1.Description

The PESDHC3D12VU ESD protector is designed to replace multilayer varistors (MLVs) in portable applications such as cell phones,notebook computers, and PDA's. They feature large cross-sectional area junctions for conducting high transient currents, offer desirable electrical characteristics for board level protection,such as fast response time,lower operating voltage,lower clamping voltage and no device degradation when compared to MLVs.

2.Features

- 500W peak pulse power per line(t_p=8/20μs)
- Replacement for MLV(0805)
- Unidirectional configurations
- Response Time is Typically < 1 ns
- Protect one I/O or power line
- Low clamping voltage
- RoHS compliant
- Transient protection for data lines to IEC 61000-4-2(ESD)+30KV(air),+30KV (contact); IEC 61000-4-4(EFT)40A (5/50ns)

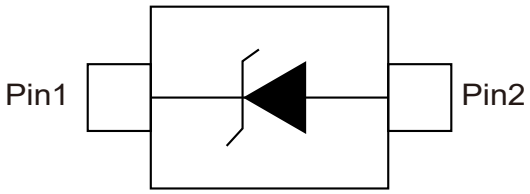
3.Applications

- Cell phone handsets and accessories
- Personal digital assistants (PDA's)
- Notebooks, desktops, and servers
- Portable instrumentation
- Cordless phones
- Digital cameras
- Peripherals
- MP3 players

4.Mechanical Characteristics

- Lead finish:100% matte Sn(Tin) Mounting
- position: Any
- Qualified max reflow temperature:260°C
- Pure tin plating: 7 ~ 17 um
- Pin flatness:≤3mil

5.Pinning information



SOD-323

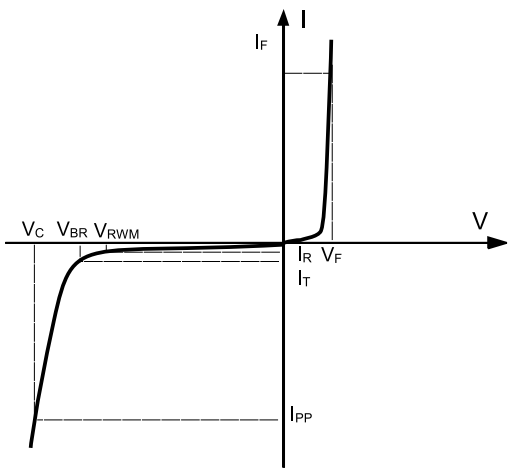
6.Absolute Maximum Ratings T_A= 25°C

Parameter	Symbol	Maximum	Units
Unidirectional Peak Pulse Power (t_p=8/20μs)	P_{PP}	500	W
Maximum Peak Pulse Current (t_p=8/20μs)	I_{PP}	20	A
Lead Soldering Temperature	T_L	260 (10 sec)	°C
Operating Temperature	T_J	-55 to 125	°C
Storage Temperature	T_{STG}	-55 to 150	°C

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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Working Voltage	V_{RWM}				12	V
Breakdown Voltage	V_{BR}	I_T=1mA	13.5			V
Reverse Leakage Current	I_R	V_{RWM}=12V			1	μA
Forward Voltage	V_F	I_F=10mA		0.8		V
Clamping Voltage	V_C	I_{PP}=5A, t_p=8/20μs			19	V
Clamping Voltage	V_C	I_{PP}=20A, t_p=8/20μs			27	V
Junction Capacitance	C_J	V_R=2.5V, f=1MHz		100		pF

8.Electrical Parameters (T_A=25°C unless otherwise noted)



Symbol	Parameter
V_{RWM}	Peak Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
P_{PP}	Peak Pulse Power
C_J	Junction Capacitance
I_F	Forward Current
V_F	Forward Voltage @ I_F

