UMW PESDHC5D7VU

1.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.

2.Features

- 400W peak pulse power per line (t_P=8/20μs)
- 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)
- ±30KV(air), ±30KV(contact); IEC 61000-4-4 (EFT) 40A (5/50ns)

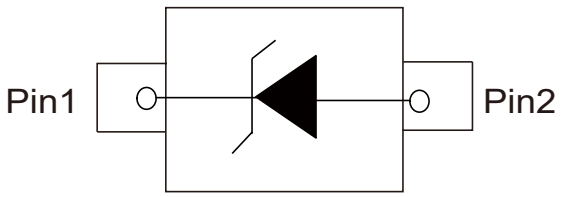
3.Applications

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

4.Mechanical Characteristics

- Mounting position: Any
- Qualified max reflow temperature:260°C
- Pure tin plating: 7 ~ 17 um
- Pin flatness:≤3mil

5.Pinning information



SOD-523

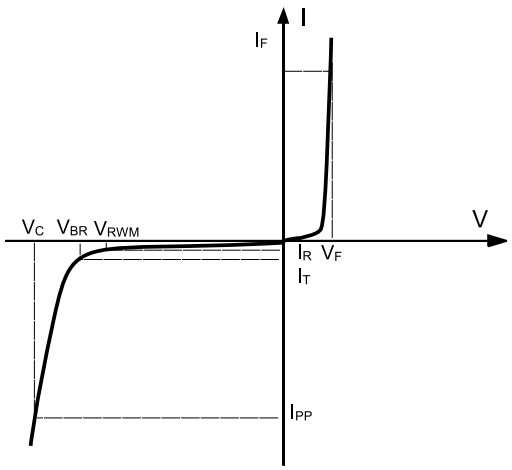
6.Absolute Maximum Ratings T_A= 25°C

Parameter	Symbol	Value	Units
Peak Pulse Power (t_p=8/20μs)	P_{PP}	400	W
Junction Temperature	T_J	-55 to +150	°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}				7	V
Breakdown Voltage	V_{BR}	I_T=1mA		8		V
Reverse Leakage Current	I_R	V_{RWM}=7V, T=25°C			1	μA
Forward Voltage	V_C	I_{PP}=1A, t_p=8/20μs			8.8	V
Clamping Voltage	V_C	I_{PP}=5A, t_p=8/20μs			11.2	V
Clamping Voltage	V_C	I_{PP}=15A, t_p=8/20μs			17.8	V
Junction Capacitance	C_J	V_R=0V, f=1MHz		150		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

