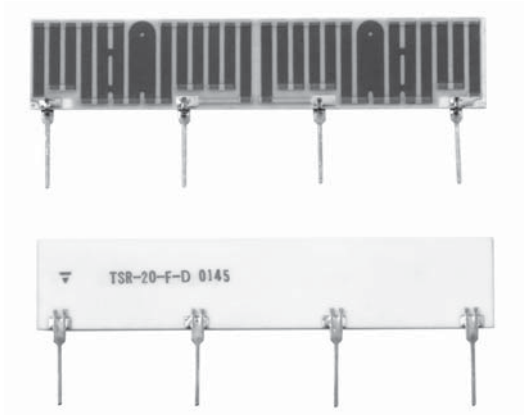


## Surge Resistor SIP

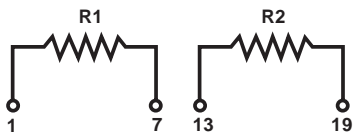
Pair of Matched Resistors



The TSR Surge Resistor from Vishay Techno is used to protect sensitive components and circuits from the surges introduced by lightning strikes and power cross conditions.

The proprietary Thick Film Technology used in the TSR can dissipate a large amount of energy during a short transient condition. These networks are designed to meet the applicable requirement of Bellcore GR-1089 and ITU-T K.20. The TSR is available in large quantities with a short lead-time.

### SCHEMATICS



### APPLICATION

- Secondary protection for telecon line cards
- Lightning Protection to Bellcore GR-1089 and ITU-T K.20
- Optional version with thermal fuse
- Custom designs available

### LIGHTNING SURGE TESTS

<b>Bellcore Spec. GR-1089:</b>	10 x 1000 $\mu$ seconds 1kV 2 x 10 $\mu$ seconds 2.5kV
<b>ITU-T K.20:</b>	10 x 700 $\mu$ seconds 2kV
<b>Power Cross Test:</b>	Per Bellcore Spec.

### ELECTRICAL SPECIFICATIONS

<b>Resistance Values:</b>	20 $\Omega$ to 200 $\Omega$
<b>Standard Values (R<sub>1</sub> = R<sub>2</sub>):</b>	24 $\Omega$ , 50 $\Omega$ , 100 $\Omega$ , 200 $\Omega$
<b>Resistance Tolerance:*</b>	0.5% STD
<b>Ratio Tolerance:*</b>	$\pm$ 0.5% STD
<b>TCR:*</b>	100ppm/ $^{\circ}$ C STD
<b>Power Dissipation (per resistor) @ 25<math>^{\circ}</math>C:</b>	2 watts
<b>Temperature Range:</b>	- 55 $^{\circ}$ C to + 125 $^{\circ}$ C

\*Contact applications engineering for tighter specifications.

### ENVIRONMENTAL SPECIFICATIONS

#### Tests per MIL-STD-202

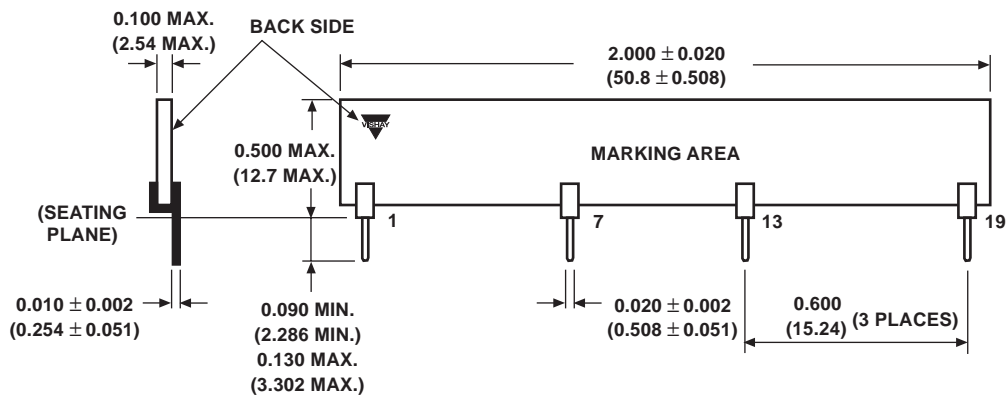
<b>Resistance to Solvents:</b>	No marking deterioration
<b>Resistance to Solder Heat:</b>	$\pm$ 0.5% or 0.5 $\Omega$ whichever is greater
<b>Solderability:</b>	> 95% Coverage
<b>Insulation Resistance:</b>	10M $\Omega$ minimum (isolated pins)
<b>Bias Humidity Test:</b>	50 Volts, 85% Relative Humidity, 85 $^{\circ}$ C

**MECHANICAL SPECIFICATIONS**

**Type:** Ceramic SIP  
**Thick Film Element:** 96% Alumina  
**Terminals:** Tinned copper alloy

**MARKING**

- Complete Part Number
- Manufacturer's Name/Code
- Date Code
- Pin #1 Identifier

**DIMENSIONS** in inches (millimeters)

**ORDERING INFORMATION**

TSR  
 MODEL

XXX  
 VALUE  
 (Actual Ohmic)

X  
 TOLERANCE

C = 0.25%  
 D = 0.50% STD  
 F = 1.0%

X  
 RATIO TOLERANCE

C = 0.25%  
 D = 0.50% STD  
 F = 1.0%

Example: TSR100FF