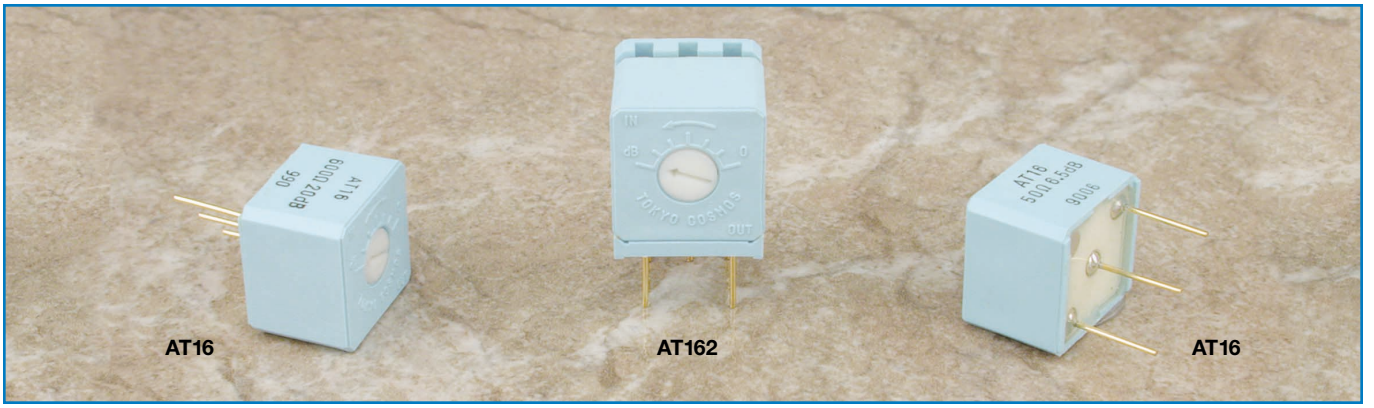
AT16 Series

TOCOS® ATTENUATORS

16mm Square, Single-Turn, Through-Hole Sealed Cermet Attenuators



Features

- 16mm square, single-turn, through-hole, sealed attenuators
- Cermet element
- Top and side adjust styles available
- Flush single-slot rotor adjustment
- 50Ω, 75Ω or 600Ω nominal impedance
- 10dB or 20dB nominal attenuation
- 3-pin diagonal inline PCB pattern, top adjust
- 5-pin PCB pattern, side adjust (3 rear inline and 2 front support pins)
- Wide temperature range
- Meets UL 94V-0 flammability requirements
- Sealed to withstand immersion cleaning

Specifications

Electrical

Nominal Impedance 50Ω, 75Ω, 600Ω

Attenuation Range at DC

Nominal Attenuation	10dB	20dB
Attenuation Tolerance	±1.0dB	±1.5dB
Minimum Attenuation	0.6dB max.	1.2dB max.

Power Rating . . . . . 0.2 watt at +70°C, 0 watt at +125°C

Insulation Resistance . . . . . 100MΩ minimum at 1,000VDC

Dielectric Strength . . . . . 1,000VAC, 1 minute

Adjustment Travel . . . . . 140°±10°

Mechanical

Mechanical Travel . . . . . 150°±10°

Shaft Torque . . . . . 50 to 450 gf•cm (0.693 to 6.238 oz•in)

Stop Strength . . . . . 1.5 kgf•cm (20.794 oz•in) max.

Flammability of Plastic Materials . . . . . Meets UL 94V-0

Nominal Weight 1.4g (AT16); 1.8g (AT162)

Marking . . . . . Model type, impedance, attenuation, dial locators, terminal identification, date code

Environmental

Temperature Range . . . . . −55°C to +125°C

Load Life . . . . . +70°C, 250 hours with rated load
ΔA ≦0.5dB, ΔI ≦5%

Moisture and Load Life . . . . . +40°C, 90-95%RH
90 minutes on, 30 minutes off,
0.2 watt, 120 cycles
ΔA ≦0.5dB, ΔI ≦5%

Thermal Shock . . . . . −55°C, +125°C,
30 minutes each, 5 cycles without load
ΔA ≦0.5dB, ΔI ≦5%

Shock . . . . . 50G, 11ms, 6 directions, 3 times each
ΔA ≦0.5dB, ΔI ≦5%

Vibration . . . . . 10-55Hz, 1.5mm amplitude,
3 directions, 2 hours each
ΔA ≦0.5dB, ΔI ≦5%

Soldering Heat Resistance . . . . . 350°C, 3 seconds
ΔA ≦0.2dB, ΔI ≦2%

Seal Test . . . . . +85°C, hot water for 1 minute

Rotational Life . . . . . 1,500 cycles without load
ΔA ≦0.5dB, ΔI ≦5%

ΔA = Attenuation Change at DC; ΔI = Impedance Change Ratio

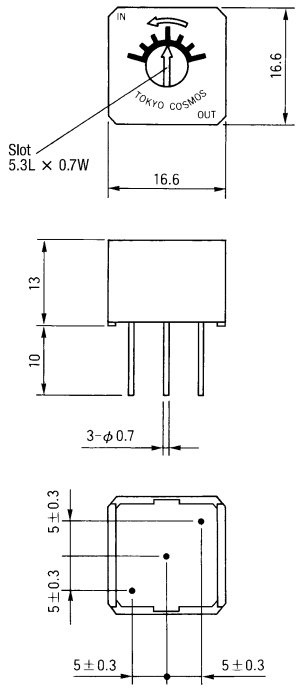
TOCOS AMERICA, INC.
1177 East Tower Road, Schaumburg, IL 60173 Tel: 847-884-6664 Fax: 847-884-6665 E-mail: sales@tocos.com www.tocos.com

