

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-Gnd) & 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

MECHANICAL CHARACTERISTICS

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



PIN CONFIGURATIONS



PSD03 thru PSD36C

DEVICE CHARACTERISTICS

MAXIMUM RATINGS @ 25°C Unless Otherwise Specified

| PARAMETER | SYMBOL | VALUE | UNITS |
|--|-----------|------------|-------|
| Unidirectional Peak Pulse Power ($t_p = 8/20\mu s$) - See Figure 1 | P_{PP} | 500 | Watts |
| Bidirectional Peak Pulse Power ($t_p = 8/20\mu s$) - See Figure 1 | P_{PP} | 400 | Watts |
| Operating Temperature | T_L | -55 to 150 | °C |
| Storage Temperature | T_{STG} | -55 to 150 | °C |

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

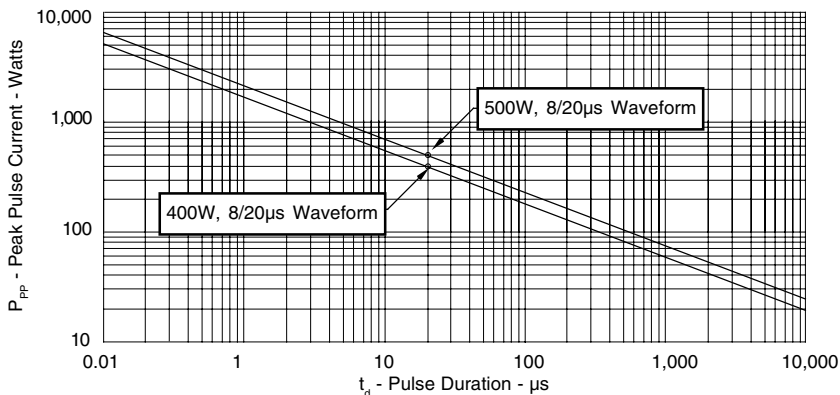
| PART NUMBER (See Notes 1-2) | DEVICE MARKING | RATED STAND-OFF VOLTAGE V_{WM} VOLTS | MINIMUM BREAKDOWN VOLTAGE @ 1mA $V_{(BR)}$ VOLTS | MAXIMUM CLAMPING VOLTAGE (See Fig. 2) @ $I_p = 1A$ V_c VOLTS | MAXIMUM CLAMPING VOLTAGE (See Fig. 2) @ 8/20 μs $V_c @ I_{PP}$ | MAXIMUM LEAKAGE CURRENT @ V_{WM} I_b μA | TYPICAL CAPACITANCE 0V @ 1 MHz C 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.

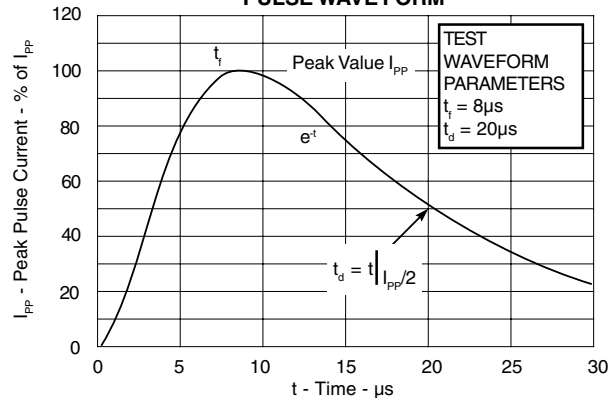
Note 2: *Unidirectional Only:* Positive potential is applied from pin 2 to 1 or pin 3 to 4.

GRAPHS

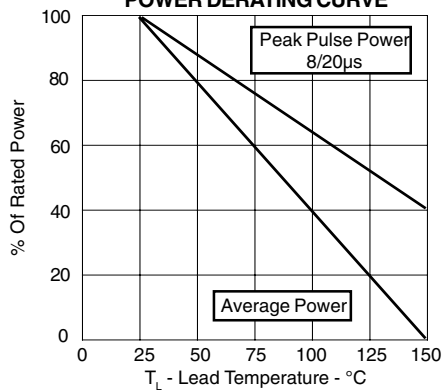
**FIGURE 1
PEAK PULSE POWER VS PULSE TIME**



