UMW ESD7371XV2T1G

1.Description

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

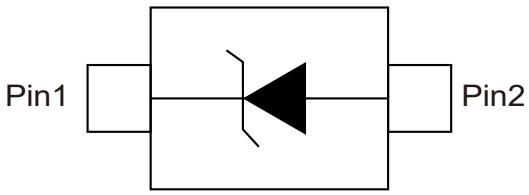
2.Typical Applications

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

3.Features

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

4.Pinning information



SOD-523

5.Absolute Ratings

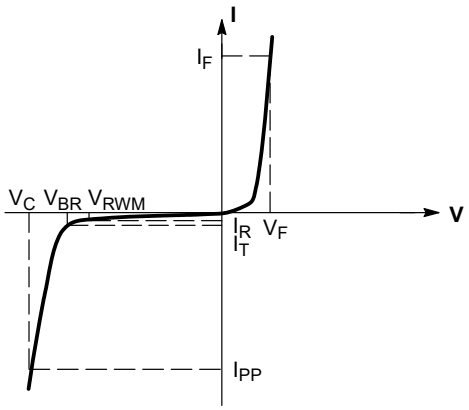
Parameter	Symbol	Value	Units
IEC 61000-4-2(ESD)(Note 1)		20	kV
IEC 61000-4-5(ESD)(Note 2)		3	A
Total Power Dissipation (Note 3) @ T_A=25°C	P_D	300	mW
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	400	°C/W
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	°C
Lead Solder Temperature-Maximum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

Notes:

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

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.Portion Electronics Parameter



Uni−Directional

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

7.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
	C_J	V_R=0V, f<1MHz		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 T_A=25°C, per IEC61000−4−5 waveform.

