

Features

- Excellent capability of absorbing transient surge
- Quick response to surge voltage (nS Level)
- Eliminates overvoltage caused by fast rising transients
- Moisture sensitivity level: Level 1
- Weight 88 mg
- Non degenerative

Exterior



SMB-T

Application information

- RS485/232/422

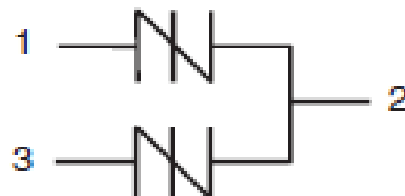
Package (Top View)



Agency Approvals

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

Schematic Symbol



Part Number and Electrical Parameter

| Part Number | IDRM@ VDRM | | Vs ^① @ Is | | VT@ IT | | IH | Co ^② |
|-------------|------------|----------|----------------------|-----|--------|-----|-----|-----------------|
| | μA | V | V | mA | V | A | mA | pF |
| | MAX | Pin1,3-2 | Pin1,3-2 | | MAX | | MIN | MAX |
| BS0300N-2C | 5 | 25 | 40 | 800 | 4 | 2.2 | 50 | 100 |

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

① Vs is measured at 100KV/S

② Off-state capacitance is measured at VDC=2V, VRMS=1V, f=1MHz

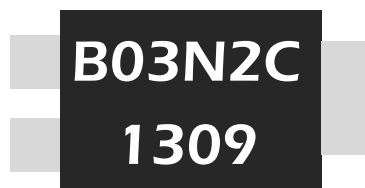
Thyristor Surge Suppressor

Part Numbering System

BS 0300 N 2 C
(1) (2) (3) (4) (5)

- (1) Bencent Semiconductor Surge Arrester
- (2) Off state voltage, e.g: 0300 = $30 \times 10^0 = 30V$.
- (3) Package : SMB-T
- (4) 2 Lines Protection
- (5) Rating Surge Voltage: 6KV(10/700 μ S)

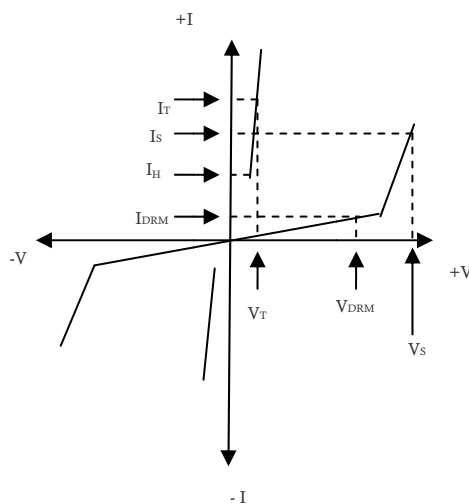
Mark



B03N2C: Part Number
1309 : Septempter, 2013

V-I Curve

| Parameters | Definition |
|------------------|------------------------|
| V _{DRM} | Peak off-state voltage |
| I _{DRM} | Off-state Current |
| V _S | Switching Voltage |
| I _S | Switching Current |
| I _H | Holding Current |
| V _T | On-state voltage |
| I _T | On-state current |
| C _O | Off-state capacitance |



Surge Ratings

| | | | | | |
|------------------|--------------|----------------|----------------|-----------------|-----------------|
| Current Waveform | 2/10 μ s | 8/20 μ s | 10/160 μ s | 5/320 μ s* | 10/1000 μ s |
| Voltage Waveform | 2/10 μ s | 1.2/50 μ s | 10/160 μ s | 10/700 μ s* | 10/1000 μ s |
| I _{pp} | 500A | 400A | 200A | 150A | 100A |

-Peak pulse current rating(I_{pp}) is repetitive and guaranteed for the life of the product;

-Bencent only makes the test for 5/320 μ s@150A*(10/700 μ s@6KV), but for other IPP value derived from experience is just for reference only. Bencent will not take any obligation for these parameters, so before applying our parts, please make sure to verify the parameters listed in the above table.

