

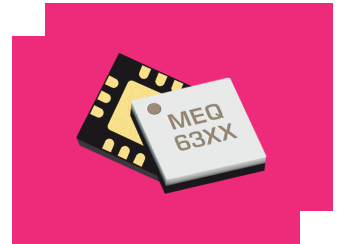
MEQ10-14ASM

Passive GaAs MMIC 14 GHz Equalizer

DEVICE OVERVIEW

General Description

The MEQ10-14ASM passive MMIC equalizer QFN is an ideal solution for compensating for low pass filtering effects in RF/microwave and high speed digital systems. They provide positive slope from DC to 14GHz with DC attenuation options between 3 and 10dB. The unique design offers superior return loss to competitors. GaAs MMIC technology provides consistent unit-to-unit performance in a small, low cost form factor.



[Download s-parameters here](#)

Features

- DC attenuation options from 3 to 10dB
- Typical Insertion Loss 0.8 dB at 14GHz
- VSWR < 1.5:1 Over Entire Band

Applications

- High-Speed Data
- RF Transceivers
- Telecom
- Cable Loss Compensation
- Amplifier Compensation

Functional Block

Diagram



Part Ordering Options

| Part Number | Description | Package | Green Status | Product Lifecycle | Export Classification |
|-----------------------|--|---------|---------------|-------------------|-----------------------|
| MEQ10-14ASM | Passive GaAs MMIC 14 GHz Equalizer | QFN | REACH RoHS | Released | EAR99 |
| <u>EVAL-MEQ10-14A</u> | Evaluation Board, Passive GaAs MMIC 14 GHz Equalizer | EVAL | REACH RoHS | Released | EAR99 |

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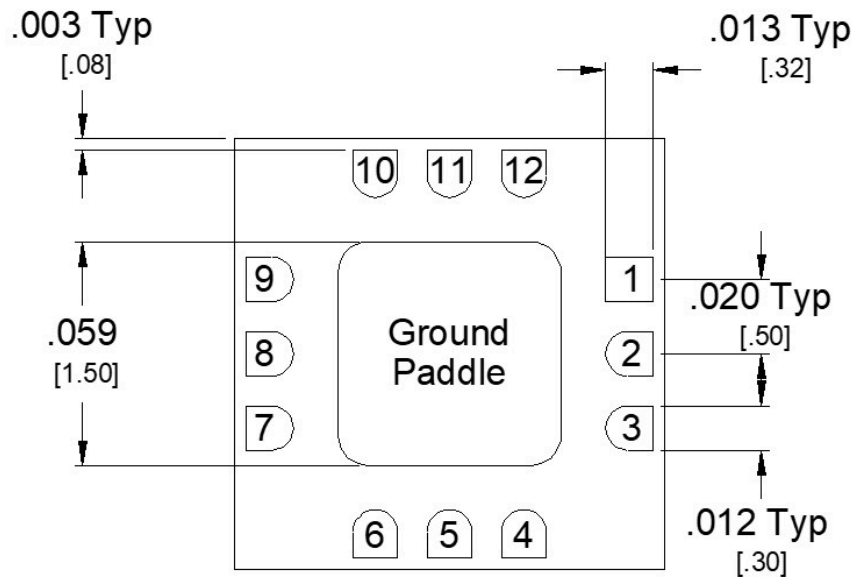
Revision History

| Revision Code | Revision Date | Comment |
|---------------|---------------|--|
| - | 2018-06-27 | Datasheet Initial Release |
| A | 2018-08-01 | Added EVAL Outline |
| B | 2018-11-01 | Updated EVAL Outline |
| C | 2019-03-01 | Updated ESD Rating |
| D | 2019-05-01 | Added Package Dimension Tolerance Spec |
| E | 2019-08-01 | Added SM Footprint |




Port Configuration and Functions

Port Diagram

A top-down view of the MEQ10-14ASM package outline drawing is shown below. The MEQ equalizers are symmetrical allowing Port 1 or Port 2 to be used as the input.



