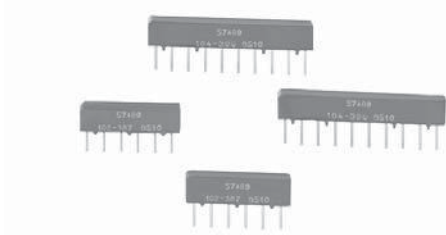


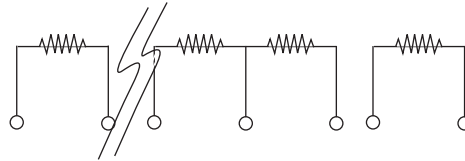
## Molded, Commercial, Single In-Line Thin Film Resistor, Through Hole Network (Custom)



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



### Note

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

### TYPICAL PERFORMANCE

▲	ABSOLUTE	TRACKING
	TCR	10
	ABSOLUTE	RATIO
TOL.	0.05	0.025

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/ $^{\circ}\text{C}$ to $\pm 25$ ppm/ $^{\circ}\text{C}$	-55 $^{\circ}\text{C}$ to +125 $^{\circ}\text{C}$
TCR: Tracking	$\pm 2$ ppm/ $^{\circ}\text{C}$ (typical less 1 ppm/ $^{\circ}\text{C}$ equal values)	-55 $^{\circ}\text{C}$ to +125 $^{\circ}\text{C}$
Tolerance: Absolute	$\pm 0.05\%$ to $\pm 0.5\%$	+25 $^{\circ}\text{C}$
Tolerance: Ratio	$\pm 0.025\%$ to 0.1 %	+25 $^{\circ}\text{C}$
Power Rating: Resistor	100 mW (per element typical at +25 $^{\circ}\text{C}$ )	Maximum at +70 $^{\circ}\text{C}$
Power Rating: Package	500 mW	Maximum at +70 $^{\circ}\text{C}$
Stability: Absolute	$\Delta R \pm 0.05\%$	2000 h at +70 $^{\circ}\text{C}$
Stability: Ratio	$\Delta R \pm 0.015\%$	2000 h at +70 $^{\circ}\text{C}$
Voltage Coefficient	< 0.0015 ppm/V	-
Working Voltage	100 V	-
Operating Temperature Range	-55 $^{\circ}\text{C}$ to +125 $^{\circ}\text{C}$	-
Storage Temperature Range	-55 $^{\circ}\text{C}$ to +150 $^{\circ}\text{C}$	-
Noise	< -30 dB	-
Thermal EMF	< 0.08 $\mu\text{V}/^{\circ}\text{C}$	-
Shelf Life Stability: Absolute	$\Delta R \pm 0.01\%$	1 year at +25 $^{\circ}\text{C}$
Shelf Life Stability: Ratio	$\Delta R \pm 0.002\%$	1 year at +25 $^{\circ}\text{C}$

### Note

- Tantalum Nitride film is custom, consult factory

<b>DIMENSIONS AND IMPRINTING</b> 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

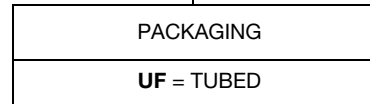
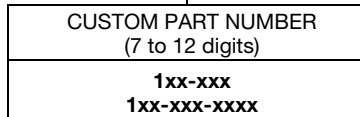
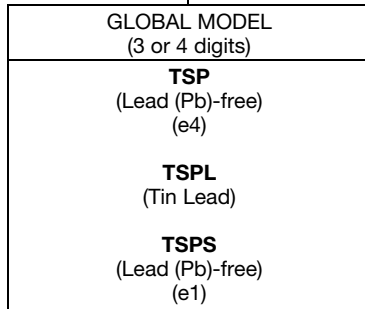
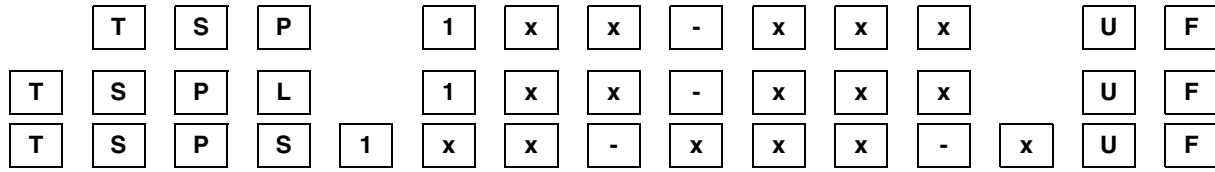
<b>MECHANICAL SPECIFICATIONS</b>	
<b>Resistive Element</b>	Passivated nichrome or tantalum nitride
<b>Substrate Material</b>	Alumina
<b>Body Molded</b>	Epoxy
<b>Terminals</b>	Copper alloy
<b>Plating</b>	Nickel/gold
<b>Model TSP - Lead (Pb)-free Standard</b>	Gold plated
<b>Model TSPS - Lead (Pb)-free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

<b>ORDERING INFORMATION CHECK LIST (Customs)</b>	
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>
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.	

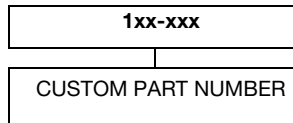


**GLOBAL PART NUMBER INFORMATION**

New Global Part Numbering: TSP1xx-xxxUF



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





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