

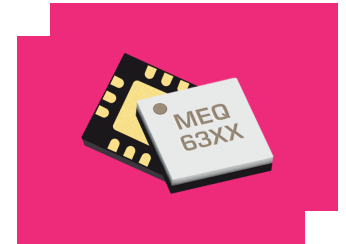
# MEQ10-20ASM

## Passive GaAs MMIC 20 GHz Equalizer

### DEVICE OVERVIEW

#### General Description

The MEQ10-20ASM family of 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 20GHz with DC attenuation options between 0 and 11dB. 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 0 to 11dB
- Typical Insertion Loss 1.2 dB at 20GHz
- VSWR < 1.5:1 Over Entire Band

#### Applications

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

#### Functional Block Diagram



#### Part Ordering Options

Part Number	Description	Package	Green Status	Product Lifecycle	Export Classification
MEQ10-20ASM	Passive GaAs MMIC 20 GHz Equalizer	QFN	REACH RoHS	Released	EAR99
EVAL-MEQ10-20A	Evaluation Board, Passive GaAs MMIC 20 GHz Equalizer	EVAL	REACH RoHS	Released	EAR99

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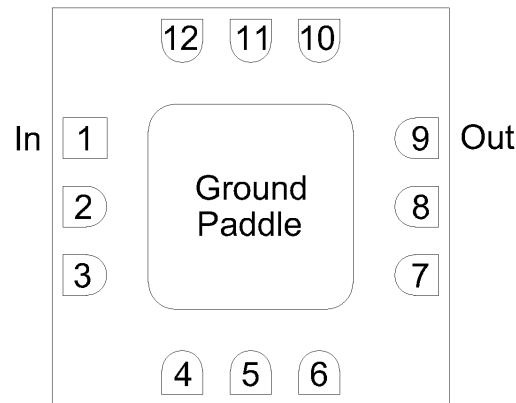
## Revision History

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	Added ESD Rating
D	2019-05-01	Added Package Dimension Tolerance Spec
E	2019-08-01	Added SM Footprint
F	2025-11-18	Updated Port Diagram



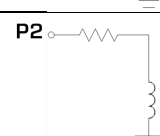
## Port Configuration and Functions

### Port Diagram

A top-down view of the MEQ10-20ASM 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	DC Equivalent Circuit
GND	Ground	SM package ground path is provided through the ground paddle.	<b>Pad</b> 
Pin 1	Input/Output	Port 1 is DC connected to ground through a resistor. DC block is required if voltage present.	<b>P1</b> 
Pin 9	Input/Output	Port 2 is DC connected to ground through a resistor. DC block is required if voltage present.	<b>P2</b> 

