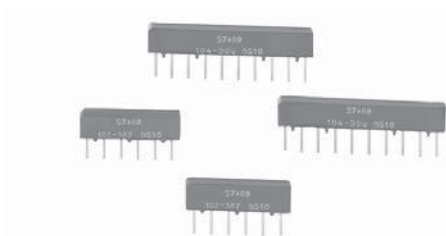


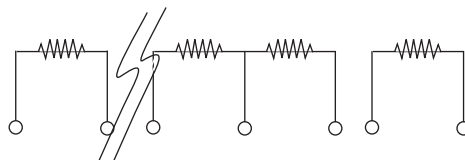
## Molded, Commercial, Single In-Line Thin Film Resistor, Through Hole Network (Custom)



Designed to meet MIL-PRF-83401 characteristic “V” and “H”

Military grade networks designed to meet MIL-PRF-83401 characteristics “V” and “H” available in 6 pins, 8 pins and 10 pins sizes in high and low profile. The molded style features a direct thermal compression bonded lead attachment in a rugged molded construction.

### SCHEMATIC



Custom schematics available.  
Please consult factory.

### FEATURES

- Lead (Pb)-free gold plated terminals standard
- Gold to gold terminations (no internal solder)
- Exceptional ratio stability over time and temperature ( $\Delta R \pm 0.015\%$  2000 h at 70 °C)
- Rugged low profile molded case 6 pins, 8 pins, and 10 pins available
- Compatible with automatic insertion equipment
- Compliant to RoHS Directive 2002/95/EC



**RoHS\***  
COMPLIANT

### Note

\* Pb containing terminations are not RoHS compliant, exemptions may apply

### TYPICAL PERFORMANCE

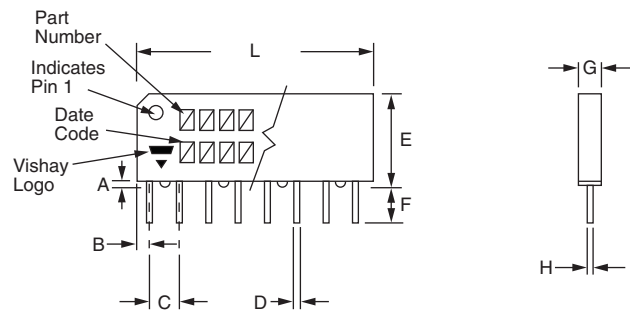
	ABSOLUTE	TRACKING
<b>TCR</b>	<b>10</b>	<b>2</b>
	ABSOLUTE	RATIO
<b>TOL.</b>	<b>0.05</b>	<b>0.025</b>

STANDARD ELECTRICAL SPECIFICATIONS		
TEST	SPECIFICATIONS	CONDITIONS
Material	Passivated nichrome	-
Pin/Lead Number	6, 8, 10	-
Resistance Range	20 $\Omega$ to 500 k $\Omega$ total	-
TCR: Absolute	$\pm 10$ ppm/°C to $\pm 25$ ppm/°C	- 55 °C to + 125 °C
TCR: Tracking	$\pm 2$ ppm/°C (typical less 1 ppm/°C equal values)	- 55 °C to + 125 °C
Tolerance: Absolute	$\pm 0.05\%$ to $\pm 0.5\%$	+ 25 °C
Tolerance: Ratio	$\pm 0.025\%$ to 0.1 %	+ 25 °C
Power Rating: Resistor	100 mW (per element typical at + 25 °C)	Maximum at + 70 °C
Power Rating: Package	500 mW	Maximum at + 70 °C
Stability: Absolute	$\Delta R \pm 0.05\%$	2000 h at + 70 °C
Stability: Ratio	$\Delta R \pm 0.015\%$	2000 h at + 70 °C
Voltage Coefficient	< 0.0015 ppm/V	-
Working Voltage	100 V	-
Operating Temperature Range	- 55 °C to + 125 °C	-
Storage Temperature Range	- 55 °C to + 150 °C	-
Noise	< - 30 dB	-
Thermal EMF	< 0.08 $\mu$ V/°C	-
Shelf Life Stability: Absolute	$\Delta R \pm 0.01\%$	1 year at + 25 °C
Shelf Life Stability: Ratio	$\Delta R \pm 0.002\%$	1 year at + 25 °C