9.Typical characteristic

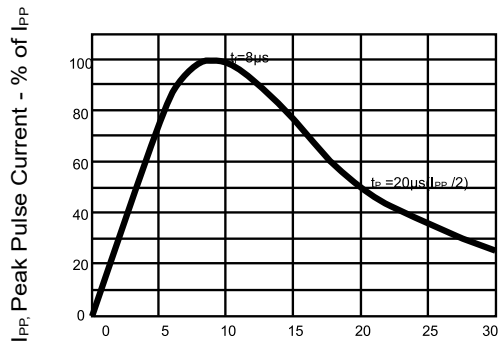


Figure 1: Pulse Waveform

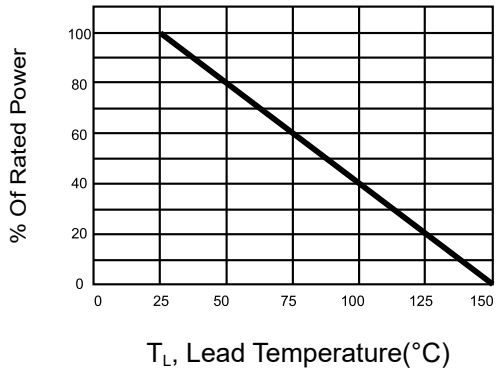


Figure 2: Power Derating Curve

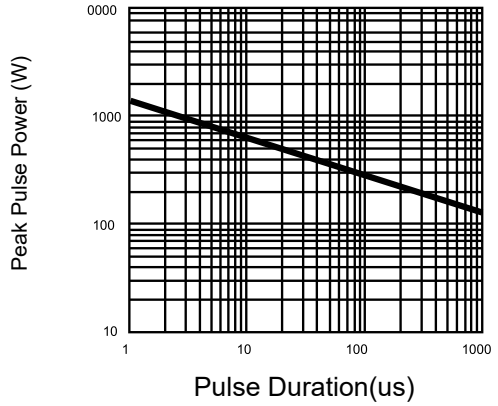


Figure 3: Non Repetitive Peak Pulse Power vs. Pulse time

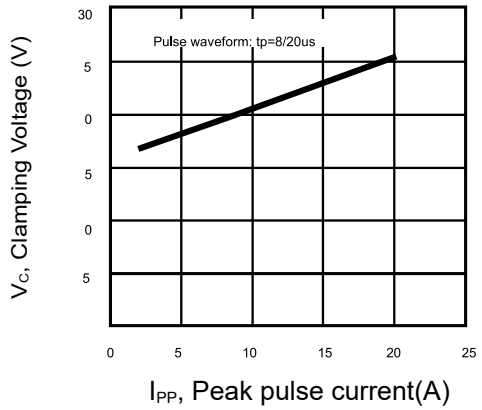


Figure 4: Clamping voltage vs. Peak pulse current

10.Solder Reflow Recommendation

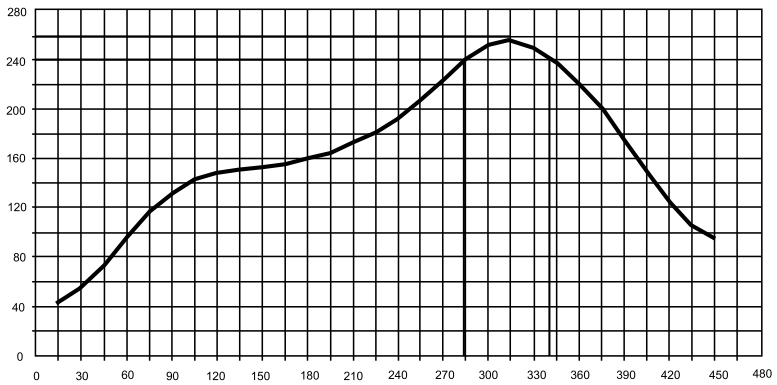
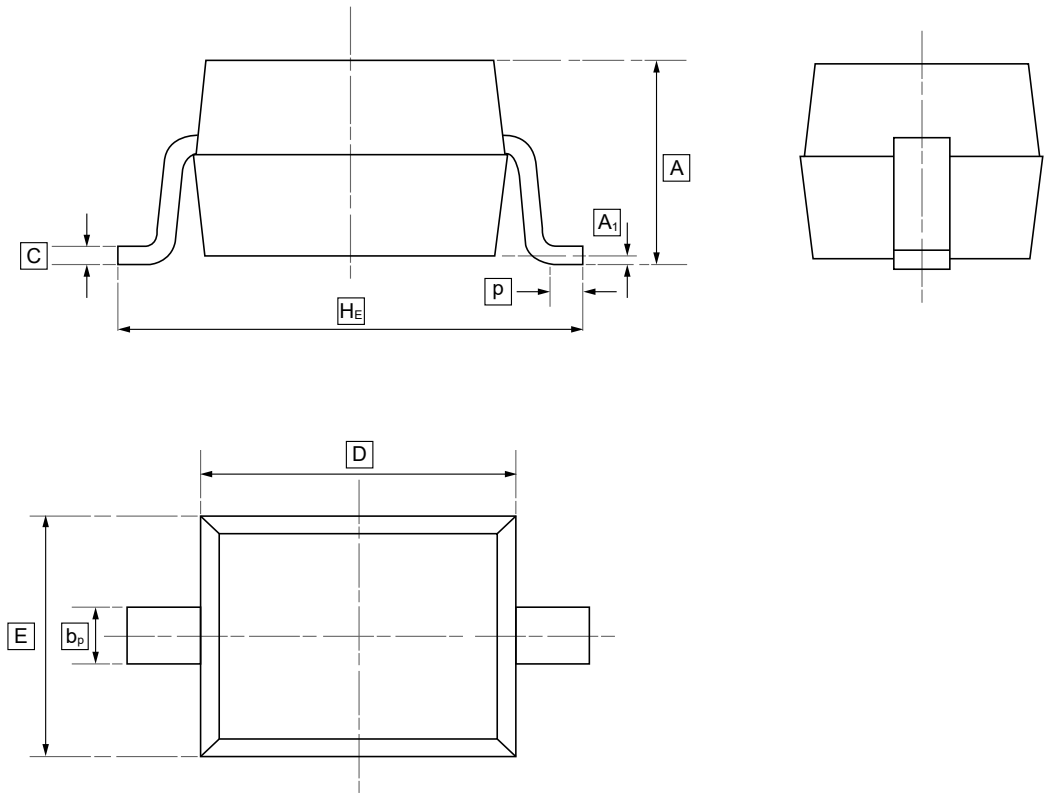


Figure 5: Peak Temp=257°C, Ramp Rate=0.802deg. °C/sec

For TVS diodes a low-ohmic and low-inductive path to chassis earth is absolutely mandatory in order to achieve good ESD protection. Novices in the area of ESD protection should take following suggestions to heart:

- Do not use stubs, but place the cathode of the TVS diode directly on the signal trace.
- Do not make false economies and save copper for the ground connection.
- Place via holes to ground as close as possible to the anode of the TVS diode.
- Use as many via holes as possible for the ground connection.
- Keep the length of via holes in mind! The longer the more inductance they will have.

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	0.90	0.25	0.10	1.60	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	Package	Base QTY	Delivery Mode
UMW PESDHC3D12VU	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.

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