## 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
Moisture Sensitivity Level	-	MSL 1

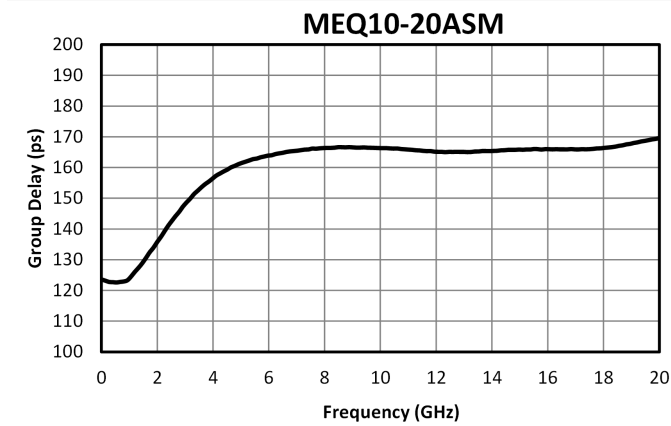
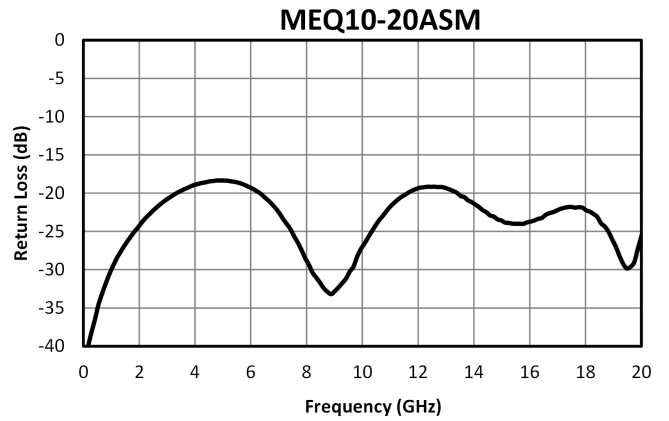
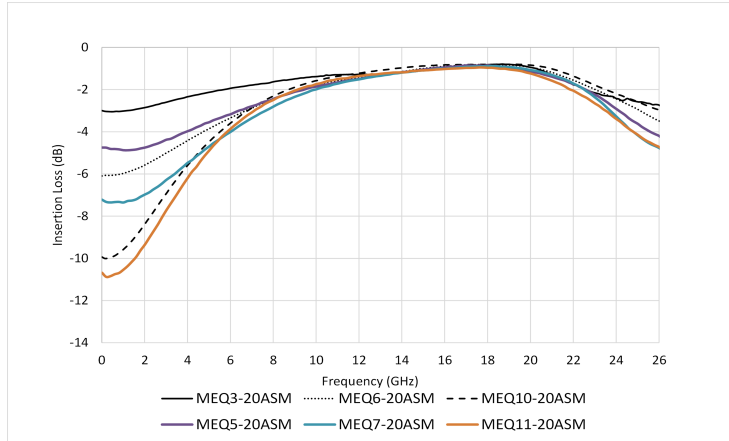
**Electrical Specifications**

The electrical specifications apply at TA=+25°C in a 50Ω system. Typical data shown is for the equalizer in a SM 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=20GHz	20	20	-	0.9	-	dB
Insertion Loss at DC	Freq=0GHz	0	0	-	10	-	dB
Return Loss	-	0	20	-	20	-	dB