Port Functions

| Port | Function | Description | Equivalent Circuit for Package |
|-------|--------------|---|---|
| GND | Ground | SM package ground path is provided through the ground paddle. | Pad  |
| Pin 1 | Input/Output | Port 1 is DC connected to ground through a resistor. DC block is required if voltage present. | P1  |
| Pin 9 | Input/Output | Port 2 is DC connected to ground through a resistor. DC block is required if voltage present. | P2  |

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 |
|-------------------------------|----------------|------|
| Maximum Operating Temperature | 100 | °C |
| Maximum Storage Temperature | 125 | °C |
| Minimum Operating Temperature | -55 | °C |
| Minimum Storage Temperature | -65 | °C |
| Port 1 DC Current | 40 | mA |
| Port 2 DC Current | 40 | mA |
| Power Handling, at any Port | 30 | dBm |

Package Information

| Parameter | Details | Rating |
|------------|--------------------|--------------|
| ESD | 250 to < 500 Volts | HBM Class 1A |
| Dimensions | - | 3 x 3 mm |

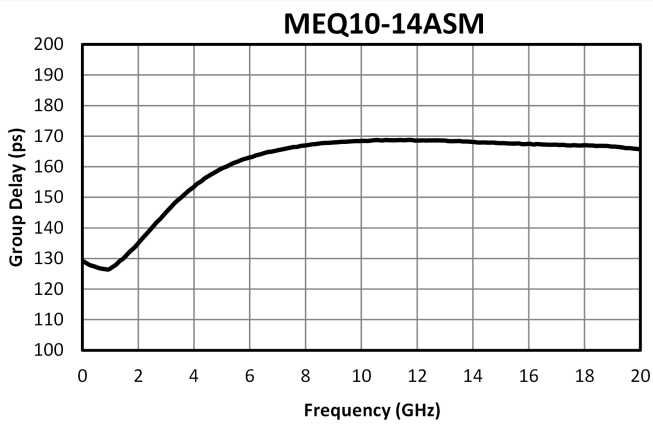
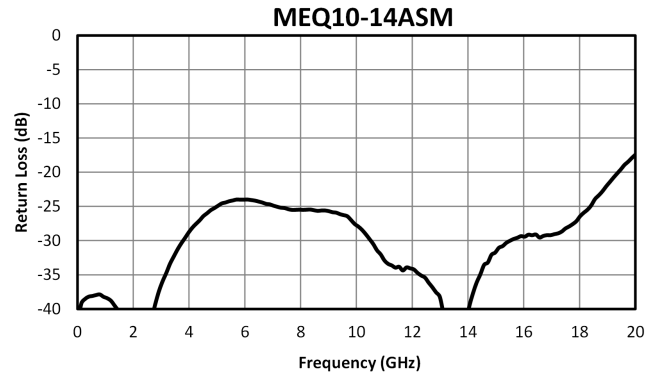
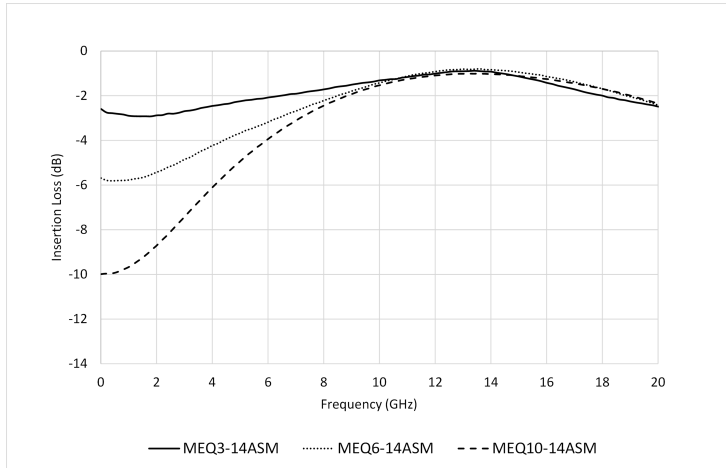
Electrical Specifications

