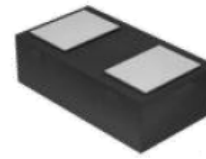


Transient Voltage Suppressor

Features

- IEC 61000-4-2(ESD) $\pm 20\text{KV}$ (air), $\pm 15\text{KV}$ (contact)
- IEC61000-4-5(Lightning) 3.0A (8/20 μS)
- IEC61000-4-4(EFT) 40A (5/50nS)
- 60 Watts peak pulse power ($t_p=8/20\mu\text{S}$)
- Low capacitance: 0.30pF (Typical)
- Low clamping voltage
- Weight approx. 1.0 mg
- Small package: DFN1006-2L

Exterior



DFN1006-2L


Application information

- Serial ATA
- Desktops, Servers and Notebooks
- Cellular Phones
- MDDI Ports
- USB2.0 Data Line Protection
- Display Ports
- HDMI

Package (top view)



Agency Approvals

| Icon | Description |
|---|------------------------------------|
| RoHS | Compliance with 2011/65/EU |
| HF | Compliance with IEC61249-2-21:2003 |
|  | Mean lead free |

Schematic



Part Number and Electrical Parameter

| Part Number | $I_{\text{DRM}}@V_{\text{DRM}}$ | | $V_{\text{BR}}^{\text{①}}@I_{\text{R}}$ | | $V_{\text{c}}@I_{\text{pp}}^{\text{②}}$ | | $V_{\text{c}}@I_{\text{pp}}^{\text{②}}$ | | $\text{Co}^{\text{③}}$ | |
|-------------|---------------------------------|---|---|----|---|---|---|-----|------------------------|-----|
| | μA | V | V | mA | V | A | V | A | pF | |
| | MAX | | MIN | | MAX | | MAX | | TYP | MAX |
| BV-FA05UCF | 0.5 | 5 | 6 | 1 | 12 | 1 | 20 | 3.0 | 0.3 | 0.4 |

Absolute maximum ratings measured at $T=25^{\circ}\text{C}$ RH = 45%-75% (unless otherwise noted).

- ① VBR is measured at $I_{\text{R}}=1\text{mA}$
- ② Surge Waveform: 8/20 μS .
- ③ Off-state capacitance is measured in $V_{\text{DC}}=0\text{V}$, $V_{\text{RMS}}=0.3\text{V}$, $f=1\text{MHz}$

Transient Voltage Suppressor

Part Numbering System

Mark

BV FA 05 U C F
(1) (2) (3) (4) (5) (6)

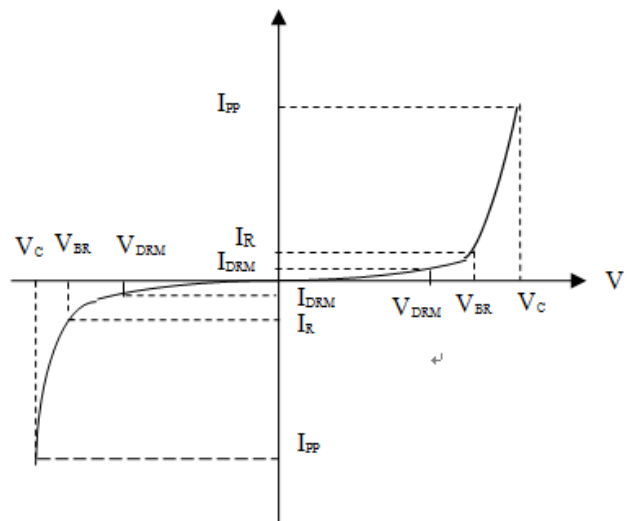
- (1) Bencent Transient Voltage Suppressor
- (2) Package:DFN1006-2L
- (3) Off-state Voltage: 5V
- (4) Low Capacitance
- (5) Bidirectional
- (6) Bencent internal code



