

STANDARD CAPACITANCE TVS ARRAY

APPLICATIONS

- ✓ Laptop Computers
- ✓ Cellular Phones
- ✓ Digital Cameras
- ✓ Personal Digital Assistant (PDA)

IEC COMPATIBILITY (EN61000-4)

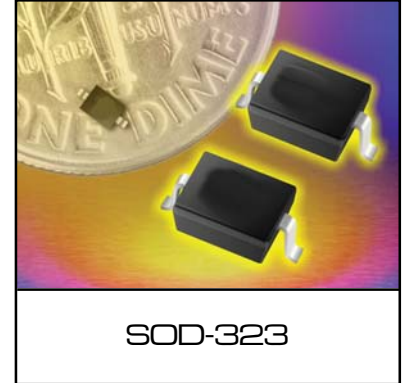
- ✓ 61000-4-2 (ESD): Air - 15kV, Contact - 8kV
- ✓ 61000-4-4 (EFT): 40A - 5/50ns
- ✓ 61000-4-5 (Surge): 24A, 8/20 μ s - Level 2(Line-Ground) & Level 3(Line-Line)

FEATURES

- ✓ Unidirectional: 500 Watts Peak Pulse Power per Line ($t_p = 8/20\mu$ s)
- ✓ Bidirectional: 400 Watts Peak Pulse Power per Line ($t_p = 8/20\mu$ s)
- ✓ Unidirectional & Bidirectional Configurations
- ✓ Replacement for MLV (0805)
- ✓ Protects One Power or I/O Port
- ✓ ESD Protection > 40 kilovolts
- ✓ Low Clamping Voltage
- ✓ Available in Multiple Voltage Types Ranging from 3V to 36V
- ✓ RoHS Compliant in Lead-Free Versions

MECHANICAL CHARACTERISTICS

- ✓ Molded JEDEC SOD-323
- ✓ Weight 5 milligrams (Approximate)
- ✓ Available in Tin-Lead or Lead-Free Pure-Tin Plating(Annealed)
- ✓ Solder Reflow Temperature:
 - Tin-Lead - Sn/Pb, 85/15: 240-245°C
 - Pure-Tin - Sn, 100: 260-270°C
- ✓ Flammability Rating UL 94V-0
- ✓ 8mm Tape and Reel Per EIA Standard 481
- ✓ Device Marking: Marking Code & Polarity Band (*Unidirectional Only*)



PIN CONFIGURATIONS



DEVICE CHARACTERISTICS

| MAXIMUM RATINGS @ 25°C Unless Otherwise Specified | | | |
|---|-----------|----------------|-------|
| PARAMETER | SYMBOL | VALUE | UNITS |
| Unidirectional: Peak Pulse Power ($t_p = 8/20\mu s$) - See Fig. 1 | P_{PP} | 500 | Watts |
| Bidirectional: Peak Pulse Power ($t_p = 8/20\mu s$) - See Fig. 1 | P_{PP} | 400 | Watts |
| Operating Temperature | T_J | -55°C to 150°C | °C |
| Storage Temperature | T_{STG} | -55°C to 150°C | °C |

| ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified | | | | | | | |
|---|----------------|--|---|--|--|---|---|
| PART NUMBER (See Notes 1-2) | DEVICE MARKING | RATED STAND-OFF VOLTAGE V_{WM} VOLTS | MINIMUM BREAKDOWN VOLTAGE @ 1mA $V_{(BR)}$ VOLTS | MAXIMUM CLAMPING VOLTAGE (See Fig. 2) @ $I_p = 1A$ V_C VOLTS | MAXIMUM CLAMPING VOLTAGE (See Fig. 2) @ 8/20 μs $V_C @ I_{PP}$ | MAXIMUM LEAKAGE CURRENT @ V_{WM} I_D μA | TYPICAL CAPACITANCE @ 0V, 1 MHz C_J pF |
| PSD03 | A | 3.3 | 4.0 | 6.5 | 10.9V @ 43.0A | 125 | 500 |
| PSD03C | G | 3.3 | 4.0 | 7.0 | 10.9V @ 39.0A | 125 | 200 |
| PSD05 | B | 5.0 | 6.0 | 9.8 | 13.5V @ 42.0A | 10 | 350 |
| PSD05C | H | 5.0 | 6.0 | 9.8 | 14.5V @ 28.0A | 10 | 175 |
| PSD08 | C | 8.0 | 8.5 | 13.4 | 16.9V @ 34.0A | 10 | 250 |
| PSD08C | J | 8.0 | 8.5 | 13.4 | 18.5V @ 17.0A | 10 | 150 |
| PSD12 | D | 12.0 | 13.3 | 19.0 | 25.9V @ 21.0A | 1 | 150 |
| PSD12C | K | 12.0 | 13.3 | 19.0 | 29.5V @ 14.0A | 1 | 50 |
| PSD15 | E | 15.0 | 16.7 | 24.0 | 30.0V @ 17.0A | 1 | 100 |
| PSD15C | L | 15.0 | 16.7 | 24.0 | 33.0V @ 12.0A | 1 | 40 |
| PSD18 | G | 18.0 | 20.0 | 29.0 | 40.0V @ 9.0A | 1 | 90 |
| PSD18C | N | 18.0 | 20.0 | 29.0 | 40.0V @ 9.0A | 1 | 40 |
| PSD24 | F | 24.0 | 26.7 | 43.0 | 49.0V @ 12.0A | 1 | 88 |
| PSD24C | M | 24.0 | 26.7 | 43.0 | 46.2V @ 9.0A | 1 | 40 |
| PSD36 | R | 36.0 | 40.0 | 60.0 | 75.0V @ 5.0A | 1 | 75 |
| PSD36C | T | 36.0 | 40.0 | 60.0 | 75.0V @ 5.0A | 1 | 35 |

Note 1: Part numbers with an additional "C" suffix are bidirectional devices, i.e., PSD05C.

Note 2: For Bidirectional Devices Only: Electrical characteristics apply in both directions.

