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# PSD03 thru PSD36C

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STANDARD CAPACITANCE TVS ARRAY

SOD-323

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## 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 $\mu$ 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)
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## PIN CONFIGURATIONS



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## 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 $\mu s$ $V_C @ I_{PP}$	MAXIMUM LEAKAGE CURRENT  @ $V_{WM}$ $I_D$ $\mu A$	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

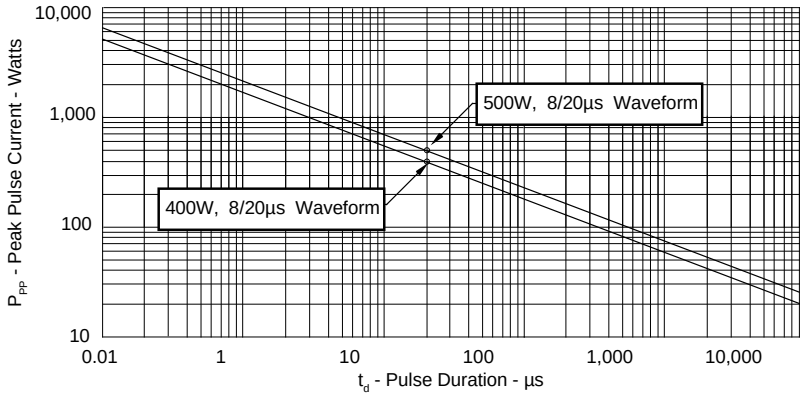
**Note 1:** Part numbers with an additional "C" suffix are bidirectional devices, i.e., PSD05C.

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

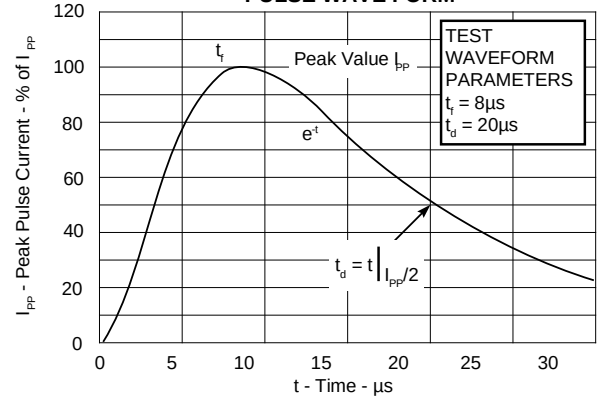
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## GRAPHS

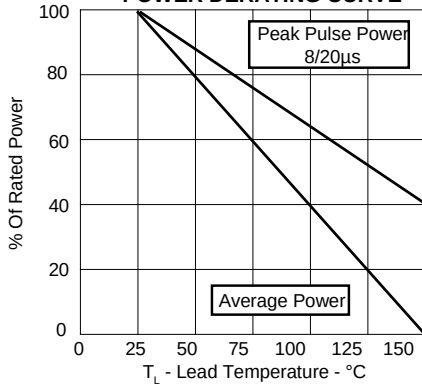
**FIGURE 1  
PEAK PULSE POWER VS PULSE TIME**



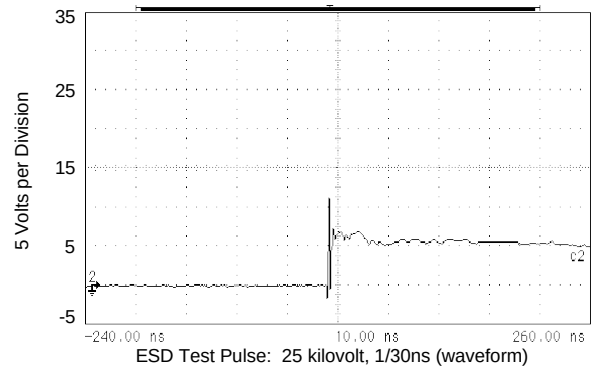
**FIGURE 2  
PULSE WAVE FORM**



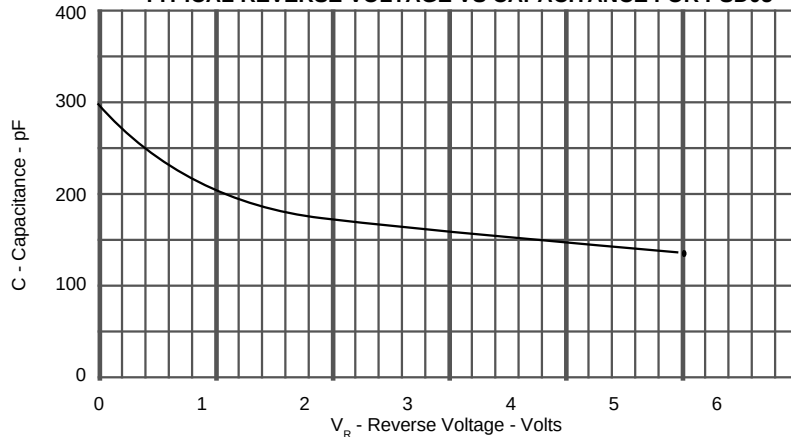
**FIGURE 3  
POWER DERATING CURVE**



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

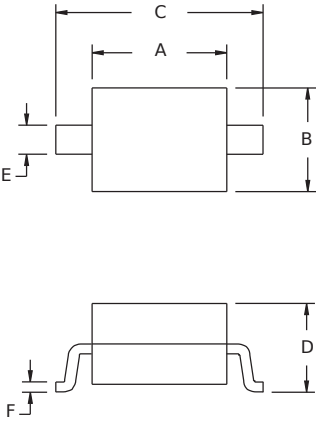



**FIGURE 5  
TYPICAL REVERSE VOLTAGE VS CAPACITANCE FOR PSD05**

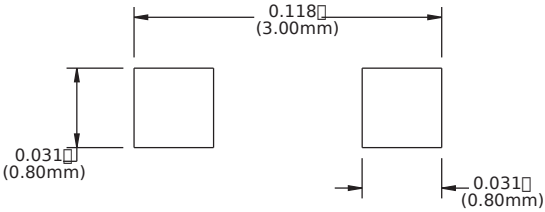


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## PACKAGE OUTLINE & DIMENSIONS

PACKAGE OUTLINE		SOD-323 PACKAGE			
					
<b>PACKAGE DIMENSIONS</b>					
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	

MOUNTING PAD		NOTES	
		<p>1. Controlling Dimensions in Millimeters. 2. Dimensions are exclusive of mold flash and metal burrs.</p> <p><b>TAPE &amp; REEL ORDERING NOMENCLATURE</b></p> <p>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.</p>	
<b>Outline &amp; Dimensions: Rev 2 - 9/05, 06010</b>			

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

