



Mini-Circuits

WAVEGUIDE

## Fixed Attenuator

WR22-ATT-3+

50  $\Omega$  0.5 W 3 dB 33 to 50 GHz WR22 to WR22 Flange

## KEY FEATURES

- 33 to 50 GHz
- WR22 Waveguide with Round Flange
- Excellent VSWR, 1.1:1 Typ.
- 500 mW Power Handling

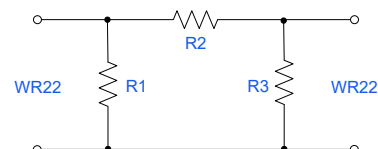


Generic photo used for illustration purposes only

## APPLICATIONS

- Optical Communications
- Test & Measurement
- High-speed Data Systems
- Instrumentation
- Precision Measurements

## FUNCTIONAL DIAGRAM



## PRODUCT OVERVIEW

The Mini-Circuits catalog model WR22-ATT-3+ is a precision fixed 3 dB 500 mW attenuator. WR22-ATT-3+ operates over an extremely wide frequency range with excellent VSWR and supports a broad range of system and testing applications. Precise performance, excellent VSWR and wide bandwidth make this model an ideal solution for systems requiring accurate attenuation across a very wide frequency range.

ELECTRICAL SPECIFICATIONS AT +25 °C,  $Z_0 = 50 \Omega$ 

| Parameter       | Frequency (GHz) | Min. | Typ. | Max. | Units |
|-----------------|-----------------|------|------|------|-------|
| Frequency Range | -               | 33   | -    | 50   | GHz   |
| Attenuation     | 33-36           | 1.5  | 2.9  | 4.5  | dB    |
|                 | 36-39           | 1.5  | 2.9  | 4.5  |       |
|                 | 39-42           | 1.5  | 3.0  | 4.5  |       |
|                 | 45-48           | 1.5  | 3.2  | 4.5  |       |
|                 | 48-50           | 1.5  | 3.4  | 4.5  |       |
| VSWR            | 33-36           | -    | 1.1  | 1.7  | :1    |
|                 | 36-39           | -    | 1.1  | 1.7  |       |
|                 | 39-42           | -    | 1.1  | 1.7  |       |
|                 | 45-48           | -    | 1.1  | 1.7  |       |
|                 | 48-50           | -    | 1.1  | 1.7  |       |

ABSOLUTE MAXIMUM RATINGS<sup>1</sup>

| Parameter                  | Ratings          |
|----------------------------|------------------|
| Operating Case Temperature | +10 °C to +40 °C |
| Storage Temperature        | -40 °C to +85 °C |