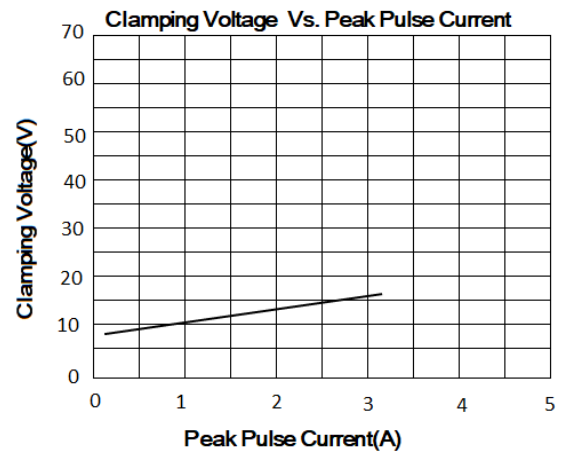
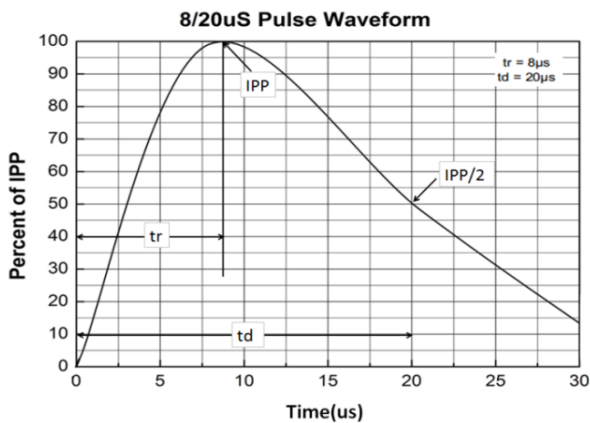
5T: Part Number

V-I Curve

| Parameters | Definition |
|------------|------------------------------|
| V_C | Clamping voltage |
| I_{PP} | Surge waveform 8/20 μ s |
| V_{DRM} | Stand-off Voltage |
| V_{BR} | Breakdown Voltage |
| I_{DRM} | Reverse Leakage Current |
| I_R | Test current |
| P_{PP} | Peak Pulse Power Dissipation |

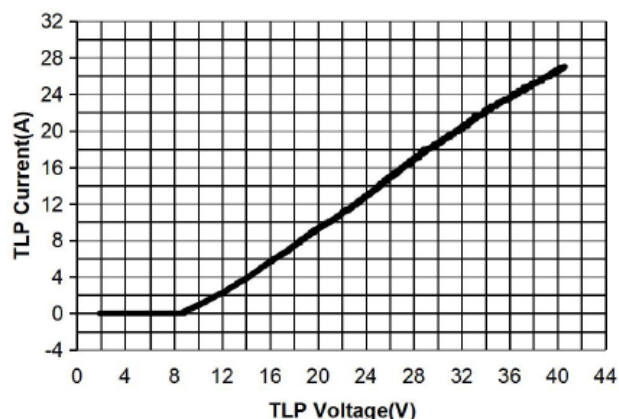
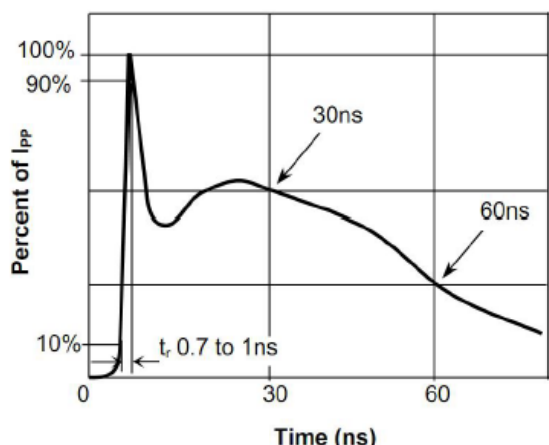