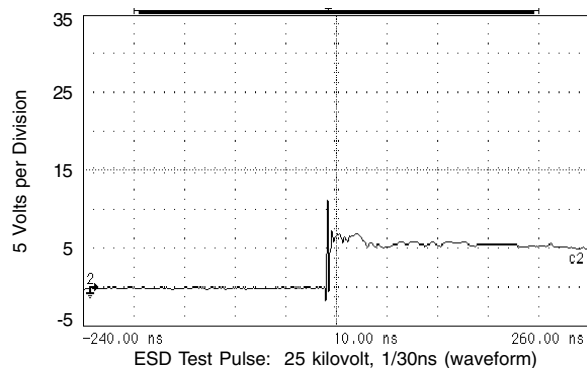
**FIGURE 2
PULSE WAVEFORM**



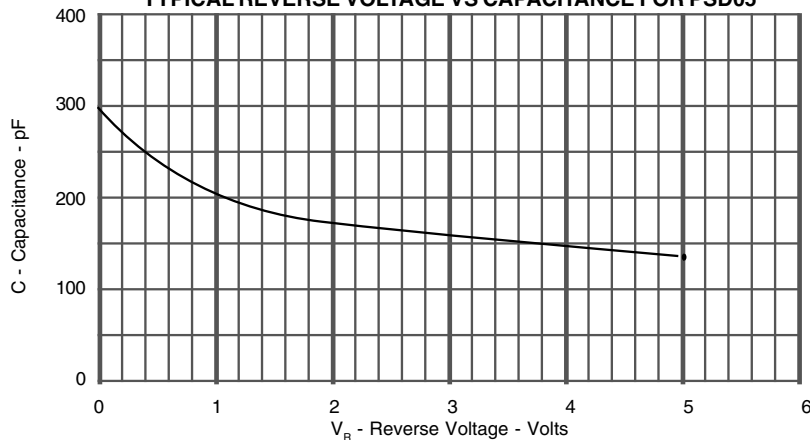
**FIGURE 3
POWER DERATING CURVE**



**FIGURE 4
OVERSHOOT & CLAMPING VOLTAGE FOR PSD03**



**FIGURE 5
TYPICAL REVERSE VOLTAGE VS CAPACITANCE FOR PSD05**



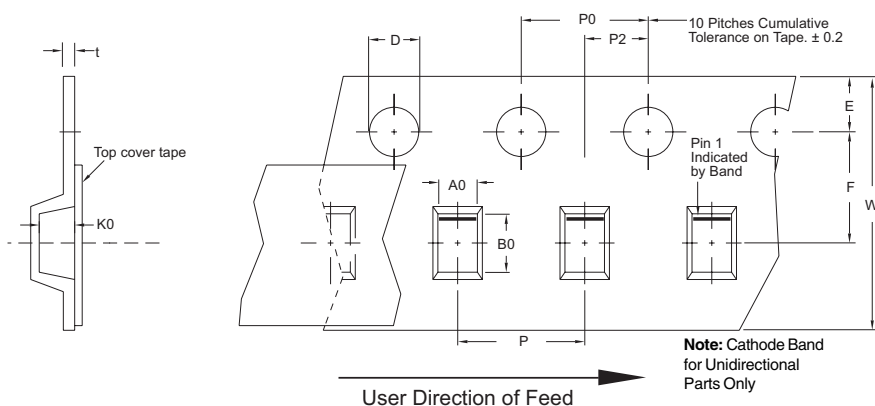
PSD03 thru PSD36C

SOD-323 PACKAGE OUTLINE & DIMENSIONS

| PACKAGE OUTLINE | | SOD-323 PACKAGE | | | |
|---|-------------|-----------------|--------|-------|--|
| | | | | | |
| PACKAGE DIMENSIONS | | | | | |
| 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 | 0.80 | 1.10 | 0.031 | 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 | |
| L | 0.20 | - | 0.08 | - | |
| MOUNTING PAD | | | | | |
| | | | | | |
| NOTES | | | | | |
| 1. Controlling Dimensions in Millimeters. 2. Dimensions are exclusive of mold flash and metal burrs. | | | | | |
| TAPE & REEL ORDERING NOMENCLATURE | | | | | |
| 1. Surface mount product is taped and reeled in accordance with EIA-481. 2. Suffix-T7 = 7 Inch Reel - 3,000 pieces per 8mm tape, i.e., PSD05C-T7. 3. Suffix - LF = Lead-Free, Pure-Tin Plating, i.e., PSD05C-LF-T7. | | | | | |
| Outline & Dimensions: Rev 3 - 4/07, 06010 | | | | | |

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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