UMW ESD5B5VL

1.Description

The ESD5B5VL is a bi-directional TVS (Transient Voltage Suppressor). It is specifically designed to protect sensitive electronic components that may be subjected to ESD (Electrostatic Discharge), EFT (Electrical Fast Transients) and Lightning. It is particularly well-suited for cellular phones, portable device, digital cameras, power supplies and many other portable applications because of its small package and low weight.

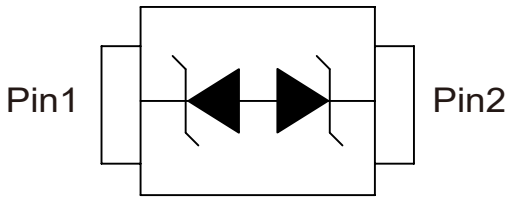
2.Applications

- Cell phone handsets and accessories
- Personal Digital Assistants (PDAs)
- Notebooks, Desktops, and Serves
- Portable Instrumentation
- Digital Cameras
- MP3/MP4/PMP Players

3.Features

- Stand-off voltage: ±5V Max
- Transient protection for each line according to
  IEC61000-4-2 (ESD): ±8kV (contact discharge)
  IEC61000-4-4 (EFT): 40A (5/50ns)
- IEC61000-4-5 (surge): 3.5A (8/20μs)
- Capacitance: CJ = 5pF typ.
- Solid-state silicon technology

4.Pinning information



SOD-523

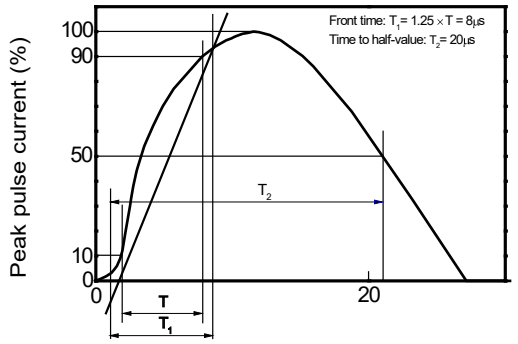
5.Absolute Maximum Ratings

Parameter	Symbol	Rating	Units
Peak pulse power (t_p= 8/20μs)	P_{PK}	50	W
Peak pulse current (t_p= 8/20μs)	I_{PP}	3.5	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	±15	kV
ESD according to IEC61000-4-2 contact discharge		±8	kV
Junction temperature	T_J	125	°C
Operating temperature	T_{OP}	-40 to 85	°C
Lead temperature	T_L	260	°C
Storage temperature	T_{STG}	-55 to 150	°C

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

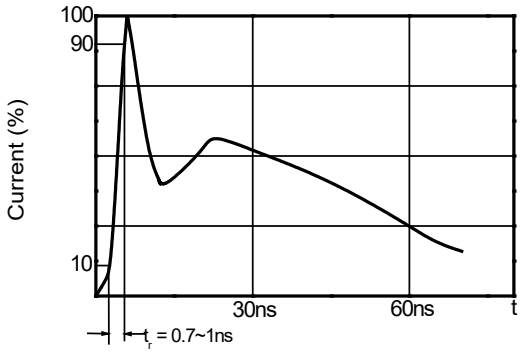
Parameter	Symbol	Conditions	Min	Typ	Max	Units
Reverse stand-off voltage	V_{RWM}				±5	V
Reverse leakage current	I_R	V_{RWM}=5V			1	μA
Reveres breakdown voltage	V_{BR12}	I_T=1mA	6.5	7.7	8.1	V
Forward voltage	V_{BR21}	I_F=1mA	6.5	7.8	8.1	V
Clamping voltage	V_{CL}	V_{ESD}=8kV		20		V
Clamping voltage	V_C	I_{pp}=1A, t_p=8/20μs			10	V
		I_{pp}=3.5A, t_p=8/20μs			14	V
Junction capacitance	C_J	V_R=0V, f=1MHz		5	10	pF
		V_R=5V, f=1MHz		2.5	5	pF

7.1Typical characteristic



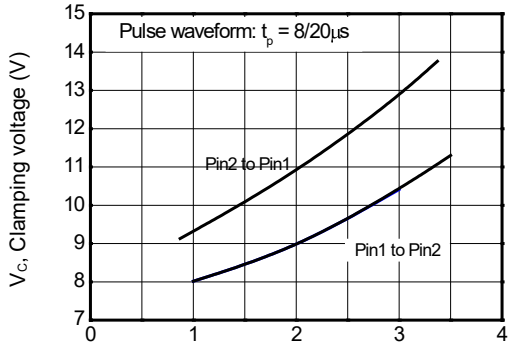
Time (μs)

Figure 1: 8/20μs waveform per IEC61000-4-5



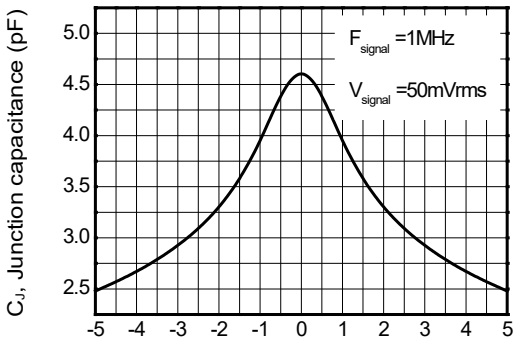
Time (ns)

