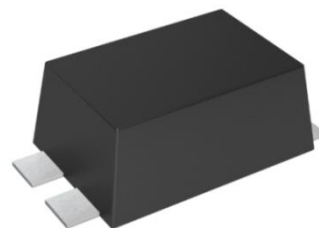


Transient Voltage Suppressor
Features

- IEC 61000-4-2(ESD) ± 15KV(air), ± 8KV(contact)
- Small size: SMB-T
- Surge rating 1KA@8/20us
- Bi-directional
- Moisture sensitivity level: Level 1

Exterior

Application Information

- DC12V

Agency Approvals

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

Part Number and Electrical Parameter

| Part Number | I _{DRM} @V _{DRM} | | V _{BR} ^① @I _R | | V _c @I _{pp} ^② | | I _{pp} ^③ | Co ^④ |
|--------------|------------------------------------|----|--|----|--|---|------------------------------|-----------------|
| | μA | V | V | mA | V | A | A | PF |
| | MAX | | MIN | | MAX | | MIN | MAX |
| BV-SMBT-20CA | 1 | 20 | 22.2 | 1 | 24.5 | 1 | 1000 | 2500 |

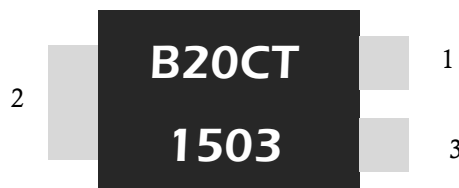
Absolute maximum ratings measured at T= 25°C RH = 45%-75% (unless otherwise noted).

- ① V_{BR} is measured at I_R=1Ma (PIN1or3 to 2)
- ② Surge Waveform: 10/1000μS (PIN1and3 to 2)
- ③ Surge Waveform: 8/20μS (PIN1and3 to 2)
- ④ Off-state capacitance is measured in V_{DC}=0V, V_{RMS}=1V, f=1MHz (PIN1and3 to 2)

Part Numbering System

BV SMBT 20 C A
 (1) (2) (3) (4) (5)

- (1) Bencent TVS
- (2) Package: SMB-T
- (3) VDRM=20V
- (4) Bidirectional polar
- (5) Suffix 'A' denotes 5% tolerance devices

Mark


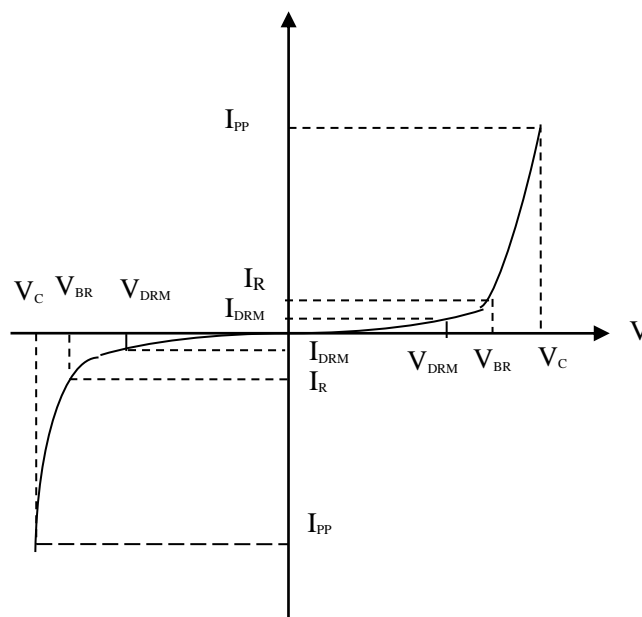
B20CT: Part Number
 1503: March, 2015

Transient Voltage Suppressor

Version: A3 2021-03-12

V-I Curve

| Parameters | Definition |
|------------|--------------------------------|
| V_C | Clamping voltage |
| I_{PP} | Surge waveform 10/1000 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 |


Thermal Considerations

| symbol | Parameter | Value | Unit |
|--------|--------------------------------------|-------------|--------------|
| T_J | Operating Junction Temperature Range | -55 to +150 | $^{\circ}$ C |
| T_S | Storage Temperature Range | -55 to +150 | $^{\circ}$ C |

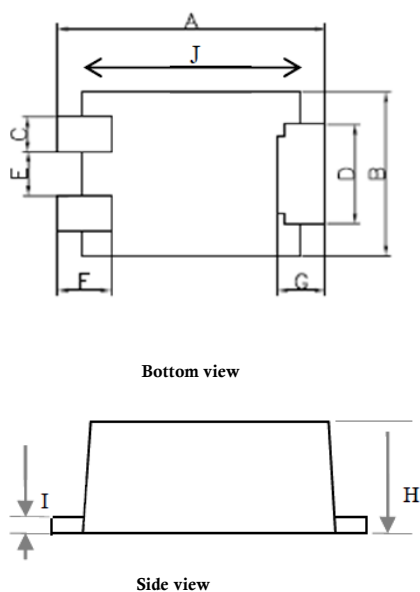
Environmental Characteristics

| Testing Items | Technical Standards |
|---------------------------------------|--|
| High Temperature Reverse Bias Test | Temperature: $150 \pm 3^{\circ}$ 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, 10-100 cycles |
| High Temperature & High Humidity Test | Temperature: 85° C Humidity: 85% Test time: 168H |
| Pressure Cooker Test | Temperature: 121° C, 2atm. Humidity: 100% Test time: 24H to 168H |
| Resistance of Soldering Heat | Temperature: $260 \pm 5^{\circ}$ C Time of dip soldering: 10s, 3times |

