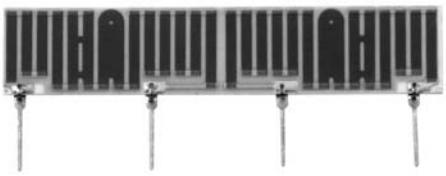
Thick Film Surge Resistor Networks, Single-In-Line



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.

FEATURES

- 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
- Material categorization:
  For definitions of compliance please see www.vishay.com/doc?99912

Pb Available
e1
RoHS* Available
HALOGEN FREE

Note

* This datasheet provides information about parts that are RoHS-compliant and/or parts that are non-RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information/tables in this datasheet for details.

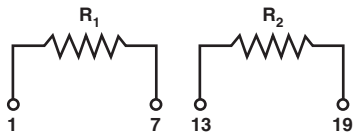
LIGHTNING SURGE TESTS

Bellcore Spec. GR-1089: 10 x 1000 µs 1 kV, 2 x 10 µs 2.5 kV

ITU-T K.20: 10 x 700 µs 2 kV

Power Cross Test: Per Bellcore spec.

SCHEMATICS



STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	POWER RATING ELEMENT $P_{25\,°C}$ W	STANDARD RESISTANCE VALUES (1) Ω [$R_1 = R_2$]	TOLERANCE (2) ± %	RATIO TOLERANCE (2) ± %	TEMPERATURE COEFFICIENT (2) (-55 °C to +125 °C) ± ppm/°C	PULSE
TSR	2	24, 50, 100, 200	0.5	0.5	100	31 kW to 312 kW (value dependent)

Notes

(1) Other values available on special order
(2) Contact factory for tighter specifications

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: TSR100RDDRB (preferred part number format)

T	S	R	1	0	0	R	D	D	R	B

GLOBAL MODEL	RESISTANCE VALUE	TOLERANCE	RATIO TOLERANCE	TERMINAL FINISH	PACKAGING
TSR	R = Ω **20R0** = 20 Ω **100R** = 100 Ω	**C** = ± 0.25 % **D** = ± 0.5 % **F** = ± 1 %	**C** = ± 0.25 % **D** = ± 0.5 % **F** = ± 1 %	**R** = Sn60/Pb40 **C** = Sn95.5/Ag3.9/Cu0.6	**B** = Bulk **S** = Strip

Historical Part Numbering: TSR100DD (will continue to be accepted)

TSR	100	D	D	
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE	RATIO TOLERANCE	TERMINAL FINISH

For technical questions, contact: te1resistors@vishay.com
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ENVIRONMENTAL SPECIFICATIONS (typical)

Tests per MIL-STD-202

Resistance to Solvents: No marking deterioration

Resistance to Solder Heat: ± 0.5 % or 0.5 Ω whichever is greater

Solderability: > 95 % coverage

Insulation Resistance: 10 MΩ minimum (isolated pins)

Bias Humidity Test: 50 V, 85 % relative humidity, 85 °C

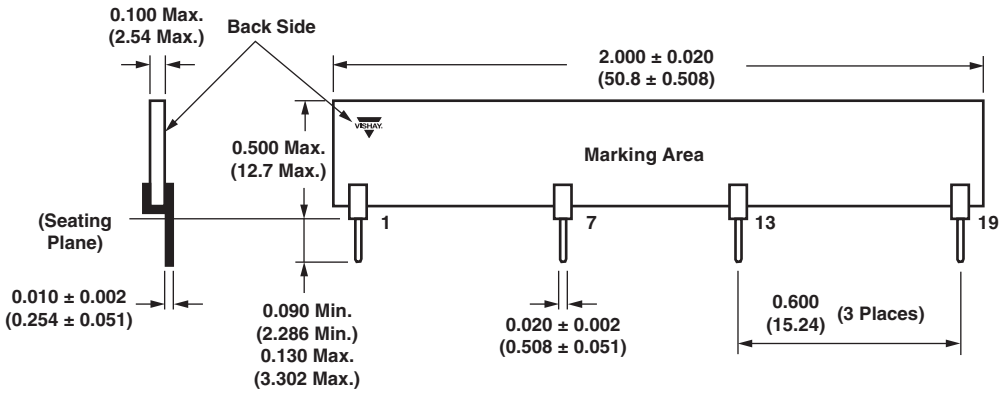
MECHANICAL SPECIFICATIONS

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)



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