Typical Characteristics



Transient Voltage Suppressor

Version: A2 2021-5-17



Thermal Considerations

| symbol | Parameter | Value | Unit |
|--------|--------------------------------------|-------------|------|
| T_j | Operating Junction Temperature Range | -55 to +125 | °C |
| T_s | Storage Temperature Range | -55 to +150 | °C |

Environmental Characteristics

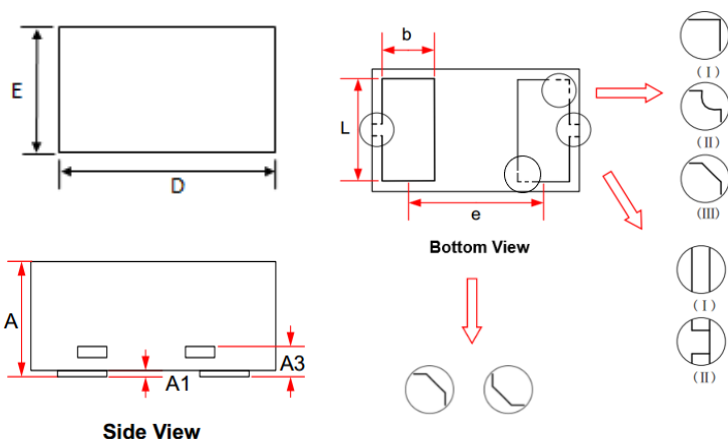
| Testing items | Technical standards |
|---------------------------------------|--|
| High temperature Reverse Bias Test | Temperature: $125 \pm 3^\circ\text{C}$ Bias= $80\%V_{DRM}$ Time:168H |
| High Temperature Life Test | Temperature: 150°C Time:168H |
| High-low Temperature Cycle test | Temperature: From -40°C to 125°C Dwell time : 30min, 10~100cycles |
| High Temperature & High Humidity Test | Temperature: 85°C Humidity: 85% Time:168H |
| Pressure cooker Test | Temperature: 121°C , 2atm. Humidity: 100% Time:24H |
| Resistance of soldering heat | Temperature: $260 \pm 5^\circ\text{C}$ Time of dip soldering: 10s, 3times |

Note: The above testing items can be specified by customer's special request

Transient Voltage Suppressor

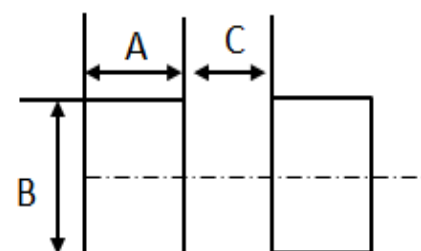
Version: A2 2021-5-17

Product Dimensions



| REF | mm | inch |
|-----|-----------|-------------|
| A | 0.32~0.55 | 0.014~0.022 |
| A1 | 0.00~0.05 | 0.000~0.002 |
| A3 | 0.125REF | 0.005REF |
| D | 0.95~1.10 | 0.037~0.043 |
| E | 0.55~0.70 | 0.022~0.028 |
| L | 0.45~0.55 | 0.018~0.022 |
| e | 0.65BSC | 0.026BSC |
| b | 0.15~0.35 | 0.006~0.014 |

Recommended Soldering Pad

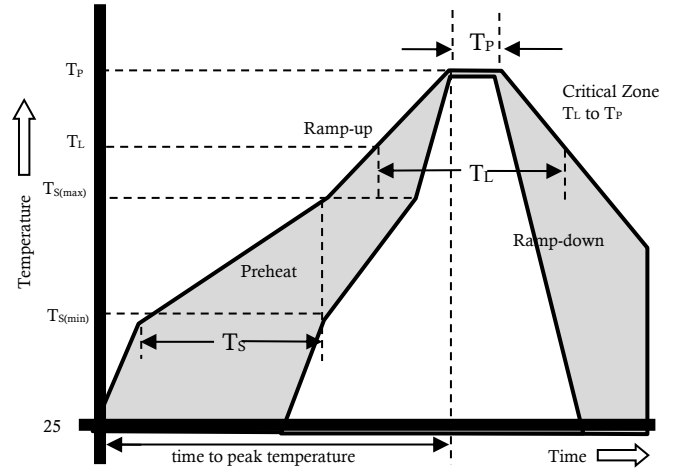


| REF | mm | inch |
|-----|------|-------|
| A | 0.35 | 0.014 |
| B | 0.60 | 0.024 |
| C | 0.35 | 0.014 |

