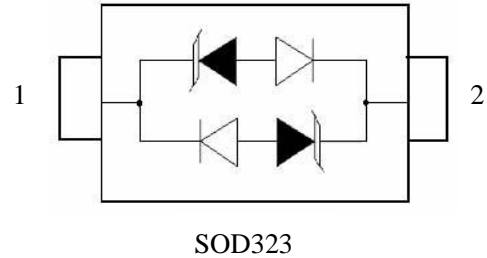


Transient Voltage Suppressor

Features

- IEC 61000-4-2(ESD) ± 30KV(air), ± 30KV(contact)
- 350Watts peak pulse power (8/20μ S)
- Ultra low capacitance: 1.5pF maximum
- Low clamping voltage
- Moisture sensitivity level: Level 1
- Weight 5.0mg
- Small package: SOD323

Exterior




SOD323

Application Information

- xDSL

Agency Approvals

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

Part Number and Electrical Parameter

| Part Number | $I_{DRM}@V_{DRM}$ | | $V_{BR}^{\textcircled{1}}@I_R$ | | $V_C@I_{pp}^{\textcircled{2}}$ | | $V_C@I_{pp}^{\textcircled{2}}$ | | I_{pp} | $Co^{\textcircled{3}}$ |
|-------------|-------------------|---|--------------------------------|----|--------------------------------|---|--------------------------------|---|----------|------------------------|
| | μA | V | V | mA | V | A | V | A | MAX | pF |
| | MAX | | MIN | | MAX | | MAX | | A | MAX |
| BV05C-H | 5 | 5 | 6 | 1 | 9.8 | 1 | 18.3 | 8 | 17 | 1.5 |

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

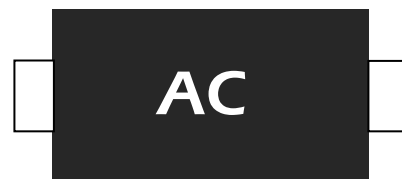
- ① V_{BR} is measured at $I_R=1mA$
- ② Surge Waveform: 8/20us.
- ③ Off-state capacitance is measured in $V_{DC}=0V, V_{RMS}=0.3V, f=1MHz$.

Part Numbering System

BV 05 C H
 (1) (2) (3) (4)

- (1) Bencent Transient Voltage Suppressor
- (2) Series: 05 etc.
- (3) Bidirectional TVS
- (4) Bencent internal code