1. Permanent damage may occur if any of these limits are exceeded.





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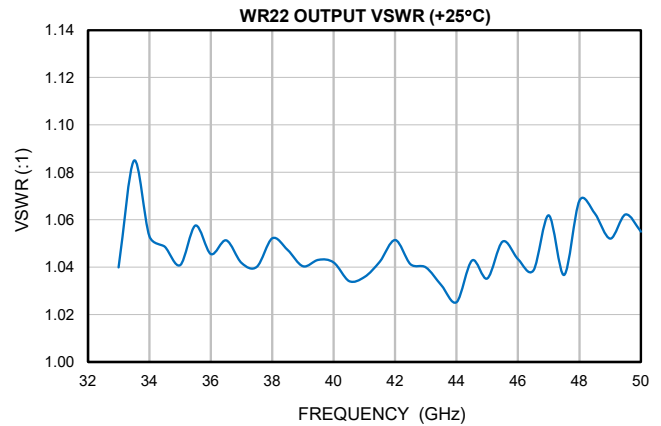
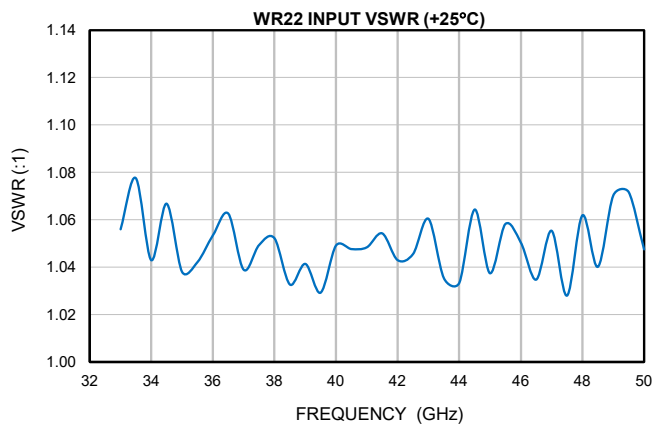
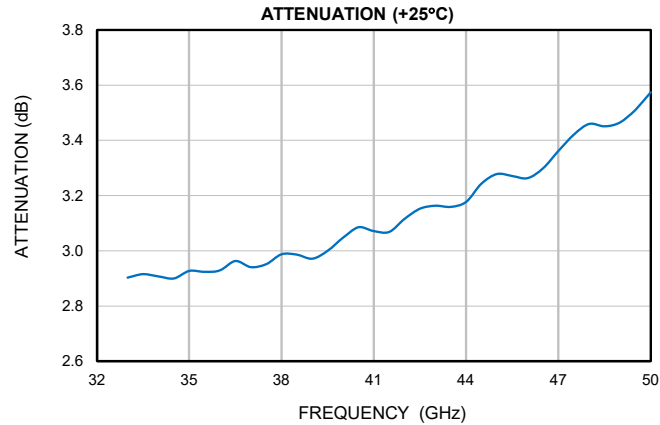
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**WR22-ATT-3+**

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50Ω 0.5 W 3 dB 33 to 50 GHz WR22 to WR22 Flange

