

1.Description

The UMW ESDA8V2-1J is a unidirectional single line Transil diode designed specifically for the protection of integrated circuits in portable equipment and miniaturized electronic devices subject to EOS and ESD transient over voltages.

3.Features

- Breakdown voltage $V_{BR}=8.2V$
- Unidirectional device
- High peak power dissipation: 500W
(8/20 μs waveform)
- ESD protection level better than IEC 61000-4-2 level 4: 30 kV contact discharge

4.Benefits

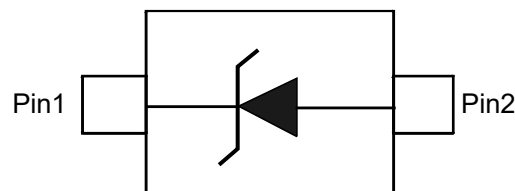
- High EOS and ESD protection level
- High integration

2.Applications

- Computers
- Printers
- Communication systems
Cellular phone handsets and accessories
- Video equipment

- Low leakage current ($< 0.5 \mu A @ 5 V$)
- IEC 61000-4-2 level 4
 - $\pm 15 kV$ (air discharge)
 - $\pm 8 kV$ (contact discharge)
- MIL STD 883G - Method 3015-7: class 3B
 - HBM (human body model): $\geq 8kV$

5.Pinning information



SOD-323



6. Absolute Maximum Ratings $T_A = 25^\circ\text{C}$

Parameter		Symbol	Value	Units
ESD discharge: IEC 61000-4-2 air discharge on input pin			± 30	kV
IEC 61000-4-2 contact discharge on input pin		V_{PP}	± 30	kV
MIL STD 883G - Method 3015-7: class 3B			± 30	kV
Peak pulse power dissipation (8/20 μs) ⁽¹⁾	$T_{J\text{ initial}} = T_{\text{amb}}$	P_{PP}	500	W
Peak pulse current (8/20 μs)		I_{PP}	25	A
Junction temperature range		T_J	-40 to 125	$^\circ\text{C}$
Storage temperature range		T_{STG}	-55 to 150	$^\circ\text{C}$
Maximum lead temperature for soldering during 10s		T_L	260	$^\circ\text{C}$

Notes:

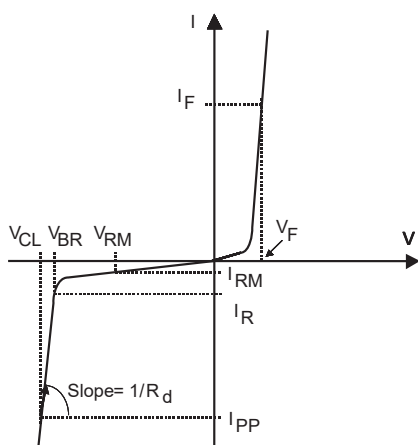
For a surge greater than the maximum values, the diode will fail in short-circuit.



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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Breakdown Voltage	V_{BR}	$I_R=1\text{mA}$	8.2			V
Leakage current @ V_{RM}	I_{RM}	$V_{RWM}=5\text{V}$		0.1	0.5	μA
		$I_{PP}=1\text{A}$			11	V
Clamping voltage (8/20 μs waveform)	V_{CL}	$I_{PP}=5\text{A}$			13	V
		$I_{PP}=25\text{A}$			20	V
Input capacitance	C	$V_R=0\text{V}$, $F_{osc}=1\text{MHz}$, $V_{osc}=30\text{mV}$		210	250	pF

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



Symbol	Parameter
V_{BR}	Breakdown voltage
I_{RM}	Leakage current @ V_{RM}
V_{RM}	Stand-of voltage
V_{CL}	Clamping voltage
I_{PP}	Peak pulse current
C	Input capacitance



9.1 Typical characteristic

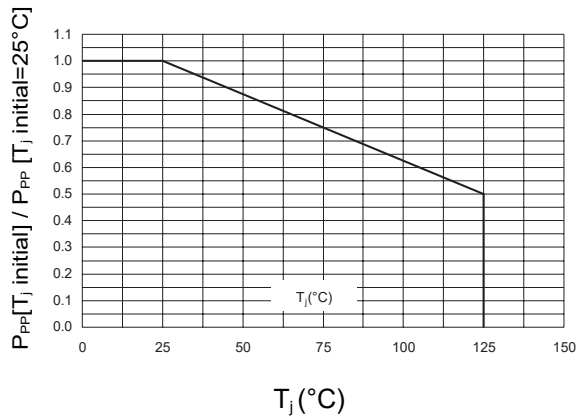


Figure 1: Relative variation of peak pulse power versus initial junction temperature