GRAPHS

FIGURE 1
PEAK PULSE POWER VS PULSE TIME

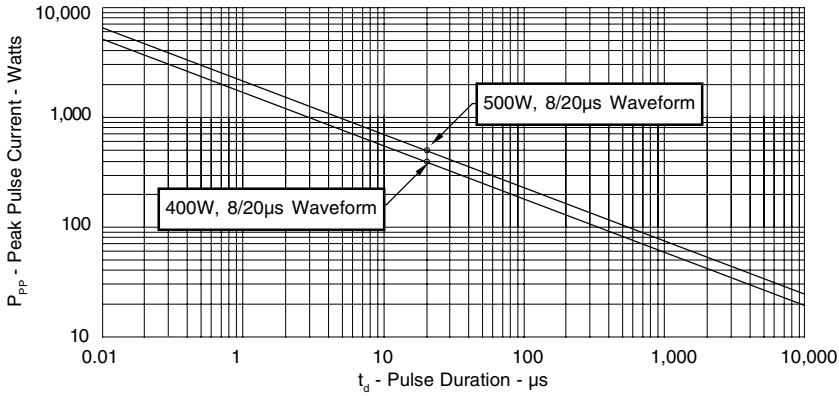


FIGURE 2
PULSE WAVE FORM

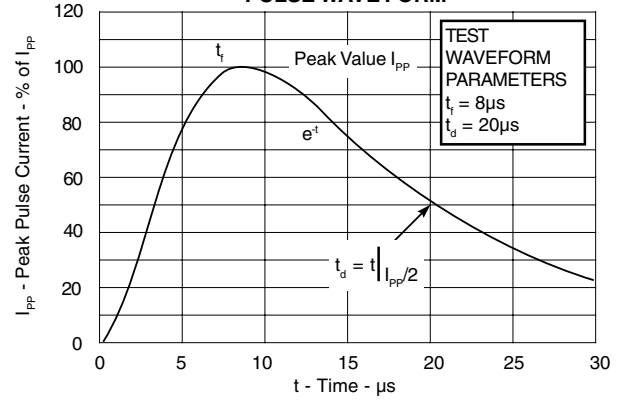


FIGURE 3
POWER DERATING CURVE

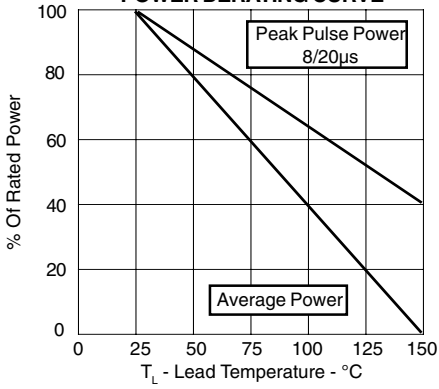


FIGURE 4
OVERSHOOT & CLAMPING VOLTAGE FOR PSD03

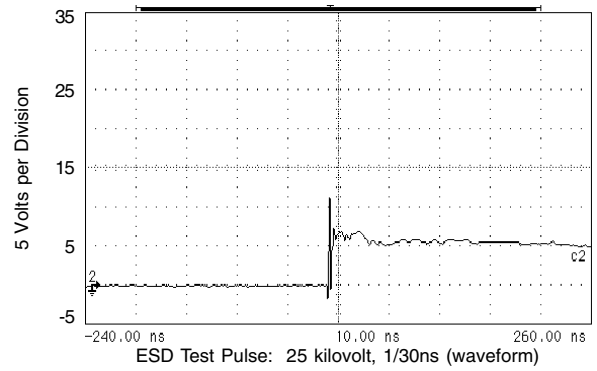
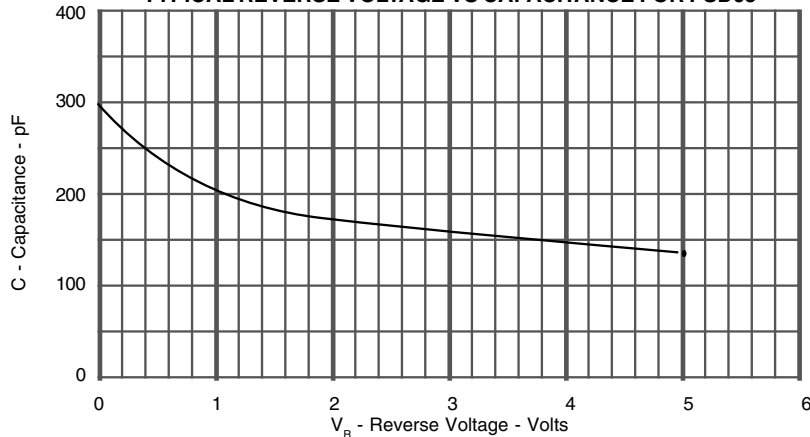
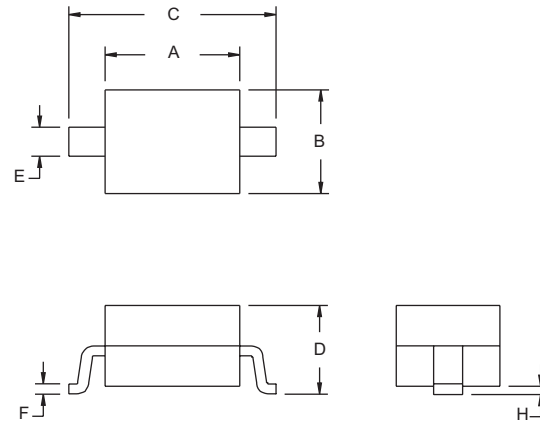