## TYPICAL PERFORMANCE GRAPHS





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# Fixed Attenuator

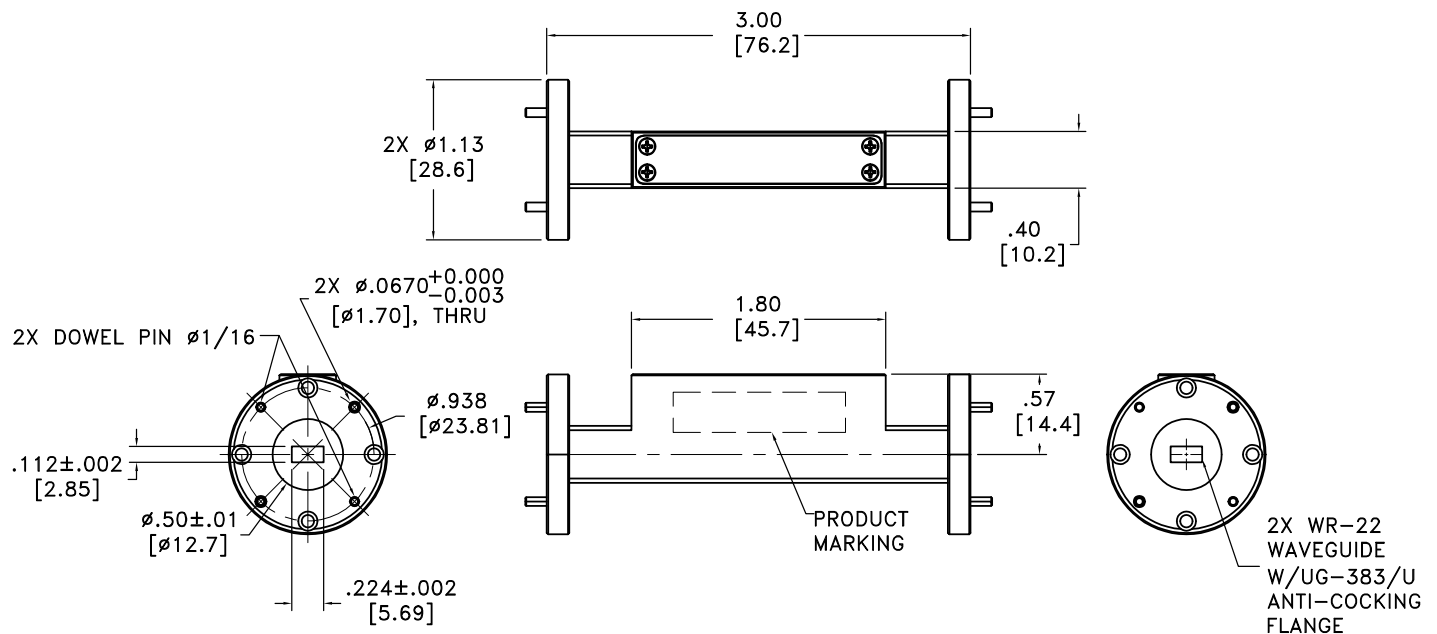
**WR22-ATT-3+**

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## COAXIAL CONNECTIONS

| Description    | RF1 PORT    | RF2 PORT    |
|----------------|-------------|-------------|
| Connector Type | WR22 Flange | WR22 Flange |
| Orientation    | Straight    | Straight    |

## CASE STYLE DRAWING



Weight: 119.068 grams

Dimensions are in inches [mm]. Tolerances: 2 Pl.  $\pm .03$ ; 3 Pl.  $\pm .015$

## PRODUCT MARKING\*: WR22-ATT-3+

\*Marking may contain other features or characters for internal lot control.





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ADDITIONAL INFORMATION IS AVAILABLE ON OUR DASHBOARD

CLICK HERE

|                           |                                              |
|---------------------------|----------------------------------------------|
| Performance Data & Graphs | Data                                         |
|                           | Graphs                                       |
|                           | S-Parameter (S2P Files) Data Set (.zip file) |
| Case Style                | UW3808-1                                     |
| RoHS Status               | Compliant                                    |
| Environmental Ratings     | ENV145                                       |