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

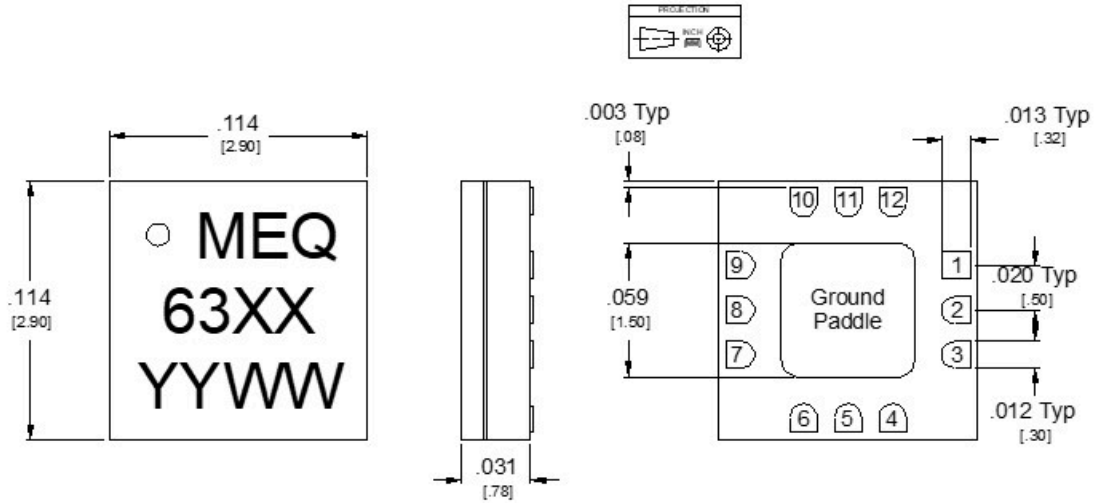
**Typical Performance Plots**



### Mechanical Data

### Outline Drawing

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



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

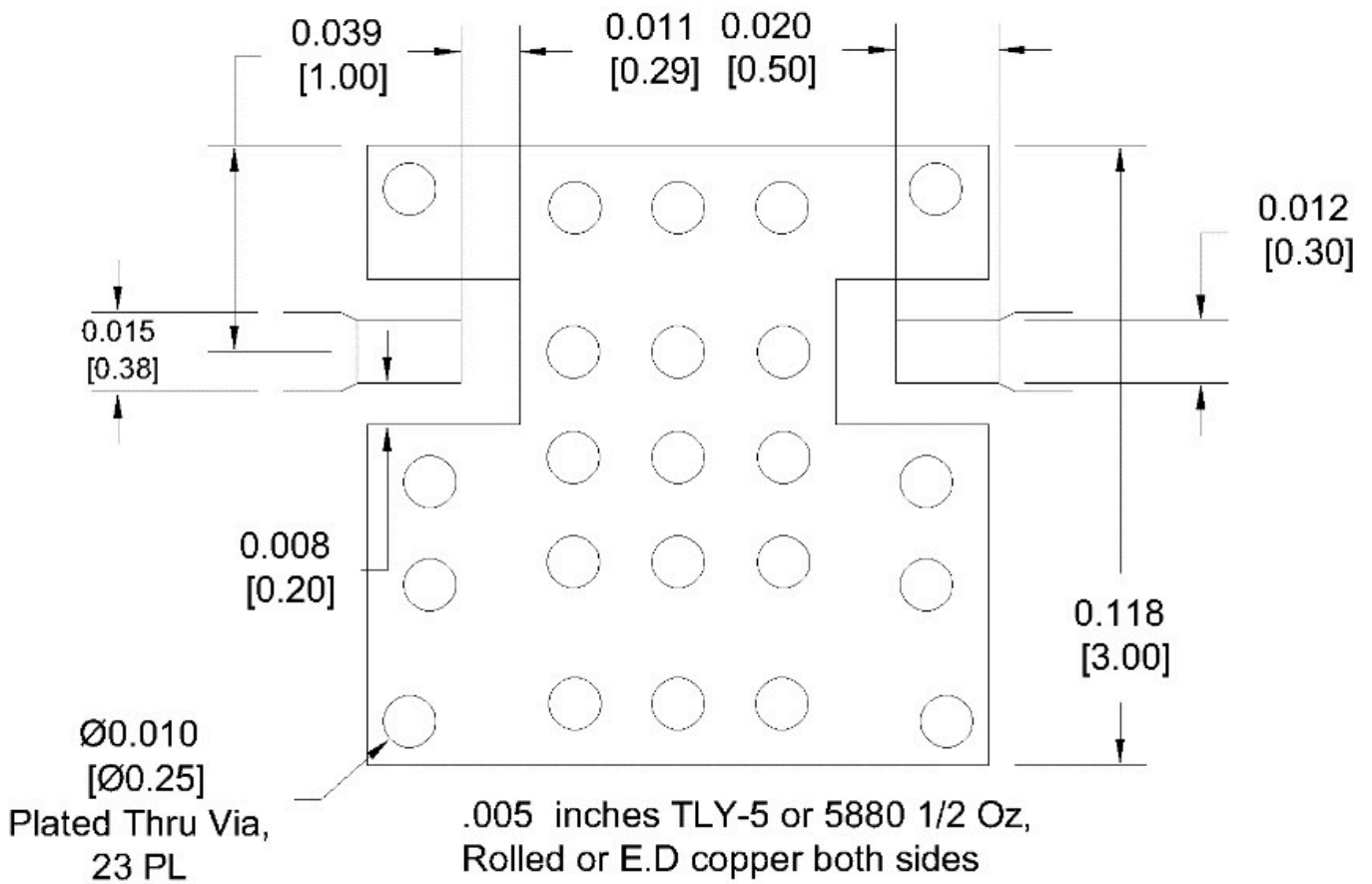
XX ±.02  
.XXX ±.005

- 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.