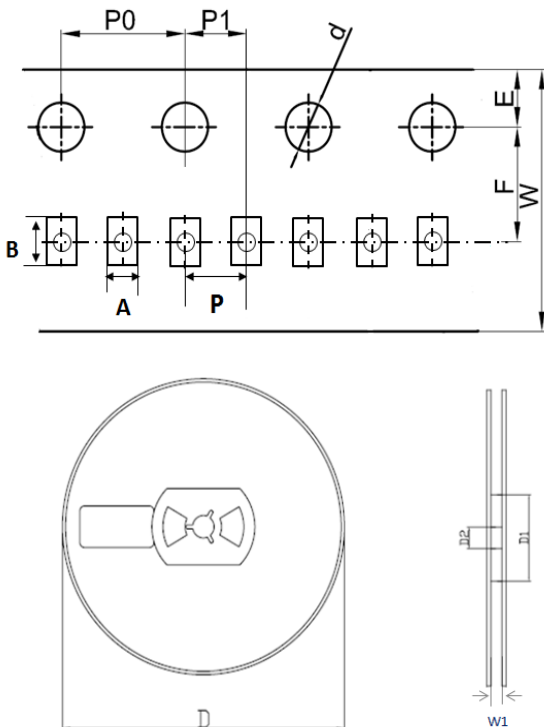
Transient Voltage Suppressor

Reflow Profile

| Reflow Condition | | Pb-Free assembly |
|--|--|------------------|
| Pre Heat | Temperature Min | 150°C |
| | Temperature Max | 200°C |
| | Time (min to max) | 60 – 180 secs |
| Average ramp up rate (Liquid) | | 3°C/s max |
| Tamp (T _L) to peak | | 3°C/s max |
| T _S (max) to T _L - Ramp-up Rate | | 3°C/s max |
| Reflow | - Temperature (T _L) (Liquid) | 217°C |
| | - Temperature (T _L) | 60 – 150 secs |
| Peak Temperature (T _P) | | 260±0/-5 °C |
| Time within 5°C of actual peak Temperature (T _P) | | 30secs |
| Ramp-down Rate | | 6°C/s max |
| Time 25°C to peak Temperature (T _P) | | 8 mins max. |
| Do not exceed | | 260°C |



Package Reel Information



| REF | mm | inch |
|-----|---------------|----------------|
| A | 0.70+/-0.05 | 0.028+/-0.002 |
| B | 1.15+/-0.05 | 0.045+/-0.002 |
| d | 1.50+0.1/-0 | 0.059+0.004/-0 |
| D | 178.00+/-2.00 | 7.008+/-0.079 |
| D1 | 55.00+/-3.00 | 2.165+/-0.118 |
| D2 | 13.00+/-0.50 | 0.512+/-0.020 |
| E | 1.75+/-0.10 | 0.069+/-0.004 |
| F | 3.50+/-0.20 | 0.138+/-0.008 |
| P | 2.00+/-0.20 | 0.079+/-0.008 |
| P0 | 4.00+/-0.20 | 0.157+/-0.008 |
| P1 | 2.00+/-0.20 | 0.079+/-0.008 |
| W | 8.00+/-0.20 | 0.315+/-0.008 |
| W1 | 9.50+/-1.00 | 0.374+/-0.039 |

| OUTLINE | REEL (PCS) | PER CARTON (PCS) | REEL DIAMETERS (mm) | CARTON SIZE(mm) | | |
|---------|------------|------------------|---------------------|-----------------|-----|-----|
| | | | | L | W | H |
| TAPING | 10,000 | 300,000 | 178 | 390 | 370 | 220 |

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