



AD-ESDU5V0Y1 Plastic-Encapsulated Diode

AD-ESDU5V0Y1 Uni-direction ESD protection diode

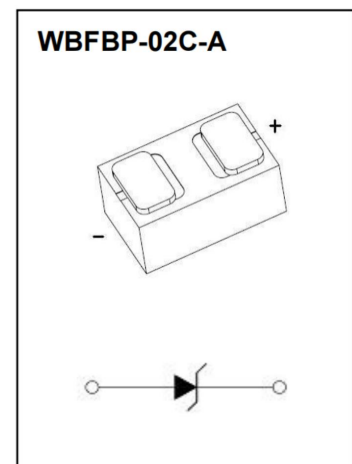
DESCRIPTION

To protect voltage sensitive electronic components from ESD and other transients. Excellent clamping capability, low leakage, low capacitance and fast response time provide best in class protection on designs which are exposed to ESD.

The combination of small size, low capacitance and high level of ESD protection makes the product a flexible solution for applications such as HDMI, Display Port TM and MDDI interfaces. It is designed to replace multiplayer varistors (MLV) in consumer equipments applications such as mobile phone, notebook, PAD, STB, LCD TV etc. .

FEATURES

- Uni-directional ESD protection of one line
- Low capacitance: 0.5pF(Typ)
- Reverse stand-off voltage: 5V
- Low reverse clamping voltage
- Low leakage current
- Excellent package: 1.0mm×0.6mm×0.5mm
- Fast response time
- JESD22-A114-B ESD rating of class 3B per human body model
- IEC 61000-4-2 level 4 ESD protection
- AEC-Q101 qualified



APPLICATIONS

- Computers and peripherals
- High speed data lines
- Audio and video equipment
- Cellular handsets and accessories
- Portable electronics
- USB Interface
- Other electronics equipment communication systems

MARKING



YE = Device code
The marking bar indicates the cathode

Front side

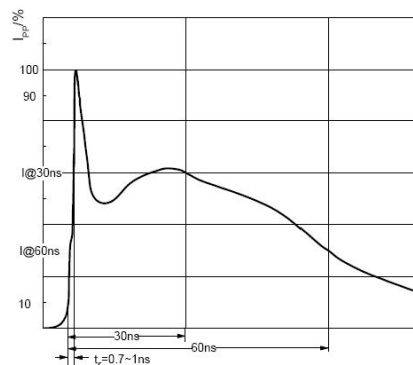
MAXIMUM RATINGS (T_j = 25°C unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|--|-----------------------------------|--|------|
| IEC 61000-4-2 ESD voltage | V _{ESD} ¹⁾ | ±15 | kV |
| | | Air model | |
| | | Contact model | |
| | | JESD22-A114-B ESD voltage per human body model | |
| ESD voltage per machine model | | ±0.4 | |
| Peak pulse power | P _{PP} ²⁾ | 75 | W |
| Peak pulse current | I _{PP} ²⁾ | 5 | A |
| Maximum lead solder temperature (10 second duration) | T _L | 260 | °C |
| Operation junction and storage temperature range | T _j , T _{stg} | -55 ~ +150 | °C |

ESD STANDARD COMPLIANCE

IEC61000-4-2 standard

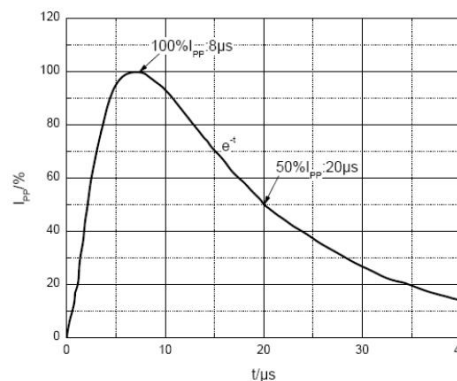
| Contact discharge | | Air discharge | |
|-------------------|-------------------|---------------|-------------------|
| Level | Test voltage (kV) | Level | Test voltage (kV) |
| 1 | 2 | 1 | 2 |
| 2 | 4 | 2 | 4 |
| 3 | 6 | 3 | 8 |
| 4 | 8 | 4 | 15 |



ESD pulse waveform according to IEC61000-4-2

JESD22-A114-B standard

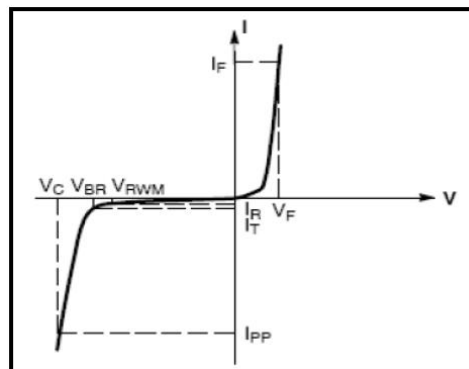
| ESD class | Human body discharge (V) |
|-----------|--------------------------|
| 0 | 0 ~ 249 |
| 1A | 250 ~ 499 |
| 1B | 500 ~ 999 |
| 1C | 1000 ~ 1999 |
| 2 | 2000 ~ 3999 |
| 3A | 4000 ~ 7999 |
| 3B | 8000 ~ 15999 |



