UMW SPD9105W

1 Lines, Bi-directional, low Capacitance
Transient Voltage Suppressors

1.Description

The SPD9105W may be used to provide ESD protection up to ±30kV (contact discharge) according to IEC61000-4-2, and withstand peak pulse current up to 20A (8/20μs) according to IEC61000-4-5.

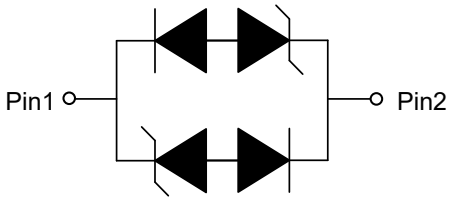
2.Applications

- 10/100 Ethernet
- STB
- Router
- Networking
- Modem

3.Features

- Stand-off voltage: 5V Max.
- Transient protection for each line according to
  IEC61000-4-2 (ESD): ±30kV(contact discharge)
  IEC61000-4-4 (EFT): 40A - 5/50ns
  IEC61000-4-5 (surge): 20A (8/20μs).
- Low capacitance: C_J=1pF typ.
- Ultra-low leakage current: I_R=0.1nA typ.
- Low clamping voltage.
- Solid-state silicon technology

4.Pinning information



SOD-323

5.Absolute Maximum Ratings T_A= 25°C

Parameter	Symbol	Maximum	Units
Peak pulse power (t_p=8/20μs)	P_{PK}	360	W
Peak pulse current (t_p= 8/20μs)	I_{PP}	20	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	±30	kV
ESD according to IEC61000-4-2 contact discharge		±30	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 maximum working voltage	V_{RWM}				5	V
Reverse leakage current	I_R	V_{RWM}=5V		0.1	100	nA
Reverse breakdown voltage	$V_{(BR)}$	I_T=1mA	5.6			V
Clamping voltage [1)]	V_{CL}	I_{PP}=1A, t_p=8/20μs			9	V
		I_{PP}=5A, t_p=8/20μs			11	V
		I_{PP}=20A, t_p=8/20μs			18	V
Junction capacitance	C_J	V_R=0V, f=1MHz, I/O to I/O		1	1.5	pF

Notes:

1) According to IEC61000-4-5.