Model	Nominal Impedance	Nominal Attenuation	Frequency Range	Attenuation Flatness	Return Loss	
				dB max.	dB min.	VSWR max.
AT16	50Ω	10dB	DC ~ 300MHz	0.2	18	1.3
		20dB	DC ~ 300MHz	0.2	17	1.4
	75Ω	10dB	DC ~ 300MHz	0.2	18	1.3
		20dB	DC ~ 300MHz	0.2	17	1.4
	600Ω	10dB	DC ~ 30MHz	0.2	18	1.3
AT162	50Ω	10dB	DC ~ 300MHz	0.2	15	1.4
		20dB	DC ~ 300MHz	0.2	14	1.5
	75Ω	10dB	DC ~ 300MHz	0.5	15	1.4
		20dB	DC ~ 300MHz	0.2	14	1.5
	600Ω	10dB	DC ~ 30MHz	0.5	15	1.4

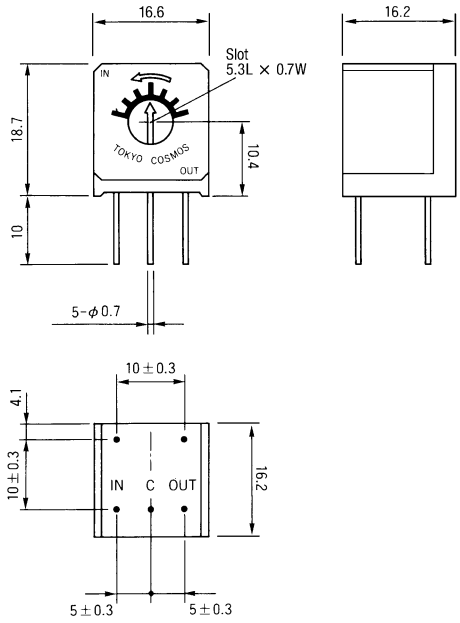
Dimensions

Unit: mm

AT16P
No Shaft, Flush Single-Slot, Top Adjust
3-Pin Diagonal Inline Terminal Style



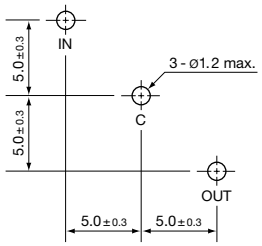
AT162
No Shaft, Flush Single-Slot, Side Adjust
3-Pin Rear Inline Terminal Style, 2 Front Support Pins



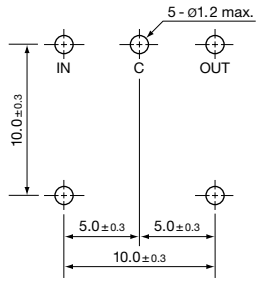
AT16 Series — Recommended PCB Layouts

Unit: mm

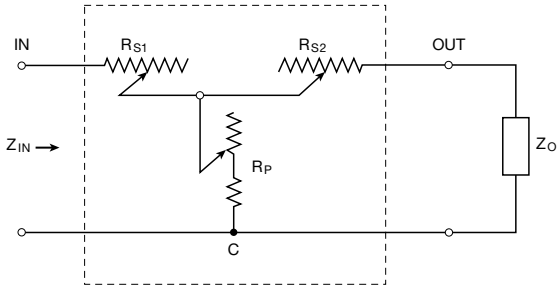
AT16 Pin-Out



AT162 Pin-Out



Electrical Schematic



Part Numbering System

AT 16 2 – 20dB 500

Nominal Impedance Code: Expressed in ohms. A three digit code where the first two digits are significant figures, and the third digit indicates the number of zeros that follow these figures (i.e., 500 = 50Ω; 750 = 75Ω; 601 = 600Ω).

Nominal Attenuation: **10dB** (±1.0 Attenuation Tolerance).
20dB (±1.5 Attenuation Tolerance).

Dash: Use a dash, with no space before or after the dash, to separate Style and Nominal Attenuation. Example: AT162-20dB500

Style: **Blank** = PCB Mount, No Shaft, Rotor Flush with Housing, 3-Pin Diagonal Inline Pattern, Top Adjust.
2 = PCB Mount, No Shaft, Rotor Flush with Housing, 3-Pin Rear Inline Pattern with 2 Front Support Pins, Side Adjust.

Size: 16 = 16mm Square Housing.

TOCOS Series Name: AT = Attenuator.

Packaging

Standard:	Bulk Packaging	Quantity
		20 pieces per box.

Soldering and Cleaning Guidelines

For soldering, cleaning and other information, refer to the Guidelines and Precautions.

TOCOS AMERICA, INC.
1177 East Tower Road, Schaumburg, IL 60173 Tel: 847-884-6664 Fax: 847-884-6665 E-mail: sales@tocos.com www.tocos.com