UMW PSDxxC-LF-T7

1.Description

The PSDxx and PSDxxC Series are transient voltage suppressor arrays designed for ESD protection of SMART phones,laptop computers and other portable electronics. These silicon based diodes offer superior clamping voltage and performance compared to other technologies such as MLVs.

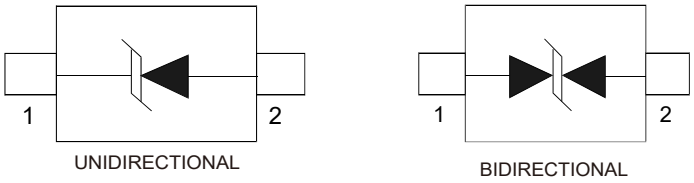
2.Applications

- Laptop Computers
- SMART Phones
- Portable Electronics

3.Features

- Compatible with IEC 61000-4-2 (ESD): Air -15kV, Contact - 8kV
- Compatible with IEC 61000-4-4 (EFT): 40A -5/50ns
- Compatible with IEC 61000-4-5 (Surge): 24A, 8/20μs Level 2(Line-Gnd) & Level 3 (Line-Line)
- Unidirectional: 500W Peak Pulse Power per Line (tp = 8/20μs)
- Bidirectional: 400W Peak Pulse Power per Line (tp = 8/20μs)
- Replacement for MLV (0805)
- Unidirectional & Bidirectional Configurations
- Protects One Power or I/O Port
- ESD Protection > 25kV
- Low Clamping Voltage
- Available in Multiple Voltages Ranging From 3V to 36V
- RoHS Compliant
- REACH Compliant

4.Pinning information



SOD-323

5.Maximum Ratings @ 25°C Unless Otherwise Specified

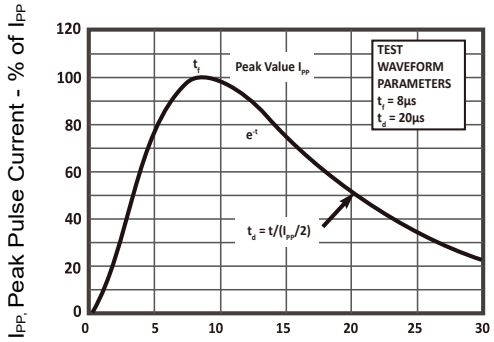
Parameter	Symbol	Value	Units
Unidirectional: Peak Pulse Power (tp = 8/20μs) - See Figure 1	P_{PP}	500	W
Bidirectional: Peak Pulse Power (tp = 8/20μs) - See Figure 1	P_{PP}	400	W
Operating Temperature	T_L	-55 to 150	°C
Storage Temperature	T_{STG}	-55 to 150	°C

6.Electrical Characteristic (T_A=25°C unless otherwise noted)

PART NUMBER (Note 1)	RATED STAND-OFF VOLTAGE	MINIMUM BREAKDOWN VOLTAGE	MAXIMUM CLAMPING VOLTAGE	MAXIMUM LEAKAGE CURRENT	TYPICAL CAPACITANCE
		@ 1mA	@ IP=1A	@ V_{WM}	@ 0V, 1MHz
	V_{WM}	$V_{(BR)}$	V_C	I_D	C
	VOLTS	VOLTS	VOLTS	μA	pF
PSD03	3.3	4.0	6.5	125	500
PSD03C	3.3	4.0	7.0	125	200
PSD05	5.0	6.0	9.8	10	350
PSD05C	5.0	6.0	9.8	10	175
PSD08	8.0	8.5	13.4	10	250
PSD08C	8.0	8.5	13.4	10	150
PSD12	12.0	13.3	19.0	1	150
PSD12C	12.0	13.3	19.0	1	50
PSD15	15.0	16.7	24.0	1	100
PSD15C	15.0	16.7	24.0	1	40
PSD18	18.0	20.0	29.0	1	90
PSD18C	18.0	20.0	29.0	1	40
PSD24	24.0	26.7	43.0	1	88
PSD24C	24.0	26.7	43.0	1	40
PSD36	36.0	40.0	60.0	1	75
PSD36C	36.0	40.0	60.0	1	35

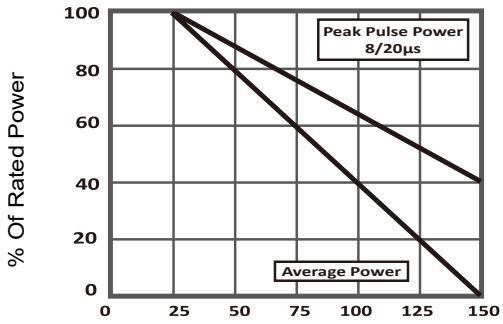
Notes:1. Part numbers with an additional “C” suffix are bidirectional devices, i.e., PSD05 C.

