

# SPD9103W

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

### Descriptions

The SPD9103W is a low capacitance TVS (Transient Voltage Suppressor) array designed to protect high speed data interfaces. It has been specifically designed to protect sensitive electronic components which are connected to data and transmission lines from over-stress caused by Electrostatic Discharge (ESD), cable discharge events (CDE), lightning and other induced voltage surges.

The SPD9103W incorporates low capacitance steering diodes that reduce the typical capacitance to 1pF per line.

The SPD9103W 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.

The SPD9103W is available in SOD-323 package. Standard products are Pb-free and Halogen-free.

### Features

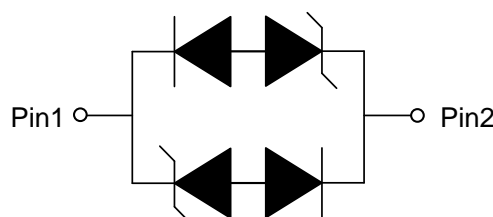
- Stand-off voltage: 3.3V Max.
- Transient protection for each line according to IEC61000-4-2 (ESD): ±30kV (contact discharge)  
IEC61000-4-4 (EFT): 40A - 5/50ns  
IEC61000-4-5 (surge): 20A (8/20µs).
- Low capacitance:  $C_J = 1\text{pF typ.}$
- Ultra-low leakage current:  $I_R = 0.1\text{nA typ.}$
- Low clamping voltage.
- Solid-state silicon technology

### Applications

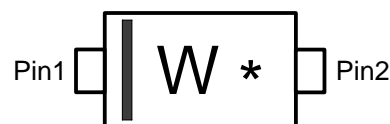
- 10/100 Ethernet
- STB
- Router
- Networking
- Modem



SOD-323



Circuit diagram



W = Device code

\* = Month code ( A~Z)

Marking (Top View)

### Order information

Device	Package	Shipping
SPD9103W-2/TR	SOD-323	3000/Tape&Reel

**Absolute maximum ratings**

Parameter	Symbol	Rating	Unit
Peak pulse power ( $t_p = 8/20\mu s$ )	$P_{pk}$	340	W
Peak pulse current ( $t_p = 8/20\mu s$ )	$I_{PP}$	20	A
ESD according to IEC61000-4-2 air discharge	$V_{ESD}$	$\pm 30$	kV
ESD according to IEC61000-4-2 contact discharge		$\pm 30$	
Operation junction temperature	$T_J$	125	$^{\circ}C$
Lead temperature	$T_L$	260	$^{\circ}C$
Storage temperature	$T_{STG}$	-55~150	$^{\circ}C$

**Electrical characteristics ( $T_A = 25^{\circ}C$ , unless otherwise noted)**

 \*<sub>-</sub>

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse maximum working voltage	$V_{RWM}$				3.3	V
Reverse leakage current	$I_R$	$V_{RWM} = 3.3V$		0.1	100	nA
Reverse breakdown voltage	$V_{BR}$	$I_T = 1mA$	4.0			V
Clamping voltage <sup>1)</sup>	$V_{CL}$	$I_{PP} = 1A, t_p = 8/20\mu s$			8	V
		$I_{PP} = 5A, t_p = 8/20\mu s$			10	V
		$I_{PP} = 20A, t_p = 8/20\mu s$			17	V
Junction capacitance	$C_J$	$V_R = 0V, f = 1MHz$ I/O to I/O			3	pF

1) According to IEC61000-4-5.