

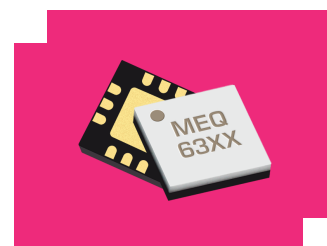
MEQ11-20ASM

Passive GaAs MMIC 20 GHz Equalizer

DEVICE OVERVIEW

General Description

The MEQ1-20ASM 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 3 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 3 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

N/A

Part Ordering Options

Part Number	Description	Package	Packing Size	Green Status	Product Lifecycle	Export Classification
EVAL-MEQ11-20A	Evaluation Board, Passive GaAs MMIC 20 GHz Equalizer	-	-	RoHS	Released	EAR99
MEQ11-20ASM	Passive GaAs MMIC 20 GHz Equalizer	QFN	-	RoHS	Released	EAR99

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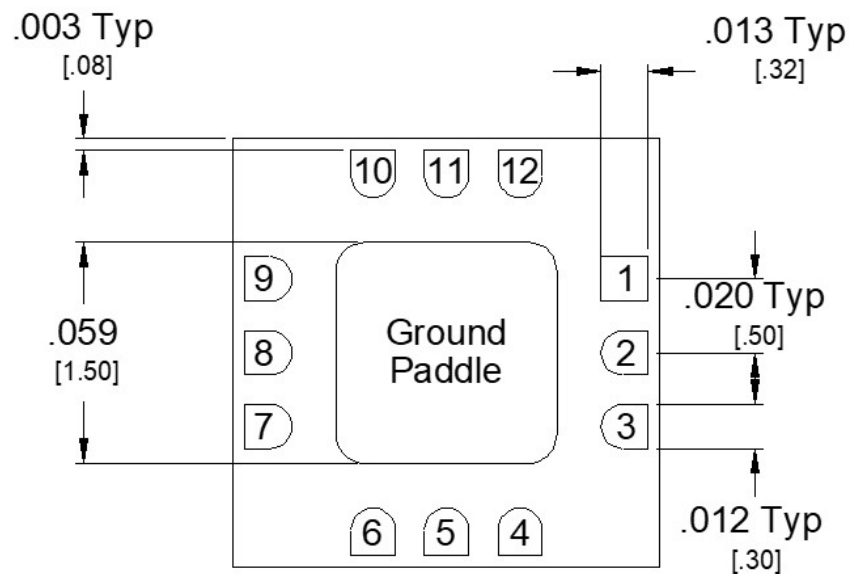
Revision History

Revision Code	Revision Date	Comment
-	2018-06-27	Datasheet Initial Release
A	2018-08-01	Added EVAL Outline
B	2018-11-01	Added 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

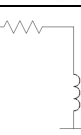
Port Configuration and Functions

Port Diagram

A top-down viA-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	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 Operating 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	-	2.90 x 2.90 mm