Mark

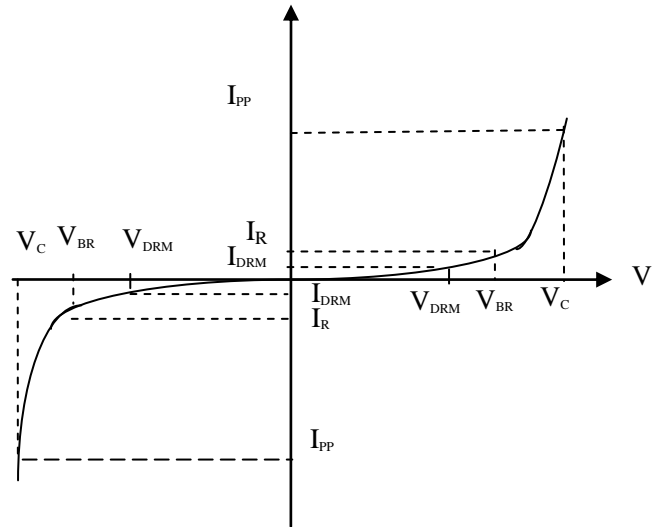


AC: Part Number

Transient Voltage Suppressor

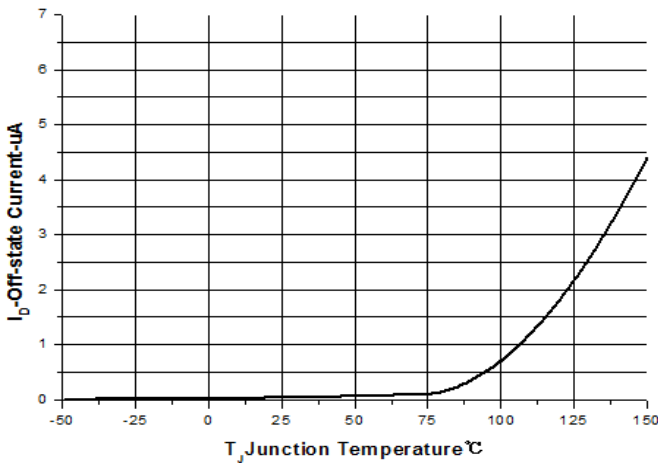
V-I Curve

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

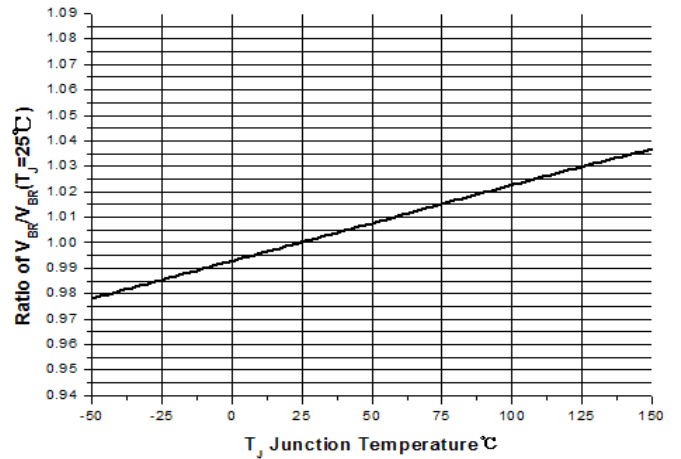


Typical Characteristics

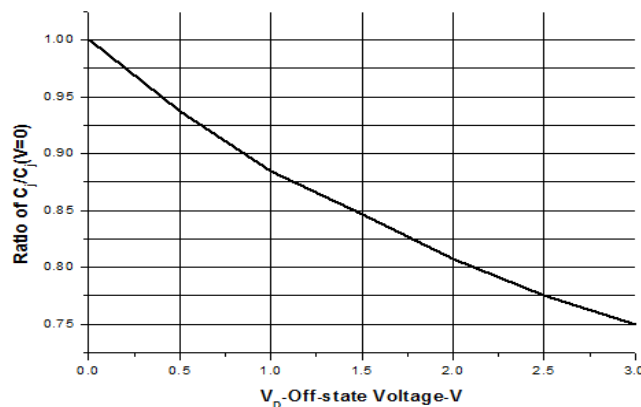
Off-state Current VS Junction Temperature



Breakdown Voltage VS Junction Temperature



Typical Junction Capacitance(f=1MHz)



Thermal Considerations

| symbol | Parameter | Value | Unit |
|--------|--------------------------------------|-------------|------|
| T_J | Operating Junction Temperature Range | -55 to +150 | °C |
| T_S | Storage Temperature Range | -55 to +150 | °C |

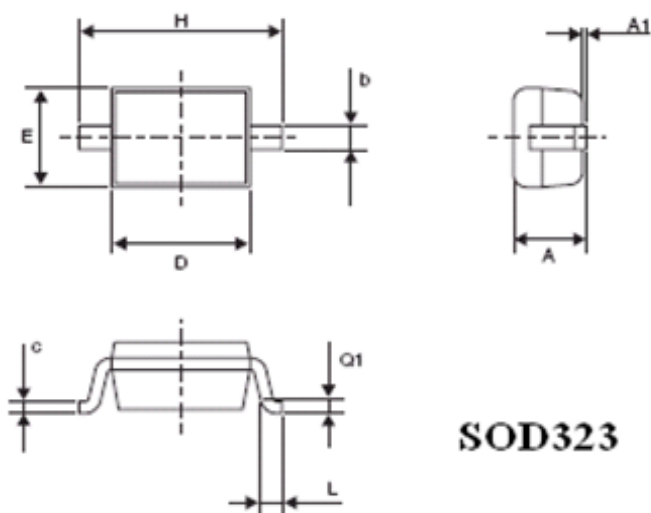
Transient Voltage Suppressor

Version: A1 2019-11-15

Environmental Characteristics

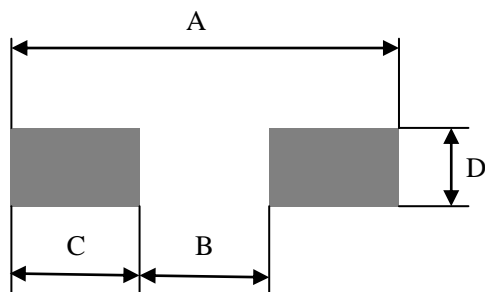
| Testing items | Technical standards |
|--------------------------------------|---|
| High temperature Reverse Bias Test | Temperature: $150\pm 3^{\circ}\text{C}$ Bias= $80\%V_{\text{DRM}}$ Time:168H |
| High Temperature Life Test | Temperature: 150°C Time:168H |
| High-low Temperature Cycle test | 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
Product Dimensions



