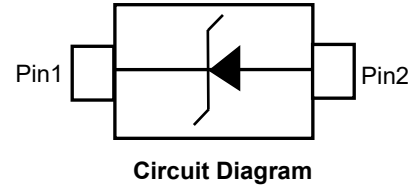


### Description

The PESDHC5D7VU protects sensitive semiconductor components from damage or upset due to electrostatic discharge (ESD) and other voltage induced transient events. 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, low operating voltage.



### Feature

- 400W peak pulse power per line ( $t_p = 8/20\mu s$ )
- Replacement for MLV(0603)
- Unidirectional configurations
- 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

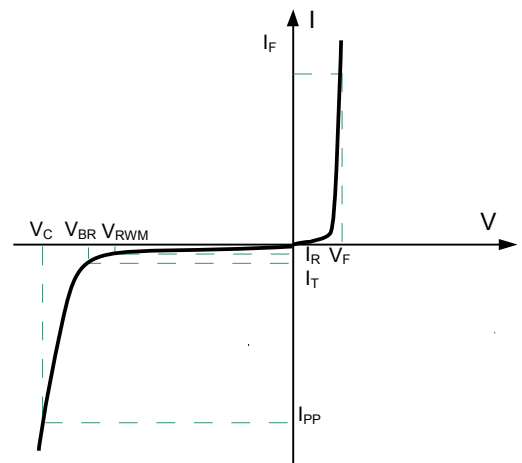
- Mounting position: Any
- Qualified max reflow temperature: 260 °C
- Pure tin plating: 7 ~ 17  $\mu m$
- Pin flatness:  $\leq 3mil$

### Applications

- Cellular phones
- Portable devices
- Digital cameras
- Power supplies

### 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	$V_{RWM}$				7	V
Breakdown Voltage	$V_{BR}$	$I_t = 1mA$		8		V
Reverse Leakage Current	$I_R$	$V_{RWM} = 7V \quad T=25^{\circ}C$			1	$\mu A$
Clamping Voltage	$V_C$	$I_{PP} = 1A \quad t_p = 8/20\mu s$			8.8	V
Clamping Voltage	$V_C$	$I_{PP} = 5A \quad t_p = 8/20\mu s$			11.2	V
Clamping Voltage	$V_C$	$I_{PP}=15A \quad t_p = 8/20\mu s$			17.8	V
Junction Capacitance	$C_j$	$V_R=0V \quad f = 1MHz$		150		pF

**Absolute maximum rating@25°C**

Rating	Symbol	Value	Units
Peak Pulse Power ( $t_p=8/20\mu s$ )	$P_{pp}$	400	W
Operating Temperature	$T_J$	-55 to +150	$^{\circ}C$
Storage Temperature	$T_{STG}$	-55 to +150	$^{\circ}C$

