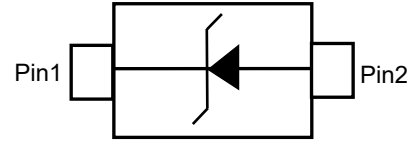


## Description

The PTVSHC3D12VU protects sensitive semiconductor components from damage or upset due to electrostatic discharge (ESD) and other voltage induced transient events. The PTVSHC3D12VU is available in a SOD-323 package with working voltages of 12 volt.



Circuit Diagram

## Feature

- 1300W 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)

## Mechanical Characteristics

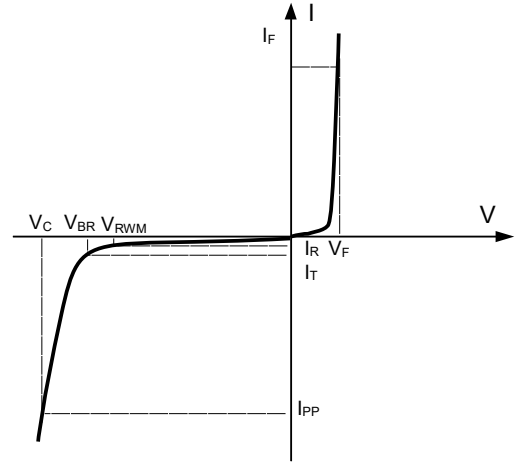
- Mounting position: Any
- temperature:  $260^\circ C$  Device meets
- Pure tin plating:  $7 \sim 17 \mu m$
- Pin flatness:  $\leq 3mil$

## Applications

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

**Electronics Parameter**

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 @ $I_F$



**Electrical characteristics per line@25°C ( unless otherwise specified)**

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Peak Reverse Working Voltage	$V_{RWM}$				12	V
Breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$	13.5	15.0		V
Reverse Leakage Current	$I_R$	$V_{RWM} = 12\text{V}$			1	$\mu\text{A}$
Clamping Voltage	$V_C$	$I_{PP} = 50\text{A}$ $t_P = 8/20\mu\text{s}$		24.0	30.0	V
Junction Capacitance	$C_J$	$V_R = 0\text{V}$ $f = 1\text{MHz}$	240	295	350	pF

**Absolute maximum rating@25°C**

Rating	Symbol	Value	Units
Peak Pulse Power ( $t_P = 8/20\mu\text{s}$ )	$P_{pp}$	1300	W
Lead Soldering Temperature	$T_L$	260 (10 sec)	$^{\circ}\text{C}$
Operating Temperature	$T_J$	-55 to 125	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-55 to 150	$^{\circ}\text{C}$

