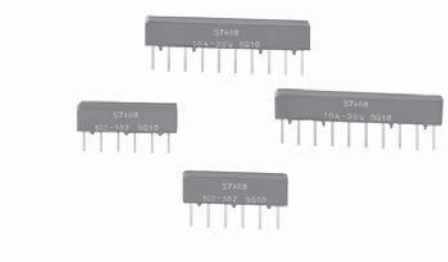
Molded, Commercial, Single In-Line Thin Film Resistor, Through Hole Network (Custom)



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.

FEATURES

- Lead (Pb)-free gold plated terminals standard
- Gold to gold terminations (no internal solder)
- Exceptional ratio stability over time and temperature (ΔR ± 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

Pb-free Available

RoHS* COMPLIANT

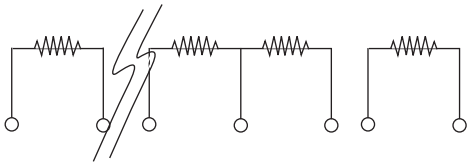
Note

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

TYPICAL PERFORMANCE

▲	ABSOLUTE	TRACKING
TCR	10	2
	ABSOLUTE	RATIO
TOL.	0.05	0.025

SCHEMATIC



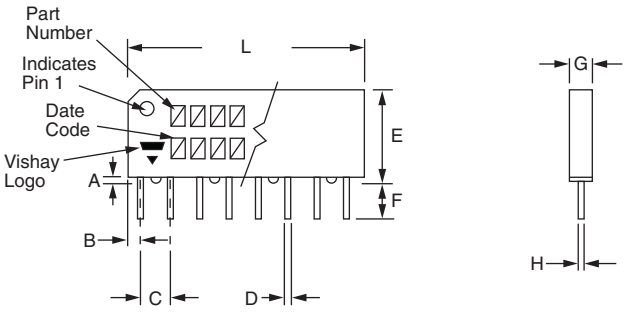
Custom schematics available.
Please consult factory.

STANDARD ELECTRICAL SPECIFICATIONS		
TEST	**SPECIFICATIONS**	**CONDITIONS**
Material	Passivated nichrome	-
Pin/Lead Number	6, 8, 10	-
Resistance Range	20 Ω to 500 kΩ total	-
TCR: Absolute	± 10 ppm/°C to ± 25 ppm/°C	- 55 °C to + 125 °C
TCR: Tracking	± 2 ppm/°C (typical less 1 ppm/°C equal values)	- 55 °C to + 125 °C
Tolerance: Absolute	± 0.05 % to ± 0.5 %	+ 25 °C
Tolerance: Ratio	± 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	ΔR ± 0.05 %	2000 h at + 70 °C
Stability: Ratio	ΔR ± 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 µV/°C	-
Shelf Life Stability: Absolute	ΔR ± 0.01 %	1 year at + 25 °C
Shelf Life Stability: Ratio	ΔR ± 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
1. Resistors, by value and tolerance 2. Reference resistor(s) and matching of which resistors to which reference resistors 3. Resistance by ratio 4. Absolute temperature coefficient of resistivity 5. Temperature tracking of subordinate resistors to reference resistor(s) 6. Maximum operating voltage 7. Resistor power ratings 8. Operating temperature range	1. Maximum allowable seated height (from PC board to top of network) 2. Special marking concerns 3. Schematic pin out of package 4. Specify if solder coated terminals are required

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

T	S	P		1	x	x	-	x	x	x		U	F	
T	S	P	L	1	x	x	-	x	x	x		U	F	
T	S	P	S	1	x	x	-	x	x	x	-	x	U	F

GLOBAL MODEL (3 or 4 digits)	CUSTOM PART NUMBER (7 to 12 digits)	PACKAGING
TSP (Lead (Pb)-free) (e4) **TSPL** (Tin Lead) **TSPS** (Lead (Pb)-free) (e1)	**1xx-xxx** **1xx-xxx-xxxx**	**UF** = TUBED

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

1xx-xxx
CUSTOM PART NUMBER

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