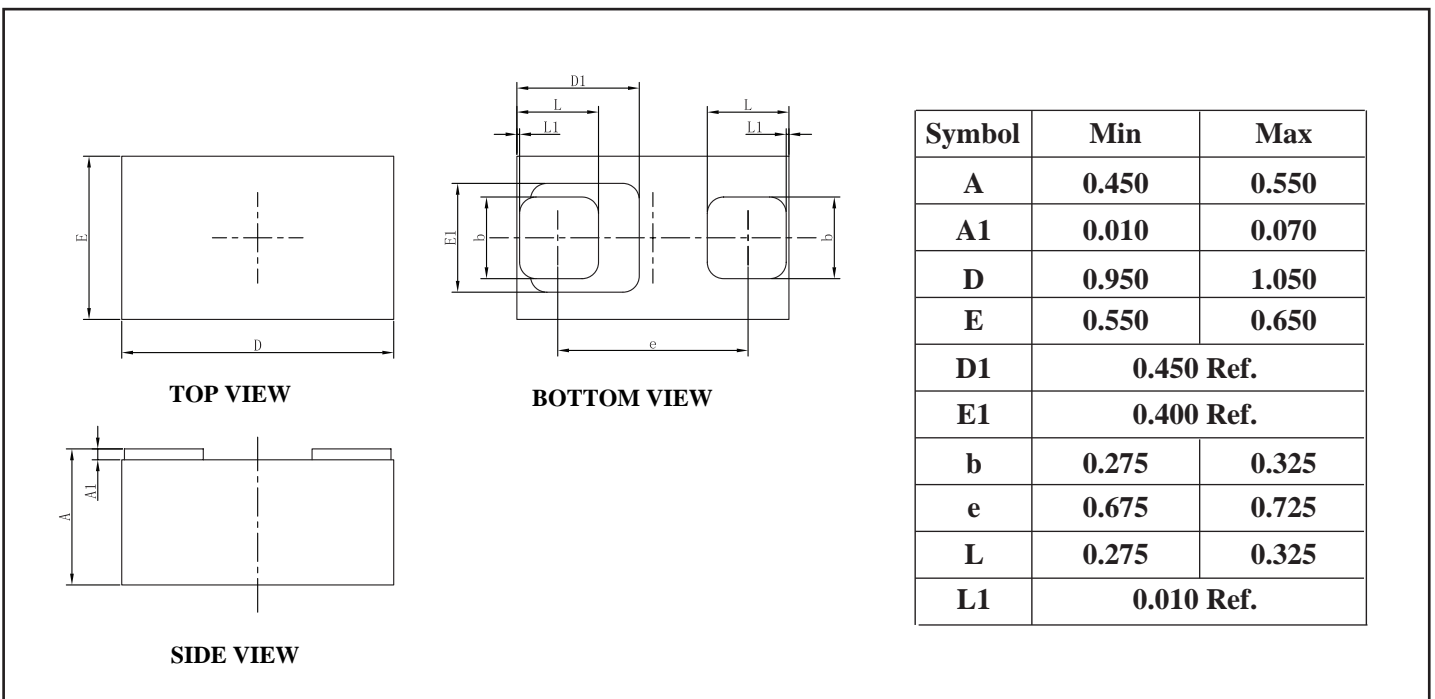
- * Molding compound flammability rating: UL 94V-0

Peak Pulse Power
100 Watts
Reverse Working Voltage
3.3-12 Volts



BFBP Outline Dimensions

Unit:mm



Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

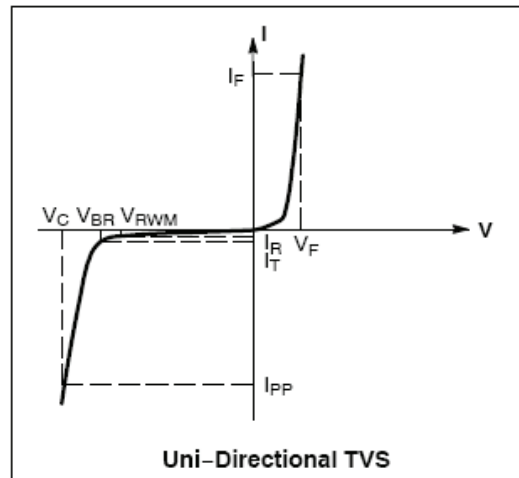
| Parameter | Symbol | Limits | Unit |
|--|-----------------|------------|-----------------------------|
| IEC61000-4-2(ESD) Contact | | ± 30 | KV |
| ESD voltage per human body model Per machine model | | 16 | KV |
| | | 400 | V |
| Total power dissipation on FR-5 board (Note 1) | P_D | 150 | mW |
| Thermal Resistance Junction-to-Ambient | $R_{\theta JA}$ | 833 | $^{\circ}\text{C}/\text{W}$ |
| Lead Solder Temperature – Maximum (10 Second Duration) | T_L | 260 | $^{\circ}\text{C}$ |
| Junction and Storage temperature range | T_j, T_{stg} | -55 ~ +150 | $^{\circ}\text{C}$ |

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended. Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. FR-5 = 1.0 x 0.75 x 0.62 in.