The electrical specifications apply at TA=+25°C in a 50Ω system. Typical data shown is for the equalizer in a CH package with a sine wave input applied to port 1. Min and Max limits are guaranteed at TA=+25°C. All bare die are 100% DC tested and visually inspected.

| Parameter | Test Conditions | Minimum Frequency (GHz) | Maximum Frequency (GHz) | Min | Typ | Max | Unit |
|----------------|-----------------|-------------------------|-------------------------|-----|-----|-----|------|
| Insertion Loss | Freq=0GHz | - | - | - | 10 | - | dB |
| Insertion Loss | Freq=14GHz | - | - | - | 0.8 | - | dB |
| Return Loss | Freq=0GHz | 0 | 14 | - | 29 | - | dB |

Equalizer is symmetrical. Reverse measurement is equivalent to forward measurement. All measurements taken in eval board without de-embedding.

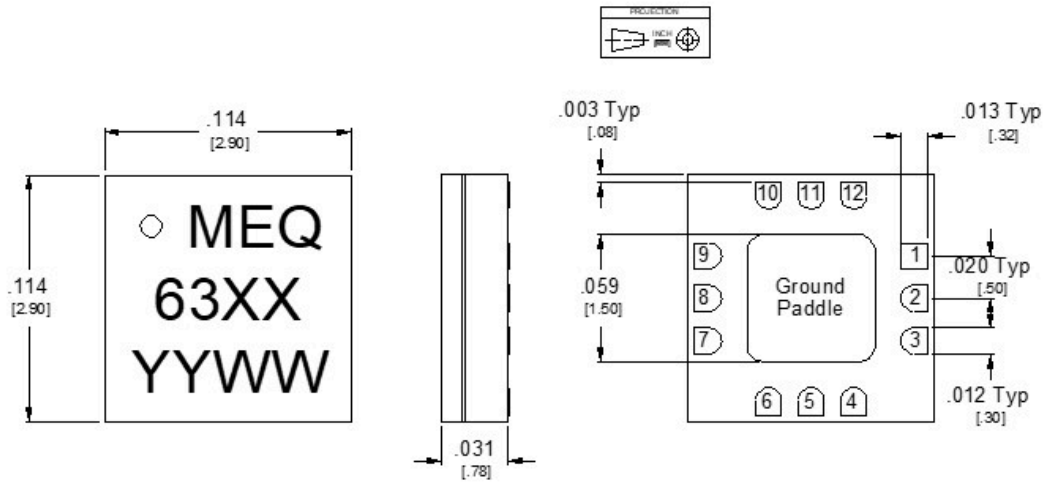
Typical Performance Plots



Mechanical Data

Outline Drawing

Download : [Outline 2D Drawing](#) | [Outline 3D Drawing](#) | [Outline 3D STP](#)



Unless otherwise specified, dimensions are in inches. Tolerances are:

