

1.Description

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

3.Features

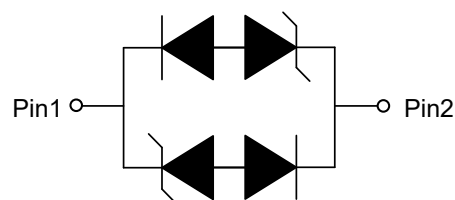
- Stand-off voltage: 5V Max.
- Transient protection for each line according to IEC61000-4-2 (ESD): $\pm 30\text{kV}$ (contact discharge)
IEC61000-4-4 (EFT): 40A - 5/50ns
IEC61000-4-5 (surge): 20A (8/20 μs).

2.Applications

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

- Low capacitance: $C_J=1\text{pF}$ typ.
- Ultra-low leakage current: $I_R=0.1\text{nA}$ typ.
- Low clamping voltage.
- Solid-state silicon technology

4.Pinning information



SOD-323



5. Absolute Maximum Ratings $T_A = 25^\circ\text{C}$

Parameter	Symbol	Maximum	Units
Peak pulse power ($t_p=8/20\mu\text{s}$)	P_{PK}	360	W
Peak pulse current ($t_p= 8/20\mu\text{s}$)	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	$^\circ\text{C}$
Operating temperature	T_{OP}	-40 to 85	$^\circ\text{C}$
Lead temperature	T_L	260	$^\circ\text{C}$
Storage temperature	T_{STG}	-55 to 150	$^\circ\text{C}$



6. Electrical Characteristic ($T_A=25^\circ\text{C}$ 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}	$I_{PP}=1A, t_p=8/20\mu s$			9	V
		$I_{PP}=5A, t_p=8/20\mu s$			11	V
		$I_{PP}=20A, t_p=8/20\mu s$			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.



7.1 Typical characteristic

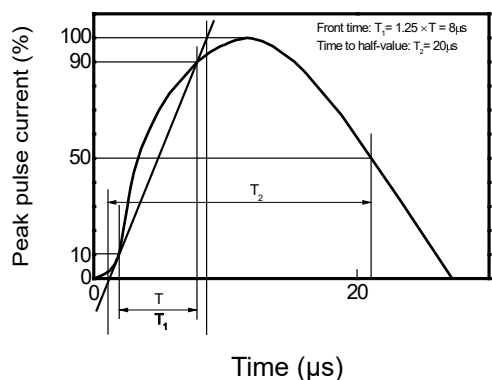


Figure 1: 8/20μs waveform per IEC61000-4-5

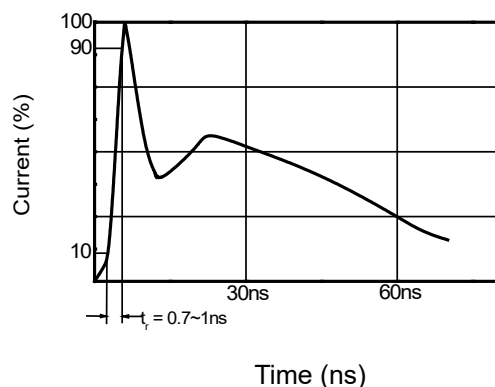
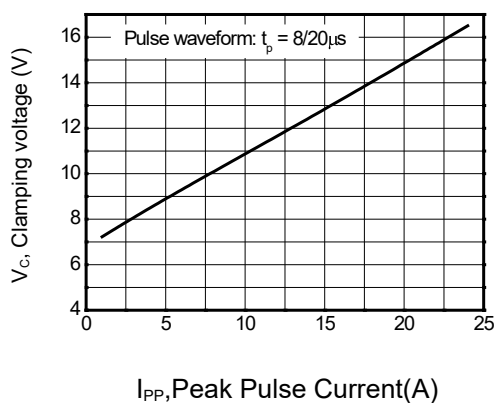
Figure 2: Contact discharge current waveform
per IEC61000-4-2