Thermal Considerations

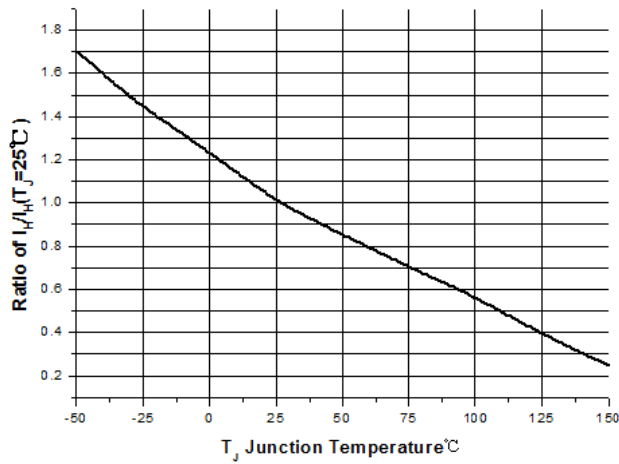
| Symbol | Parameter | Value | Unit |
|----------------|--------------------------------------|-------------|------|
| T _J | Operating Junction Temperature Range | -40 to +150 | °C |
| T _S | Storage Temperature Range | -60 to +150 | °C |

Product Characteristics

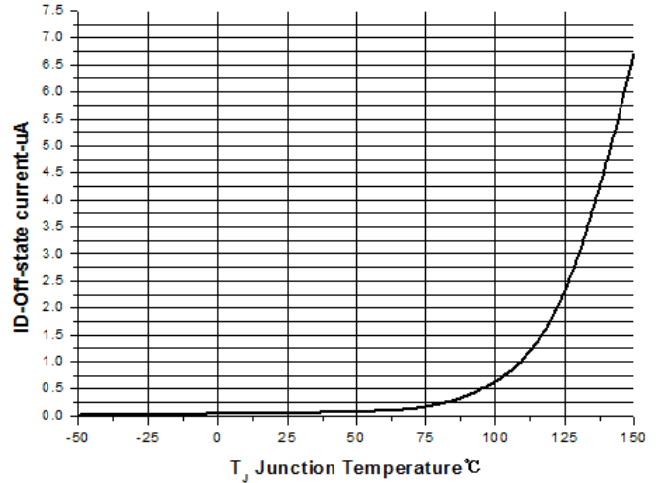
| | |
|-----------------|---|
| Lead Material | Copper Alloy |
| Body Material | UL recognized epoxy meeting flammability classification 94V-0 |
| Terminal Finish | 100% Matte-Tin Plated |

Typical Characteristics

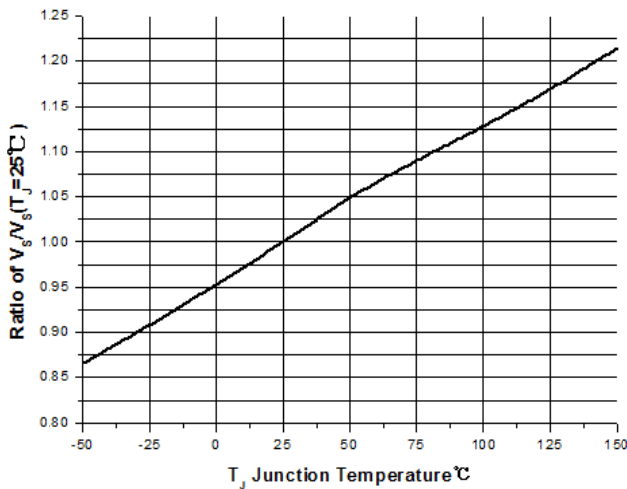
Normalized holding current VS Junction Temperature



