

1.Description

The PTVSHC3D15VUH transient voltage suppressor 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

- 1600W Peak pulse power per line ($t_p=8/20\mu s$)
- Response time is typically < 1 ns
- Protect one I/O or power line
- Low clamping Voltage
- Transient protection for data lines to IEC 61000-4-2(ESD) $\pm 30KV$ (air), $\pm 30KV$ (contact); IEC 61000-4-4 (EFT) 40A (5/50ns)

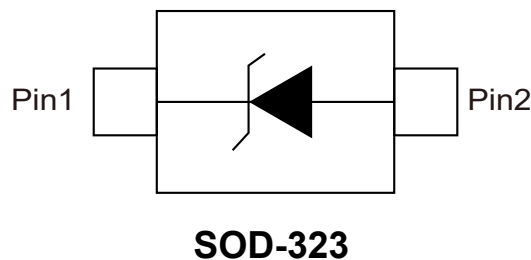
3.Applications

- 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

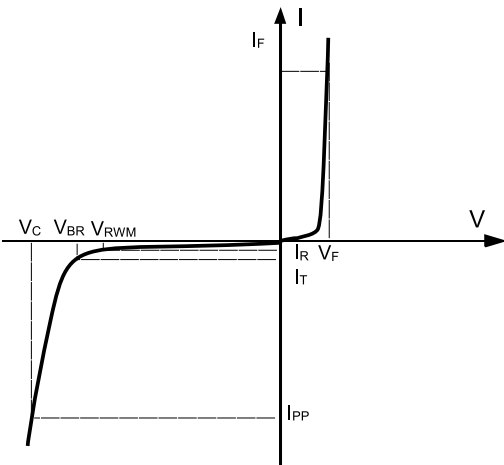
- Lead finish:100% matte Sn(Tin)
- Mounting position: Any
- Qualified max reflow temperature:260°C
- Pure tin plating: 7 ~ 17 μm
- Pin flatness: $\leq 3mil$

5.Pinning information





6.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



7. Electrical Characteristic ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

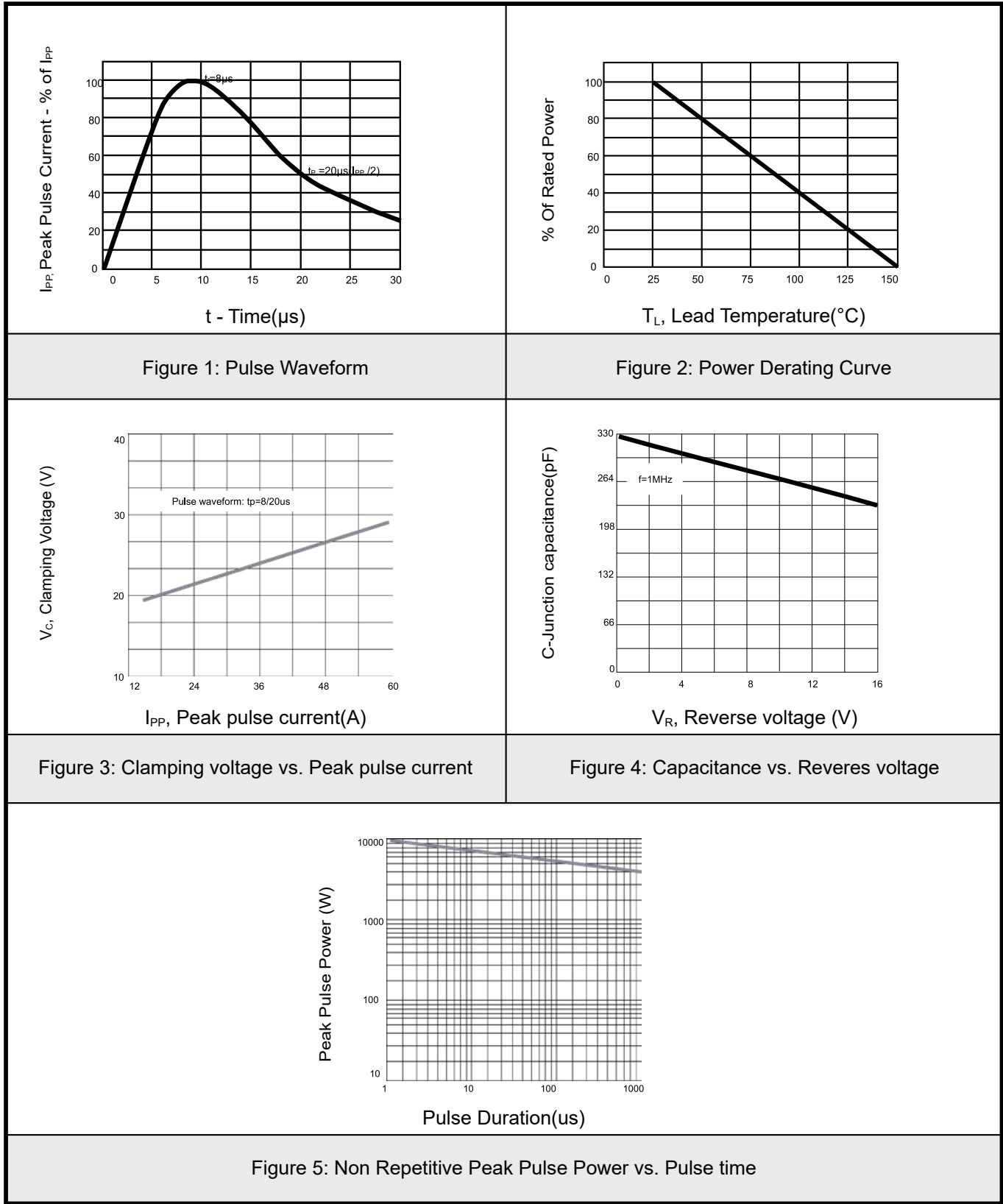
Parameter	Symbol	Conditions	Min	Typ	Max	Units
Working Voltage	V_{RWM}				15	V
Breakdown Voltage	V_{BR}	$I_T=1\text{mA}$	16	17	19	V
Reverse Leakage Current	I_R	$V_{RWM}=15\text{V}$			1	μA
Maximum Reverse Peak Pulse	I_{PP}			60		A
Clamping Voltage	V_C	$I_{PP}=15\text{A}$, $t_p=8/20\mu\text{s}$		19	22	V
Clamping Voltage	V_C	$I_{PP}=60\text{A}$, $t_p=8/20\mu\text{s}$		27	30	V
Junction Capacitance	C_J	$V_R=0\text{V}$, $f=1\text{MHz}$	300	325	350	pF

