UMW ESD7371HT1G

1.Description

The ESD7371 Series is designed to protect voltage sensitive components that require ultra-low capacitance from ESD and transient voltage events. Excellent clamping capability, low capacitance, high breakdown voltage, high linearity, low leakage, and fast response time make these parts ideal for ESD protection on designs where board space is at a premium.

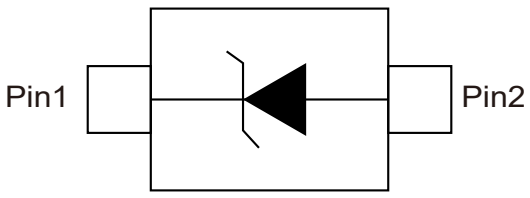
2.Features

- Low Capacitance (0.7pF Max, I/O to GND)
- Stand-off Voltage: 5.3 V
- Low Leakage: <1nA
- Low Dynamic Resistance < 1
- 1000 ESD IEC61000-4-2 Strikes ±8 kV Contact/Air Discharged
- Industry Leading Capacitance Linearity Over Voltage

3.Applications

- RF Signal ESD Protection
- RF Switching, PA, and Antenna ESD Protection
- Near Field Communications
- USB 2.0, USB 3.0

4.Pinning information



SOD-323

5.Absolute Maximum Ratings T_A= 25°C

Parameter	Symbol	Value	Units
IEC 61000−4−2 (ESD) (Note 1)		20	kV
IEC 61000−4−5 (ESD) (Note 2)		3	A
Total Power Dissipation (Note 3) @ T_A=25°C	P_D	300	mW
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	400	°C/W
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	°C
Lead Solder Temperature − Maximum (10 Second Duration)	T_L	260	°C

Notes:

1. Non−repetitive current pulse at T_A=25°C, per IEC61000−4−2 waveform.
2. Non−repetitive current pulse at T_A=25°C, per IEC61000−4−5 waveform.
3. Mounted with recommended minimum pad size, DC board FR−4

6.Electrical Characteristic (T_A=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Reverse Working Voltage	V_{RWM}				5.3	V
Breakdown Voltage (Note 4)	V_{BR}	I_T=1mA	7			V
Reverse Leakage Current	I_R	V_{RWM}=5.3V		<1	50	nA
Clamping Voltage (Note 5)	V_C	I_{PP}=1A		11	15	V
Clamping Voltage (Note 5)	V_C	I_{PP}=3A		14	20	V
Junction Capacitance	C_J	V_R=0V, f=1MHz		0.43	0.7	pF
		V_R=0V, f<1GHz		0.39	0.7	pF
Dynamic Resistance	R_{DYN}	TLP Pulse		0.45		Ω

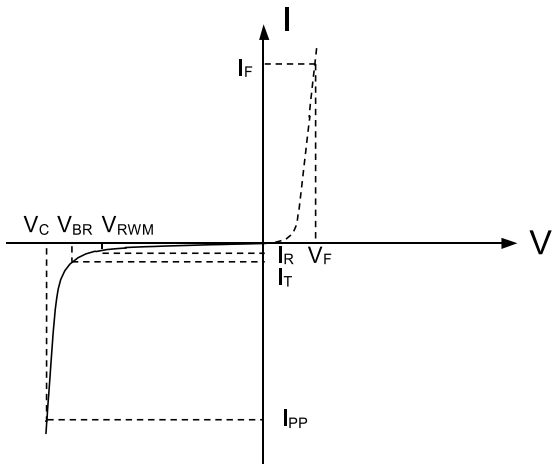
Notes:

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

4. Breakdown voltage is tested from pin 1 to 2 and pin 2 to 1.

5. Non−repetitive current pulse at TA = 25。C, per IEC61000−4−5 waveform.

7.Electrical Parameters (T_A=25°C unless otherwise noted)



Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current

8.1Typical characteristic

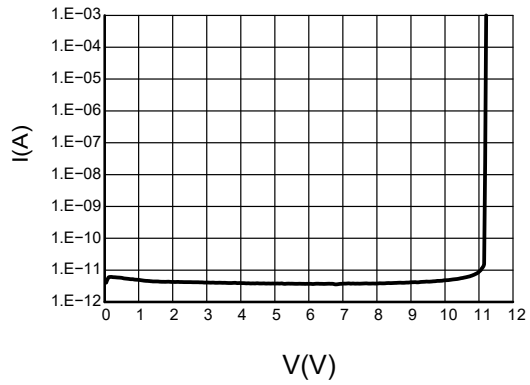


Figure 1: IV Characteristics

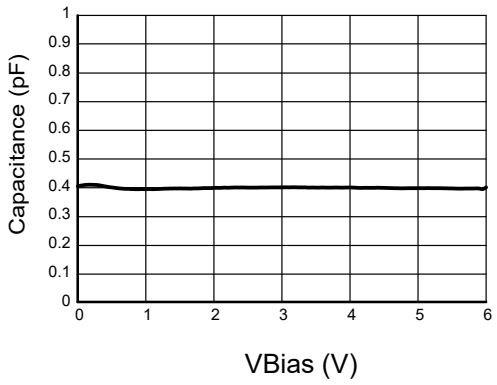


Figure 2: CV Characteristics

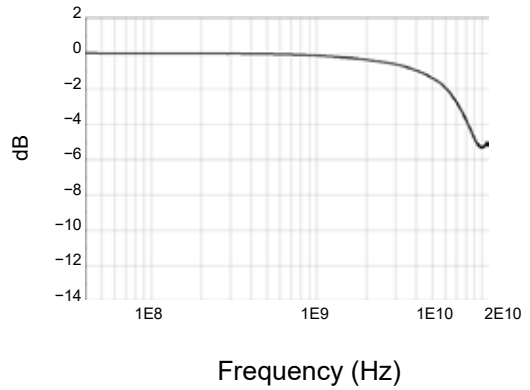


Figure 3: RF Insertion Loss

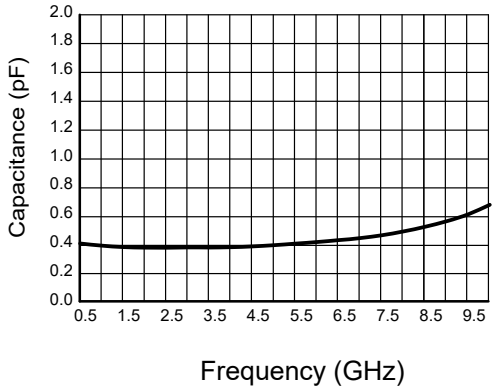


Figure 4: Capacitance over Frequency

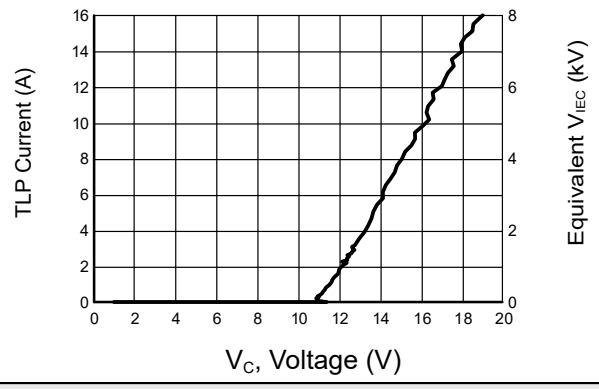


Figure 5: Positive TLP I−V Curve

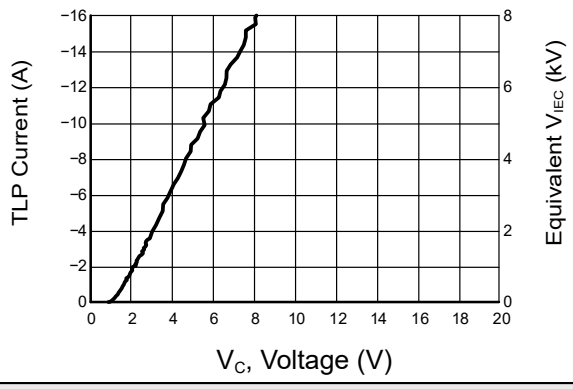


Figure 6: Negative TLP I-V Curve

8.2Typical characteristic

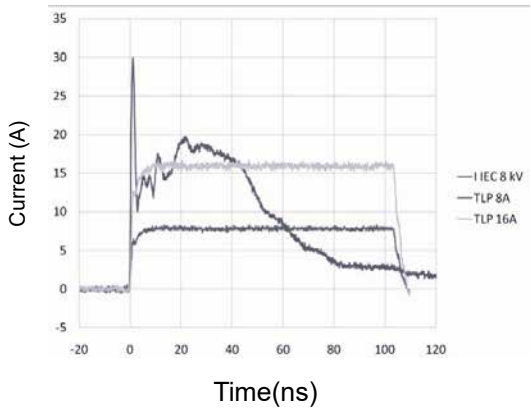


Figure 7: Comparison Between 8 kV IEC 61000−4−2 and 8 A and 16 A TLP Waveforms

IEC 61000−4−2 Spec.

