

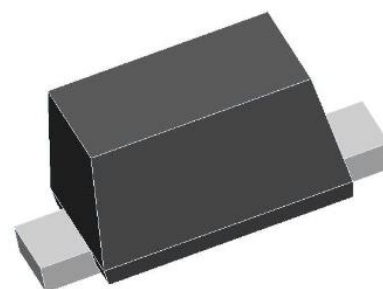
**Features**


- IEC61000-4-2(ESD)  $\pm 15\text{KV}$ (air),  $\pm 8\text{KV}$ (contact)
- IEC61000-4-5(Lightning) 10A(8/20us)
- 200 Watts peak pulse power( $t_p=8/20\text{us}$ )
- Low operating voltage and low clamping
- Moisture sensitivity level: level 1
- Small package: SOD523

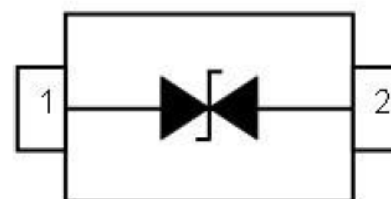
**Exterior**

**SOD523**
**Application information**

- High Speed Line: USB 1.0/2.0,VGA,DVI,SDI
- Serial and Parallel Ports
- Cellular handsets and accessories

**Package (Top View)**

**Agency Approvals**

| ICoN  | Description                         |
|---|-------------------------------------|
| RoHS  | Compliance with 2011/65/EU          |
| HF  | Compliance with IEC 61249-2-21:2003 |
|  | Mean lead free                      |

**Schematic Symbol**

**Part Number and Electrical Parameter**

| Part Number      | $I_{\text{DRM}}@V_{\text{DRM}}$ |     | $V_{\text{BR}}@I_{\text{BR}}$ |     | $V_{\text{C}}@I_{\text{PP}}^{①}$ |     | $V_{\text{C}}@I_{\text{PP}}^{①}$ |    | $C_0^{②}$ |
|------------------|---------------------------------|-----|-------------------------------|-----|----------------------------------|-----|----------------------------------|----|-----------|
|                  | $\mu\text{A}$                   | V   | V                             | mA  | V                                | A   | V                                | A  | pF        |
|                  | MAX                             |     | MIN                           |     | MAX                              |     | MAX                              |    | MAX       |
| <b>BV-D505ZC</b> | 1.0                             | 5.0 | 5.6                           | 1.0 | 11.6                             | 5.0 | 18.6                             | 10 | 15        |

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

① Surge Waveform: 8/20us;

② Off-state capacitance is measured in  $V_{\text{BR}}=0\text{V}$ ,  $f=1\text{MHz}$ ;

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**Part Number System**
**Mark**

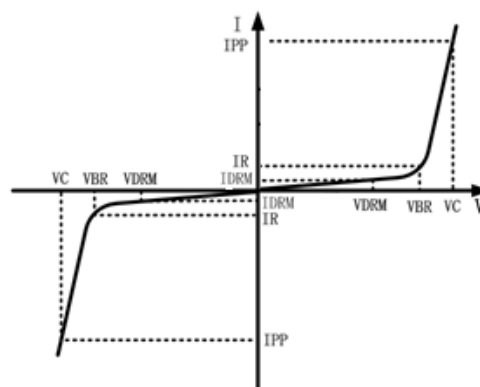
BV            D505ZC  
 (1)            (2)  
 (1) Bencent    TVS  
 (2) Series: D505ZC etc.



5C: Marking

**V-I Curve**

| Parameters | Definition                   |
|------------|------------------------------|
| $V_C$      | Clamping voltage             |
| $I_{PP}$   | Peak pulse current           |
| $V_{DRM}$  | 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 | °C   |
| $T_S$  | Storage Temperature Range            | -55 to +150 | °C   |

**Environmental Characteristics**

| Testing Items                         | Technical Standards   |
|---------------------------------------|---|
| High Temperature Reverse Bias Test    | Temperature: $150 \pm 3^\circ\text{C}$ , Bias = $80\% V_{DRM}$<br>Time: 168H                  |
| High Temperature Life Test            | Temperature: $150^\circ\text{C}$<br>Time: 168H  |
| High-low Temperature Cycle Test       | Temperature: From $-40^\circ\text{C}$ to $125^\circ\text{C}$<br>Dwell time: 30min, 100 cycles |
| High Temperature & High Humidity Test | Temperature: $85^\circ\text{C}$ Humidity: 85%<br>Test time: 168H                              |
| Pressure Cooker Test                  | Temperature: $121^\circ\text{C}$ , 2atm. Humidity: 100%<br>Test time: 24H                     |
| Resistance of Soldering Heat          | Temperature: $260 \pm 5^\circ\text{C}$<br>Time of dip soldering: 10s, 3 times                 |