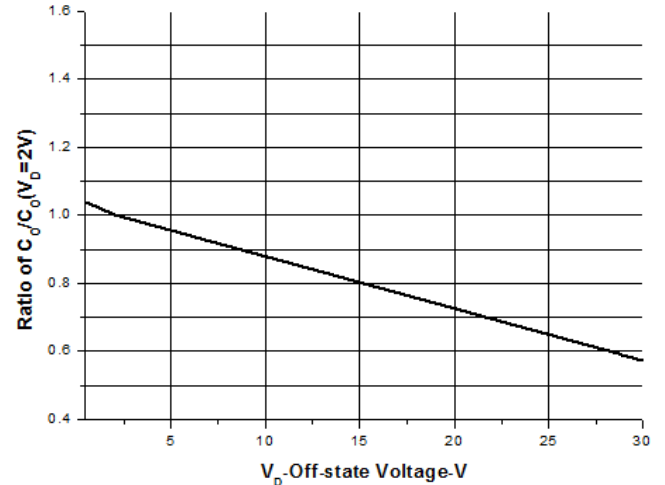
Off-state current VS Junction Temperature



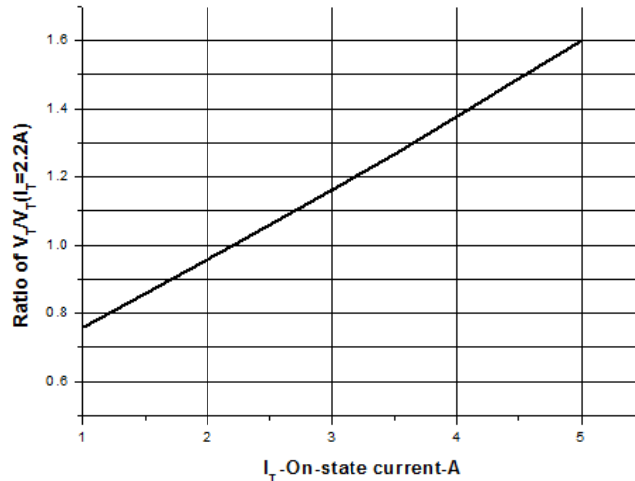
Switching Voltage VS Junction Temperature



Capacitance Normalized VS Off-state Voltage



On-state voltage VS On-state current



Thyristor Surge Suppressor

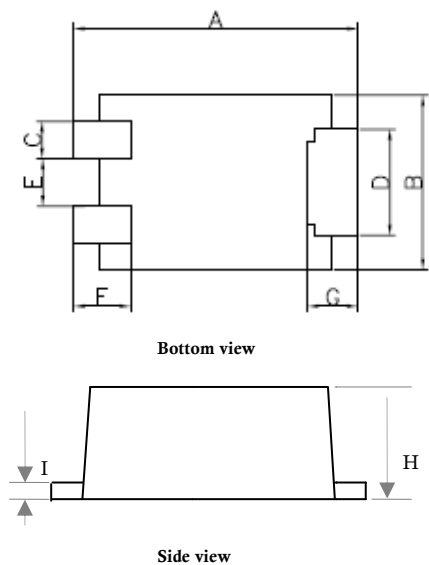
Version: A0 2013-11-22

Environmental Characteristics

| Testing items | Technical standards |
|--------------------------------------|--|
| High temperature Reverse Bias Test | Temperature: 150±3°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 to125°C Dwell time : 30min,10cycles |
| 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 |
| Resistance of soldering heat | Temperature: 260±5°C Time of dip soldering: 10s, 3times |

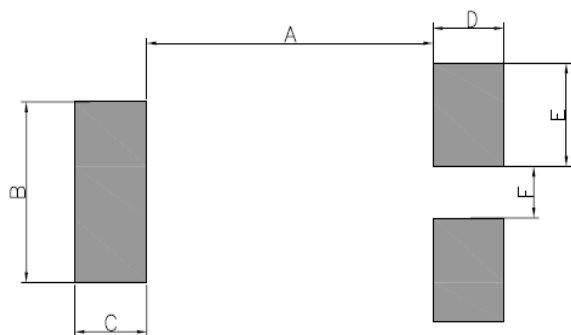
Note: The above testing items can be specified by customer's special request