| REF | mm | inch |
|-----|----------------|-------------------|
| A | 1.17(max) | 0.046(max) |
| A1 | 0.10(max) | 0.004(max) |
| b | 0.34 ± 0.10 | 0.013 ± 0.0039 |
| c | 0.17 ± 0.08 | 0.007 ± 0.0032 |
| D | 1.66 ± 0.14 | 0.065 ± 0.0055 |
| E | 1.28 ± 0.17 | 0.050 ± 0.0067 |
| H | 2.5 ± 0.2 | 0.098 ± 0.0079 |
| L | 0.28 ± 0.18 | 0.011 ± 0.0071 |
| Q1 | 0.25 ± 0.15 | 0.010 ± 0.0059 |

Recommended Soldering Pad



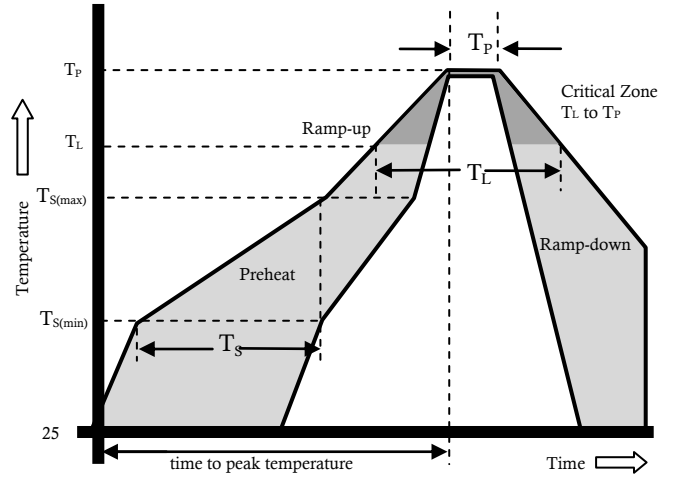
| REF | mm | inch |
|-----|------|-------|
| A | 3.20 | 0.126 |
| B | 1.08 | 0.043 |
| C | 1.06 | 0.042 |
| D | 0.54 | 0.021 |

Transient Voltage Suppressor

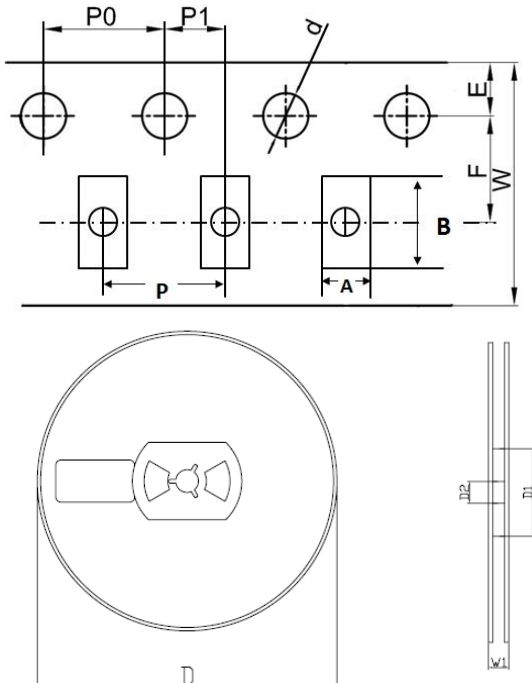
Version: A1 2019-11-15

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) | | 25 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 | 1.46+/-0.1 | 0.057+/-0.004 |
| B | 3.10+/-0.3 | 0.122+/-0.012 |
| d | 1.50+/-0.1 | 0.059+/-0.004 |
| D | 178+/-1.0 | 7.008+/-0.039 |
| D1 | 55+/-3 | 2.165+/-0.118 |
| D2 | 13+/-0.5 | 0.512+/-0.020 |
| E | 1.75+/-0.1 | 0.069+/-0.004 |
| F | 3.5+/-0.2 | 0.138+/-0.008 |
| P | 4.0+/-0.2 | 0.157+/-0.008 |
| P0 | 4.0+/-0.2 | 0.157+/-0.008 |
| P1 | 2.0+/-0.2 | 0.079+/-0.008 |
| W | 8.0+/-0.2 | 0.315+/-0.008 |
| W1 | 12.3+/-1.0 | 0.484+/-0.039 |

| Outline | Reel (pcs) | Per Carton (pcs) | Reel Diameters (mm) | Carton Size(mm) | | |
|---------|------------|------------------|---------------------|-----------------|-----|-----|
| | | | | L | W | H |
| Taping | 3,000 | 90,000 | 177 | 390 | 370 | 220 |