ELECTRICAL CHARACTERISTICS ($T_A = 25^{\circ}\text{C}$ 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 |
| I_F | Forward Current |
| V_F | Forward Voltage @ I_F |
| P_{pk} | Peak Power Dissipation |
| C | Max. Capacitance @ $V_R=0$ and $f=1\text{MHz}$ |



ELECTRICAL CHARACTERISTICS ($T_A = 25^{\circ}\text{C}$ unless otherwise noted, $V_F = 0.9\text{V}$ Max. @ $I_F = 10\text{mA}$ for all types)

| Device* | Device Marking | V_{RWM} (V) | I_R (μA) @ V_{RWM} | V_{BR} (V) @ I_T (Note 2) | I_T | Max I_{PP} (A) (Note 3) | V_C (V) @Max I_{PP} (A) (Note 3) | P_{pk} (W) (8 x 20 μs) | C (pF) |
|------------|----------------|---------------|-------------------------------------|-------------------------------|-------|---------------------------|--------------------------------------|--------------------------------------|--------|
| | | Max | Max | Min | mA | - | Max | Typ | Typ |
| ESD3301B2C | A | 3.3 | 2.5 | 5.0 | 1.0 | 9.8 | 11.4 | 102 | 80 |
| ESD0501B2C | B | 5.0 | 1.0 | 6.2 | 1.0 | 8.7 | 12.3 | 107 | 65 |
| ESD1201B2C | C | 12 | 1.0 | 13.5 | 1.0 | 5.9 | 23.7 | 140 | 30 |

*Other voltages available upon request.

2. V_{BR} is measured with a pulse test current I_T at an ambient temperature of 25°C .

3. Surge current waveform per Figure 3.

TYPICAL CHARACTERISTICS

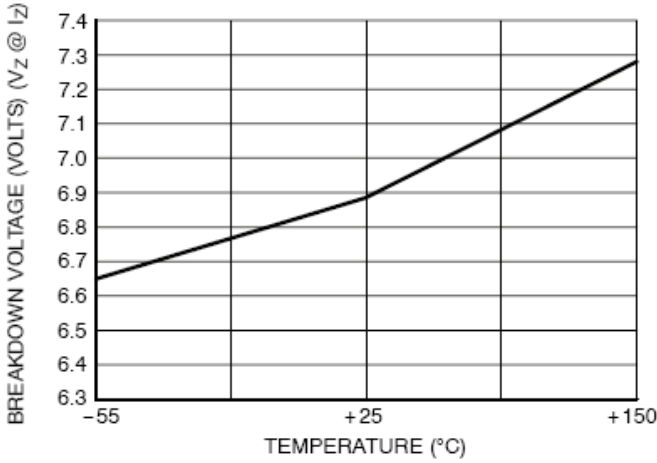


Figure 1. Typical Breakdown Voltage versus Temperature

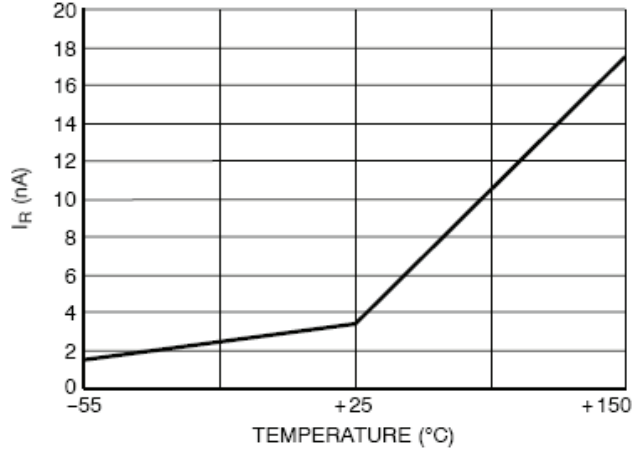


Figure 2. Typical Leakage Current versus Temperature

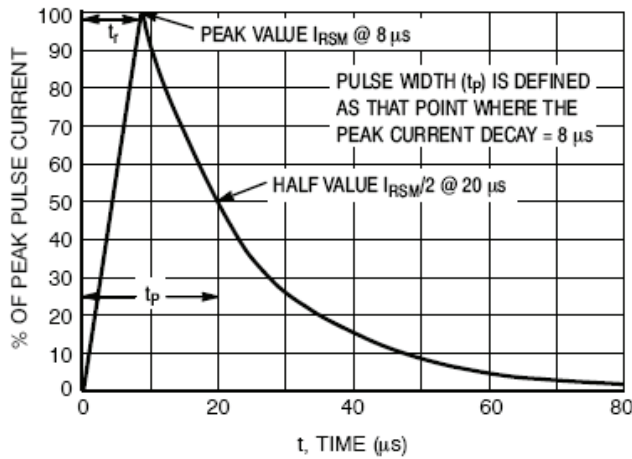


Figure 3. 8 X 20 μs Pulse Waveform