Figure 2: Contact discharge current waveform per IEC61000-4-2



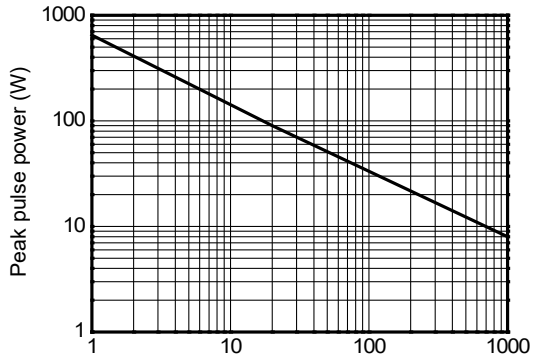
I_{PP}, Peak pulse current (A)

Figure 3: Clamping voltage vs. Peak pulse current



V_R, Reverse voltage (V)

Figure 4: Capacitance vs. Reverse voltage



Pulse time (μs)

Figure 5: Non-repetitive peak pulse power vs. Pulse time

T_A, Ambient temperature (°C)

Figure 6: Power derating vs. Ambient temperature

7.2Typical characteristic

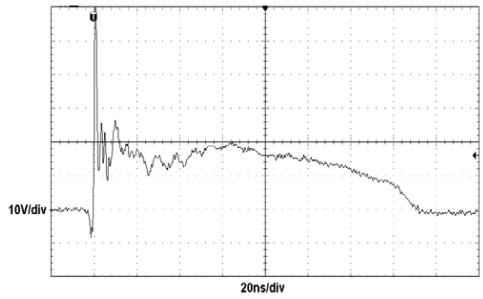


Figure 7: ESD clamping
(+8kV contact discharge per IEC61000-4-2)

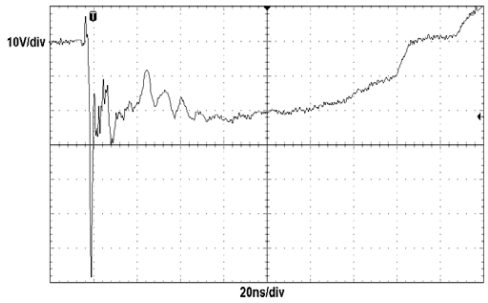
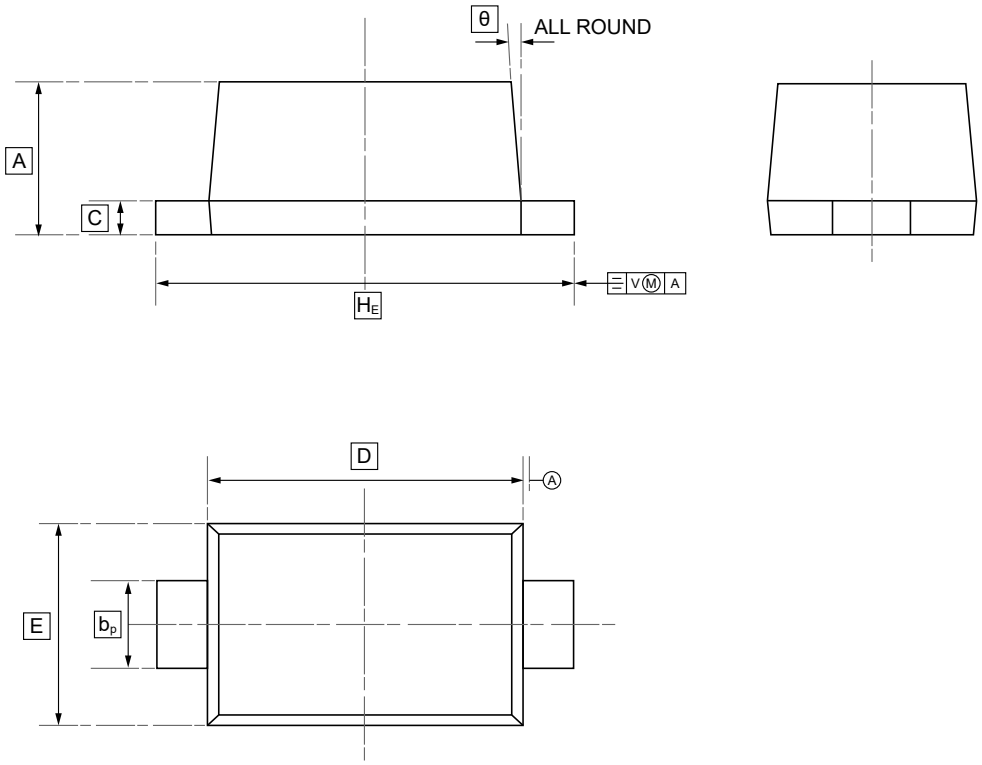


Figure 8: ESD clamping
(-8kV contact discharge per IEC61000-4-2)

8.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	

9.Ordering information

yww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW ESD5B5VL	SOD-523	3000	Tape and reel

10.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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