

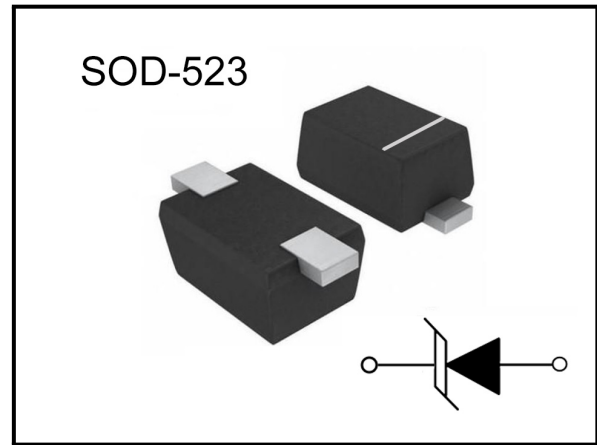
BSD5A051U

ESD Protection Diode

Features

- 72Watts peak pulse power (tp = 8/20µs)
- Unidirectional configurations
- Solid-state silicon-avalanche technology
- Low clamping Voltage
- Low leakage current
- Low capacitance (Cj=0.7pF typ.)
- IEC 61000-4-2 ±15kV contact ; ±20kV air
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 4A (8/20µs)

Package



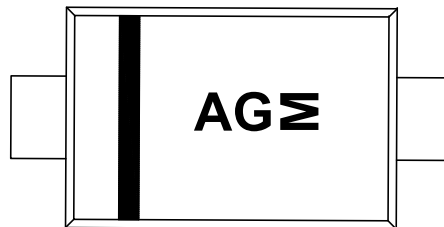
Applications

- Cell Phone Handsets and Accessories
- Microprocessor based equipment
- Personal Digital Assistants (PDA's)
- Notebooks, Desktops, and Servers
- Portable Instrumentation

Mechanical Characteristics

- SOD-523 package
- Molding compound flammability rating: UL 94V-0
- Packaging: Tape and Reel
- RoHS/WEEE Compliant

Marking



Ordering information

| Order code | Package | Base qty | Delivery mode |
|------------|---------|----------|---------------|
| BSD5A051U | SOD-523 | 5k | Tape and reel |

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Specifications are subject to change without notice.

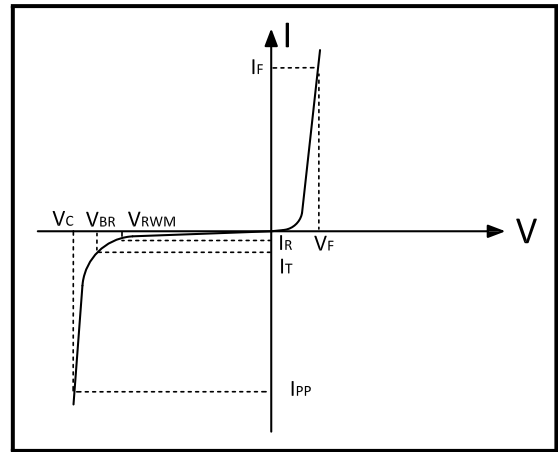
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Electrical Parameters ($T_A = 25^\circ\text{C}$ unless otherwise noted)

| Symbol | Parameter |
|-----------|-------------------------------------|
| I_{PP} | Maximum Reverse Peak Pulse Current |
| V_C | Clamping Voltage @ I_{PP} |
| V_{RWM} | Peak Reverse Working Voltage |
| I_R | Reverse Leakage Current @ V_{RWM} |
| V_{BR} | Breakdown Voltage @ I_T |
| I_T | Test Current |
| | |
| | |
| | |



Note: 8/20us pulse Waveform.

Absolute Maximum Rating

| Rating | Symler | Value | Units |
|--|-----------|----------------|------------------|
| Peak Pulse Power ($t_p = 8/20\mu\text{s}$) | P_{PP} | 72 | Watts |
| Peak Pulse Current ($t_p = 8/20\mu\text{s}$) | I_{PP} | 4.0 | A |
| ESD per IEC 61000-4-2 (Air) | V_{ESD} | 20 | KV |
| ESD per IEC 61000-4-2 (Contact) | | 15 | |
| Lead Soldering Temperature | T_L | 260(10seconds) | $^\circ\text{C}$ |
| Junction Temperature | T_J | -55 to + 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | -55 to + 150 | $^\circ\text{C}$ |

Electrical Characteristics

| Parameter | Symler | Conditions | Min | Typical | Max | Units |
|---------------------------|-----------|---|-----|---------|-----|---------------|
| Reverse Stand-Off Voltage | V_{RWM} | – | – | – | 5.0 | V |
| Reverse Breakdown Voltage | V_{BR} | $I_T = 1\text{mA}$ | 6.0 | 7.2 | 9.5 | V |
| Reverse Leakage Current | I_R | $V_{RWM} = 5\text{V}, T = 25^\circ\text{C}$ | – | – | 0.5 | μA |
| Clamping Voltage | V_C | $I_{PP} = 4\text{A}, t_p = 8/20\mu\text{s}$ | – | 14 | 18 | V |
| Junction Capacitance | C_j | $V_R = 0\text{V}, f = 1\text{MHZ}$ | – | 0.7 | 0.9 | pF |



Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

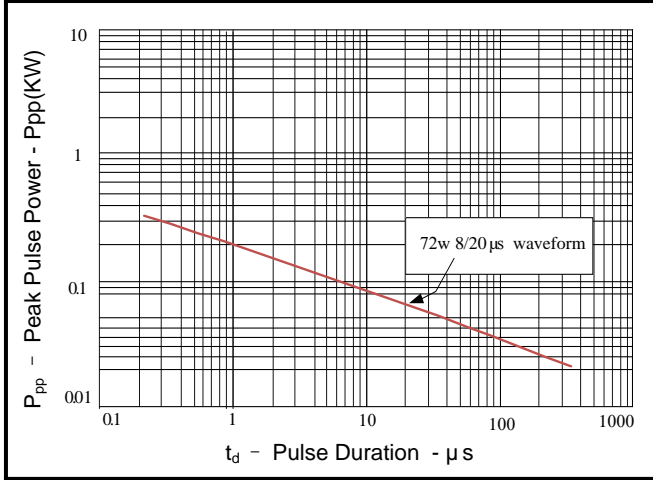


Figure 2: Power Derating Curve

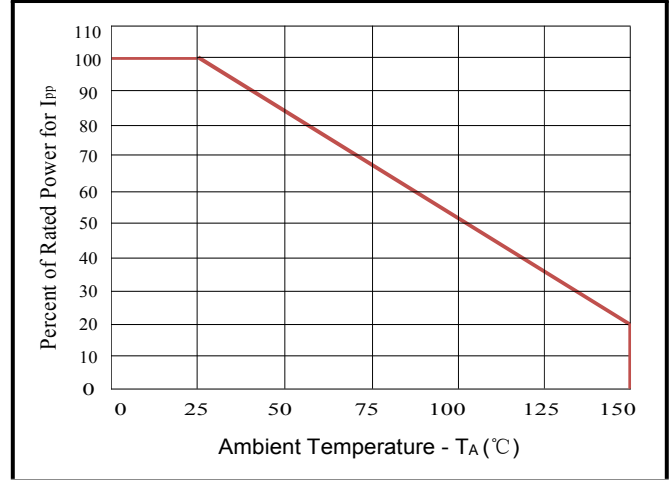


Figure 3: Pulse Waveform

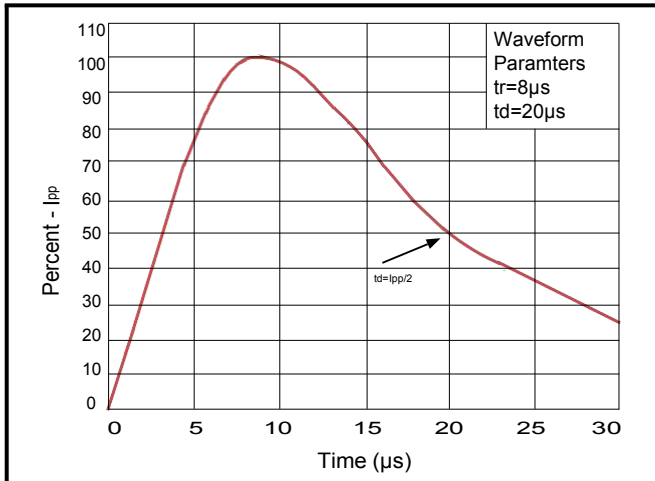
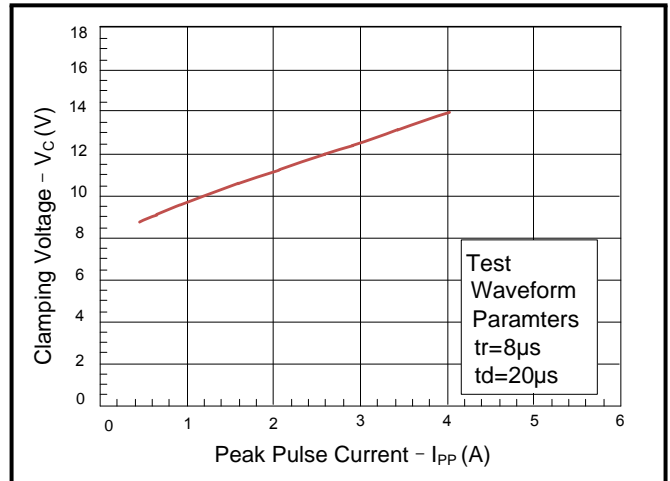