7.1Typical characteristic

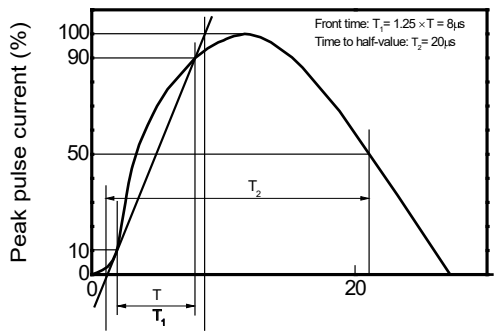


Figure 1: 8/20μs waveform per IEC61000-4-5

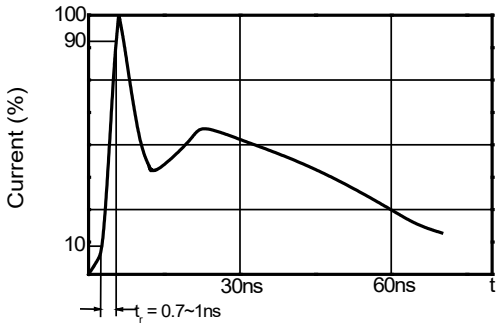


Figure 2: Contact discharge current waveform per IEC61000-4-2

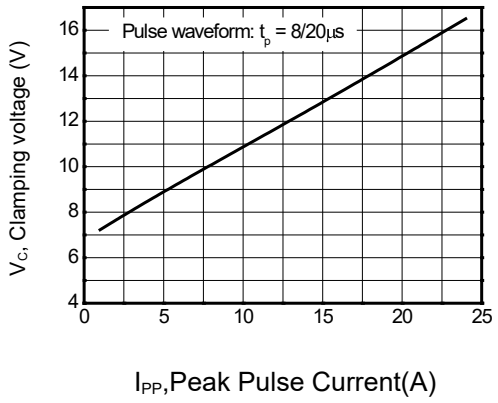


Figure 3: Clamping voltage vs. Peak pulse current

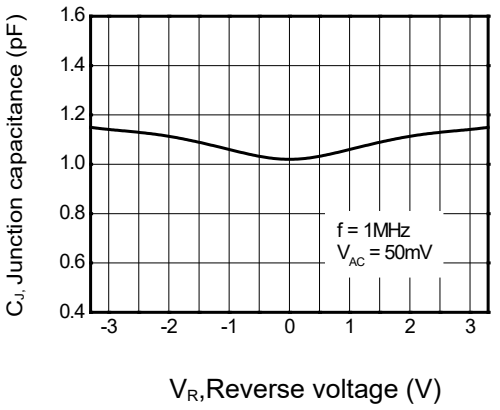


Figure 4: Capacitance vs. Reverse voltage

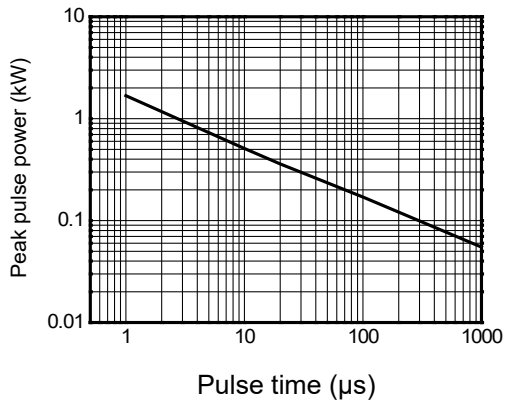


Figure 5: Non-repetitive peak pulse power vs. Pulse time

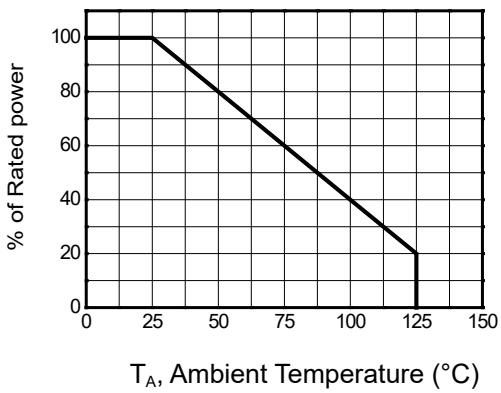


Figure 6: Power derating vs. Ambient temperature

7.2Typical characteristic

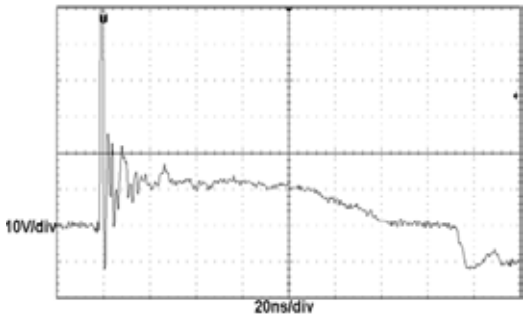


Figure 7: ESD clamping
(+8kV contact discharge per IEC61000-4-2)

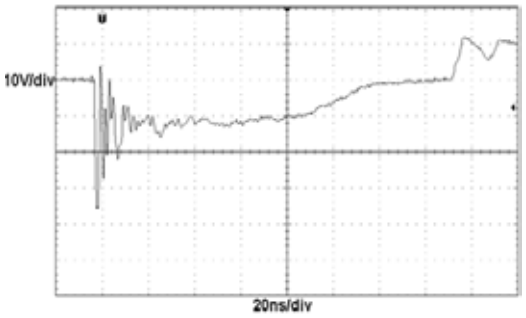


Figure 8: ESD clamping
(-8kV contact discharge per IEC61000-4-2)