7.Typical characteristic



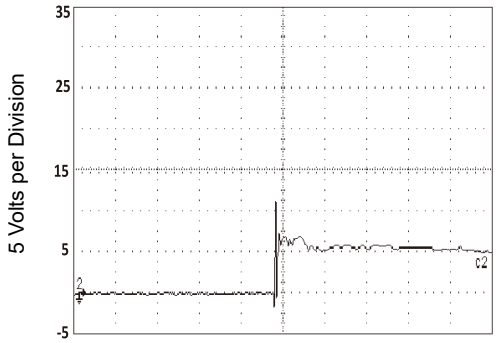
t - Time -µs

Figure 1: Pulse Waveform



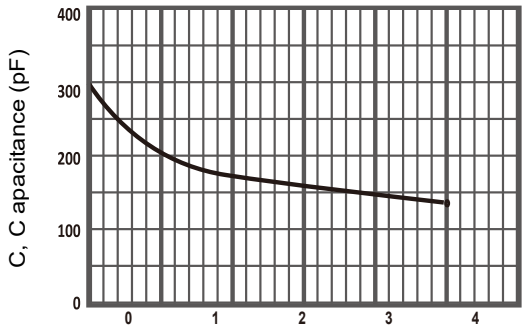
T_A, Ambient Temperature(°C)

Figure 2: Power Derating Curve



ESD Test Pulse - 25 kilovolt, 1/30ns (Waveshape)

Figure 3: Overshoot & Clamping Voltage For Psd 03



V_R, Reverse Voltage - Volts

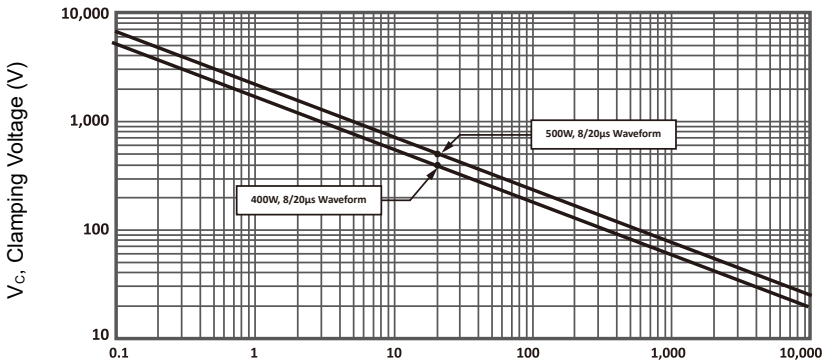
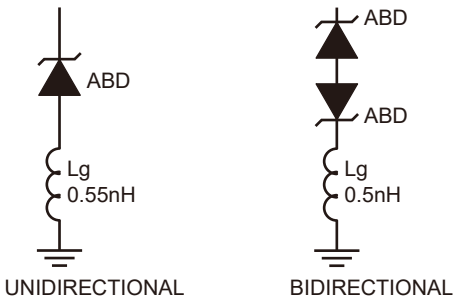