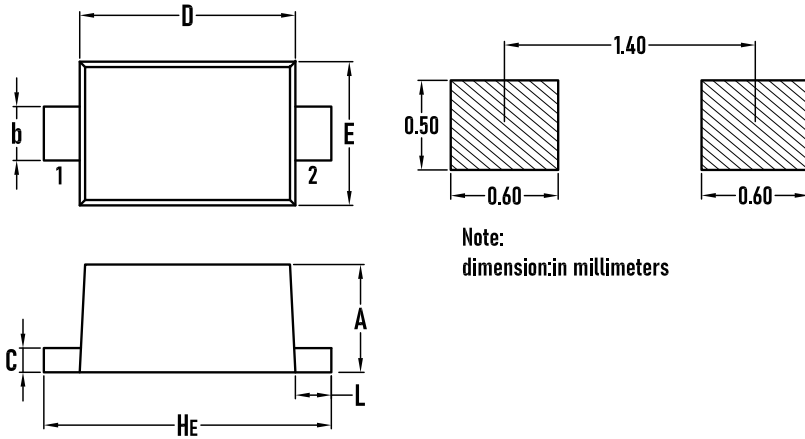
Figure 4: Clamping Voltage vs. Ipp



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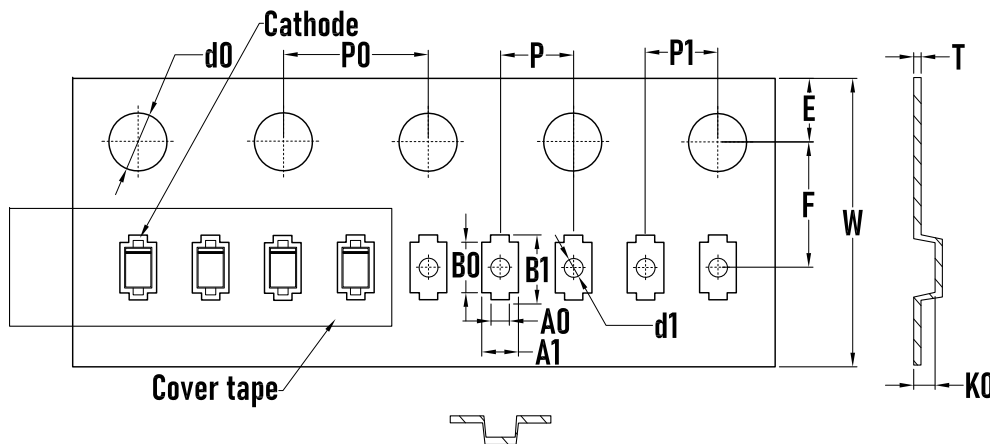
ESD Protection Diode

Outline Drawing – SOD-523



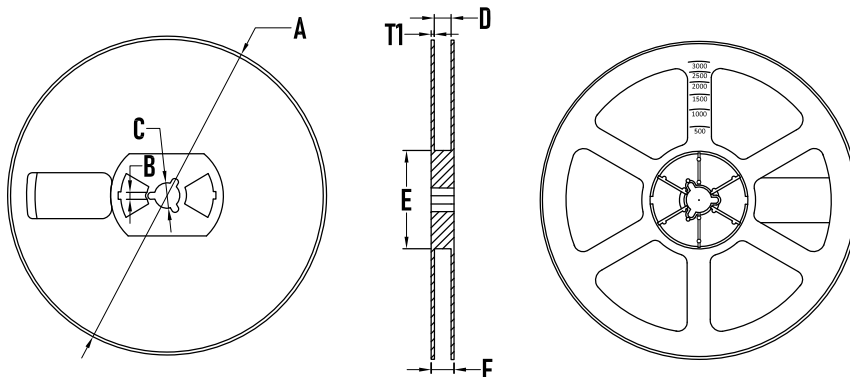
| SYMBOL | MILLIMETER | | INCHES | |
|--------|------------|------|--------|--------|
| | MIN. | MAX. | MIN. | MAX. |
| A | 0.50 | 0.70 | 0.020 | 0.028 |
| b | 0.25 | 0.35 | 0.010 | 0.014 |
| C | 0.07 | 0.20 | 0.0028 | 0.0079 |
| D | 1.10 | 1.30 | 0.043 | 0.051 |
| E | 0.70 | 0.90 | 0.028 | 0.035 |
| HE | 1.50 | 1.70 | 0.059 | 0.067 |
| L | 0.15 | 0.25 | 0.006 | 0.010 |

Packaging Tape - SOD-523



| SYMBOL | MILLIMETER |
|--------|------------|
| A0 | 0.50±0.10 |
| A1 | 1.00±0.10 |
| B0 | 1.30±0.10 |
| B1 | 1.80±0.10 |
| d0 | 1.55±0.10 |
| d1 | 0.50±0.05 |
| E | 1.75±0.10 |
| F | 3.50±0.10 |
| K0 | 0.65±0.10 |
| P | 2.00±0.10 |
| P0 | 4.00±0.10 |
| P1 | 2.00±0.10 |
| W | 8.00±0.30 |
| T | 0.2 ±0.05 |

Packaging Reel



| SYMBOL | MILLIMETER |
|----------|------------|
| A | 177.8±0.2 |
| B | 2.7±0.2 |
| C | 13.5±0.2 |
| D | 9.6±0.3 |
| E | 54.5±0.2 |
| F | 12.3±0.3 |
| T1 | 1.0±0.2 |
| Quantity | 5000PCS |

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