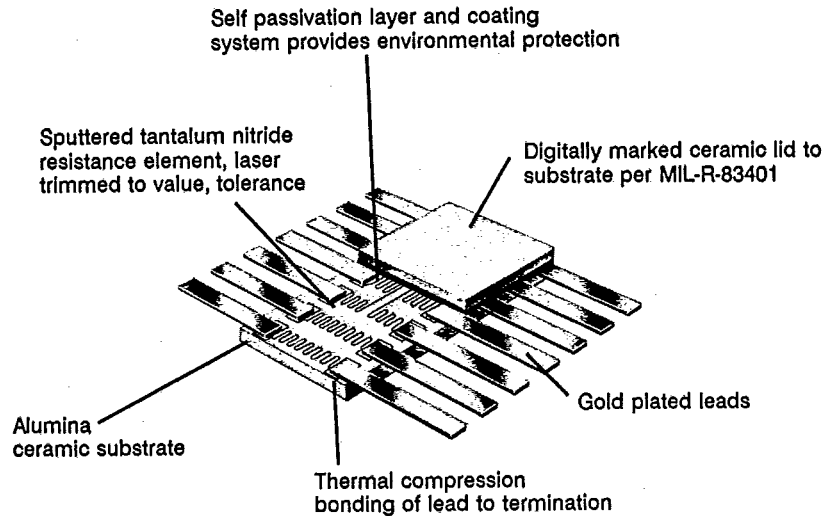




TANFILM 8900 RESISTOR NETWORKS

FLAT PACK SERIES

- Qualified to MIL-R-83401/03, /10 (14 & 16 Pin)
- Characteristic H
- Available with custom testing
- Ultra precision - Absolute tolerance to $\pm 0.02\%$ - Ratios to 0.01%
- Superior temperature performance. Absolute T.C. to ± 25 ppm/ $^{\circ}$ C. T.C. tracking ± 25 ppm/ $^{\circ}$ C standard 1 ppm/ $^{\circ}$ C available
- Custom schematics readily available
- Special mechanical configurations



TaNFilm resistor networks are designed for use in applications requiring a high degree of reliability, stability, tight tolerance, close TCR tracking, and low noise. The sputtering process for resistor formation has been perfected to allow a continuous feed production line under high vacuum conditions, thus, insuring uniformity of properties between networks. Laser trimming makes tight ratios easily achievable. The gold

plated copper leads are solid phase welded to a large area of gold conductor pads on the ceramic substrate assuring the most reliable termination and long term stability. The Tantalum Nitride resistor material is passivated for environmental protection insuring excellent performance far superior to military requirements.

Our TanFilm process enables us to manufacture networks containing different resistance values and still main-

tain tight tolerances and tracking characteristics. The nature of our photo-etch process makes it readily adaptable to meet each individual customer's needs. Custom circuit designs and special mechanical configurations can be easily achieved with a modest set up charge while maintaining our high standards of precision and reliability.

SPECIFICATIONS:

Mil qualified resistance ranges:

Schematic A: 49.9 Ω to 121K

Schematic B: 49.9 Ω to 121K

Higher resistance values available

Standard Resistance Tolerances:

$\pm 1\%$, $\pm .25\%$, $\pm .5\%$,

$\pm 1\%$, $\pm 2\%$

.02% available

Ratio accuracy when specified

to .01%

Temperature Range:

-55 $^{\circ}$ C to +150 $^{\circ}$ C

Temperature Coefficient of Resistance:

± 25 ppm/ $^{\circ}$ C, ± 50 ppm/ $^{\circ}$ C,

± 100 ppm/ $^{\circ}$ C and

± 300 ppm/ $^{\circ}$ C,

TCR Tracking:

Referenced to R1 is ± 5 ppm/ $^{\circ}$ C

except Model 8987 below

500 ohm, which is ± 20 ppm/ $^{\circ}$ C

2 ppm/ $^{\circ}$ C available

Noise: Less than -25 dB

Ratio Tolerance: to $\pm 0.01\%$

Power Ratings:

.1 watt per resistor,

.5 watt per network at 70 $^{\circ}$ C,

1.0 watt per network at 25 $^{\circ}$ C

Lead Material: Gold plated copper alloy

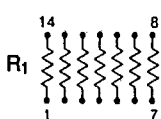
Construction: Ceramic sandwich package

Custom Screening Procedures

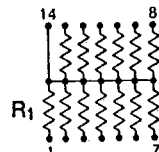
Packages: up to 20 leads

Contact factory for all custom packages and circuits

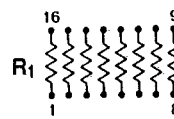
SCHEMATICS:



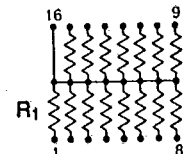
Model 8989
RZ 030
Schematic A



Model 8987
RZ 030
Schematic B



Model 8999
RZ 100
Schematic A



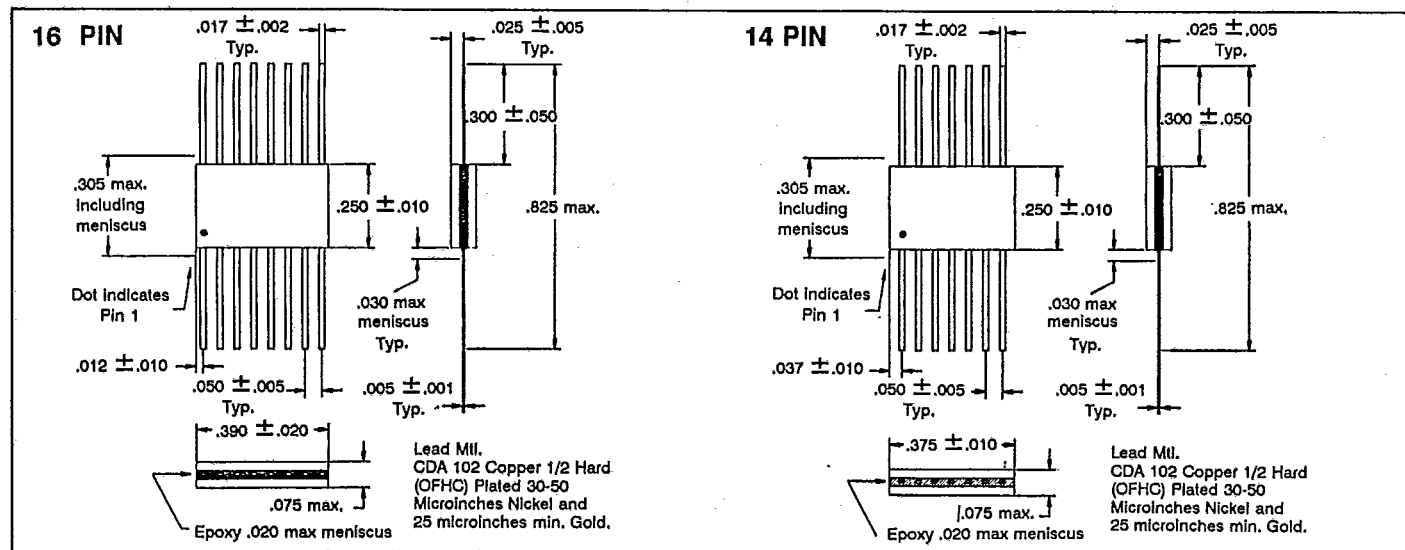
Model 8998
RZ 100
Schematic B



FLAT PACK PERFORMANCE DATA:

Test Per MIL-R-83401	MIL-R-83401 Limits (ΔR%)				TanFilm Test Data (ΔR%)	
	M	K	H	V	Maximum	Typical
Thermal Shock and Power Conditioning	0.7	0.7	0.5	0.25	0.1	0.02
Low Temperature Operation	0.5	0.25	0.1	0.1	0.1	0.01
Short Time Overload	0.5	0.25	0.1	0.1	0.05	0.01
Terminal Strength	0.25	0.25	0.25	0.1	0.1	0.01
Resistance to Solder Heat	0.25	0.25	0.1	0.2	0.1	0.02
Moisture Resistance	0.5	0.5	0.4	0.25	0.1	0.03
Shock	0.25	0.25	0.25	0.25	0.1	0.03
Vibration	0.25	0.25	0.25	0.1	0.1	0.03
Life	2.0	0.5	0.5	0.1	0.1	0.03
High Temperature Exposure	1.0	0.5	0.2	0.1	0.1	0.03
Low Temperature Storage	0.5	0.25	0.1	0.1	0.1	0.02
25°C Double Load	2.0	0.5	0.5	0.1	0.05	0.03

DIMENSIONS: - INCHES:



HOW TO ORDER

Sample Part No.:

8987 - 05 - 1001 - B -

Model

- 8989 7-resistor, 14 pin flat pack, straight thru, MIL-R-83401/03, Schematic A
- 8999 8-resistor, 16 pin flat pack, straight thru, MIL-R-83401/10, Schematic A
- 8987 13-resistor, 14 pin flat pack, one common lead, MIL-R-83401/03, Schematic B
- 8998 15-resistor, 16 pin flat pack, one common lead, MIL-R-83401/03, Schematic B

Characteristic

Code	Classification	TCR (ppm/°C)
01	Commercial Grade	±100
02	Commercial Grade	±50
03	Commercial Grade	±25
04	MIL-R-83401M	±300
05	MIL-R-83401K	±100
06	MIL-R-83401H	±50
07	MIL-R-83401H	±25

Resistance

Standard MIL resistance code

Example:

1001 = 1000Ω

Absolute Tolerance

Standard MIL tolerance code:

Absolute/Ratio Tolerance Code

- A ±.05%
- B ±.1%
- C ±.25%
- D ±.50%
- F ±1.0%
- G ±2.0%
- T ±.01%
- Q ±.02%

Ratio Tolerance to R₁

(if specified)