Figure 3: Clamping voltage vs. Peak pulse current

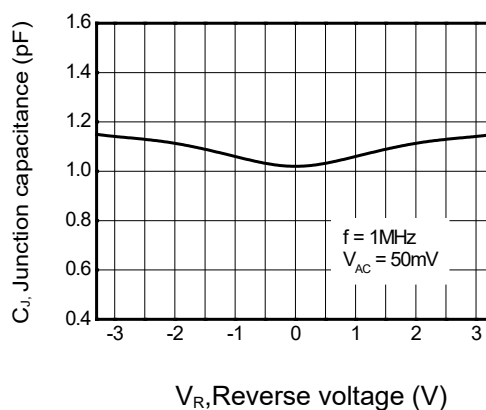


Figure 4: Capacitance vs. Reverse voltage

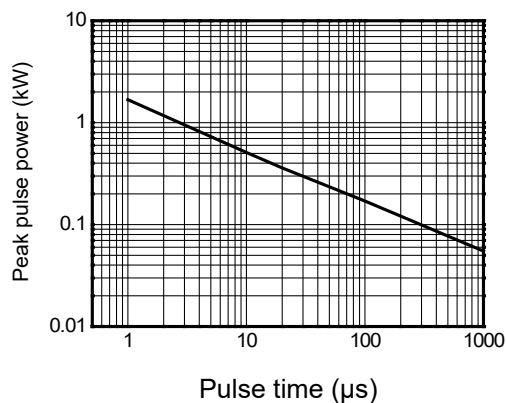
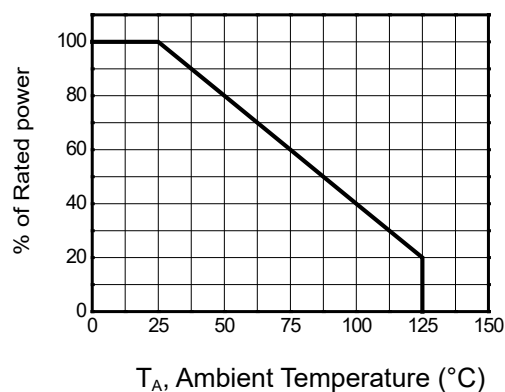
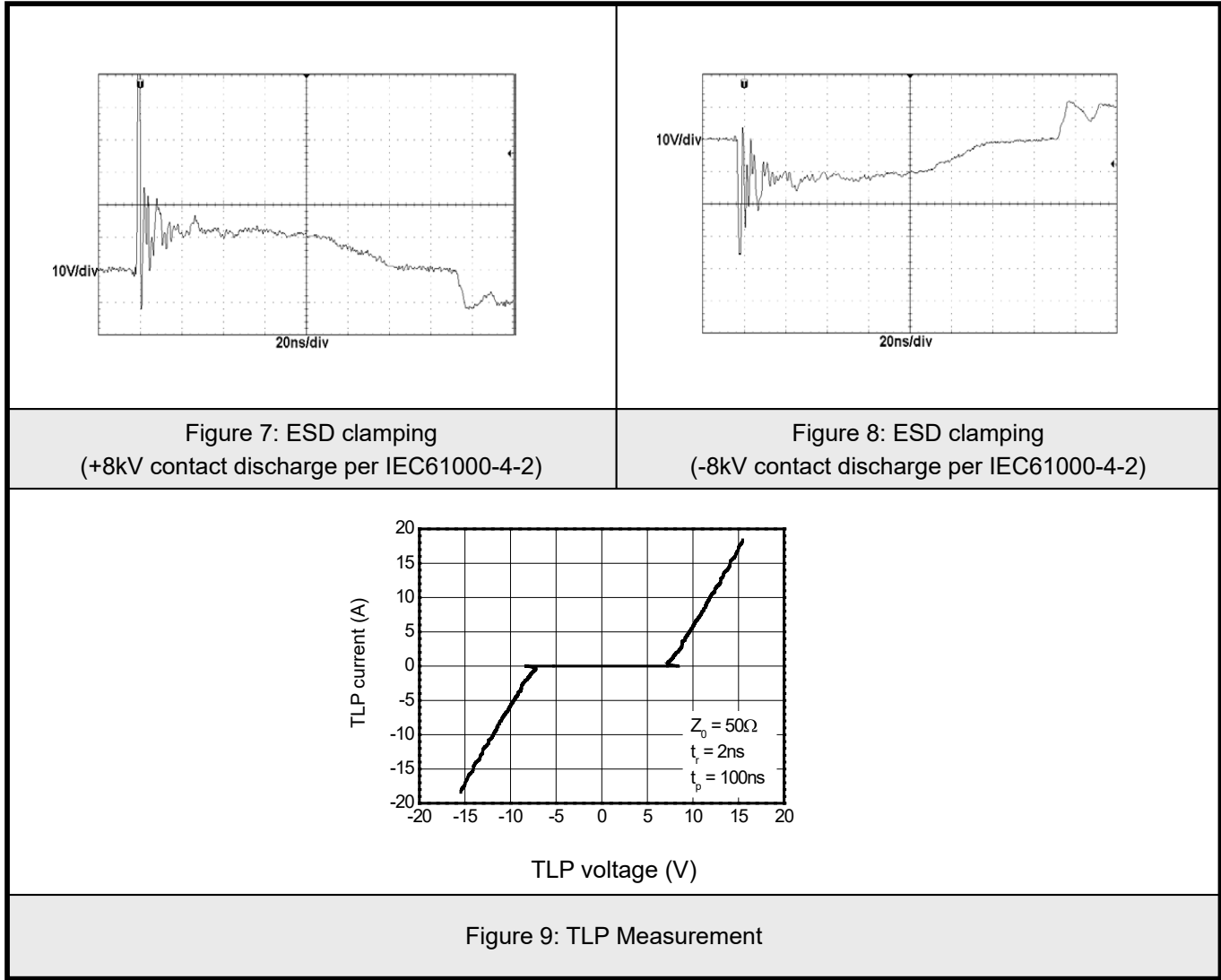
Figure 5: Non-repetitive peak pulse power vs.
Pulse time

