

## ATN10-00110-2W

### GaAs MMIC DC to 110GHz Attenuator

## DEVICE OVERVIEW

### General Description

The ATN06-00110 is a family of precision GaAs MMIC fixed attenuators. These attenuators are an ideal solution for attenuating a signal and they can be used in a wide range of applications. They are ideal for test equipment's protection and signal overload prevention in various RF circuitry. A 50-ohm match is maintained over the entire operating frequency range.



### Features

- 10dB attenuation DC to 110GHz
- Return loss: typical 20 dB over the entire band
- Serialized for traceability

### Applications

- 5G
- Automotive Radar
- Test Equipment
- Amplitude Matching
- Precision Characterization
- Wireless Backhaul

### Functional Block Diagram



### Part Ordering Options

| Part Number        | Description                       | Package | Packing Size | Green Status | Product Lifecycle | Export Classification |
|--------------------|-----------------------------------|---------|--------------|--------------|-------------------|-----------------------|
| ATN10-00110-2W     | GaAs MMIC DC to 110GHz Attenuator | Module  | -            | RoHS REACH   | Released          | EAR99                 |
| ATN10-00110-3W     | GaAs MMIC DC to 110GHz Attenuator | Module  | -            | RoHS REACH   | Released          | EAR99                 |
| <u>ATN10-00110</u> | GaAs MMIC DC to 110GHz Attenuator | Module  | -            | RoHS REACH   | Released          | EAR99                 |

## Table Of Contents

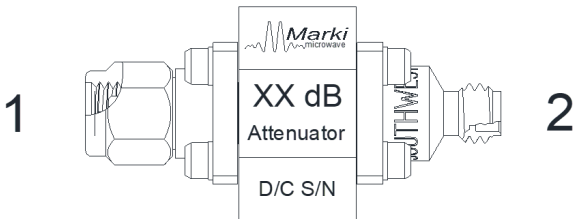
- **Device Overview**
  - General Description
  - Features
  - Applications
  - Functional Block Diagram
- **Port Configuration and Functions**
  - Port Diagram
  - Port Functions
- **Revision History**
- **Specifications**
  - Absolute Maximum Ratings
  - Package Information
  - Electrical Specifications
  - Typical Performance Plots
- **Mechanical Data**
  - Outline Drawing

## Revision History

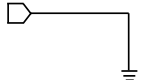
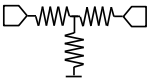
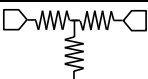
| Revision Code | Revision Date | Comment                   |
|---------------|---------------|---------------------------|
| -             | 2020-10-01    | Initial Datasheet Release |
| A             | 2020-11-01    | Updated Outline Drawings  |

## Port Configuration and Functions

### Port Diagram



### Port Functions

| Port   | Function     | Description                                                                                   | Equivalent Circuit for Package                                                        |
|--------|--------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| GND    | Ground       | M package ground provided through metal housing and outer coax conductor.                     |  |
| Port 1 | Input/Output | Port 1 and Port 2 are DC connected to each other and ground through a T-network of resistors. |  |
| Port 2 | Input/Output | Port 1 and Port 2 are DC connected to each other and ground through a T-network of resistors. |  |

## Specifications

### Absolute Maximum Ratings

The Absolute Maximum Ratings indicate limits beyond which damage may occur to the device. If these limits are exceeded, the device may be inoperable or have a reduced lifetime.

| Parameter                     | Maximum Rating | Unit |
|-------------------------------|----------------|------|
| DC Current, any pin           | 100            | mA   |
| Maximum Operating Temperature | 100            | °C   |
| Maximum Storage Temperature   | 125            | °C   |
| Minimum Operating Temperature | -55            | °C   |
| Minimum Storage Temperature   | -65            | °C   |
| RF Power Handling             | 2              | W    |

Reliability ratings are individual, a combination of stresses (DC current, RF power, and heat) may cause premature failure).