Typical Characteristics

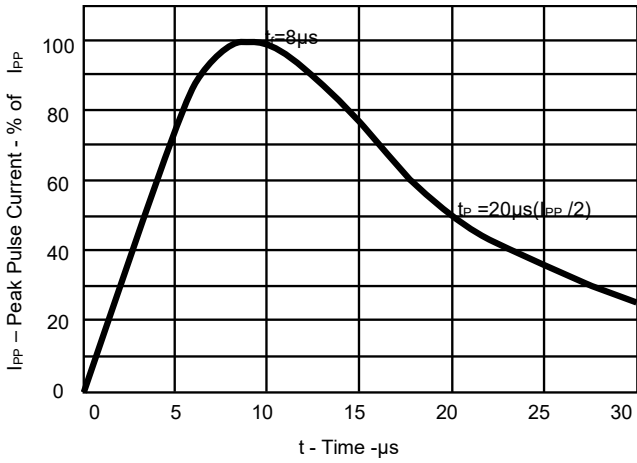


Fig 1. Pulse Waveform

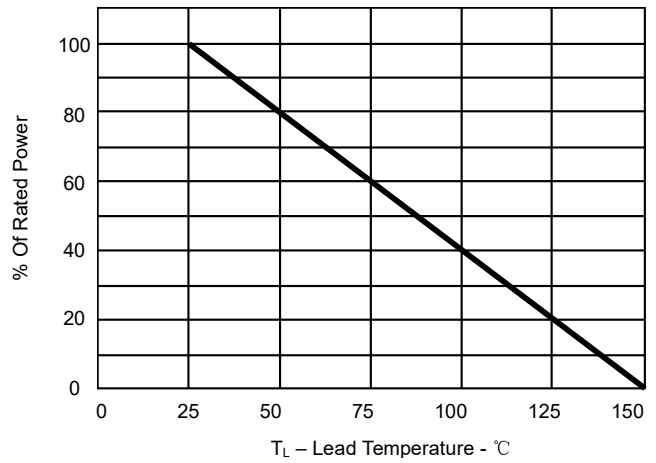


Fig 2. Power Derating Curve

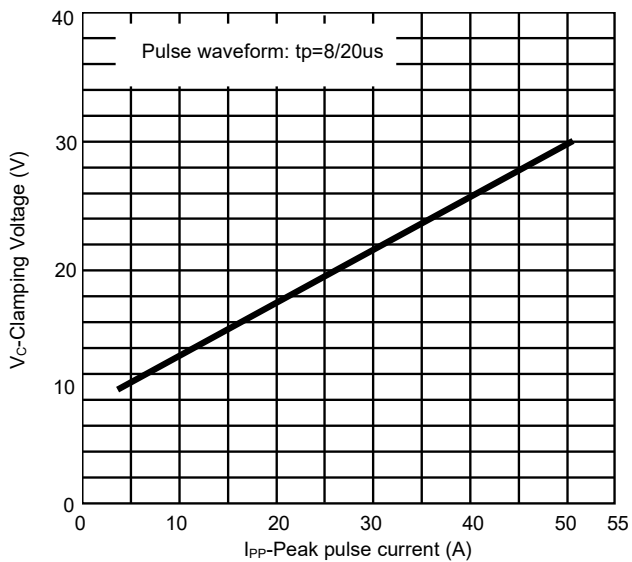


Fig 3. Clamping voltage vs. Peak pulse current

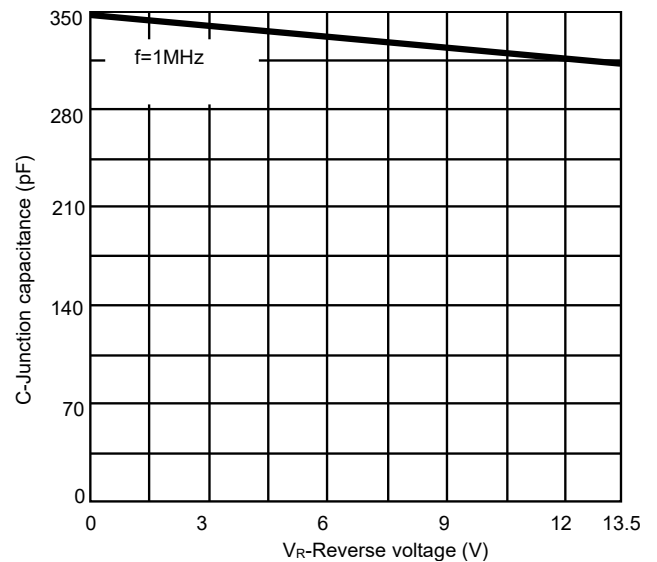


Fig 4. Capacitance vs. Revers voltage

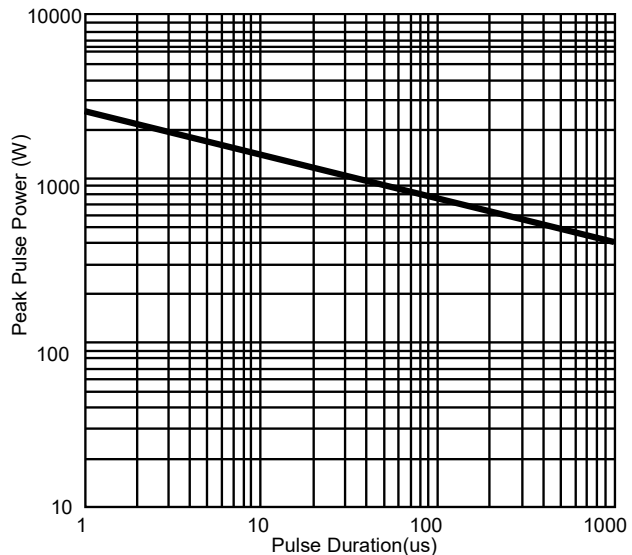
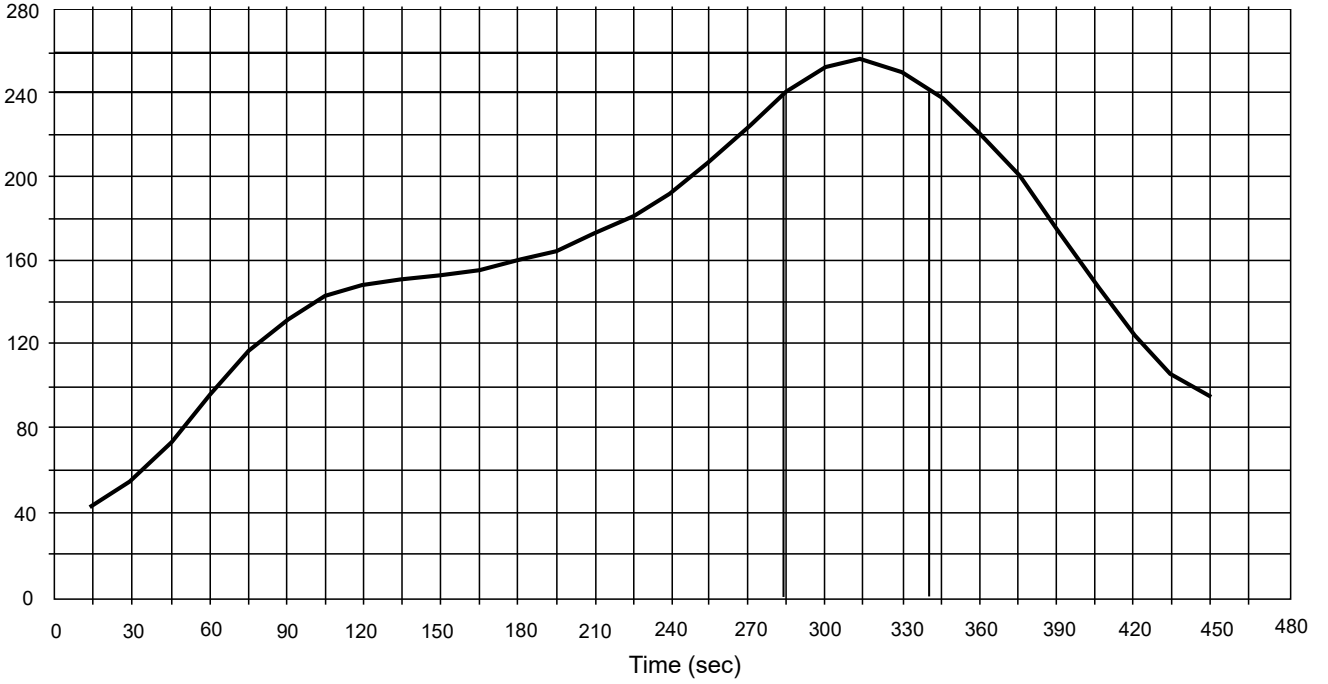


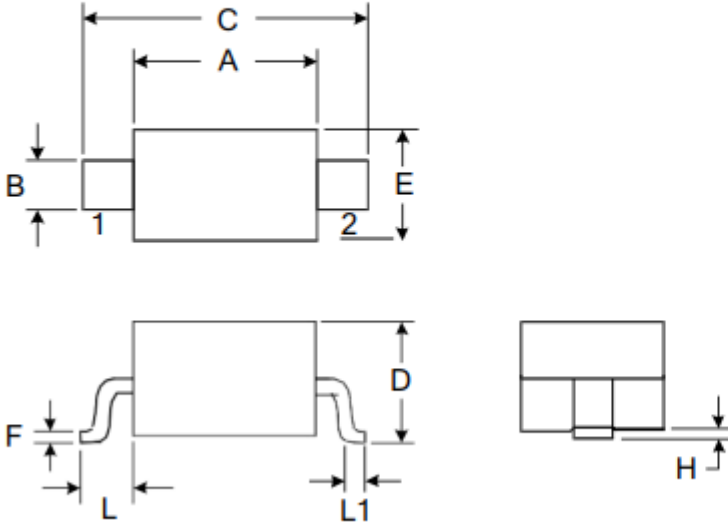
Fig 5. Non Repetitive Peak Pulse Power vs. Pulse time

### Solder Reflow Recommendation

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

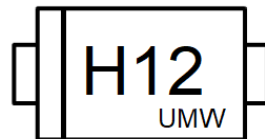


Outline Drawing – SOD323



DIMENSIONS				
SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	1.600	1.800	0.063	0.071
B	0.250	0.350	0.010	0.014
C	2.500	2.700	0.098	0.106
D		1.000		0.039
E	1.200	1.400	0.047	0.055
F	0.080	0.150	0.003	0.006
L	0.475 REF		0.019REF	
L1	0.250	0.400	0.010	0.016
H	0.000	0.100	0.000	0.004

Marking



Ordering information

Order code	Package	Base qty	Delivery mode
UMW PTVSHC3D12VU	SOD-323	3000	Tape and reel