Figure 6: Power derating vs. Ambient temperature



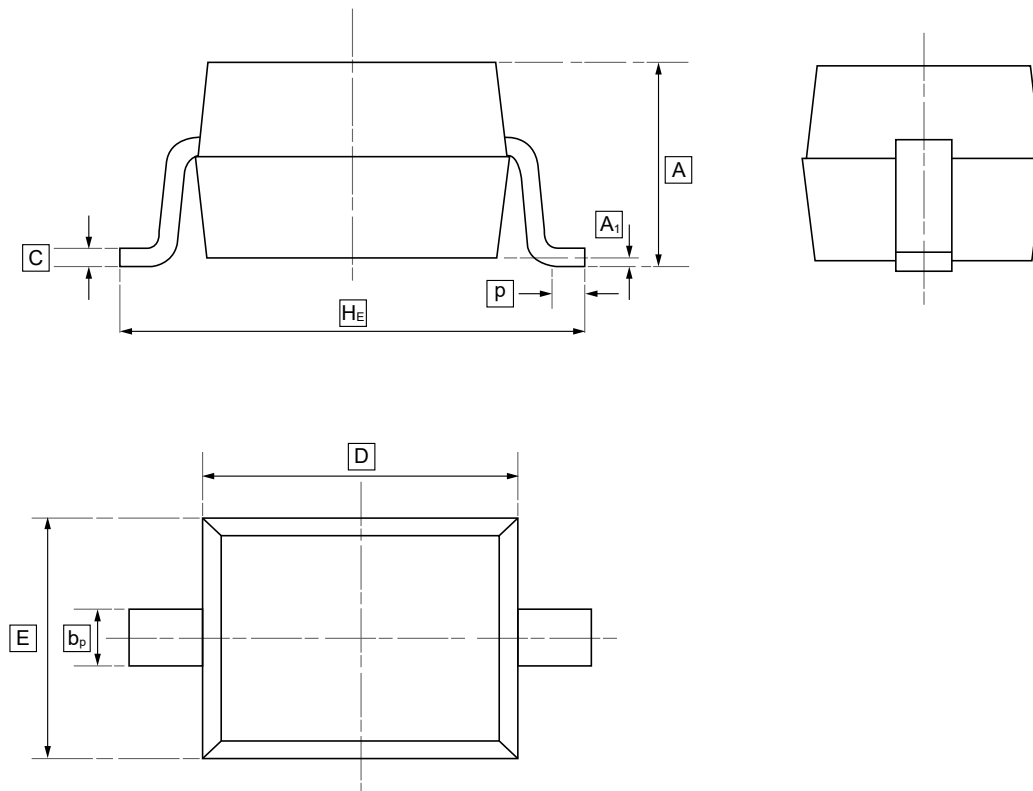
7.2Typical characteristic





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

8.SOD-323 Package Outline Dimensions



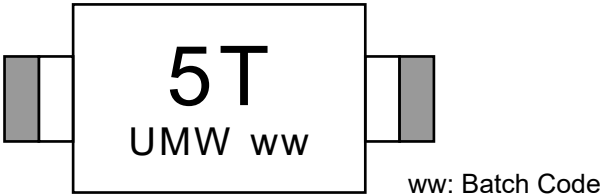
DIMENSIONS (mm are the original dimensions)

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



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

9.Ordering information



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



10.Disclaimer

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