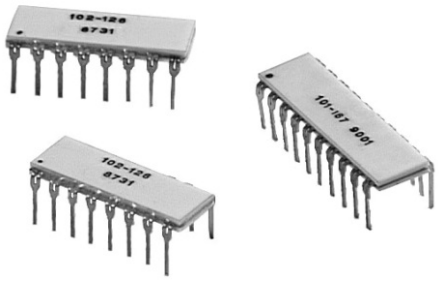
Ceramic Sandwich, Dual-In-Line, Resistor Network (Custom)



A dual-in-line monolithic ceramic package in a variety of sizes and configurations. A rugged, low cost packaging technique with 4 - 20 leads that allows higher resistance integration than chip and wire ceramic packages.

FEATURES

- Lead (Pb)-free available
- Gold-to-gold terminations. External leads are attached directly to gold pads on the ceramic substrate by thermo-compression bonding (no internal solder)
- Monolithc construction
- Ceramic package with no cavity. 4 to 20 Pins
- Flexibility of lead variations to save PC board space

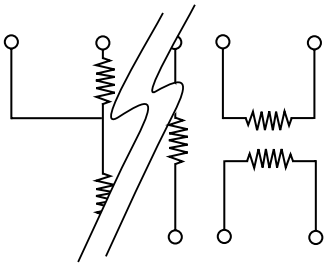
Pb-free Available

RoHS* COMPLIANT

TYPICAL PERFORMANCE

▲	ABS	TRACKING
TCR	10	2
	ABS	RATIO
TOL	0.1	0.02

SCHEMATIC



Custom schematics available.
Please consult factory

THROUGH HOLE NETWORKS

STANDARD ELECTRICAL SPECIFICATIONS

TEST		SPECIFICATIONS		CONDITIONS
Material		Passivated Nichrome	Tantalum Nitride (1)	
TCR:	Tracking	± 2 ppm/°C	± 5 ppm/°C	- 55 °C to + 125 °C
	Absolute	± 10 ppm/°C	± 25 ppm/°C to ± 100 ppm/°C	- 55 °C to + 125 °C
Tolerance:	Ratio	± 0.01 % to ± 0.1 %	± 0.01 % to ± 0.1%	+ 25 °C
	Absolute	± 0.1 % to ± 1.0 %	± 0.1 % to ± 1.0 %	+ 25 °C
Power Rating:	Resistor	100 mW per element typical	100 mW per element typical	Max. at + 70 °C
	Package	500 mW	500 mW	Max. at + 70 °C
Stability:	ΔR Absolute	1000 ppm	1000 ppm	2000 h at + 70 °C
	ΔR Ratio	300 ppm	300 ppm	2000 h at + 70 °C
Voltage Coefficient		0.1 ppm/V	0.1 ppm/V	
Working Voltage		100 V	100 V	
Operating Temperature Range		- 55 °C to + 125 °C	- 55 °C to + 125 °C	
Storage Temperature Range		- 55 °C to + 125 °C	- 55 °C to + 125 °C	
Noise		< - 30 dB	< - 30 dB	
Thermal EMF		< 0.1 µV/°C	< 0.1 µV/°C	
Shelf Life Stability:	Absolute	100 ppm	100 ppm	1 year at + 25 °C
	Ratio	20 ppm	20 ppm	1 year at + 25 °C

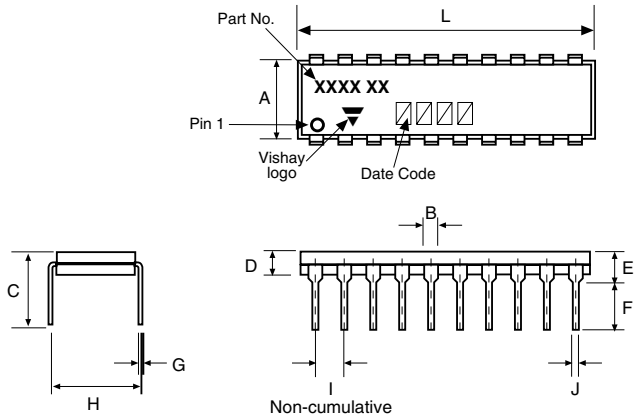
Note

(1) Tantalum Nitride film is custom

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

For technical questions, contact: thin-film@vishay.com

DIMENSIONS in inches and millimeters



NUMBER OF PINS	LENGTH (INCHES) "L" DIMENSION	LENGTH (MM)
4	0.220	5.59
6	0.320	8.13
8	0.420	10.67
10	0.520	13.21
12	0.620	15.75
14	0.720	18.29
16	0.820	20.83
18	0.920	23.37
20	1.020	25.91

DIMENSION	INCHES	MM
A	0.260 Max.	6.61
C	0.160 Typical	4.06
E	0.125	3.18
G	0.01	0.254
I	0.100	2.54

DIMENSION	INCHES	MM
B	0.050	1.27
D	0.080	2.03
F	0.125 Min.	3.18
H	0.325	8.25
J	0.020	0.51

MECHANICAL SPECIFICATIONS

Resistive Material	Passivated Nichrome or Tantalum Nitride
Substrate Material	Alumina
Body	Ceramic
Terminals	Copper Alloy #42
Plating	Gold
Marking Resistance to Solvents	per MIL-PRF-83401
Lead (Pb)-free Option	96.5 % Sn, 3.0 % Ag, 0.5 % Cu
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 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: CSD1xx-xxx-xUF (preferred part number format)

C	S	D		1	x	x	-	x	x	x		U	F
C	S	D	1	x	x	-	x	x	x	-	x	U	F

GLOBAL MODEL (2 or 3 digits)	CUSTOM PART NUMBER (7 or 9 digits)	PACKAGING
CSD	**1xx-xxx** **or** **1xx-xxx-x**	**UF** = TUBED

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