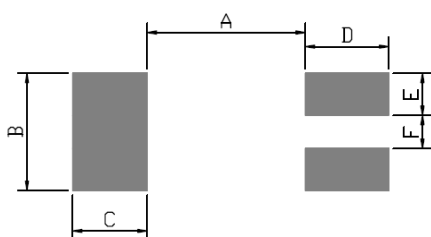
Note: The above testing items can be specified by customers by contacting Bencent service

Transient Voltage Suppressor

Version: A3 2021-03-12

Product Dimensions


| REF | mm | inch |
|-----|-----------|-------------|
| A | 5.4±0.15 | 0.213±0.006 |
| B | 3.3±0.3 | 0.130±0.012 |
| C | 0.7±0.03 | 0.028±0.001 |
| D | 2.0±0.2 | 0.079±0.008 |
| E | 0.9±0.2 | 0.035±0.008 |
| F | 0.9±0.3 | 0.035±0.012 |
| G | 0.9±0.3 | 0.035±0.012 |
| H | 2±0.3 | 0.079±0.012 |
| I | 0.25±0.05 | 0.010±0.002 |
| J | 4.4±0.2 | 0.173±0.008 |

Recommended Soldering Pad


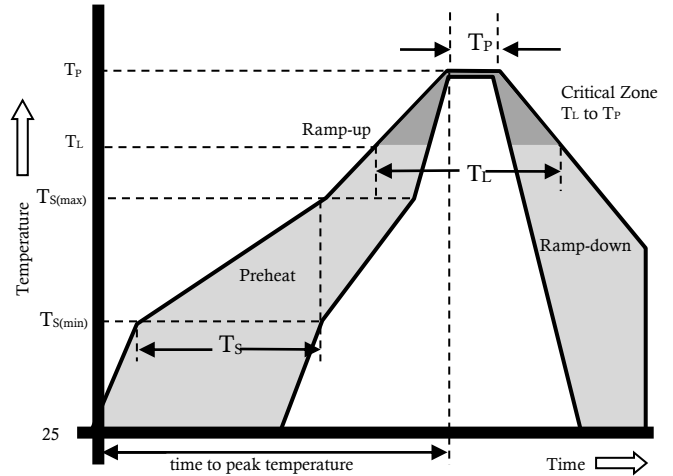
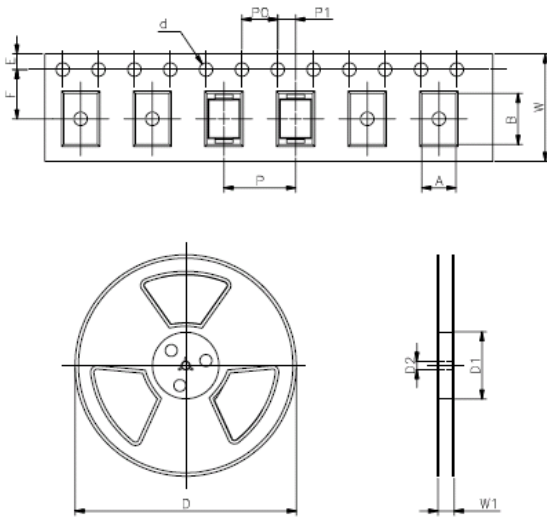
| REF | mm | inch |
|-----|------|-------|
| A | 3.35 | 0.132 |
| B | 2.3 | 0.091 |
| C | 1.2 | 0.047 |
| D | 1.15 | 0.045 |
| E | 1 | 0.039 |
| F | 0.6 | 0.024 |

Transient Voltage Suppressor

Version: A3 2021-03-12

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 (Liquidus Temp (T _L) to peak) | | 3°C/sec. Max. |
| Ts(max) to T _L - Ramp-up Rate | | 3°C/sec. Max. |
| Reflow | - Temperature (T _L) (Liquidus) | +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) | | 20 – 40 secs. |
| Ramp-down Rate | | 6°C/sec. Max. |
| Time 25°C to peak Temp (T _P) | | 8 min. Max. |
| Do not exceed | | +260°C |


Package Reel Information


| REF | mm | inch |
|-----|------------|---------------|
| A | 3.65+/-0.3 | 0.144+/-0.012 |
| B | 5.69+/-0.1 | 0.244+/-0.004 |
| d | 1.5+/-0.1 | 0.059+/-0.004 |
| D | type330.0 | type13.0 |
| D1 | 100+/-3 | 3.937+/-0.118 |
| D2 | 13+/-0.3 | 0.512+/-0.012 |
| E | 1.5+/-0.2 | 0.059+/-0.008 |
| F | 5.65+/-0.2 | 0.222+/-0.008 |
| P | 8.0+/-0.2 | 0.315+/-0.008 |
| P0 | 4.0+/-0.2 | 0.157+/-0.008 |
| P1 | 2.0+/-0.2 | 0.079+/-0.008 |
| W | 12.0+/-0.2 | 0.472+/-0.008 |
| W1 | 16.8+/-2.0 | 0.661+/-0.079 |

| OUTLINE | REEL (PCS) | PER CARTON (PCS) | REEL DIAMETERS (mm) | CARTON SIZE(mm) | | |
|---------|------------|------------------|---------------------|-----------------|-----|-----|
| | | | | L | W | H |
| TAPING | 3,000 | 48,000 | 330 | 360 | 360 | 385 |