## NOTES

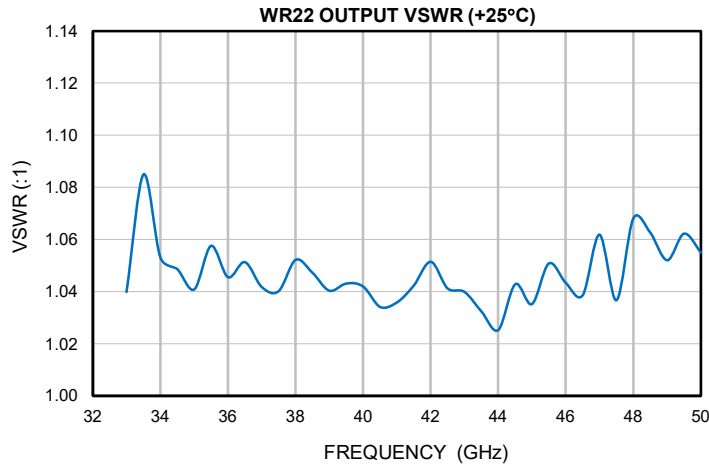
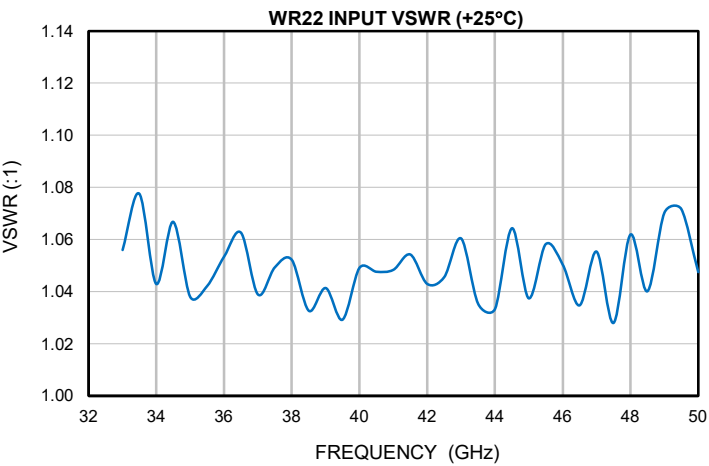
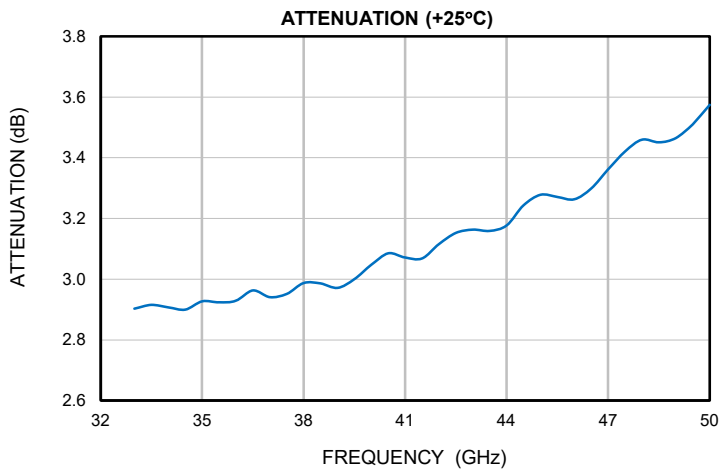
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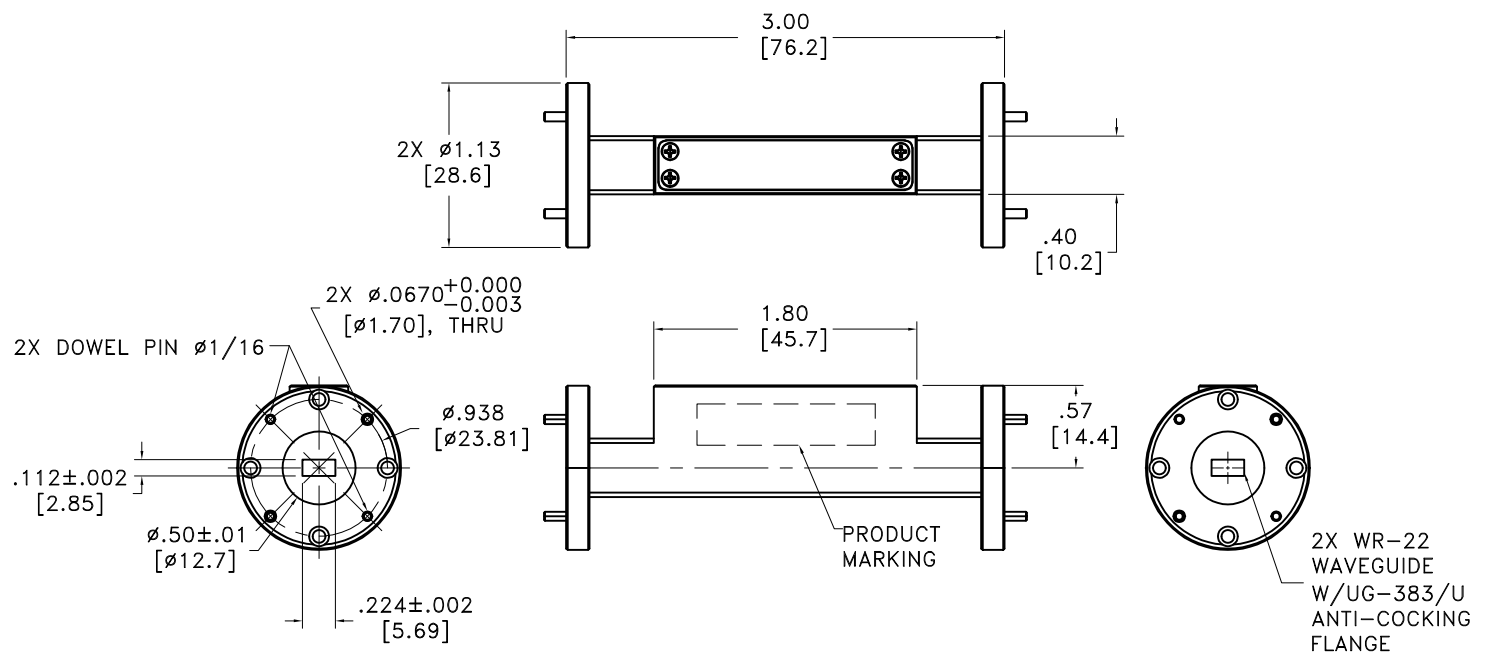


