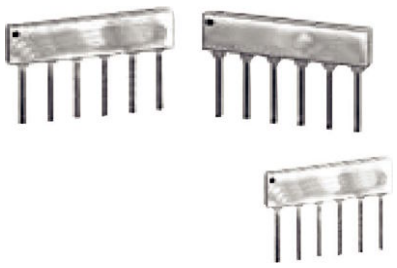
Ceramic Sandwich, Single-In-Line Thin Film Resistor, Through Hole Network (Low Profile 0.20 Custom)



Actual Size

Vishay Dale Thin Film presents a design concept in precision thin film resistor networks. The essence of this new concept is the marriage of two principle design elements . . . a unique resistive film, having electrical properties comparable to those of wire-wound resistors, and a rugged, low cost, ceramic package and an almost limitless variety of sizes and configurations.

FEATURES

- Gold-to-gold terminations. External leads are attached directly to gold pads on the ceramic substrate by thermo-compression bonding (no internal solder)
- Low profile (0.200 min.)
- Custom pin-outs available
- Compliant to RoHS Directive 2002/95/EC
- Halogen-free according to IEC 61249-2-21 definition

Pb-free Available

RoHS* COMPLIANT

HALOGEN FREE

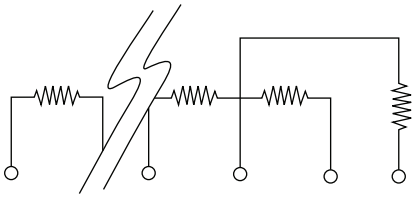
Note

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

TYPICAL PERFORMANCE

▲	ABSOLUTE	TRACKING
TCR	25	2
	ABSOLUTE	RATIO
TOL.	0.05	0.01

SCHEMATIC

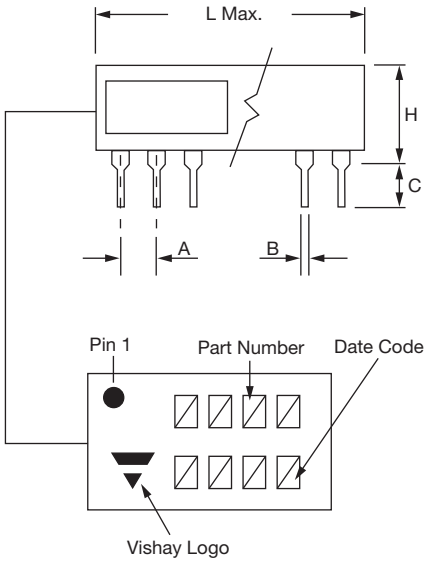


Custom schematics available.
Please consult factory.

STANDARD ELECTRICAL SPECIFICATIONS

TEST	SPECIFICATIONS		CONDITIONS
Material	Passivated nichrome	Tantalum nitride	-
Pin/Lead Number	3 to 10		-
Resistance Range	20 Ω to 2000 kΩ (total)	20 Ω to 500 kΩ (total)	-
TCR: Absolute	± 10 ppm/°C to ± 25 ppm/°C	± 50 ppm/°C to ± 100 ppm/°C	- 55 °C to + 125 °C
TCR: Tracking	± 2 ppm/°C	± 5 ppm/°C	- 55 °C to + 125 °C
Tolerance: Absolute	± 0.05 % to ± 1.0 %		+ 25 °C
Tolerance: Ratio	± 0.01 % to ± 0.5 %	± 0.02 % to ± 0.5 %	+ 25 °C
Power Rating: Resistor	100 mW (per element)		Typical at + 25 °C
Power Rating: Package	-		-
Stability: Absolute	ΔR ± 0.05 %	ΔR ± 0.1 %	2000 h at + 70 °C
Stability: Ratio	ΔR ± 0.015 %	ΔR ± 0.02 %	2000 h at + 70 °C
Voltage Coefficient	< 0.1 ppm/V	< 0.1 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

DIMENSIONS AND IMPRINTING in inches and millimeters



DIMENSION	INCHES	MILLIMETERS
A	0.100 typ. (1)	2.54 typ.
B	0.020 ± 0.002 typ.	0.51 ± 0.05 typ.
C	0.125 min.	3.17 min.
D	0.100 max.	2.54 max.
E	0.010	0.25
L (3 Pins)	0.320	8.13
L (4 Pins)	0.420	10.67
L (5 Pins)	0.520	13.21
L (6 Pins)	0.620	15.75
L (7 Pins)	0.720	18.25
L (8 Pins)	0.820	20.83
L (9 Pins)	0.920	23.37
L (10 Pins)	1.020	25.91
H (3 Pins)	0.200 (2)	7.11 (2)
H (4 Pins)		
H (5 Pins)		
H (6 Pins)		
H (7 Pins)		
H (8 Pins)		
H (9 Pins)		
H (10 Pins)		

Notes

(1) Non-accum.

(2) Resistance value and schematic dependent. By occupying more than one 0.100 inch square, higher values are available.

MECHANICAL SPECIFICATIONS

Resistive Element	Passivated nichrome or tantalum nitride
Substrate Material	Alumina
Body	Ceramic
Terminals	Copper alloy
Plating	Gold
Tin/Lead Option	Sn63
Lead (Pb)-free Option	Sn96.5, Ag3.0, Cu0.5
Tin/Lead and Lead (Pb)-free Finish	Hot solder dip

ORDERING INFORMATION CHECK LIST

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 lead (Pb)-free

For additional assistance refer to Vishay Dale Thin Film's guide to understanding Thin Film precision.
Resistor networks or application engineering.
All standard products may be ordered directly from Vishay Dale Thin Film.

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: CS1xx-xxxBX

C	S		1	x	x	-	x	x	x		B	X
C	S	1	x	x	-	x	x	x	-	x	B	X

GLOBAL MODEL (2 or 3 digits)	CUSTOM PART NUMBER (7 or 9 digits)	PACKAGING
CS	**1xx-xxx** or **1xx-xxx-x**	**BX** = Boxed

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

1xx-xxx
CUSTOM PART NUMBER

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