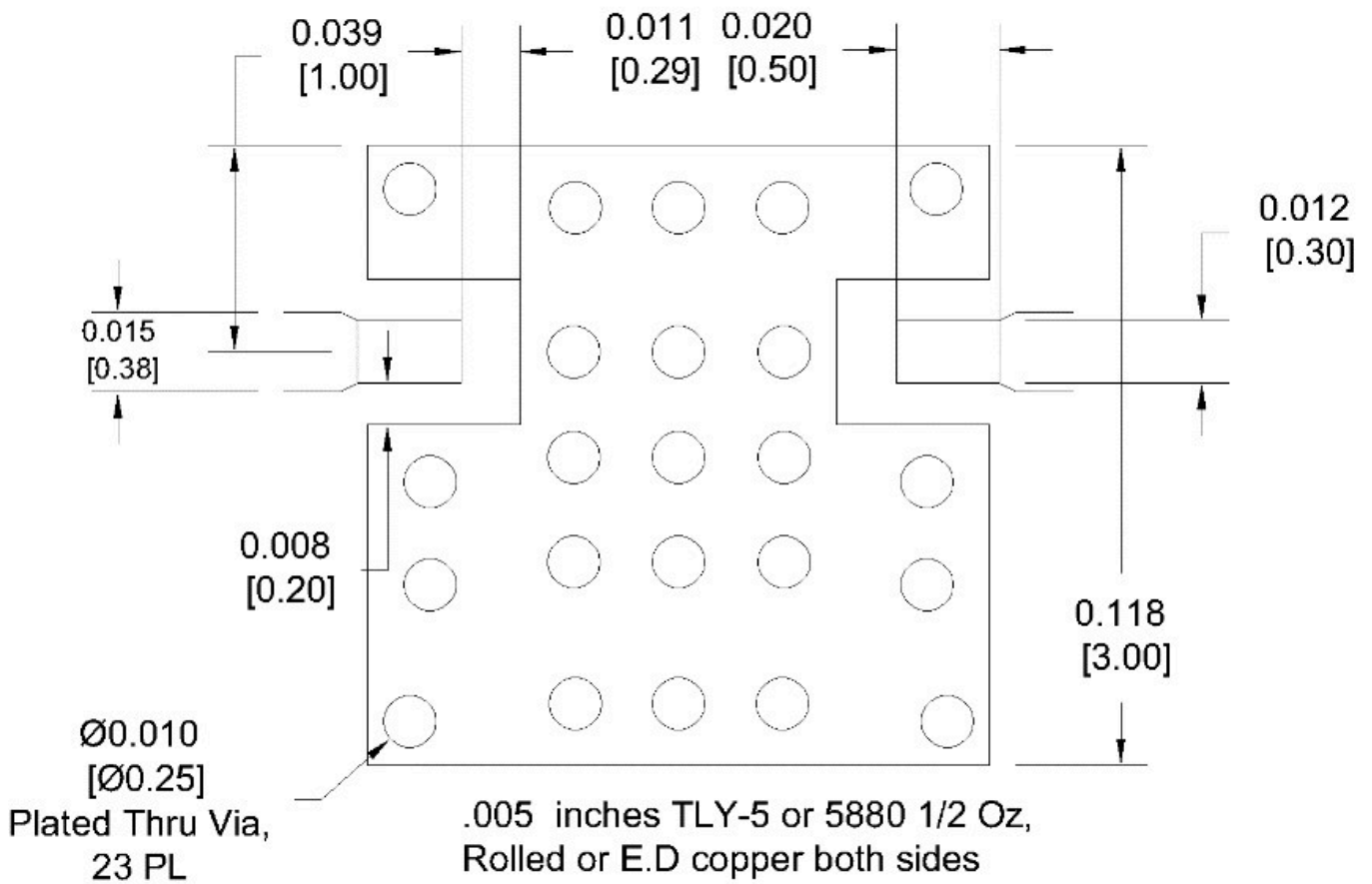
XX ±.02
.XXX ±.005

- Substrate material is ceramic.
- I/O Leads and Ground Paddle plating is (from base to finish):
 Ni: 8.89um MAX 1.27um MIN
 Pd: 0.17um MAX 0.07um MIN
 Au 0.254um MAX 0.03um MIN
- All unconnected pads should be connected to PCB RF ground.

| Part Number | Circuit Number |
|-------------|----------------|
| MEQ3-14ASM | 6336 |
| MEQ6-14ASM | 6337 |
| MEQ10-14ASM | 6338 |