**Fixed Attenuator****WR22-ATT-3+***Typical Performance Data (+25°C)*

| FREQ. | ATTENUATION | WR22 INPUT<br>VSWR | WR22 OUTPUT<br>VSWR |
|-------|-------------|--------------------|---------------------|
| (GHz) | (dB)        | (:1)               | (:1)                |
| 33.0  | 2.90        | 1.06               | 1.04                |
| 33.5  | 2.91        | 1.08               | 1.08                |
| 34.0  | 2.91        | 1.04               | 1.05                |
| 34.5  | 2.90        | 1.07               | 1.05                |
| 35.0  | 2.93        | 1.04               | 1.04                |
| 35.5  | 2.92        | 1.04               | 1.06                |
| 36.0  | 2.93        | 1.05               | 1.05                |
| 36.5  | 2.96        | 1.06               | 1.05                |
| 37.0  | 2.94        | 1.04               | 1.04                |
| 37.5  | 2.95        | 1.05               | 1.04                |
| 38.0  | 2.99        | 1.05               | 1.05                |
| 38.5  | 2.99        | 1.03               | 1.05                |
| 39.0  | 2.97        | 1.04               | 1.04                |
| 39.5  | 3.00        | 1.03               | 1.04                |
| 40.0  | 3.05        | 1.05               | 1.04                |
| 40.5  | 3.09        | 1.05               | 1.03                |
| 41.0  | 3.07        | 1.05               | 1.04                |
| 41.5  | 3.07        | 1.05               | 1.04                |
| 42.0  | 3.12        | 1.04               | 1.05                |
| 42.5  | 3.15        | 1.05               | 1.04                |
| 43.0  | 3.16        | 1.06               | 1.04                |
| 43.5  | 3.16        | 1.04               | 1.03                |
| 44.0  | 3.18        | 1.03               | 1.03                |
| 44.5  | 3.24        | 1.06               | 1.04                |
| 45.0  | 3.28        | 1.04               | 1.04                |
| 45.5  | 3.27        | 1.06               | 1.05                |
| 46.0  | 3.26        | 1.05               | 1.04                |
| 46.5  | 3.30        | 1.03               | 1.04                |
| 47.0  | 3.36        | 1.06               | 1.06                |
| 47.5  | 3.42        | 1.03               | 1.04                |
| 48.0  | 3.46        | 1.06               | 1.07                |
| 48.5  | 3.45        | 1.04               | 1.06                |
| 49.0  | 3.47        | 1.07               | 1.05                |
| 49.5  | 3.51        | 1.07               | 1.06                |
| 50.0  | 3.58        | 1.05               | 1.06                |

Typical Performance Curves





Weight: 119.068 grams

Dimensions are in inches [mm]. Tolerances: 2 Pl.±.03; 3 Pl. ±.015

### Notes:

1. Case material: Brass.
2. Case Finish: Gold plated.



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: [www.minicircuits.com](http://www.minicircuits.com)

RF/IF MICROWAVE COMPONENTS



All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

| Specification         | Test/Inspection Condition             | Reference/Spec              |
|-----------------------|---------------------------------------|-----------------------------|
| Operating Temperature | 10° to 40° C<br>Ambient Environment   | Individual Model Data Sheet |
| Storage Temperature   | -55° to 100° C<br>Ambient Environment | Individual Model Data Sheet |