8. Absolute maximum rating @ 25°C

Parameter	Symbol	Value	Units
Peak Pulse Power ($t_p=8/20\mu\text{s}$)	P_{PP}	1600	W
Lead Soldering Temperature	T_L	260 (10 sec)	$^{\circ}\text{C}$
Junction Temperature	T_J	-55 to 150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 to 150	$^{\circ}\text{C}$



9. Typical characteristic





10. Solder Reflow Recommendation

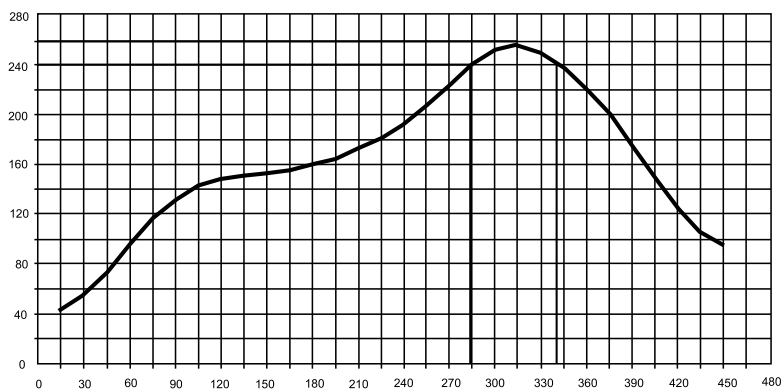


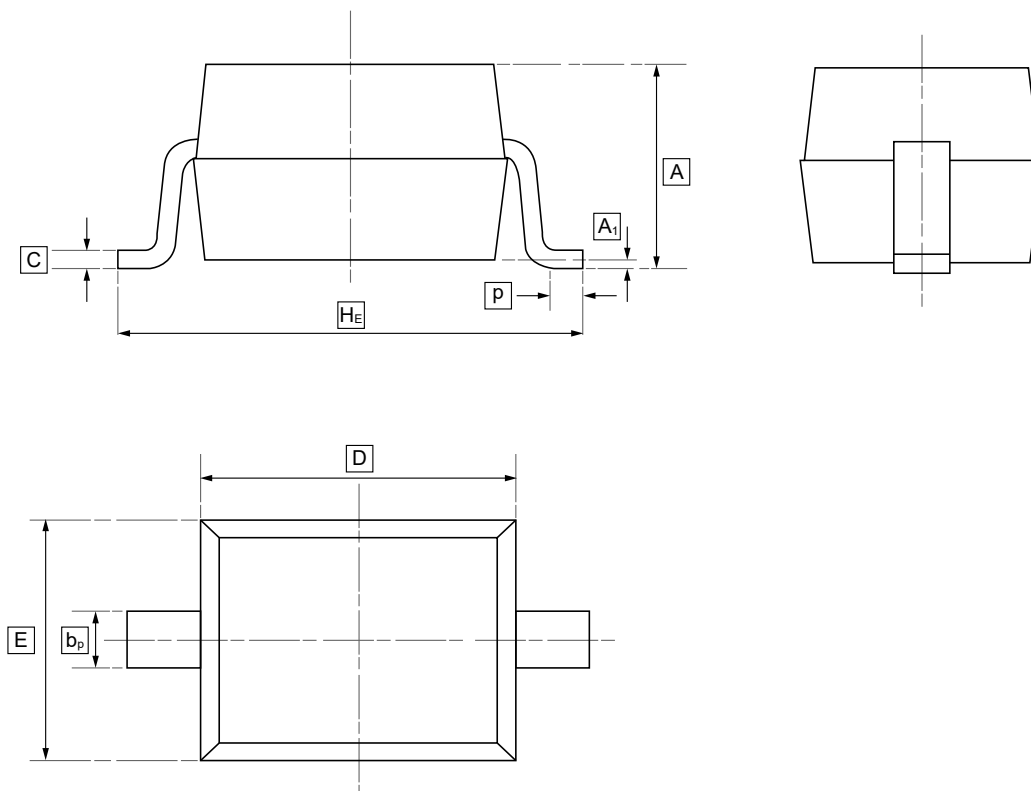
Figure 5: Peak Temp=257°C, Ramp Rate=0.802deg. °C/sec

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.



11.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



12.Ordering information



ww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW PTVSHC3D15VUH	SOD-323	3000	Tape and reel



13.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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