8.1Typical characteristic

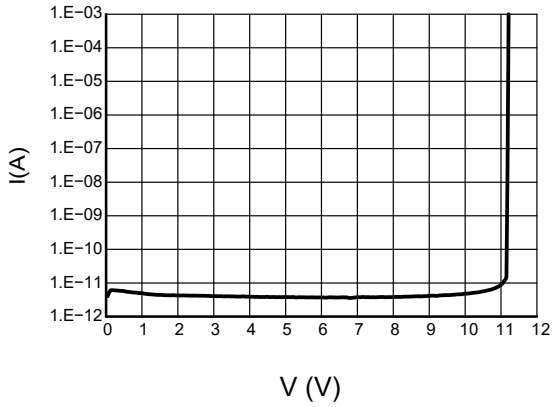


Figure 1: IV Characteristics

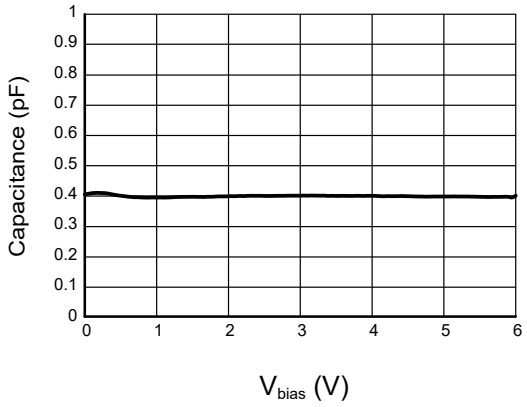


Figure 2: CV Characteristics

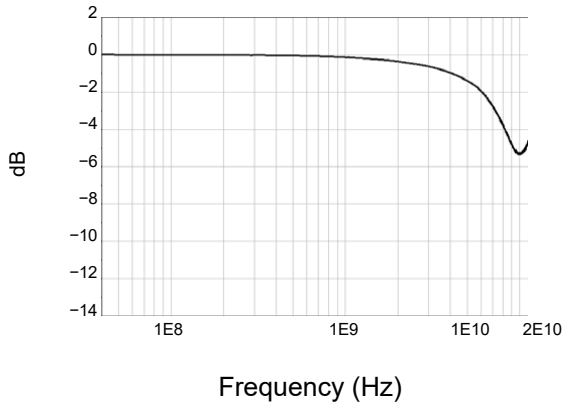


Figure 3: RF Insertion Loss

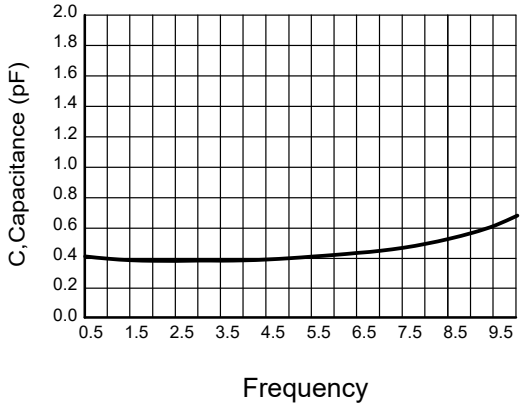


Figure 4: Capacitance over Frequency

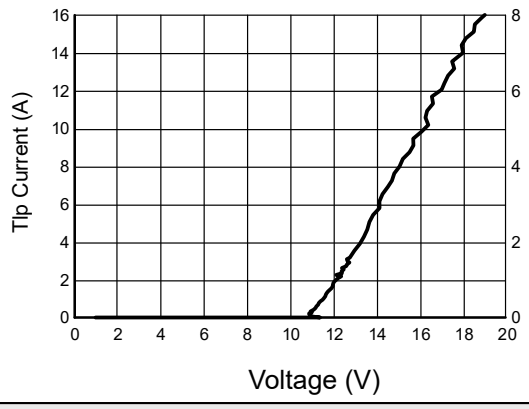


Figure 5: Positive TLP I−V Curve

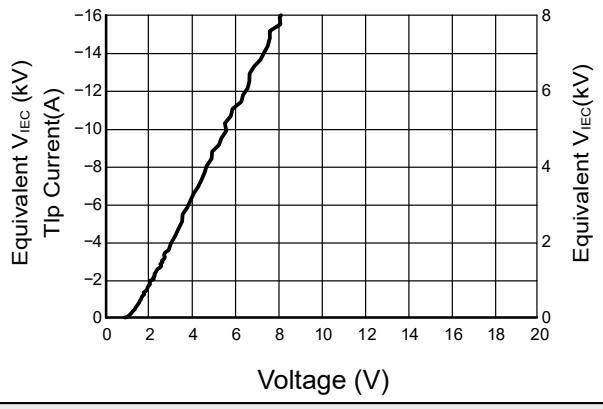
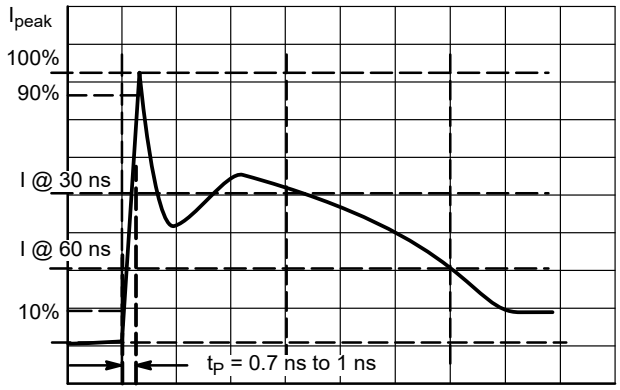


Figure 6: Negative TLP I−V Curve

8.2Typical characteristic



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 7: IEC61000−4−2 Spec

8.3Typical characteristic

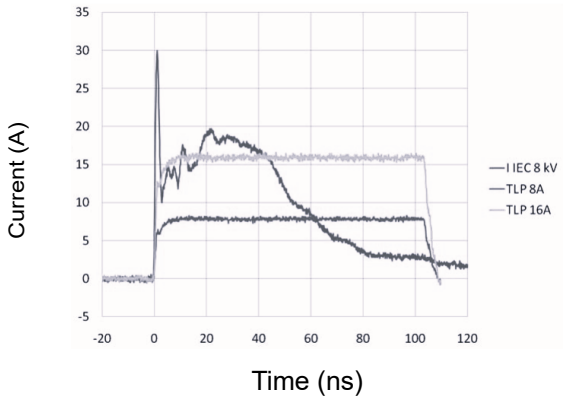
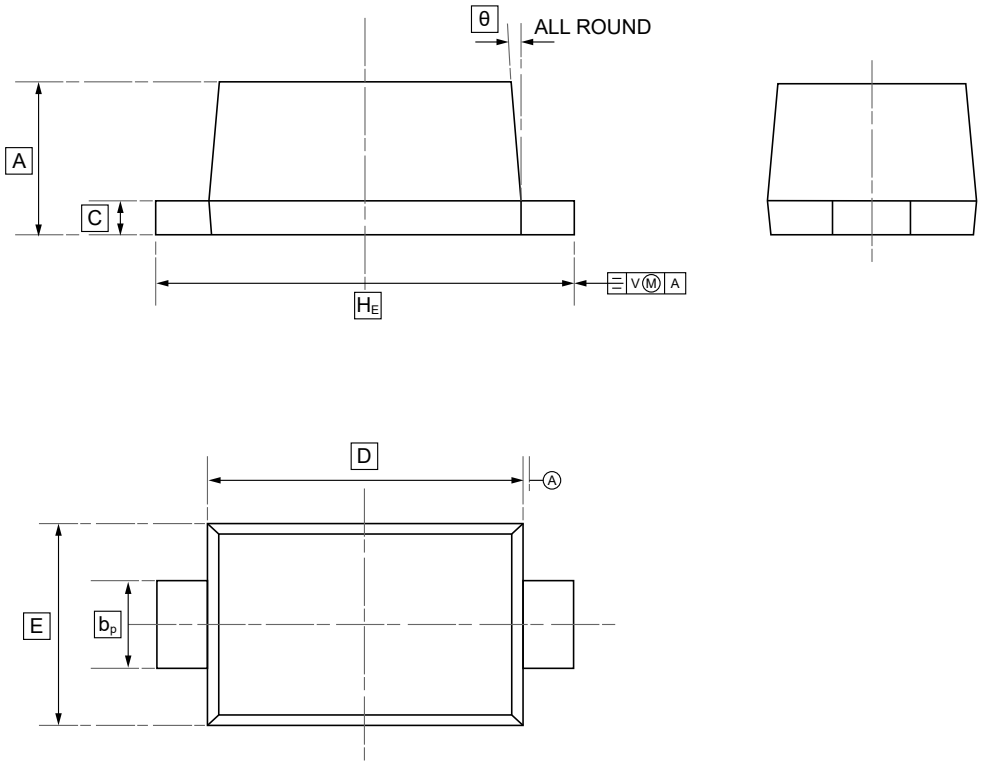


Figure 8: Comparison Between 8 kV IEC 61000−4−2 and 8 A and 16 A TLP Waveforms

9.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	

10.Ordering information



ww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW ESD7371XV2T1G	SOD-523	3000	Tape and reel

11.Disclaimer

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