### Package Information

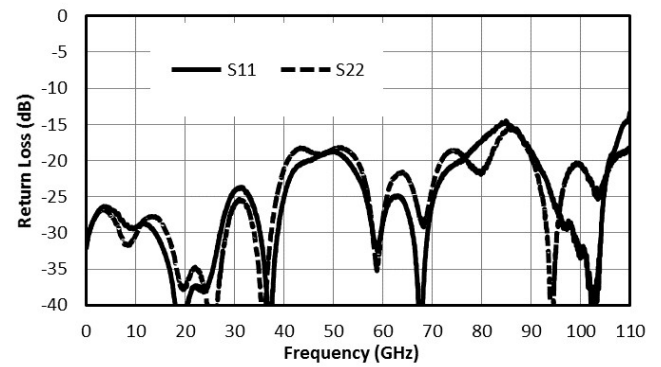
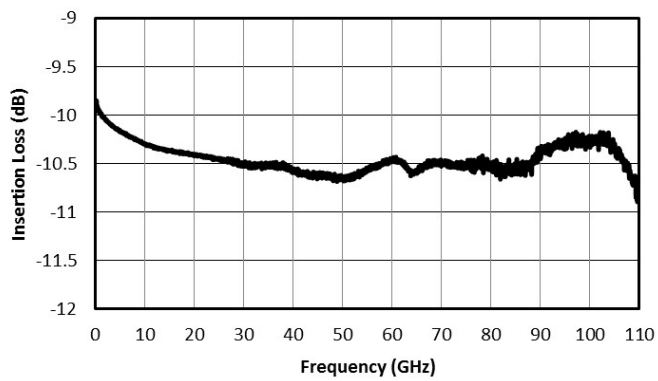
| Parameter  | Details              | Rating           |
|------------|----------------------|------------------|
| ESD        | 250 to < 500 Volts   | HBM Class 1A     |
| Weight     | Package name: Module | 14.2g            |
| Dimensions | -                    | 14.30 x 27.79 mm |

### Electrical Specifications

The electrical specifications apply at TA=+25°C in a 50Ω system. Typical data shown is for the attenuator in a M package with a sine wave input applied to port 1.

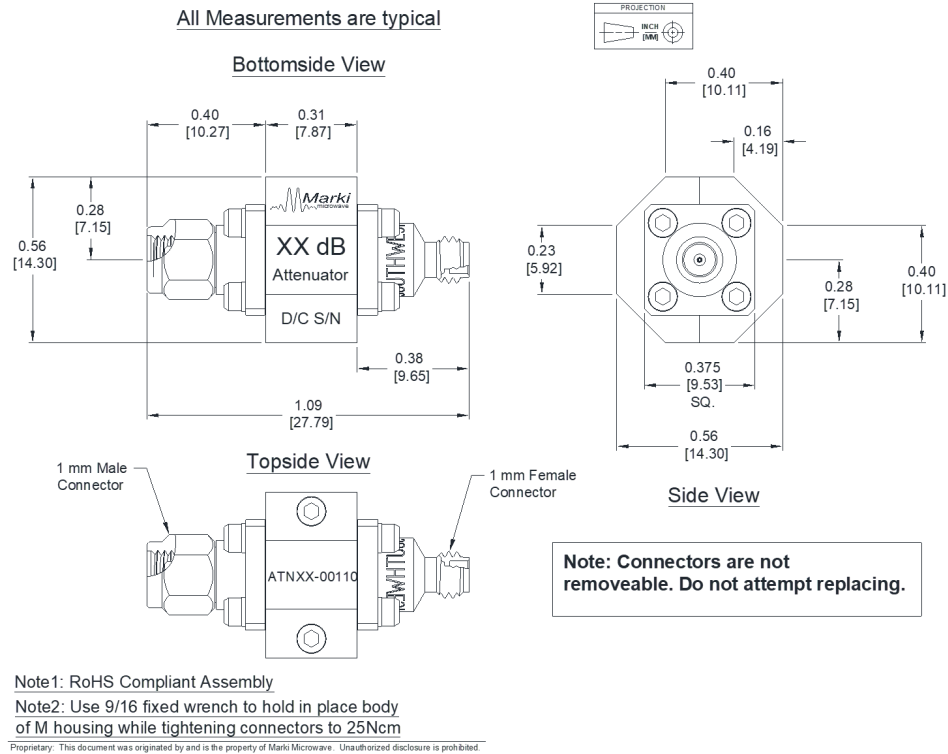
| Parameter            | Test Conditions | Minimum Frequency (GHz) | Maximum Frequency (GHz) | Min | Typ  | Max | Unit |
|----------------------|-----------------|-------------------------|-------------------------|-----|------|-----|------|
| Attenuation          | -               | 0                       | 110                     | -   | 10.5 | -   | dB   |
| Attenuation Accuracy | -               | 0                       | 81                      | -   | 0.4  | -   | dB   |
| Attenuation Accuracy | -               | 81                      | 100                     | -   | 1    | -   | dB   |
| Attenuation Accuracy | -               | 100                     | 110                     | -   | 1.2  | -   | dB   |
| Return Loss          | -               | 0                       | 81                      | -   | 22   | -   | dB   |
| Return Loss          | -               | 81                      | 100                     | -   | 20   | -   | dB   |
| Return Loss          | -               | 100                     | 110                     | -   | 15   | -   | dB   |
| Impedance            | -               | 0                       | 110                     | -   | 50   | -   | Ω    |

## Typical Performance Plots



## Mechanical Data

### Outline Drawing



1. All measurements are typical.
2. Attach 1.0mm connectors with 45 N-cm (4 in-lb) torque wrench.

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