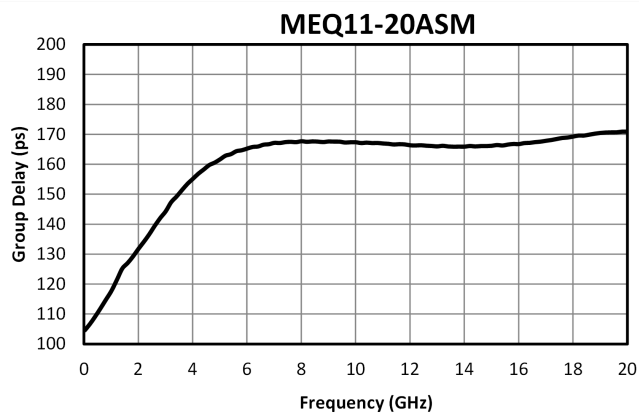
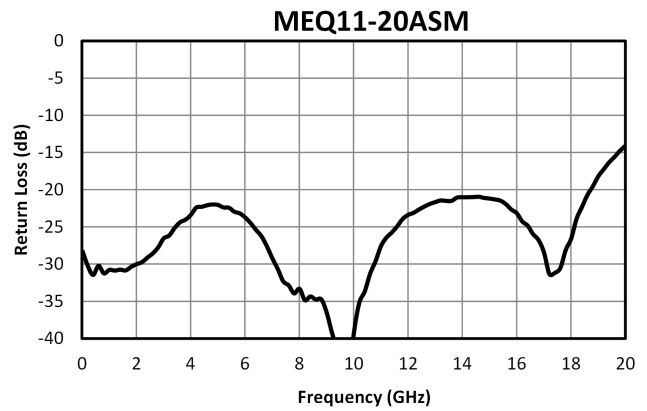
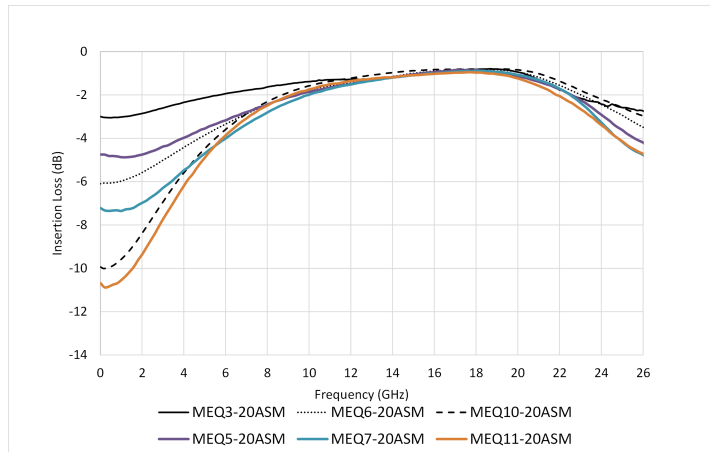
Electrical Specifications

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=0GHz	-	-	-	11	-	dB
Insertion Loss	Freq=20GHz	-	-	-	1.2	-	dB
Return Loss	-	0	14	-	27	-	dB

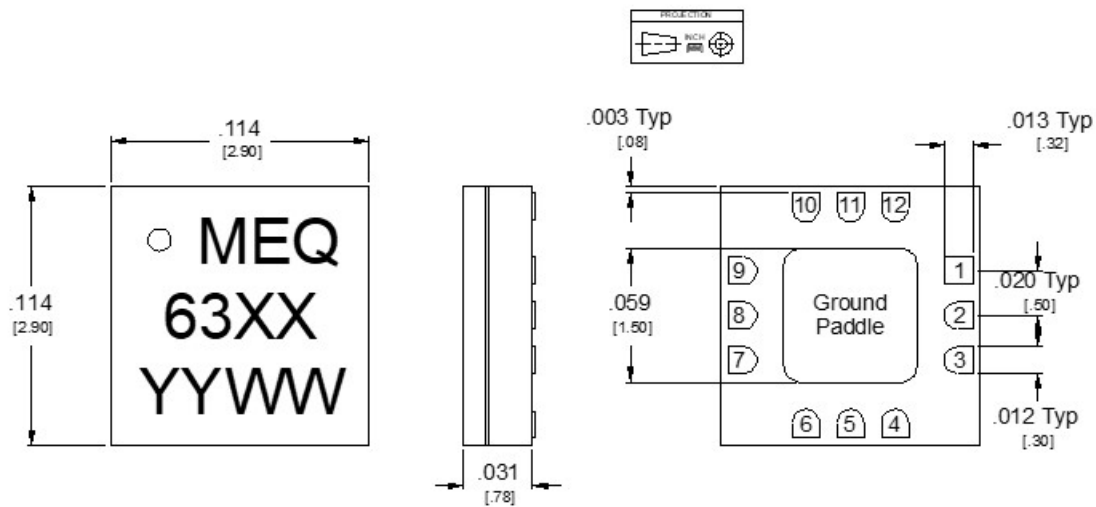
Equalizer is symmetrical. Reverse measurement is equivalent to forward measurement. All measurements taken in eval board without de-embedding.