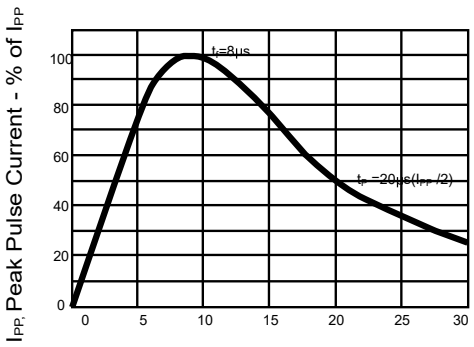


Figure 1: Pulse Waveform

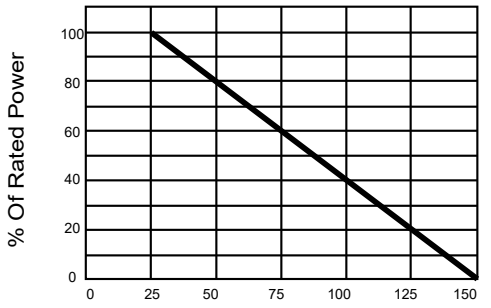


Figure 2: Power Derating Curve

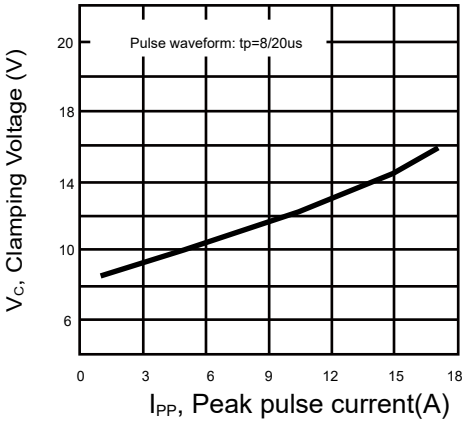


Figure 3: Clamping voltage vs. Peak pulse current

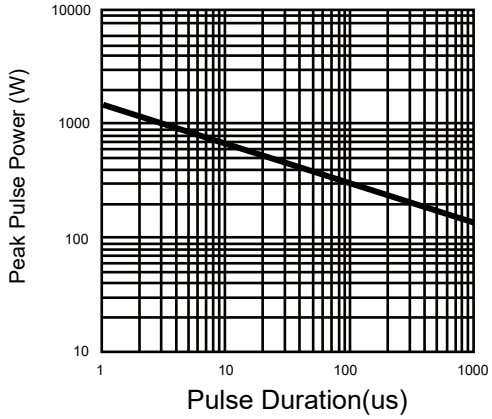


Figure 4: Non Repetitive Peak Pulse Power vs. Pulse time

10.Solder Reflow Recommendation

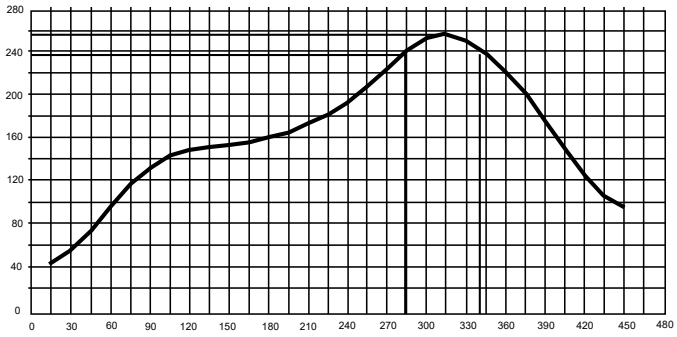
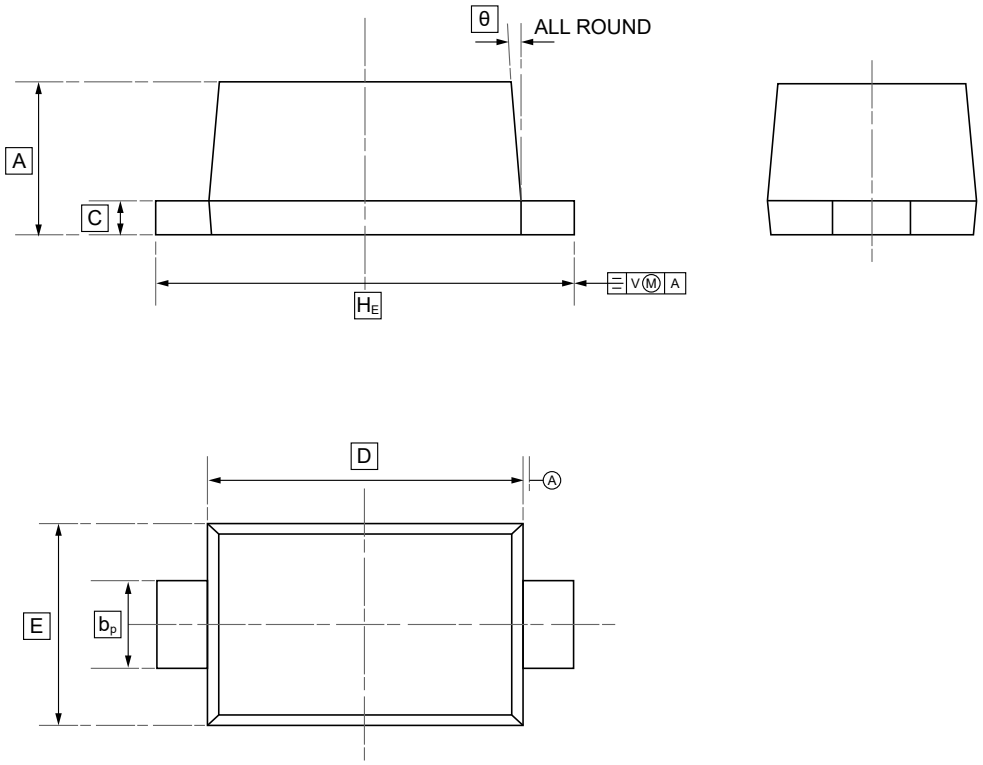


Figure 5: Peak Temp=257°C, Ramp Rate=0.802deg. °C/sec

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-523 Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	b_p	C	D	E	H_E	θ
Min	0.58	0.3	0.100	1.15	0.75	1.5	5°
Max	0.68	0.4	0.135	1.25	0.85	1.7	

12.Ordering information

ww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW PESDHC5D7VU	SOD-523	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.

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.