**Typical Characteristics**

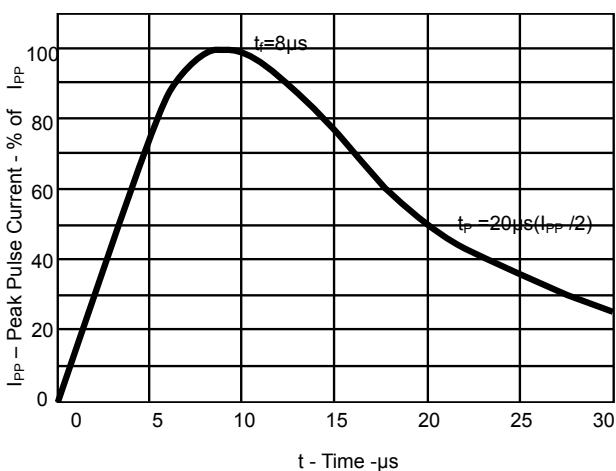


Fig 1.Pulse Waveform

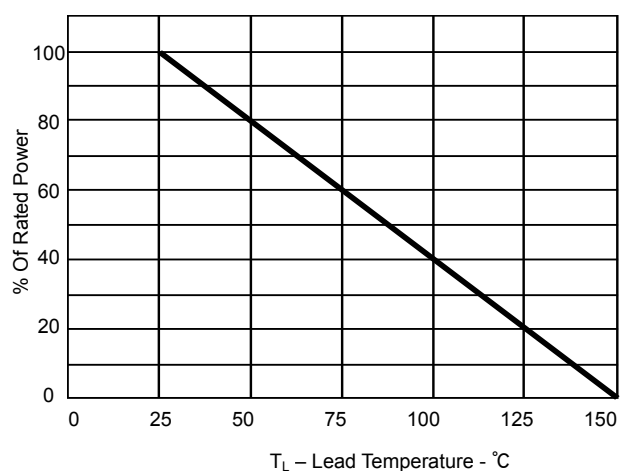


Fig 2.Power Derating Curve

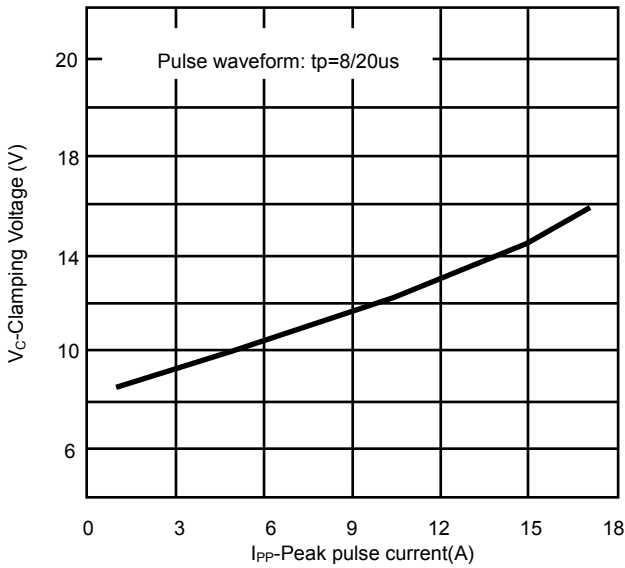


Fig 3. Clamping voltage vs. Peak pulse current

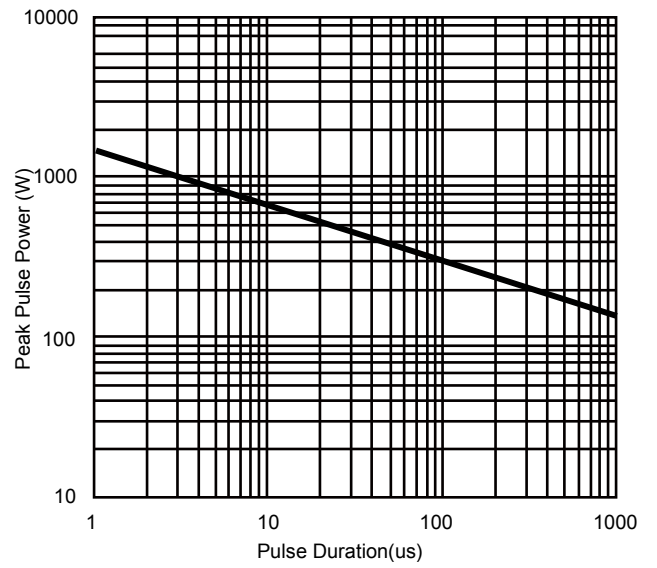
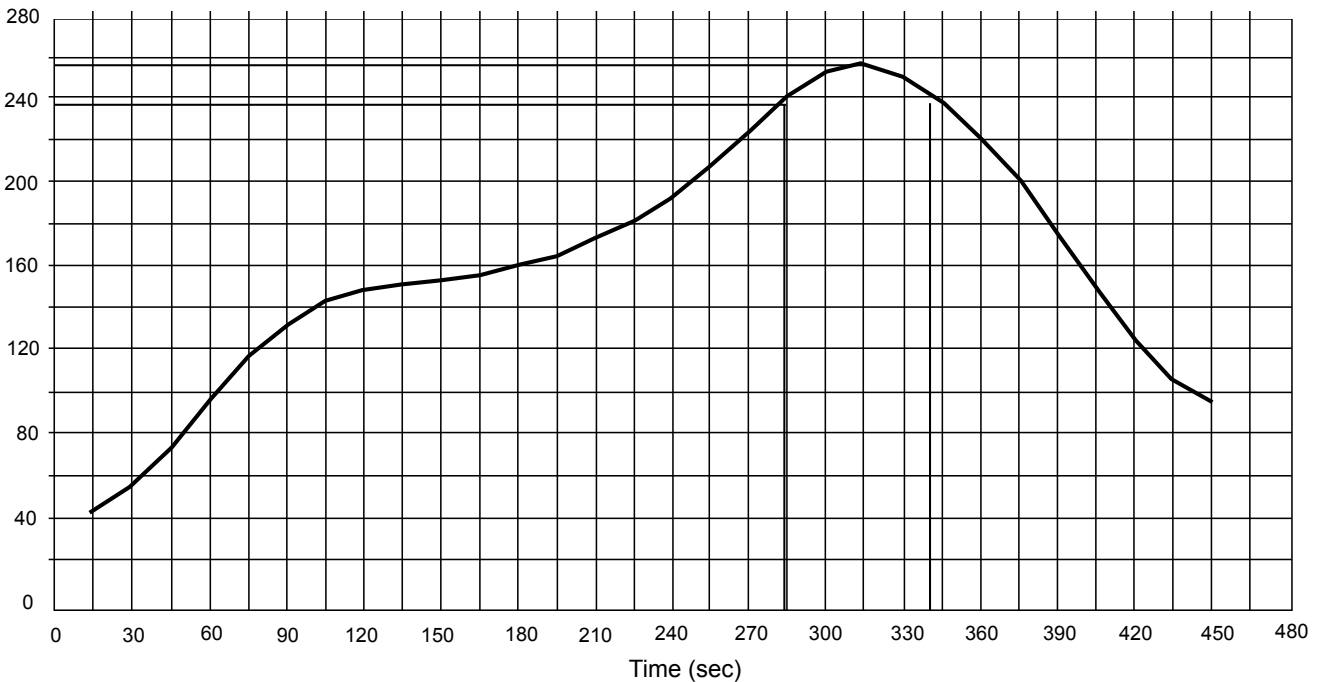


Fig 4. Non Repetitive Peak Pulse Power vs. Pulse time

### Solder Reflow Recommendation

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



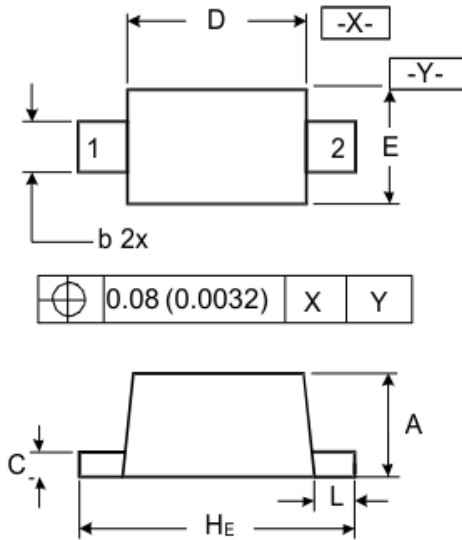
### PCB Design

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.

**Package outline dimensions**

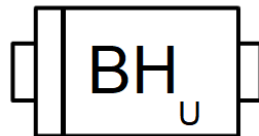
**SOD-523**



**DIMENSIONS**

SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	0.50	0.70	0.020	0.028
b	0.25	0.35	0.010	0.014
C	0.07	0.20	0.0028	0.0079
D	1.10	1.30	0.043	0.051
E	0.70	0.90	0.028	0.035
H <sub>E</sub>	1.50	1.70	0.059	0.067
L	0.15	0.25	0.006	0.010

**Marking**



**Ordering information**

Order code	Package	Base qty	Delivery mode
UMW PESDHC5D7VU	SOD-523	3000	Tape and reel