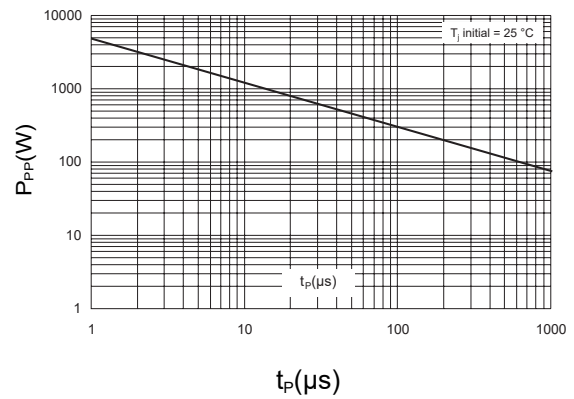


Figure 2: Peak pulse power versus exponential pulse duration

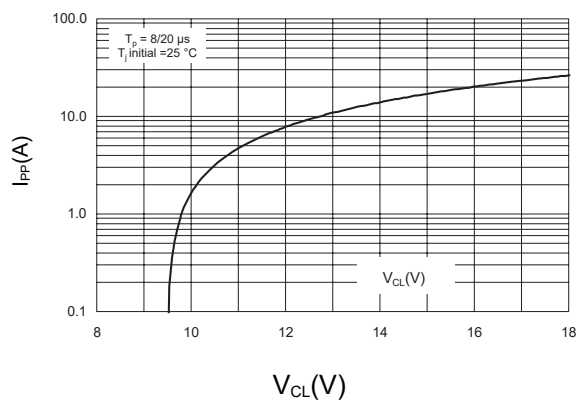


Figure 3: Clamping voltage versus peak pulse current (typical values, exponential waveform)

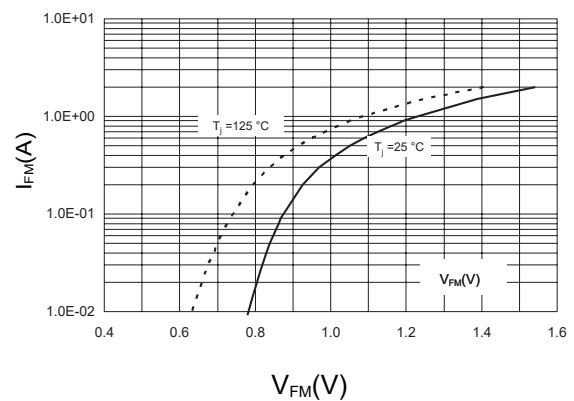


Figure 4: Forward voltage drop versus peak forward current (typical values)

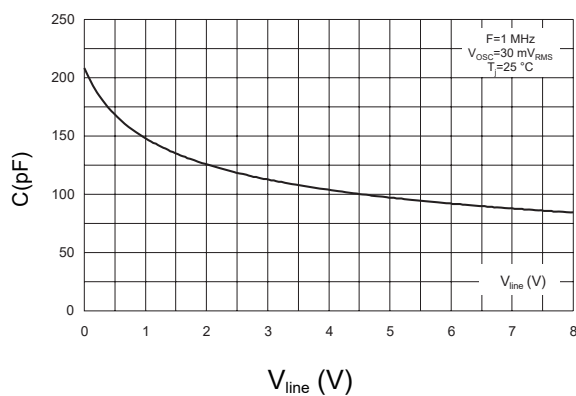


Figure 5: Junction capacitance versus reverse voltage applied (typical values)

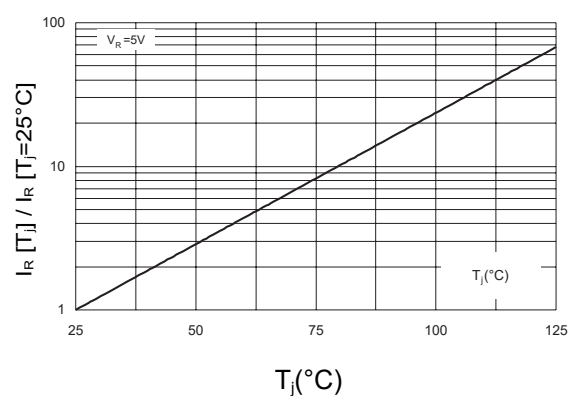
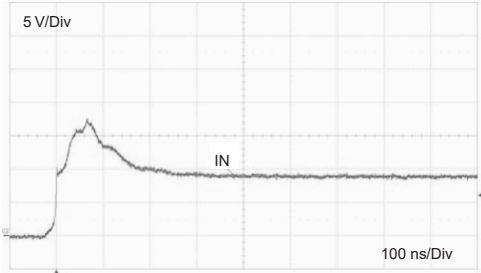
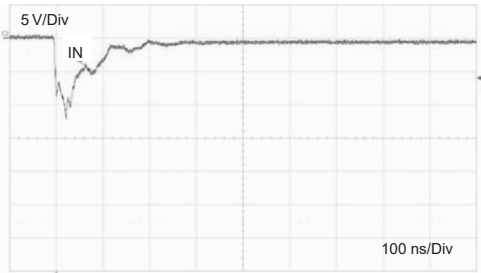