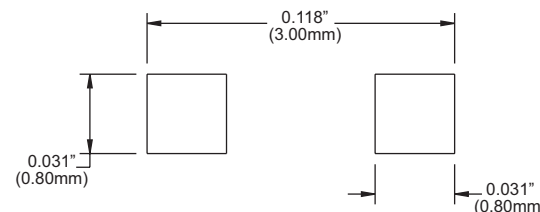


FIGURE 5
TYPICAL REVERSE VOLTAGE VS CAPACITANCE FOR PSD05

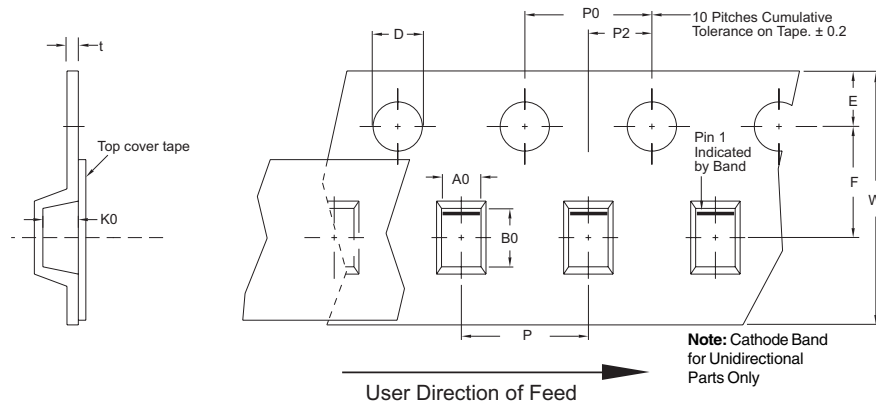


PACKAGE OUTLINE & DIMENSIONS

| <p style="text-align: center;">PACKAGE OUTLINE</p>  | <p style="text-align: center;">SOD-323 PACKAGE</p>  <p style="text-align: center;">PACKAGE DIMENSIONS</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2">DIM</th> <th colspan="2">MILLIMETERS</th> <th colspan="2">INCHES</th> </tr> <tr> <th>MIN</th> <th>MAX</th> <th>MIN</th> <th>MAX</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>1.60</td> <td>1.90</td> <td>0.063</td> <td>0.075</td> </tr> <tr> <td>B</td> <td>1.15</td> <td>1.45</td> <td>0.045</td> <td>0.057</td> </tr> <tr> <td>C</td> <td>2.39</td> <td>2.70</td> <td>0.094</td> <td>0.106</td> </tr> <tr> <td>D</td> <td>0.92</td> <td>1.10</td> <td>0.033</td> <td>0.043</td> </tr> <tr> <td>E</td> <td>0.25</td> <td>0.40</td> <td>0.010</td> <td>0.016</td> </tr> <tr> <td>F</td> <td>0.10</td> <td>0.20</td> <td>0.004</td> <td>0.008</td> </tr> <tr> <td>H</td> <td>-</td> <td>0.10</td> <td>-</td> <td>0.004</td> </tr> </tbody> </table> | DIM | MILLIMETERS | | INCHES | | MIN | MAX | MIN | MAX | A | 1.60 | 1.90 | 0.063 | 0.075 | B | 1.15 | 1.45 | 0.045 | 0.057 | C | 2.39 | 2.70 | 0.094 | 0.106 | D | 0.92 | 1.10 | 0.033 | 0.043 | E | 0.25 | 0.40 | 0.010 | 0.016 | F | 0.10 | 0.20 | 0.004 | 0.008 | H | - | 0.10 | - | 0.004 |
|---|---|------|-------------|-------|--------|--|-----|-----|-----|-----|---|------|------|-------|-------|---|------|------|-------|-------|---|------|------|-------|-------|---|------|------|-------|-------|---|------|------|-------|-------|---|------|------|-------|-------|---|---|------|---|-------|
| DIM | MILLIMETERS | | INCHES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MIN | MAX | MIN | MAX | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | 1.60 | 1.90 | 0.063 | 0.075 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| H | - | 0.10 | - | 0.004 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p style="text-align: center;">MOUNTING PAD</p>  | <p>NOTES</p> <ol style="list-style-type: none"> Controlling Dimensions in Millimeters. Dimensions are exclusive of mold flash and metal burrs. <p>TAPE & REEL ORDERING NOMENCLATURE</p> <ol style="list-style-type: none"> Surface mount product is taped and reeled in accordance with EIA-481. Suffix -T7 = 7 Inch Reel - 3,000 pieces per 8mm tape, i.e., PSD05C-T7. Suffix -LF = Lead-Free, Pure-Tin Plating, i.e., PSD05C-LF-T7. <p style="text-align: right;">Outline & Dimensions: Rev 2 - 9/05, 06010</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Tape & Reel Specifications (Dimensions in millimeters)

| Reel Dia. | Tape Width | A0 | B0 | K0 | D | E | F | W | P0 | P2 | P | tmax |
|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------|
| 178mm (7") | 8mm | 1.55 ± 0.10 | 2.90 ± 0.10 | 1.35 ± 0.10 | 1.50 ± 0.10 | 1.75 ± 0.10 | 3.50 ± 0.05 | 8.00 ± 0.30 | 4.00 ± 0.10 | 2.00 ± 0.05 | 4.00 ± 0.10 | 0.25 |



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