

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

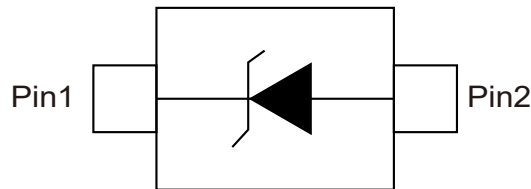
- Breakdown voltage: 12V, 18V
- Unidirectional device
- High peak power dissipation: 450W (8/20 μs waveform)

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)

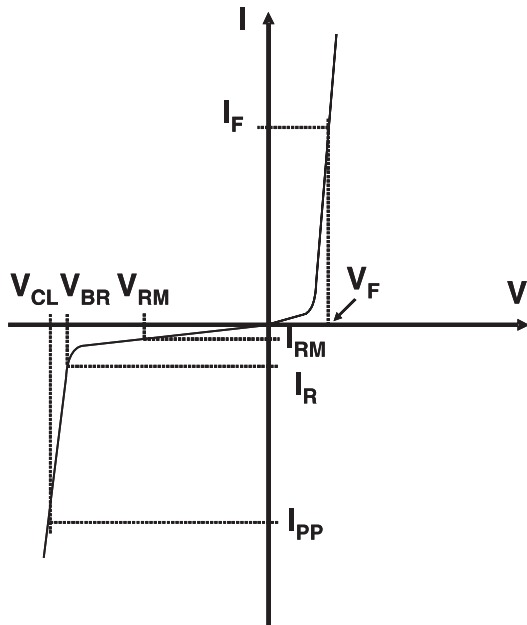
Parameter	Symbol	Value	Units
Peak pulse voltage IEC 61000-4-2 air discharge	V _{PP}	30	kV
IEC 61000-4-2 contact discharge		30	kV
Junction temperature rage	T _J	-40 to 150	°C
Storage temperature range	T _{STG}	-65 to 150	°C
Maximum lead temperature for soldering during 10s	T _L	260	°C



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	$V_{BR} @ I_R$			$I_{RM} @ V_{RM}$		$V_{CL} @ I_{PP}(8/20\text{ }\mu\text{s})$				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. $V_R=0\text{V}$, $F_{osc}=1\text{MHz}$, $V_{osc}=30\text{mV}$

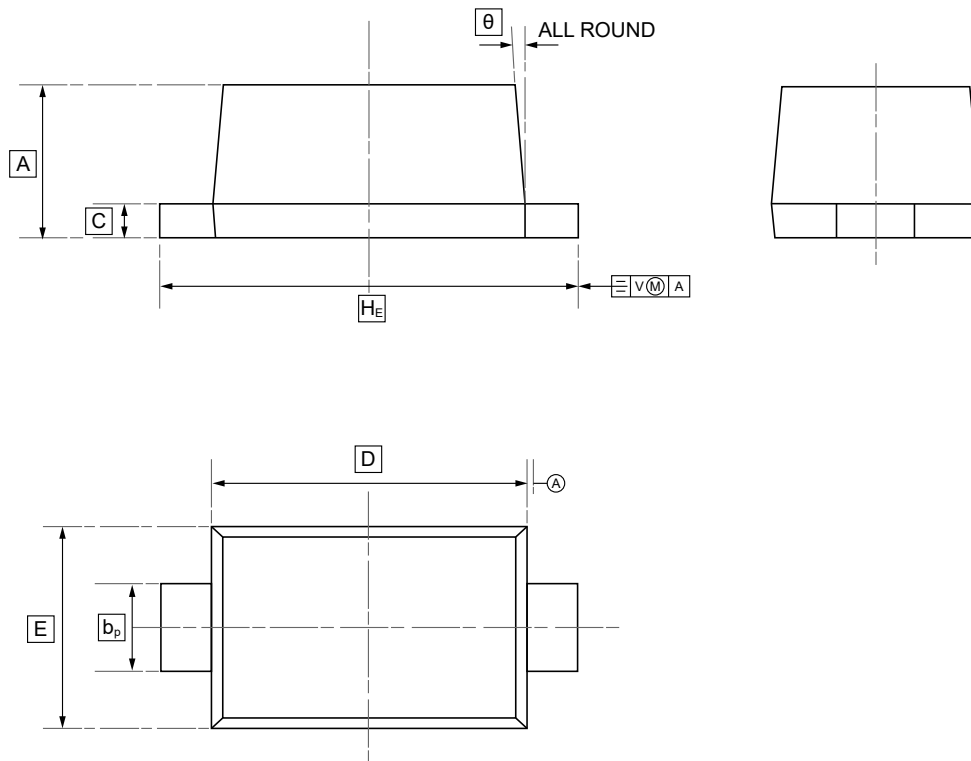


9. Typical characteristic

<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

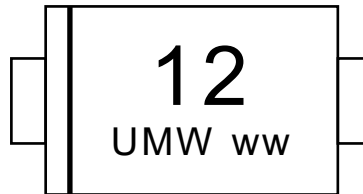


DIMENSIONS (mm are the original dimensions)

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.

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