8/20µs pulse waveform according to IEC 61000-4-5

ELECTRICAL CHARACTERISTICS ($T_j = 25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol |
|-------------------------------------|-----------|
| Clamping voltage @ I_{PP} | V_C |
| Peak pulse current | I_{PP} |
| Breakdown voltage @ I_T | V_{BR} |
| Test current | I_T |
| Reverse leakage current @ V_{RWM} | I_R |
| Reverse standoff voltage | V_{RWM} |
| Forward Voltage@ I_F | V_F |
| Forward Current | I_F |

**V-I characteristics for a Uni-directional TVS**

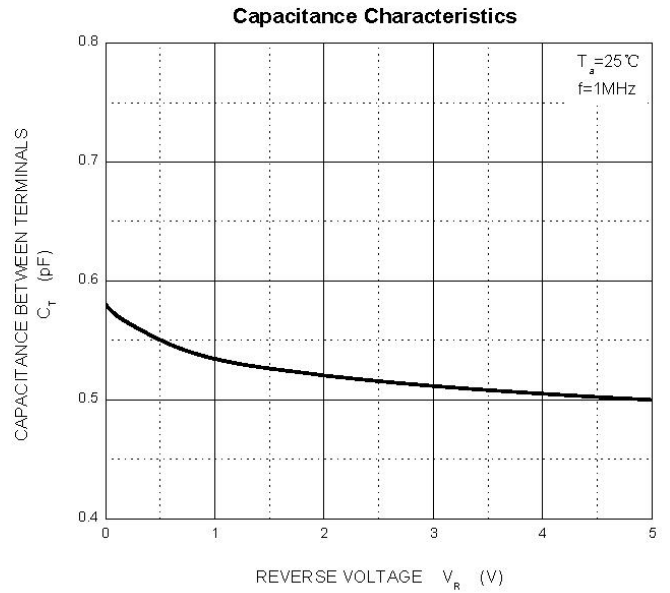
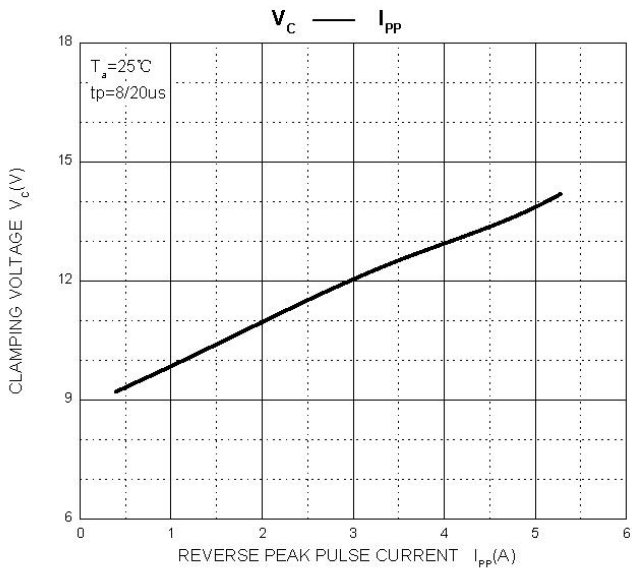
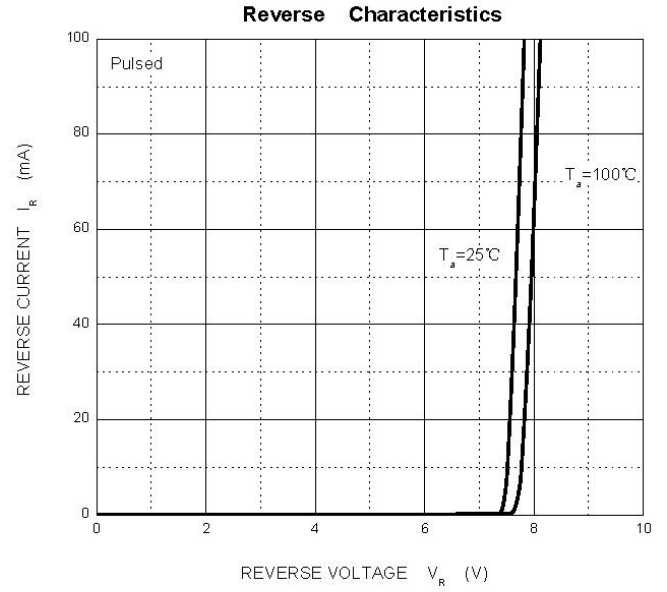
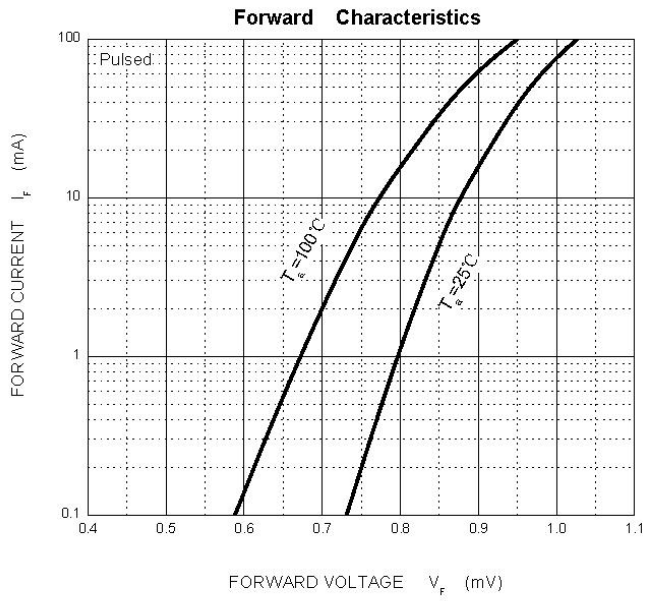
| Parameter | Symbol | Test condition | Min | Typ | Max | Unit |
|--------------------------|----------------|------------------------------------|-----|-----|-----|---------------|
| Reverse standoff voltage | $V_{RWM}^{3)}$ | - | - | - | 5 | V |
| Reverse leakage current | I_R | $V_{RWM} = 5\text{V}$ | - | - | 1 | μA |
| Breakdown voltage | V_{BR} | $I_T = 1\text{mA}$ | 5.4 | - | 9.4 | V |
| Clamping voltage | $V_C^{2)}$ | $I_{PP} = 5\text{A}$ | - | - | 15 | V |
| Junction capacitance | C_J | $V_R = 0\text{V}, f = 1\text{MHz}$ | - | 0.5 | 0.9 | pF |