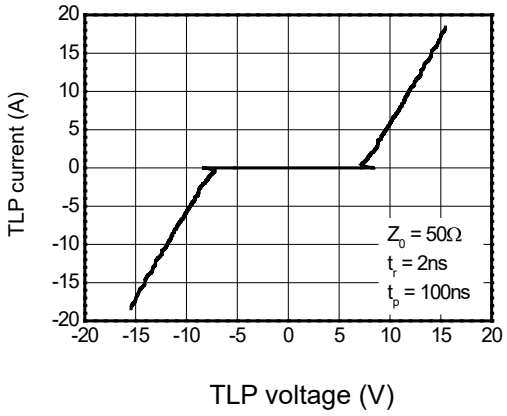
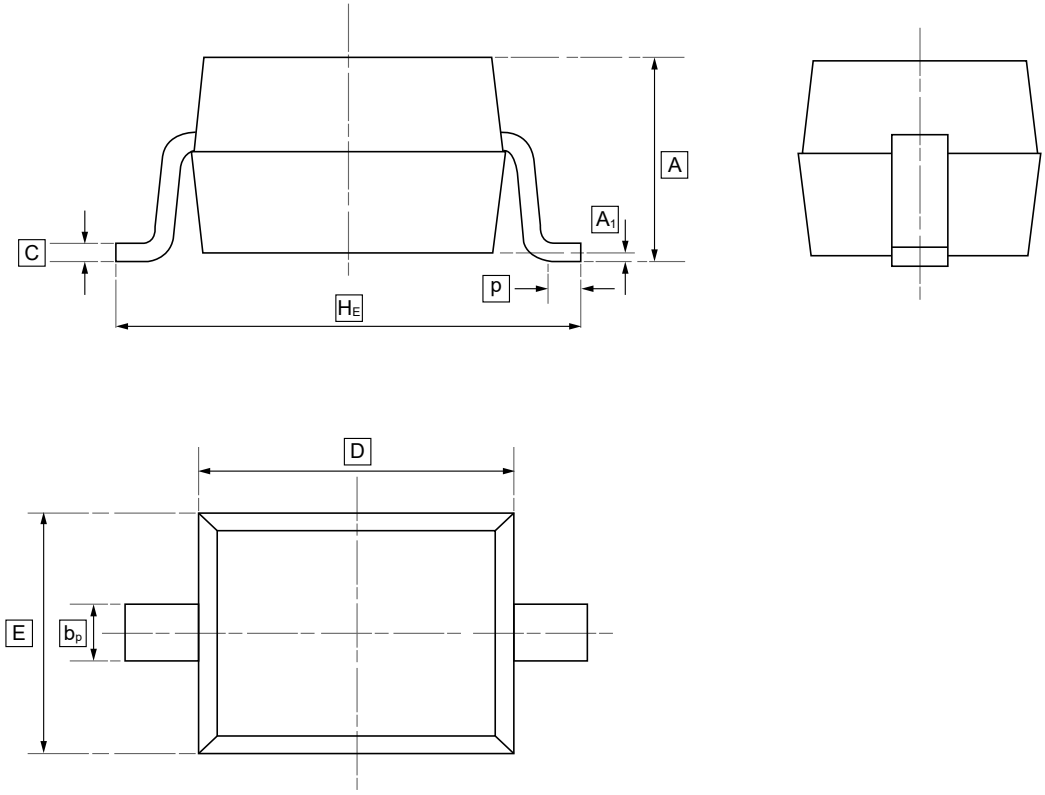


Figure 9: TLP Measurement

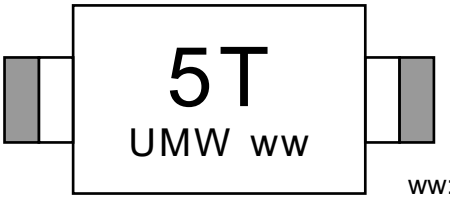
8.SOD-323 Package Outline Dimensions



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

9.Ordering information



ww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW SPD9105W	SOD-323	3000	Tape and reel

10.Disclaimer

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