Typical Performance Plots



Mechanical Data

Outline Drawing



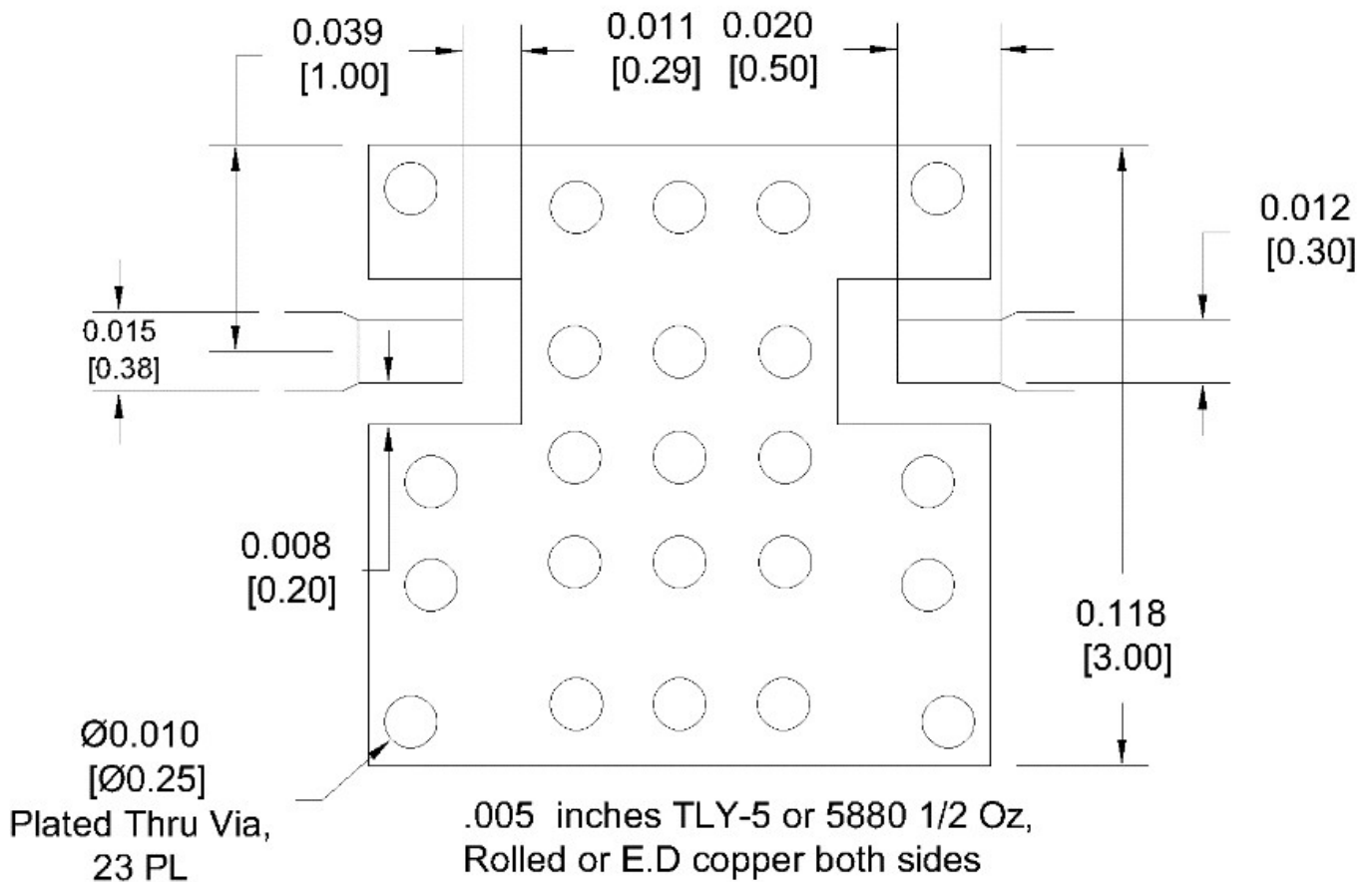
Unless otherwise specified, dimensions are in inches. Tolerances are:

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

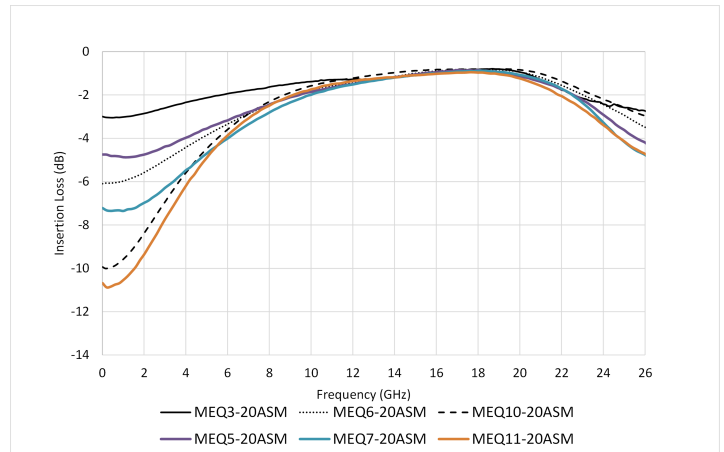
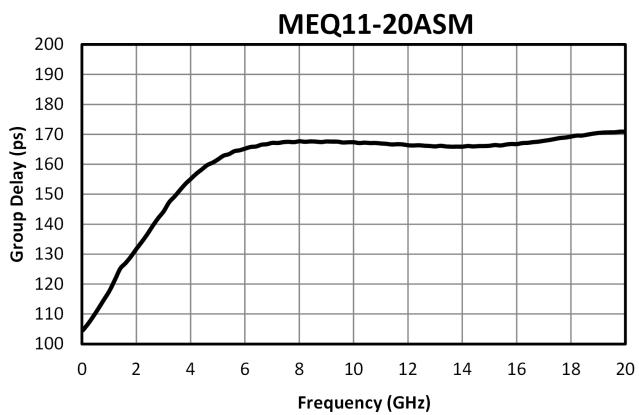
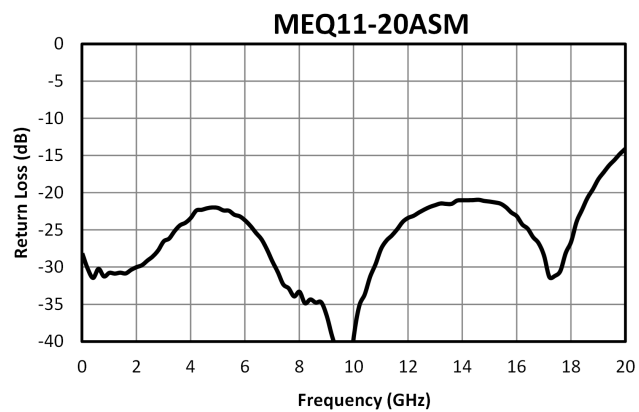
Footprint Image



Evaluation Board - Performance Data

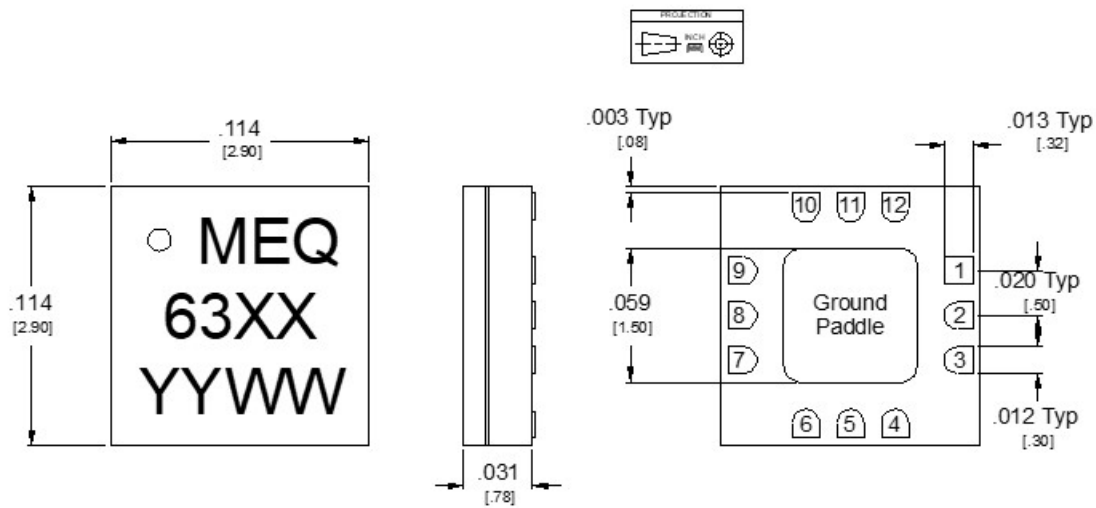
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Insertion Loss	Freq=20GHz	-	-	1.2	-	dB
Return Loss	-	0 - 14	-	27	-	dB

Evaluation Board - Typical Performance Plots



MEQ11-20ASM

Passive GaAs MMIC 20 GHz Equalizer



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