1). Device stressed with ten non-repetitive ESD pulses.

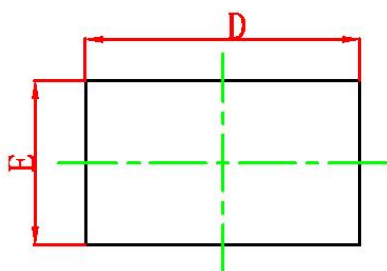
2). Non-repetitive current pulse 8/20 μs exponential decay waveform according to IEC61000-4-5.

3). Other voltages available upon request.

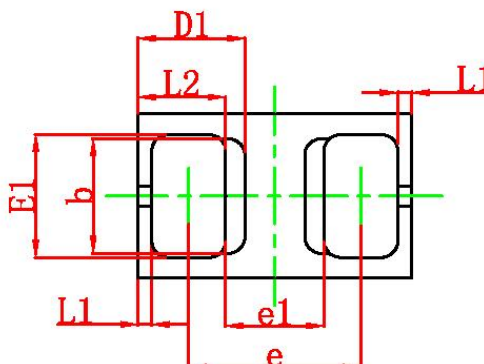
TYPICAL CHARACTERISTICS



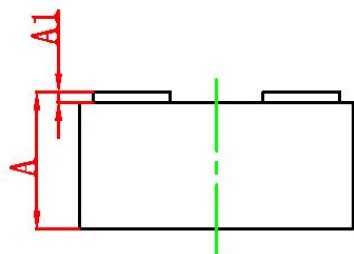
WBFBP-02C-A PACKAGE OUTLINE DIMENSIONS



TOP VIEW



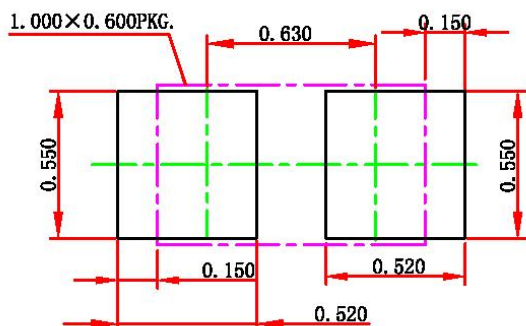
BOTTOM VIEW



SIDE VIEW

| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 0.450 | 0.550 | 0.018 | 0.022 |
| A1 | 0.010 | 0.090 | 0.000 | 0.004 |
| D | 0.950 | 1.050 | 0.037 | 0.041 |
| E | 0.550 | 0.650 | 0.022 | 0.026 |
| D1 | 0.390REF. | | 0.015REF. | |
| E1 | 0.400 | 0.500 | 0.016 | 0.020 |
| b | 0.420REF. | | 0.017REF. | |
| e | 0.580 | 0.680 | 0.023 | 0.027 |
| e1 | 0.360REF. | | 0.014REF. | |
| L1 | 0.050REF. | | 0.002REF. | |
| L2 | 0.270 | 0.370 | 0.011 | 0.015 |

