UMW ESD5B5.0ST1G

1.Description

The ESD5B5.0ST1G Series is designed to protect voltage sensitive components from ESD. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD.

2.Mechanical Characteristics

CASE: Void-free, transfer-molded, thermosetting plastic Epoxy Meets UL 94 V−0

LEAD FINISH: 100% Matte Sn (Tin)

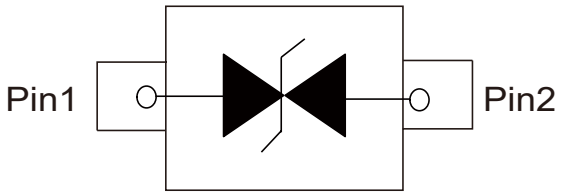
MOUNTING POSITION: Any

QUALIFIED MAX REFLOW TEMPERATURE: 260°C Device Meets MSL 1 Requirements

3.Features

- Low Capacitance 32 pF
- Low Clamping Voltage
- Small Body Outline Dimensions: nom 0.063″ x 0.032″(1.6x0.8 mm)
- Low Body Height: nom 0.024″ (0.6 mm)
- Reverse Working (Stand−off) Voltage: 5.0 V
- Peak Power up to 50 W @ 8 x 20 s Pulse
- Low Leakage
- Response Time is Typically < 1 ns
- ESD Rating of Class 3 (> 16 kV) per Human Body Model
- IEC61000−4−2 Level 4 ESD Protection
- SZ Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC−Q101 Qualified and PPAP Capable
- This is a Pb−Free Device

4.Pinning information



SOD-523

5.Absolute Ratings

Parameter		Symbol	Value	Units
IEC 61000−4−2 (ESD)	Contact		±30	kV
	Air		±30	kV
ESD Voltage	Per Human Body Model		16	kV
	Per Machine Model		400	V
Peak Power (Figure 1) Per 8 x 20μs Waveform		P_{PK}	50	W
Peak Power (Figure 2)Per 10 x 1000μs Waveform			10	W
Total Power Dissipation on FR−5 Board (Note 1) @ T_A=25°C		P_D	200	mW
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. FR−5 = 1.0 x 0.75 x 0.62 in.

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

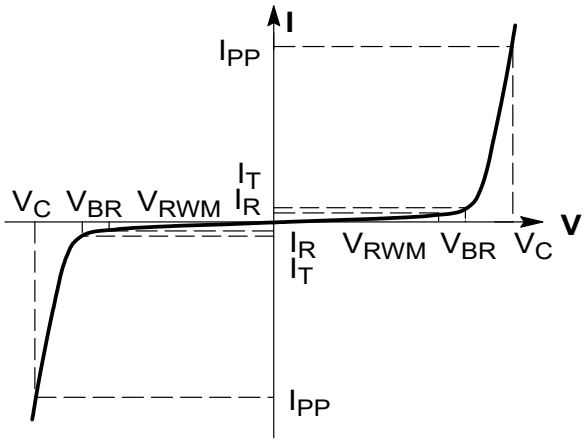
Device	V_{RWM} (V)	I_R (μA) @ V_{RWM}	V_{BR} (V) @ I_T (Note 2)		I_T	C(pF) @ V_R=0V, f =1MHz	V_C
	Max	Max	Min	Max	mA	Typ	Per IEC61000−4−2 (Note 3)
ESD5B5.0ST1G	5.0	1.0	5.8	7.8	1.0	32	Figures 1 and 2 See Below

Notes:

*Other voltages available upon request.

2. VBR is measured with a pulse test current IT at an ambient temperature of 25°C.

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.Typical characteristic

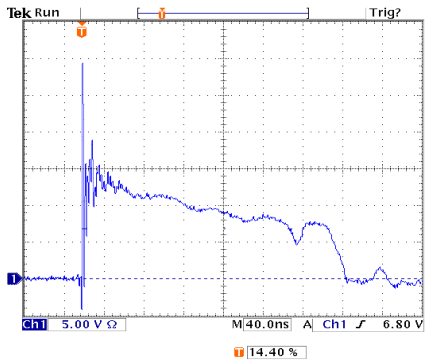


Figure 1: ESD Clamping Voltage Screenshot
Positive 8 kV Contact per IEC 61000−4−2