Level	Test Voltage (kV)	First Peak Current (A)	Current at 30 ns (A)	Current at 60 ns (A)
1	2	7.5	4	2
2	4	15	8	4
3	6	22.5	12	6
4	8	30	16	8

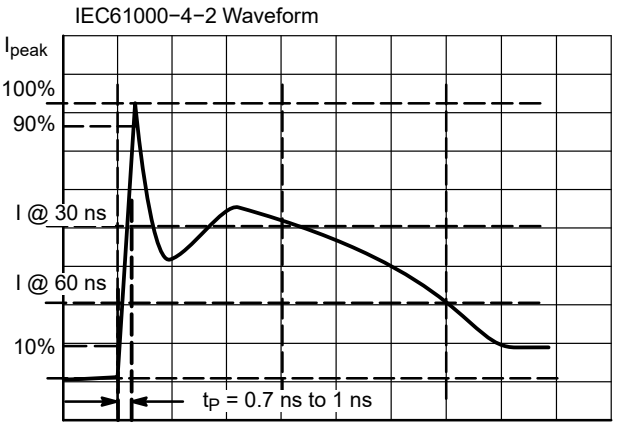
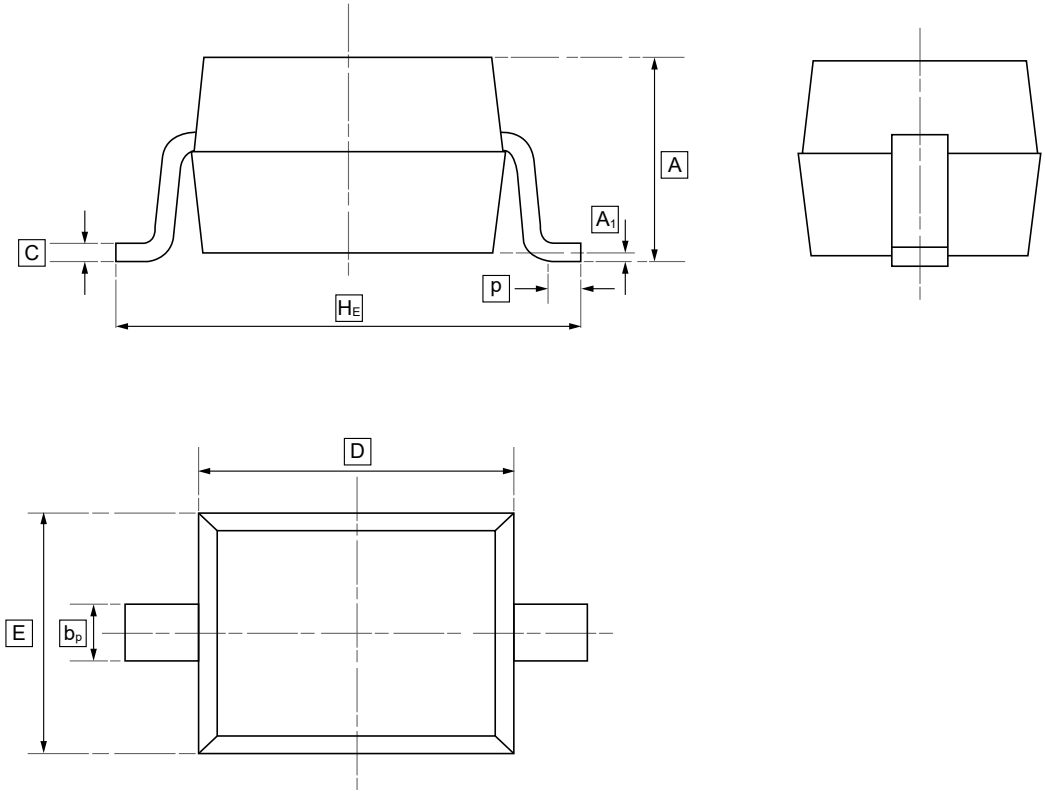


Figure 8: IEC61000−4−2 Spec

9.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

10.Ordering information

ww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW ESD7371HT1G	SOD-323	3000	Tape and reel

11.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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