

1. Description

The ESDA-1K is a single line Transil diode designed specifically for the protection of integrated circuits in portable equipment and miniaturized electronics devices subject to ESD and EOS transient overvoltages.

3. Features

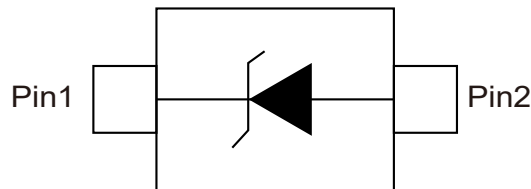
- Breakdown voltage: 12V, 18V
- Unidirectional device
- High peak power dissipation: 450W (8/20 μs waveform)

2. Applications

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

- ESD protection level better than IEC 61000-4-2 level 4: 30 kV contact discharge.
- Low leakage current < 0.5 μA at 5 V
- PCB area: 1.3 mm²

4. Pinning information



SOD-523

5. Absolute maximum ratings (T_{amb}=25°C)

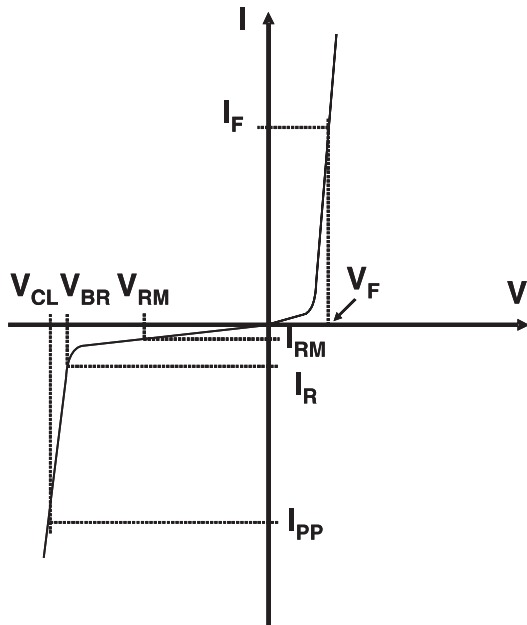
Parameter	Symbol	Value	Units
Peak pulse voltage IEC 61000-4-2 air discharge	V _{PP}	30	kV
IEC 61000-4-2 contact discharge		30	kV
Junction temperature rage	T _J	-40 to 150	°C
Storage temperature range	T _{STG}	-65 to 150	°C
Maximum lead temperature for soldering during 10s	T _L	260	°C



6. Absolute maximum ratings ($T_{amb}=25^{\circ}C$) - product specific parameters

Order code	$I_{PP}(A)$ peak pulse current (8/20 μ s)	P_{PP} (W) peak pulse power (8/20 μ s)
ESDA12-1K	16	450
ESDA18-1K	12	400

7. Electrical characteristics (definitions)



Symbol	Parameter
V_{BR}	Breakdown voltage
V_{CL}	Clamping voltage
I_{RM}	Leakage current @ V_{RM}
V_{RM}	Stand-off voltage
I_F	Forward current
I_{PP}	Peak pulse current
I_R	Breakdown current
V_F	Forward voltage drop
R_d	Dynamic impedance
αT	Voltage temperature



8. Electrical characteristics (values, $T_{amb}=25\text{ }^{\circ}\text{C}$)

Order code	$V_{BR} @ I_R$			$I_{RM} @ V_{RM}$		$V_{CL} @ I_{PP}(8/20\ \mu\text{s})$				Cline ⁽¹⁾
	Min.	Typ.		Max.		Max.		Max.		Max.
	V	V	mA	μA	V	V	A	V	A	pF
ESDA12-1K	12	13	1	0.5	10	16.5	1	28	16	150
ESDA18-1K	18	19	1	0.5	15	24	1	34	12	105

Notes:

1. $V_R=0\text{V}$, $F_{osc}=1\text{MHz}$, $V_{osc}=30\text{mV}$

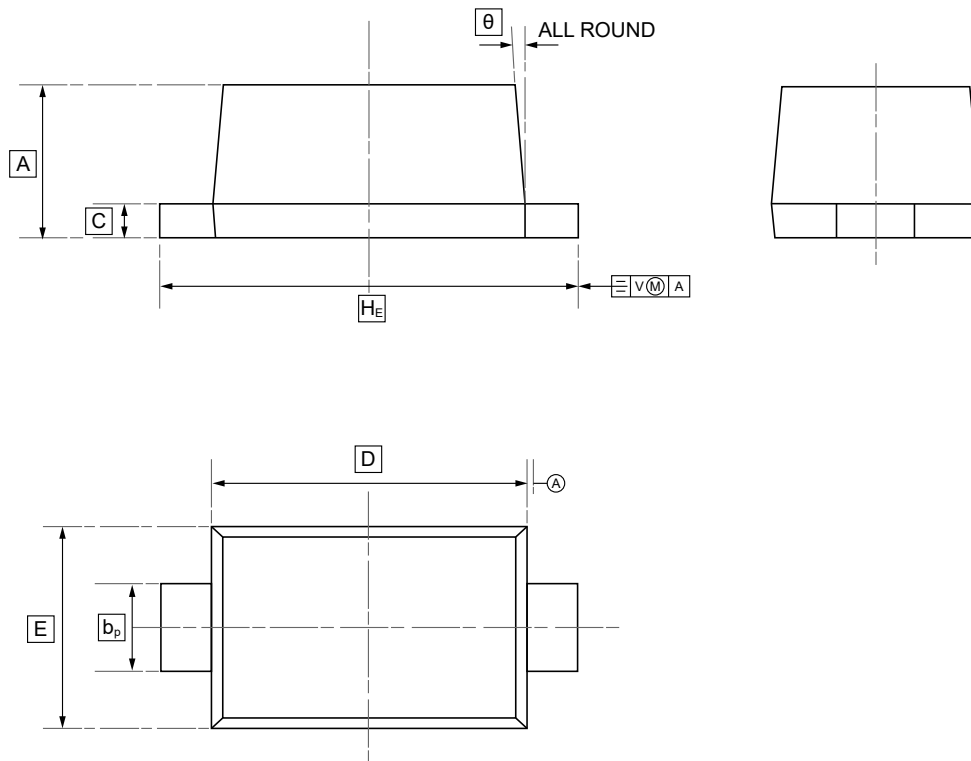


9. Typical characteristic

<p>Figure 1: Peak pulse power dissipation versus exponential pulse duration (typical values)</p>	<p>Figure 2: Peak pulse power dissipation versus initial junction temperature (typical values)</p>
<p>Figure 3: Clamping voltage versus peak pulse current (typical values)</p>	<p>Figure 4: Leakage current versus junction temperature (typical values)</p>
<p>Figure 5: ESD response to IEC 61000-4-2 (+15 kV air discharge) ESDA12-1K</p>	<p>Figure 6: ESD response to IEC 61000-4-2 (-15 kV air discharge) ESDA12-1K</p>



10.SOD-523 Package Outline Dimensions

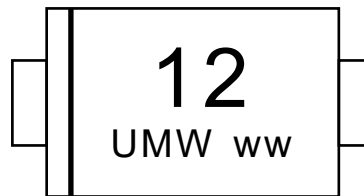


DIMENSIONS (mm are the original dimensions)

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	



11. Ordering information



ww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW ESDA12-1K	SOD-523	3000	Tape and reel
UMW ESDA18-1K	SOD-523	3000	Tape and reel



12.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.