WBFBP-02C-A SUGGESTED PAD LAYOUT

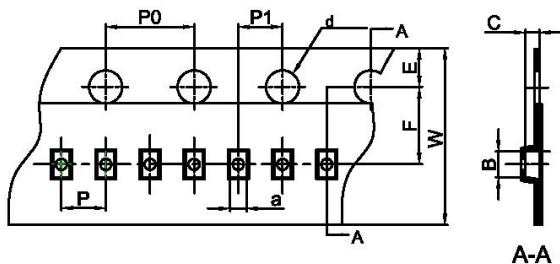


Note:

1. Controlling dimension in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purpose only.

WBFBP-02C-A TAPE AND REEL

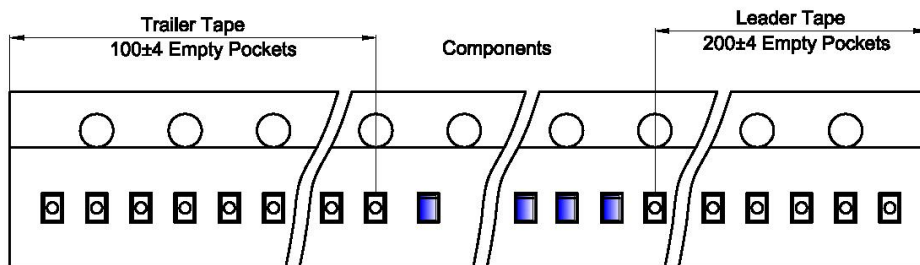
DFN/FBP(1.0×0.6) Embossed Carrier Tape



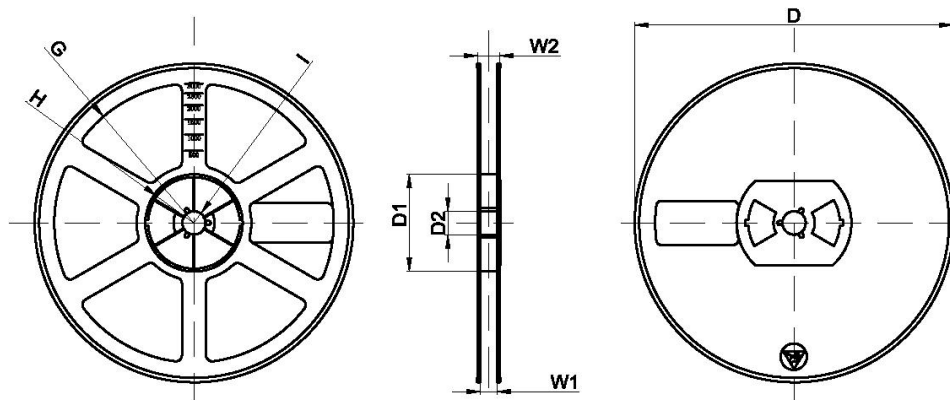
Packaging Description:
DFN/FBP(1.0×0.6) parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 10,000 units per 7" or 17.8cm 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 |
| DFN/FBP(1.0×0.6) | 0.66 | 1.15 | 0.66 | Ø1.50 | 1.75 | 3.50 | 4.00 | 2.00 | 2.00 | 8.00 |

DFN/FBP(1.0×0.6) Tape Leader and Trailer



DFN/FBP(1.0×0.6) Reel



| Dimensions are in millimeter | | | | | | | | |
|------------------------------|---------|-------|-------|--------|--------|-------|------|-------|
| Reel Option | D | D1 | D2 | G | H | I | W1 | W2 |
| 7" Dia | Ø178.00 | 54.40 | 13.00 | R78.00 | R25.60 | R6.50 | 9.50 | 12.30 |

| REEL | Reel Size | Box | Box Size(mm) | Carton | Carton Size(mm) | G.W.(kg) |
|-----------|-----------|-------------|--------------|-------------|-----------------|----------|
| 10000 pcs | 7 inch | 150,000 pcs | 203×203×195 | 600,000 pcs | 438×438×220 | |

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