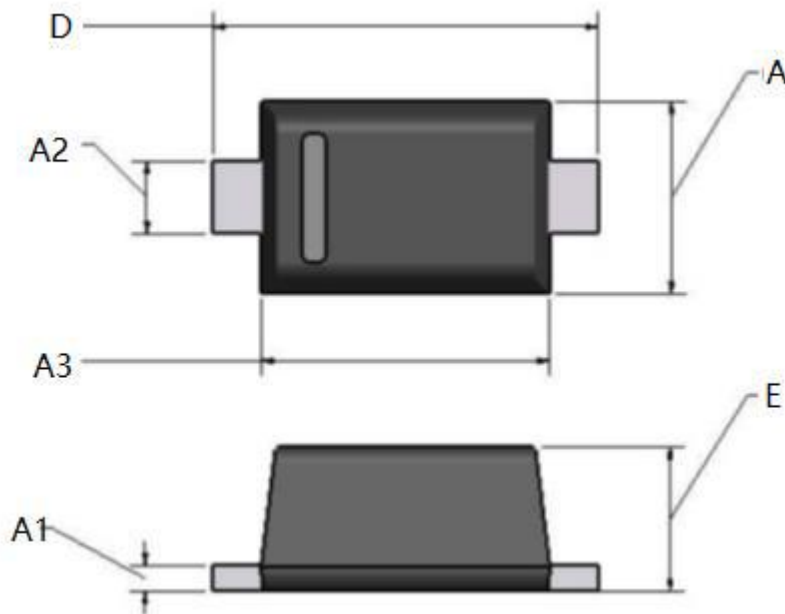
Note: The above testing items can be specified by customers by contacting Bencent service

Specifications are subject to change without notice.

Customers should verify actual device performance in their specific applications

**Transient Voltage Suppressor**

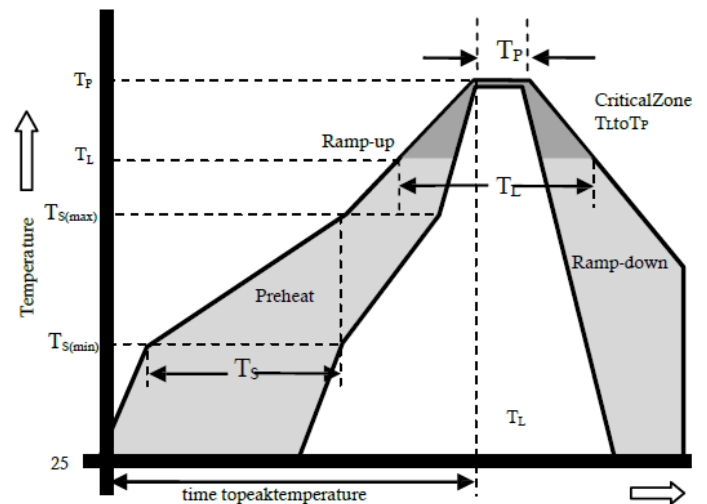
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**Product Dimensions**
**SOD523**


| Symbol | Dimensions In Millimeters |      |       |
|--------|---------------------------|------|-------|
|        | Min.                      | Typ. | Max.  |
| A      | 0.700                     | --   | 0.900 |
| A1     | --                        | --   | 0.200 |
| A2     | 0.250                     | --   | 0.350 |
| A3     | 1.100                     | --   | 1.300 |
| D      | 1.500                     | --   | 1.700 |
| E      | 0.500                     | --   | 0.700 |

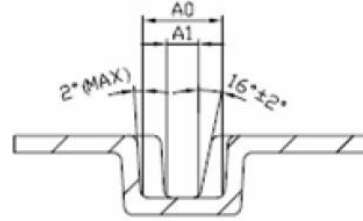
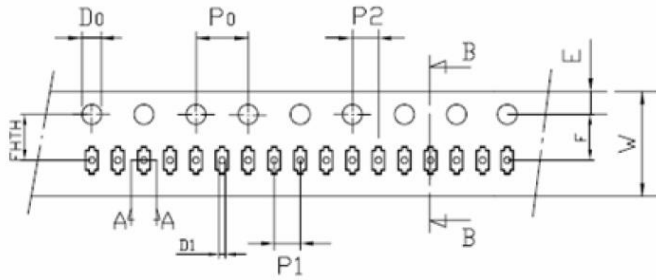
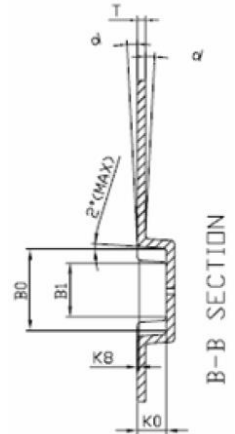
**Reflow Profile**

| Reflow Condition                                     |  | Pb-Free Assembly |
|--|--|------------------|
| Pre Heat   | Temperature Min                        | 150°C            |
|  | Temperature Max                        | 200°C            |
|  | Time (Min to Max)                      | 20 – 80 secs     |
| Average ramp up rate (Liquid)                        |  | 3°C/s Max.       |
| Temperature (T <sub>L</sub> ) to peal                |  |                  |
| T <sub>s</sub> (Max) to T <sub>i</sub> -Ramp-up Rate |  | 3°C/s Max.       |
| Reflow   | -Temperature (T <sub>i</sub> )(Liquid) | 217°C            |
|  | -Temperature (T <sub>i</sub> )         | 60 –150 secs     |
| Peak Temperature (T <sub>P</sub> )                   |  | (260+0/-5)°C     |
| Time within 5°C of actual Peak                       |  | 30 secs          |
| Temperature (T <sub>P</sub> )                        |  |                  |
| Ramp-down Rate                                       |  | 6°C/s Max.       |
| Time 25°C to peak Temperature(T <sub>P</sub> )       |  | 8 min Max        |
| Do not exceed  |  | 260°C            |