Product Dimensions



| REF | mm | inch |
|-----|-----------|-------------|
| A | 5.4±0.3 | 0.213±0.012 |
| 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 | 1.32±0.3 | 0.052±0.012 |
| G | 1.13±0.3 | 0.045±0.012 |
| H | 2±0.3 | 0.079±0.012 |
| I | 0.25±0.05 | 0.010±0.002 |

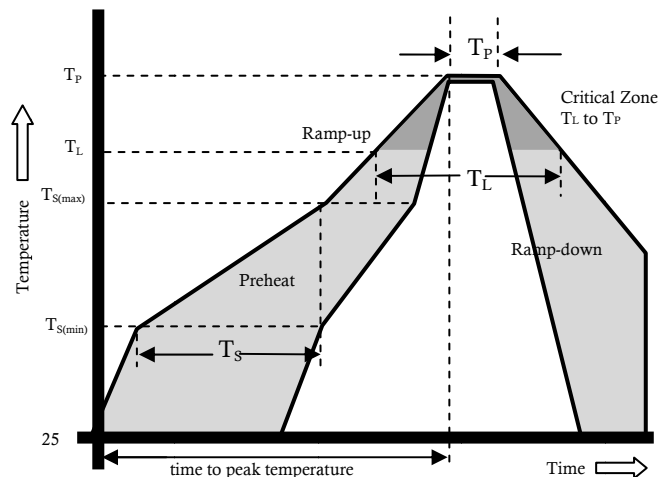
Recommended Soldering Pad



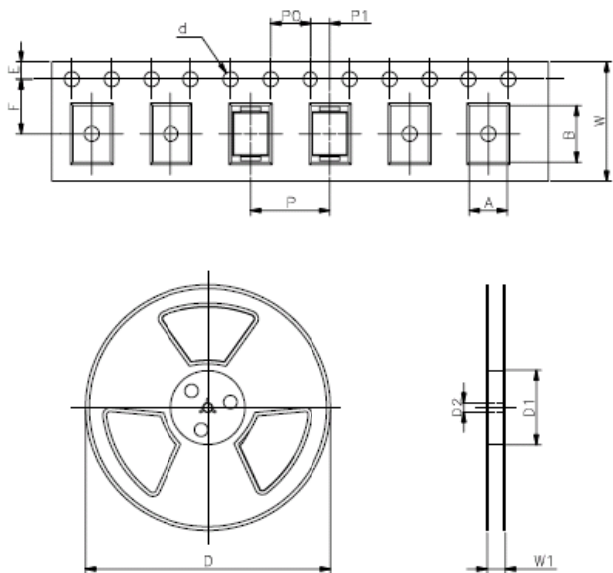
| REF | mm | inch |
|-----|-----|-------|
| A | 2.8 | 0.134 |
| B | 2.5 | 0.098 |
| C | 1.6 | 0.059 |
| D | 1.8 | 0.059 |
| E | 0.9 | 0.035 |
| F | 0.8 | 0.032 |

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) T _{amp} (T _L) to peak | | 3°C/second max |
| T _S (max) to T _L - Ramp-up Rate | | 3°C/second max |
| Reflow | - Temperature (T _L) (Liquid) | 217°C |
| | - Temperature (T _L) | 60 – 150 seconds |
| Peak Temperature (T _P) | | 260+0/-5 °C |
| Time within 5°C of actual peak Temperature (T _P) | | 8 – 15 seconds |
| Ramp-down Rate | | 6°C/second max |
| Time 25°C to peak Temperature (T _P) | | 8 minutes Max. |
| Do not exceed | | 260°C |



Package Reel Information



| REF | mm | inch |
|-----|------------|---------------|
| A | 3.65+/-0.3 | 0.144+/-0.012 |
| B | 5.69+/-0.3 | 0.244+/-0.012 |
| d | 1.5+/-0.1 | 0.059+/-0.004 |
| D | 330.0 | 13.0 |
| 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 | 24,000 | 330 | 360 | 360 | 380 |