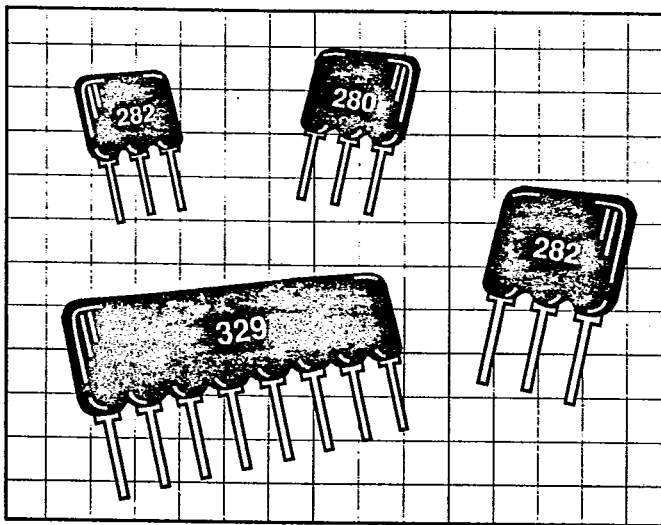


T-62-05

DATA SHEET VTF-301

VISHAY

Accutrack Thin Film Standard SIP Networks



Models: 158, 193, 209-218, 280,
281, 282, 283, 288, 329

- Off-the-Shelf Availability
- Low Cost
- Wide Variety of Applications
- Small Size (SIP)
- Standard Designs - No NRE

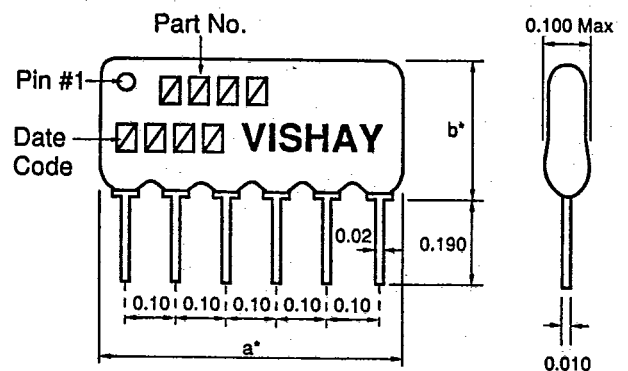
VISHAY Accutrack Thin Film resistor networks are designed to be used in analog circuits in conjunction with operational amplifiers. Engineers can use these circuits to achieve an infinite number of very low noise and high stability circuits for industrial, medical and scientific instrumentation.

This family of standard resistor networks will continually be expanded with new and innovative designs, and VISHAY stocks most designs in house for off-the-shelf convenience. However, if you can not find the standard network you need, call Applications Engineering at 215-644-1300, as we may be able to fulfill your requirements with a semi-custom "match" for a quick delivery.

For standard networks with tighter specifications, or for custom networks, contact Applications Engineering at the above number. For a quick review of typical applications, request Accutrack's Application Notes.

- Low TCR < 10 ppm
- Low Noise -40 dB
- Low Thermal EMF < 0.1 μ V/°C
- Excellent Tracking < 2 ppm/°C
- Low Capacitance < 0.1 pF/PIN
- High Stability < 0.01%/year

FIGURE 1 MECHANICAL SPECIFICATIONS



a*, b*: length and height dimensions for each model on reverse side.

All Dimensions in Inches

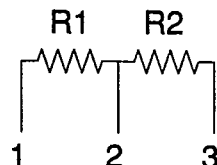
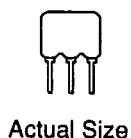
VISHAY Resistive Systems Group of VISHAY Intertechnology Inc.

TABLE 1 GENERAL SPECIFICATIONS

Tolerances	Temperature Coefficient At 0°C - 70°C	Noise	Voltage Coefficient	Thermal EMF
Absolute: 0.1% Ratio: 0.02%	Absolute: 10 ppm Ratio: 2 ppm	-40dB	0.002 ppm/V	0.1 μ V/°C

FIGURE 2 TWO EQUAL RESISTORS

$$R1 = R2$$



R1 =	1K:	PN 209	50K:	PN 214
	2K:	PN 210	100K:	PN 215
	5K:	PN 211	200K:	PN 216
	10K:	PN 212	500K:	PN 217
	20K:	PN 213	1M:	PN 218

a = Total Length = 0.316" Max.

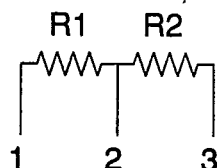
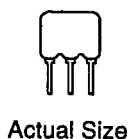
b = Seated Height = 0.260" Max.

Except PN 218 where Seated Height = 0.342" Max.

FIGURE 3 RATIO DIVIDER 10:1

$$R1 + R2 = 10K, 100K, 1M$$

$$\frac{R1 + R2}{R2} = 10$$



R1 + R2 =	10K:	PN 280
	100K:	PN 193
	1M:	PN 281

a = Total Length = 0.316" Max.

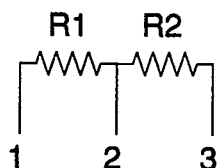
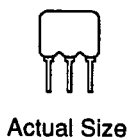
b = Seated Height = 0.260" Max.

Except PN 281 where Seated Height = 0.342" Max.

FIGURE 4 OPERATIONAL AMPLIFIER FEEDBACK

$$A = 10 \quad R1 = 100K, 1M$$

$$A = \frac{R1}{R2} = 10$$



R1 =	100K:	PN 282
	1M:	PN 283

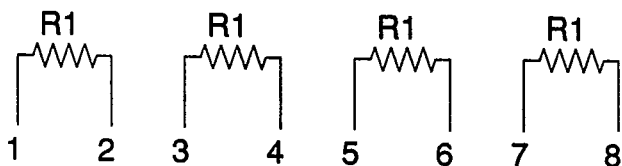
a = Total Length = 0.316" Max.

b = Seated Height = 0.260" Max.

Except PN 283 where Seated Height = 0.342" Max.

FIGURE 5 FOUR EQUAL RESISTORS

$$R1 = 1K, 10K, 100K$$



R1 =	1K:	PN 329
	10K:	PN 158
	100K:	PN 288

a = Total Length = 0.816" Max.

b = Seated Height = 0.260" Max.

VISHAY Resistive Systems Group of VISHAY Intertechnology Inc.