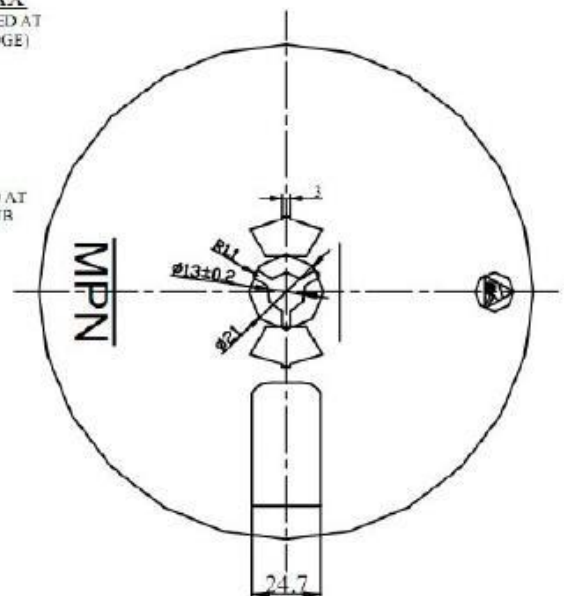
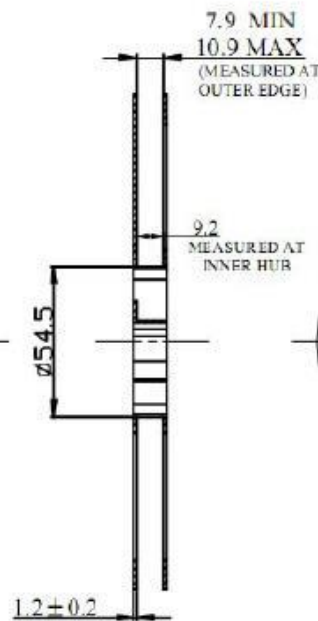
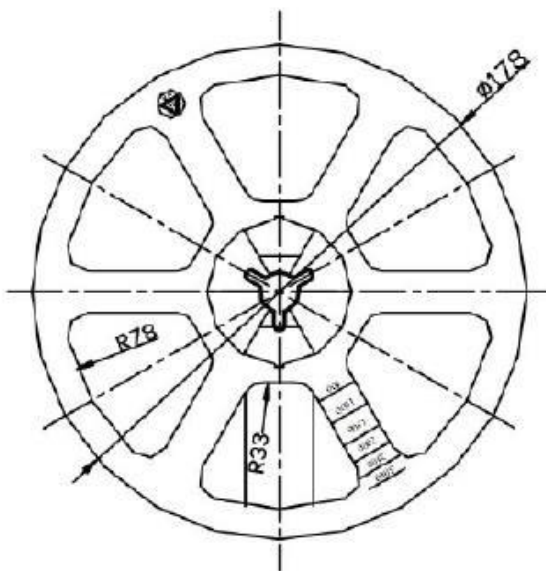


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**Package Reel Information**

 A-A SECTION  
unit:mm


|        |           |           |                                    |           |           |                                     |           |           |
|--------|-----------|-----------|------------------------------------|-----------|-----------|-------------------------------------|-----------|-----------|
| symbol | A0        | B0        | K0                                 | P0        | P1        | P2                                  | A1        | T         |
| Spec   | 0.90±0.05 | 1.95±0.05 | 0.73±0.05                          | 4.0±0.10  | 2.0±0.05  | 2.0±0.05                            | 0.39±0.05 | 0.20±0.02 |
| symbol | E         | F         | D0                                 | D1        | B2        | W                                   | 10P0      | K8        |
| Spec   | 1.75±0.10 | 3.50±0.05 | 1.50 <sup>+0.10</sup> <sub>0</sub> | 0.50±0.05 | 1.40±0.05 | 8.0 <sup>+0.3</sup> <sub>-0.1</sub> | 40.0±0.10 | 0.15MAX   |
| symbol | FHTH      |           |                                    |           |           |                                     |           |           |
| Spec   | 3.50±0.05 |           |                                    |           |           |                                     |           |           |



| Outline | Reel<br>(pcs) | Per Carton<br>(pcs) | Reel Diameters<br>(mm) | Carton Size (mm) |     |     |
|---------|---------------|---------------------|------------------------|------------------|-----|-----|
|         |               |                     |                        | L                | W   | H   |
| Taping  | 3,000         | 90,000              | 178                    | 390              | 370 | 220 |