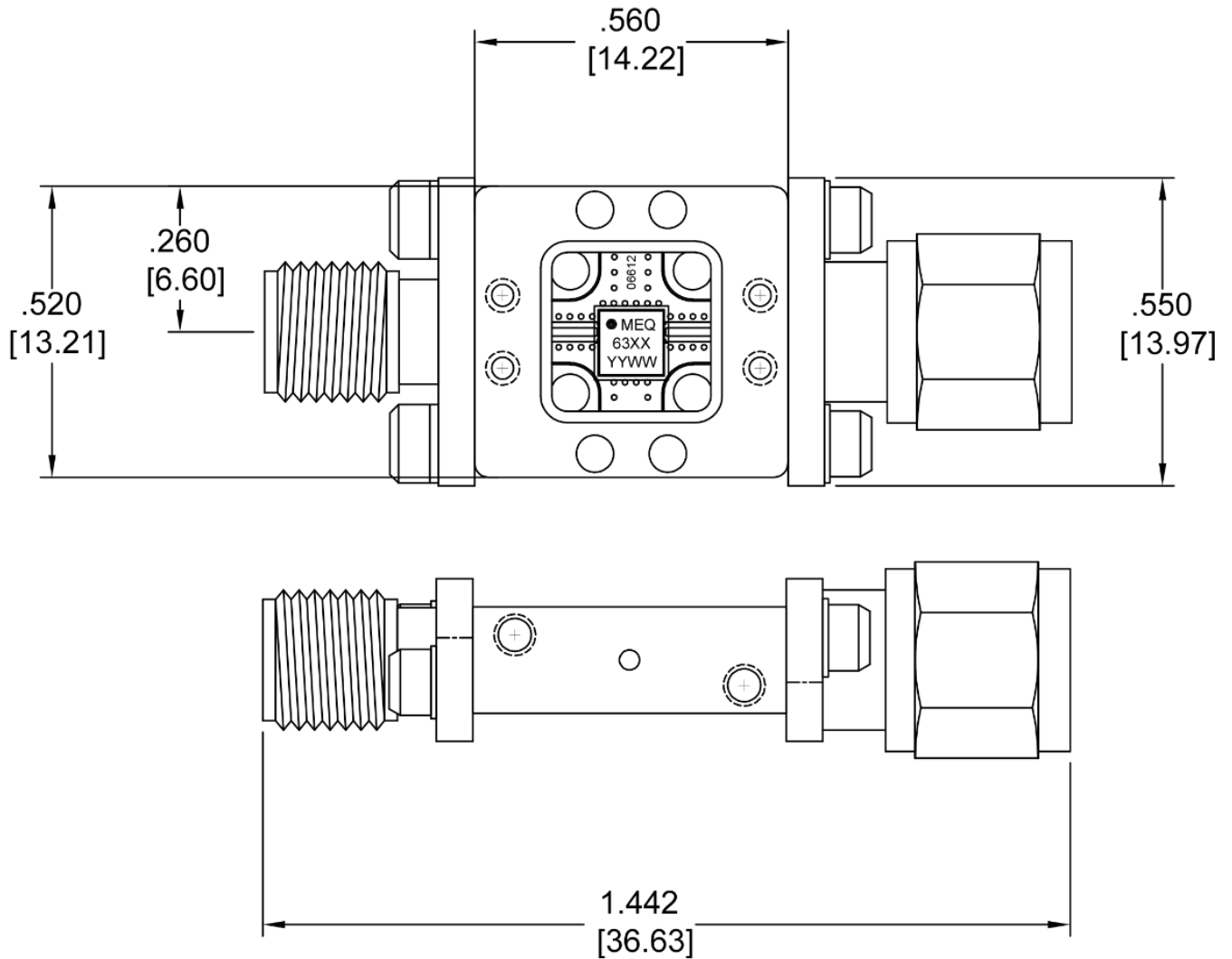
Footprint Image

Download : [Footprint Drawing](#)



MEQ10-14ASM

Passive GaAs MMIC 14 GHz Equalizer



| XX | Part Number |
|----|----------------|
| 36 | Eval-MEQ3-14A |
| 37 | Eval-MEQ6-14A |
| 38 | Eval-MEQ10-14A |

| Port | Connector Type |
|------|----------------|
| I | SMA Female |
| O | SMA Male |

Note: Eval-Package Connectors are not removeable.

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