Figure 5: Clamping voltage vs. Peak pulse current

8.Spice Model

FIGURE 1
SPICE MODEL FOR

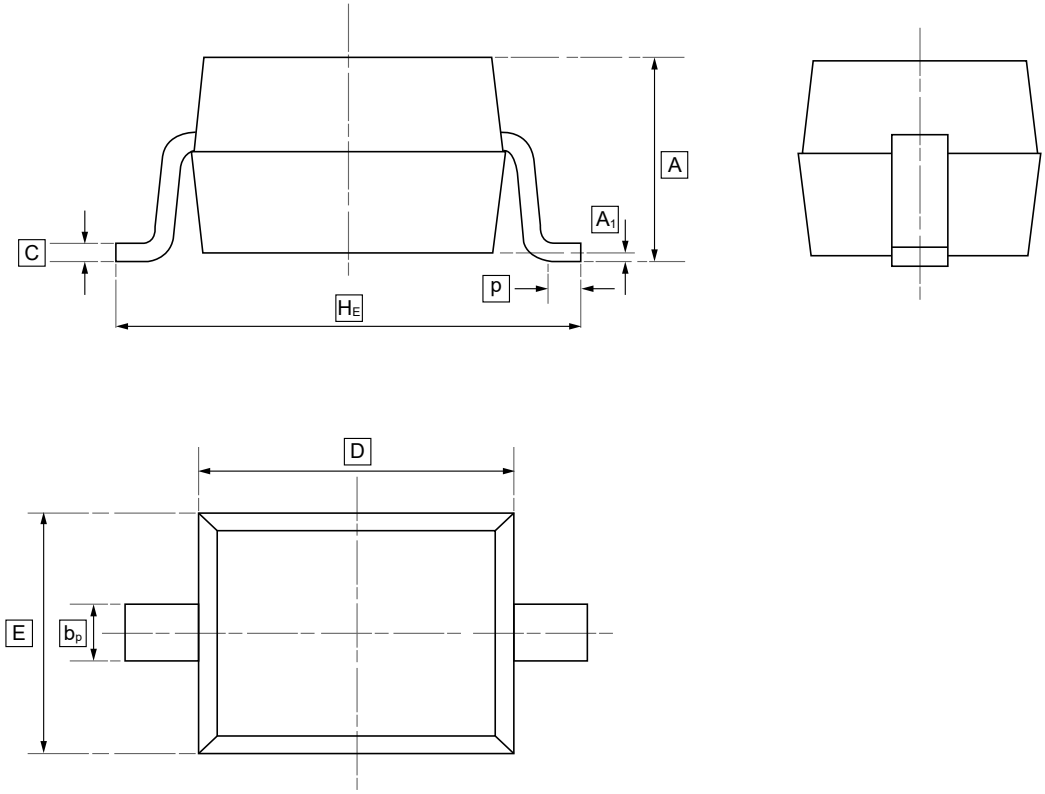


ABD - Avalanche Breakdown Diode (TVS)
Lg - Lead Inductance

TABLE 1 - SPICE PARAMETERS		
Parameter	**Unit**	**ABD(TVS)**
BV	V	See Table 2
IBV	μA	1
C_{JO}	pF	See Table 2
I_S	A	See Table 2
VJ	V	0.6
M		0.33
N		1
R_S	Ohms	See Table 2
TT	s	1E-8
EG	eV	1.11

TABLE 2 - ABD SPECIFIC SPICE PARAMETERS				
PART NUMBER	**B_V(VOLTS)**	**C_{jo}(pF)**	**I_S(AMPS)**	**R_S(OHMS)**
PSD03	4.0	438	1E-11	0.21
PSD05	6.0	284	1E-11	0.14
PSD08	8.5	146	1E-11	0.28
PSD12	13.3	123	1E-13	0.40
PSD15	16.7	102	1E-13	0.52
PSD24	26.7	61	1E-13	1.54
PSD03C	4.5	219	1E-11	0.21
PSD05C	6.0	142	1E-11	0.14
PSD08C	8.5	73	1E-11	0.28
PSD12C	13.3	62	1E-13	0.40
PSD15C	16.7	51	1E-13	0.52
PSD24C	26.7	30	1E-13	1.54

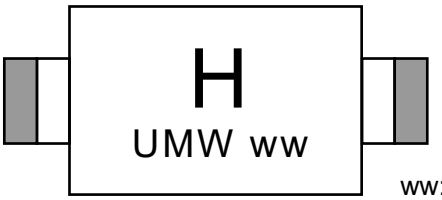
9.SOD-323 Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	b_p	C	D	E	H_E	A_1	p
Min	0.80	0.25	0.10	1.50	1.15	2.30	0.01	0.20
Max	1.20	0.40	0.15	1.80	1.35	2.80	0.10	0.50

10.Ordering information



ww: Batch Code

Order Code	Marking	Package	Base QTY	Delivery Mode
UMW PSD03-LF-T7	A	SOD-323	3000	Tape and reel
UMW PSD03C-LF-T7	G	SOD-323	3000	Tape and reel
UMW PSD05-LF-T7	B	SOD-323	3000	Tape and reel
UMW PSD05C-LF-T7	H	SOD-323	3000	Tape and reel
UMW PSD08-LF-T7	C	SOD-323	3000	Tape and reel
UMWPSD08C-LF-T7	J	SOD-323	3000	Tape and reel
UMW PSD12-LF-T7	D	SOD-323	3000	Tape and reel
UMW PSD12C-LF-T7	K	SOD-323	3000	Tape and reel
UMW PSD15-LF-T7	E	SOD-323	3000	Tape and reel
UMWPSD15C-LF-T7	L	SOD-323	3000	Tape and reel
UMWPSD18-LF-T7	18	SOD-323	3000	Tape and reel
UMW PSD18C-LF-T7	N	SOD-323	3000	Tape and reel
UMW PSD24-LF-T7	F	SOD-323	3000	Tape and reel
UMW PSD24C-LF-T7	M	SOD-323	3000	Tape and reel
UMW PSD36-LF-T7	R	SOD-323	3000	Tape and reel
UMW PSD36C-LF-T7	T	SOD-323	3000	Tape and reel

11.Disclaimer

UMW reserves the right to make changes to all products, specifications. Customers should obtain the latest version of product documentation and verify the completeness and currency of the information before placing an order.

When applying our products, please do not exceed the maximum rated values, as this may affect the reliability of the entire system. Under certain conditions, any semiconductor product may experience faults or failures. Buyers are responsible for adhering to safety standards and implementing safety measures during system design, prototyping, and manufacturing when using our products to prevent potential failure risks that could lead to personal injury or property damage.

Unless explicitly stated in writing, UMW products are not intended for use in medical, life-saving, or life-sustaining applications, nor for any other applications where product failure could result in personal injury or death. If customers use or sell the product for such applications without explicit authorization, they assume all associated risks.

When reselling, applying, or exporting, please comply with export control laws and regulations of China, the United States, the United Kingdom, the European Union, and other relevant countries, regions, and international organizations.

This document and any actions by UMW do not grant any intellectual property rights, whether express or implied, by estoppel or otherwise. The product names and marks mentioned herein may be trademarks of their respective owners.