

Features

- Ideally Suited for ESD Protection
- Small Surface Mount Package
- Excellent Clamping Capability, Fast Response Time
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**

Mechanical Data

- Case: SOD523
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Cathode Band
- Terminals: Solderable per MIL-STD-202, Method 208
- Terminals: Finish - Matte Tin annealed over Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208
- Weight: 0.001 grams (approximate)



Top View

Ordering Information (Note 3)

| Part Number | Case | Packaging |
|---------------------------|--------|------------------|
| (Type Number)-7* (Note 4) | SOD523 | 3000/Tape & Reel |

* Add "-7" to the appropriate type number in Electrical Characteristics Table on page 1 example: 5.0V TVS = T5V0S5-7.

- Notes:
1. No purposefully added lead.
 2. Diodes Inc.'s "Green" policy can be found on our website at <http://www.diodes.com>.
 3. For packaging details, go to our website at <http://www.diodes.com>.
 4. Dispensed in every other cavity of the tape.

Marking Information



xx = Product Type Marking Code
(See Electrical Characteristics Table)

Maximum Ratings @T_A = 25°C unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|---|----------------|--------------------------------|-------|
| Forward Voltage @ I _F = 10mA | V _F | 0.9 | V |
| ESD Rating | ESD | Human Body Model | 8 kV |
| | | Machine Model | 400 V |
| | | IEC61000-4-2 Air Discharge | 30 kV |
| | | IEC61000-4-2 Contact Discharge | 30 kV |

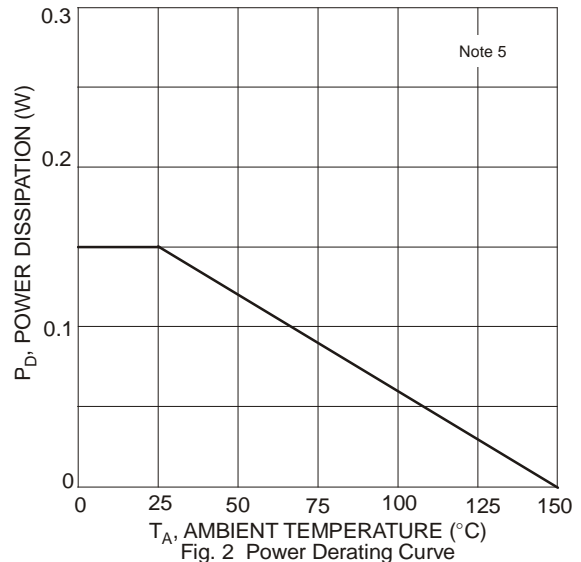
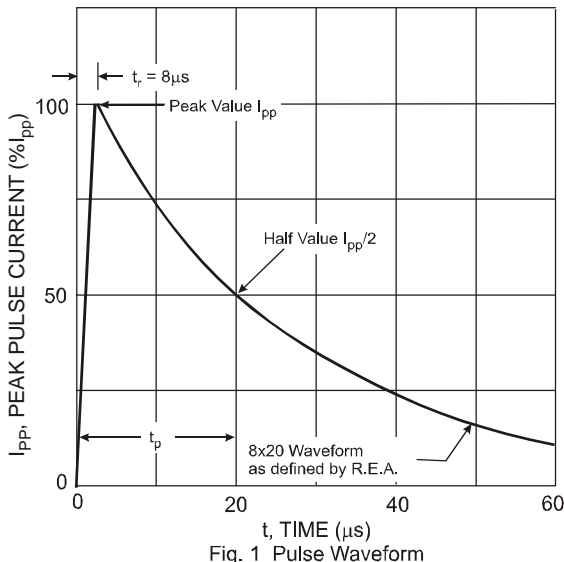
Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|--|-----------------------------------|-------------|------|
| Power Dissipation (Note 5) (See figure 2) | P _D | 150 | mW |
| Thermal Resistance, Junction to Ambient Air (Note 5) | R _{θJA} | 833 | °C/W |
| Operating and Storage Temperature Range | T _J , T _{STG} | -65 to +150 | °C |

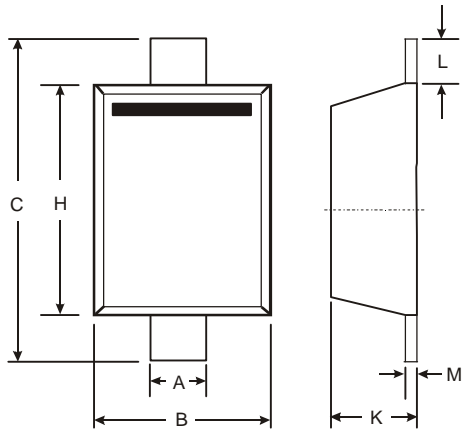
Electrical Characteristics @T_A = 25°C unless otherwise specified

| Part Number | Reverse Standoff Voltage | Min. Breakdown Voltage V _{BR} @ I _T | Test Current | Max. Reverse Leakage @ V _{RWM} (Note 6) | Typ. Clamping Voltage @ I _{PP} = 5A (t _p = 8 x 20 μs) (See figure 1) | Max. Clamping Voltage V _c @ I _{PP} (t _p = 8 x 20 μs) (See Figure 1) | Max. Clamping Voltage V _c @ I _{PP} (t _p = 8 x 20 μs) (See Figure 1) | | Peak Power Dissipation (See Figure 1) | Typical Total Capacitance V _R = 0V f = 1MHz | Marking Code | |
|-------------|--------------------------|---|---------------------|--|--|--|--|--------------------|---------------------------------------|--|--------------|---------------------|
| | V _{RWM} (V) | Min (V) | I _T (mA) | I _R (μA) | V _c (V) | V _c (V) | I _{PP} (A) | V _c (V) | I _{PP} (A) | P _{PK} (W) | | C _T (pF) |
| T3V3S5 | 3.3 | 5.0 | 1.0 | 1 | 8.4 | 14.1 | 11.2 | 16 | 16 | 220 | 85 | ED |
| T5V0S5 | 5.0 | 6.2 | 1.0 | 0.05 | 15 | 22 | 9.4 | 27 | 15 | 260 | 100 | EJ |
| T6V0S5 | 6.0 | 6.8 | 1.0 | 0.05 | 11.2 | 17 | 8.8 | 23 | 15 | 260 | 90 | EL |
| T12S5 | 12 | 14.1 | 1.0 | 0.01 | 19.7 | 25 | 9.6 | 28 | 12 | 300 | 60 | ES |

- Notes: 5. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at <http://www.diodes.com>.
6. Short duration pulse test used to minimize self-heating effect.

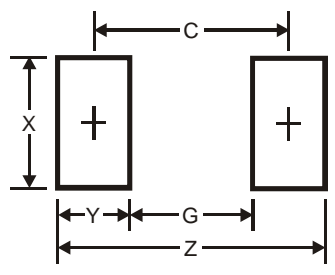


Package Outline Dimensions



| SOD523 | | |
|----------------------|------|------|
| Dim | Min | Max |
| A | 0.25 | 0.35 |
| B | 0.70 | 0.90 |
| C | 1.50 | 1.70 |
| H | 1.10 | 1.30 |
| K | 0.55 | 0.65 |
| L | 0.10 | 0.30 |
| M | 0.10 | 0.12 |
| All Dimensions in mm | | |

Suggested Pad Layout



| Dimensions | Value (in mm) |
|------------|---------------|
| Z | 2.3 |
| G | 1.1 |
| X | 0.8 |
| Y | 0.6 |
| C | 1.7 |

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