Figure 6: Relative variation of leakage current versus junction temperature (typical values)

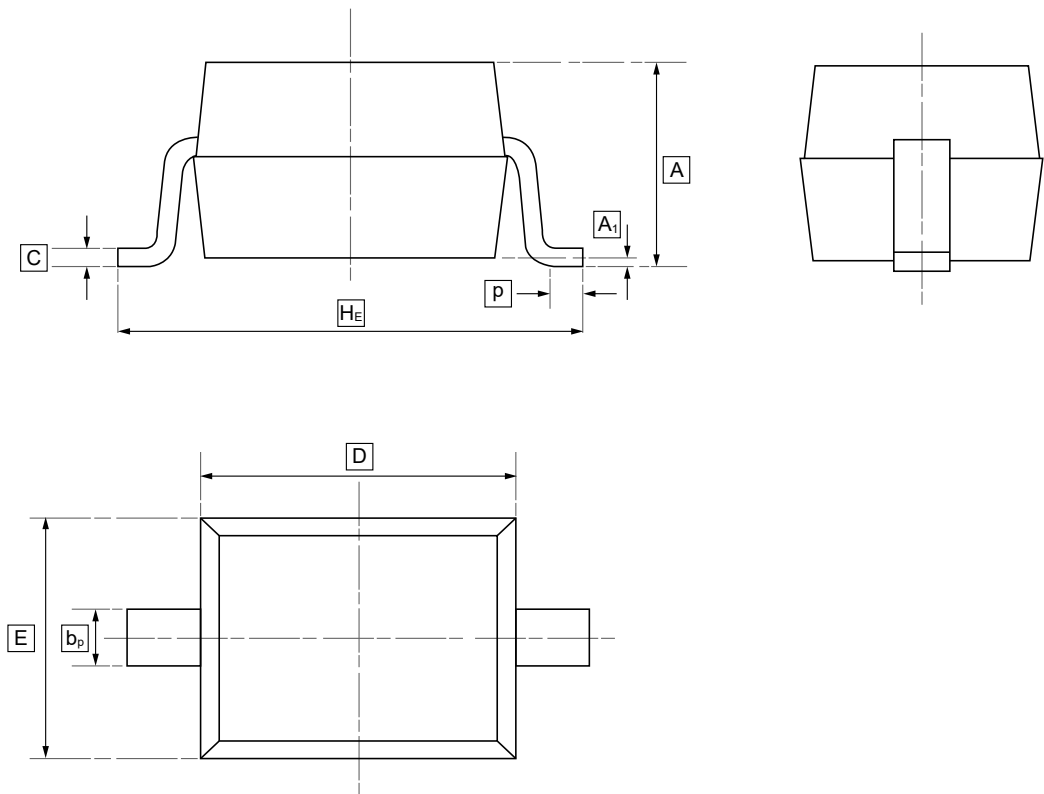


9.2Typical characteristic

	
Figure 7: ESD response to IEC 61000-4-2 (+15 kV air discharge)	Figure 8: ESD response to IEC 61000-4-2 (-15 kV air discharge)



10.SOD-323 Package Outline Dimensions

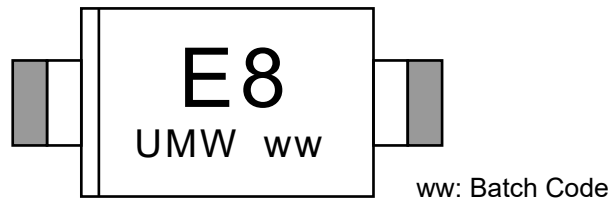


DIMENSIONS (mm are the original dimensions)

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



11.Ordering information



Order Code	Package	Base QTY	Delivery Mode
UMW ESDA8V2-1J	SOD-323	3000	Tape and reel



12.Disclaimer

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