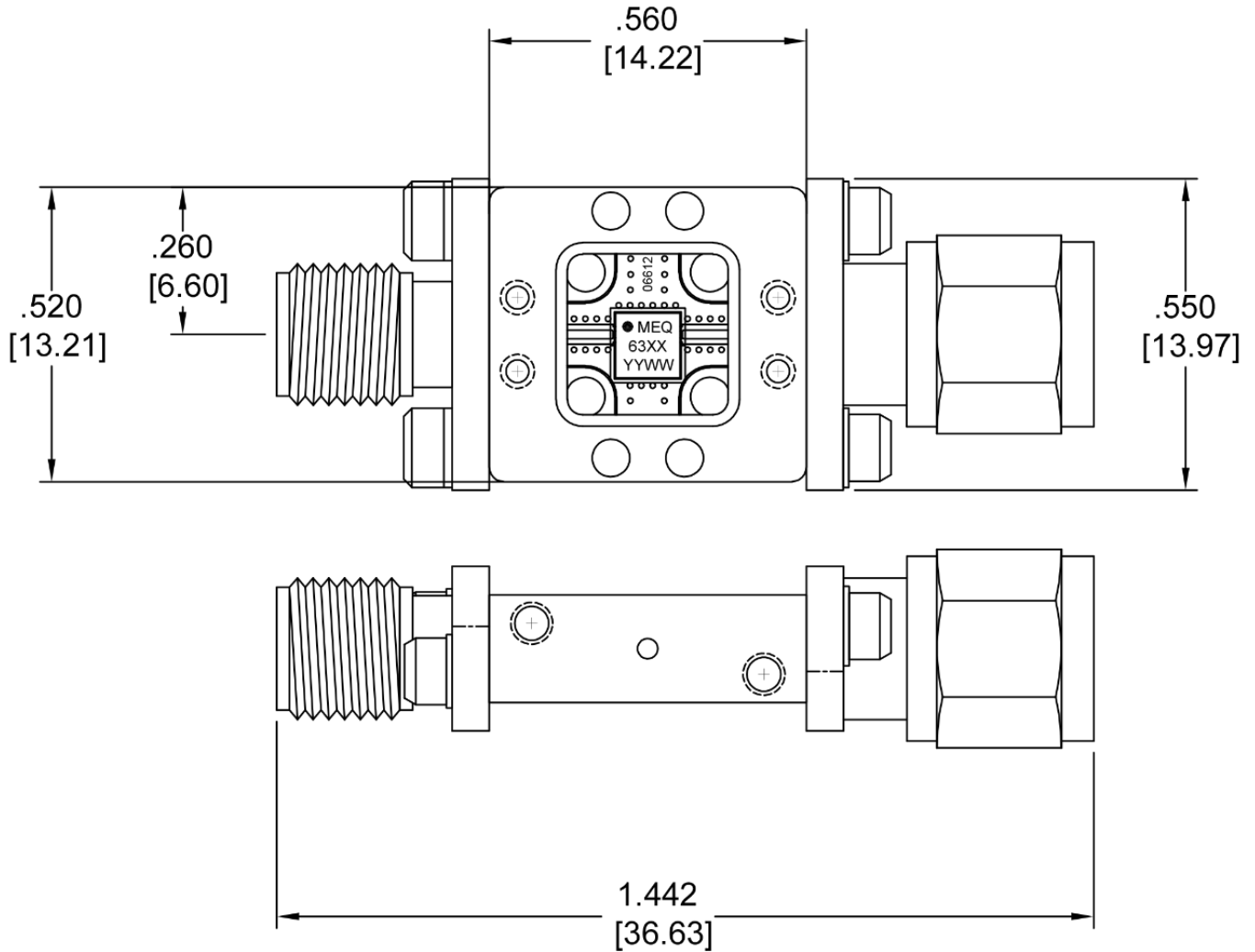
Part Number	Circuit Number
MEQ3-20ASM	6339
MEQ6-20ASM	6340
MEQ10-20ASM	6341
MEQ5-20ASM	6342
MEQ7-20ASM	6343
MEQ11-20ASM	6345

**Footprint Image**

Download : [Footprint Drawing](#)



**Evaluation Board - Outline Drawing**



XX	Part Number
39	Eval-MEQ3-20A
40	Eval-MEQ6-20A
41	Eval-MEQ10-20A
42	Eval-MEQ5-20A
43	Eval-MEQ7-20A
45	Eval-MEQ11-20A

Port	Connector Type
I	SMA Female
O	SMA Male

Note: Eval-Package Connectors are not removeable.

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