### Note

- Tantalum Nitride film is custom, consult factory

**DIMENSIONS AND IMPRINTING** in inches and millimeters

	DIMENSION	INCHES	MILLIMETERS
	A	0.035	0.89
	B	0.040	1.02
	C	0.100 ± 0.005 non-accum.	2.54 ± 0.13
	D	0.019 ± 0.006 typical	0.48 ± 0.15
	E	0.187 ± 0.010	4.75 ± 0.25
	F	0.135	3.43
	G	0.095	2.41
	H	0.012 ± 0.004	0.31 ± 0.10
	L (6 Pins)	0.583 ± 0.015	14.81 ± 0.38
	L (8 Pins)	0.783 ± 0.015	19.89 ± 0.38
	L (10 Pins)	0.983 ± 0.015	24.97 ± 0.38

**MECHANICAL SPECIFICATIONS**

Resistive Element	Passivated nichrome or tantalum nitride
Substrate Material	Alumina
Body Molded	Epoxy
Terminals	Copper alloy
Plating	Nickel/gold
Model TSP - Lead (Pb)-free Standard	Gold plated
Model TSPS - Lead (Pb)-free Solder Coated Option	Sn63
Model TSPL - Tin/Lead Solder Coated Option	Sn96.5, Ag3.0, Cu0.5
Tin/Lead and Lead (Pb)-free Finish	Hot solder dip

**ORDERING INFORMATION CHECK LIST** (Customs)

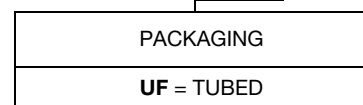
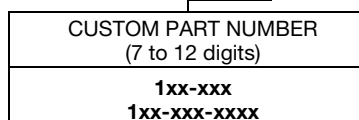
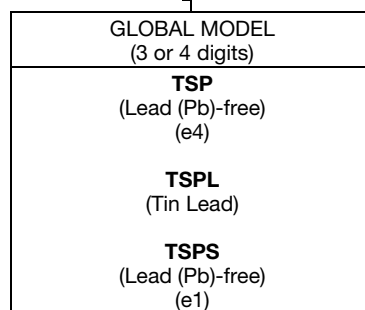
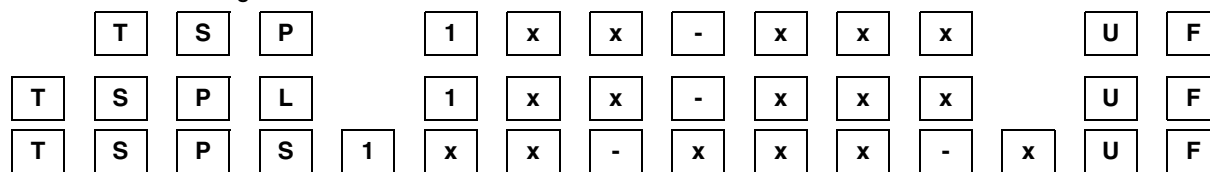
Special requirements should be identified in advance, but as a minimum, you should have the following information ready.

ELECTRICAL	MECHANICAL
<ol style="list-style-type: none"> <li>Resistors, by value and tolerance</li> <li>Reference resistor(s) and matching of which resistors to which reference resistors</li> <li>Resistance by ratio</li> <li>Absolute temperature coefficient of resistivity</li> <li>Temperature tracking of subordinate resistors to reference resistor(s)</li> <li>Maximum operating voltage</li> <li>Resistor power ratings</li> <li>Operating temperature range</li> </ol>	<ol style="list-style-type: none"> <li>Maximum allowable seated height (from PC board to top of network)</li> <li>Special marking concerns</li> <li>Schematic pin out of package</li> <li>Specify if solder coated terminals are required</li> </ol>
<p>For additional assistance refer to Vishay Thin Film's guide to understanding Thin Film precision. Resistor networks or application engineering. All standard products may be ordered directly from Vishay Thin Film.</p>	

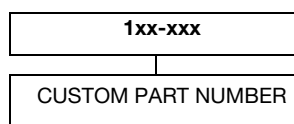


## GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: TSP1xx-xxxUF



Historical Part Number example: 1xx-xxx (for reference purposes only)





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