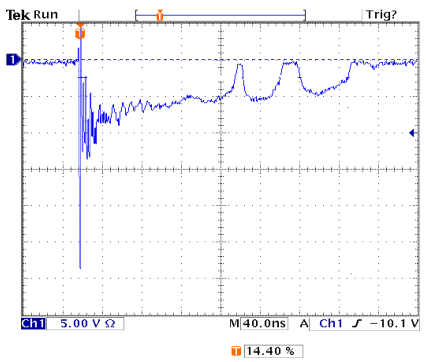
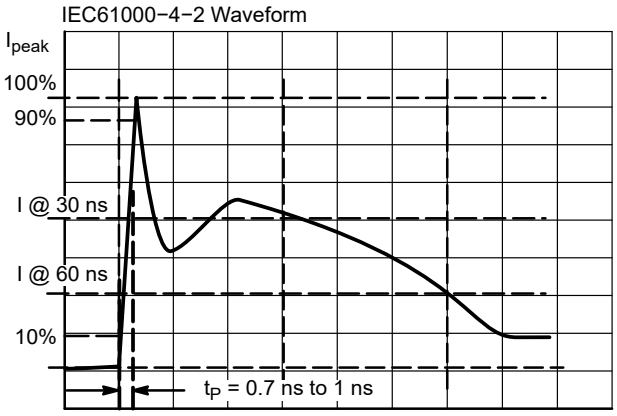
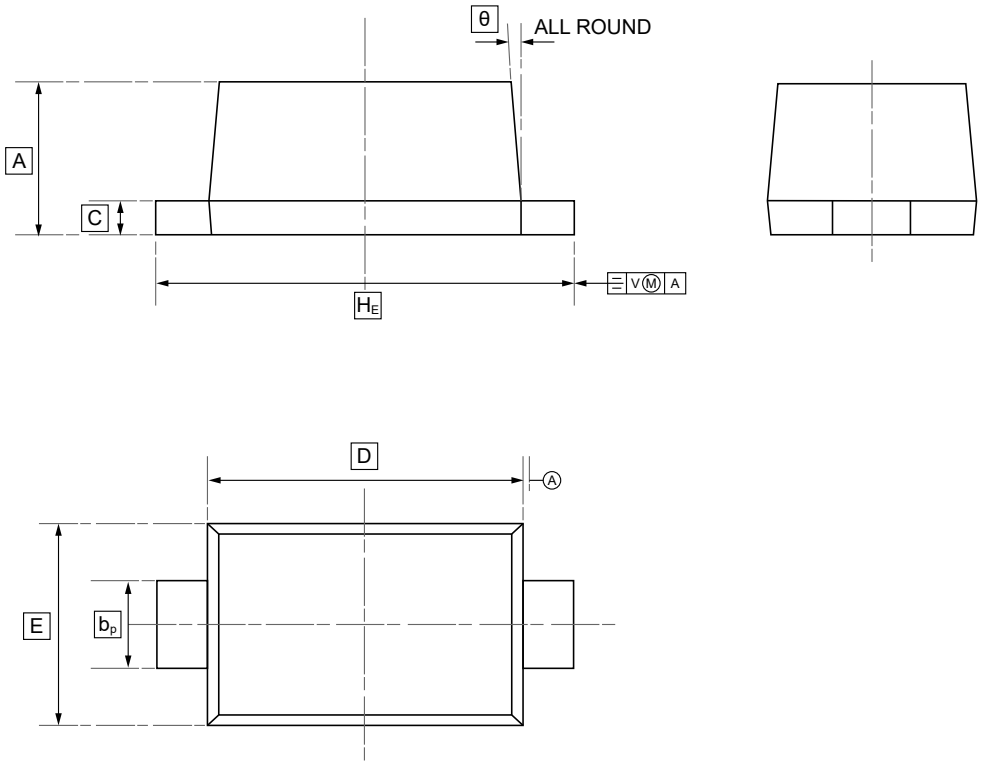


Figure 2: ESD Clamping Voltage Screenshot
Negative 8 kV Contact per IEC 61000−4−2



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

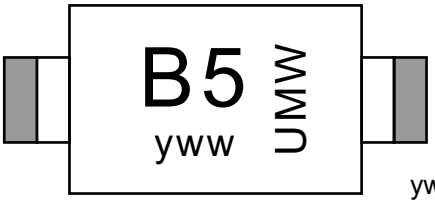
9.SOD-523 Package Outline Dimensions



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



yww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW ESD5B5.0ST1G	SOD-523	3000	Tape and reel

11.Disclaimer

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