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Sales & Customer Support: sales@markimicrowave.com
Tech Support: support@markimicrowave.com

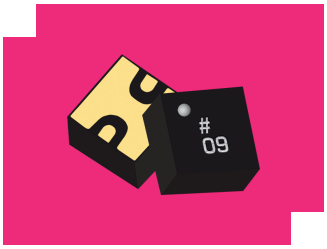
MEQ6-45CSP1

Chip Scale Package MMIC 45 GHz Equalizer

DEVICE OVERVIEW

General Description

The MEQ6-45CSP1 is a passive MMIC equalizer CSP ideal for compensating for low pass filtering effects in RF/microwave and high speed digital systems. The MEQ6-45CSP1 provides positive slope from DC to 45GHz with a DC attenuation of 6dB. The chip scale package allows for extreme miniaturization of the SMT footprint. The unique design offers superior return loss to competitors in an extremely small footprint. GaAs MMIC technology provides consistent unit-to-unit performance in a small, low cost form factor.



Download s-parameters here

Features

- Small 1.5 x 1.5 mm package size
- 2W RF Power Handling
- DC attenuation of 6dB
- Typical Insertion Loss 0.85 dB at 45GHz
- Typical VSWR of 1.33 Over Operating Band
- Low SWaP
- This product embodies Marki Microwave's U.S. Pat. 11,869,858.

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
MEQ6-45CSP1	Chip Scale Package MMIC 45 GHz Equalizer	CSP1	REACH RoHS	Released	EAR99
EVB-MEQ6-45	Evaluation Board, Chip Scale Package MMIC 45 GHz Equalizer	EVB	REACH RoHS	Released	-

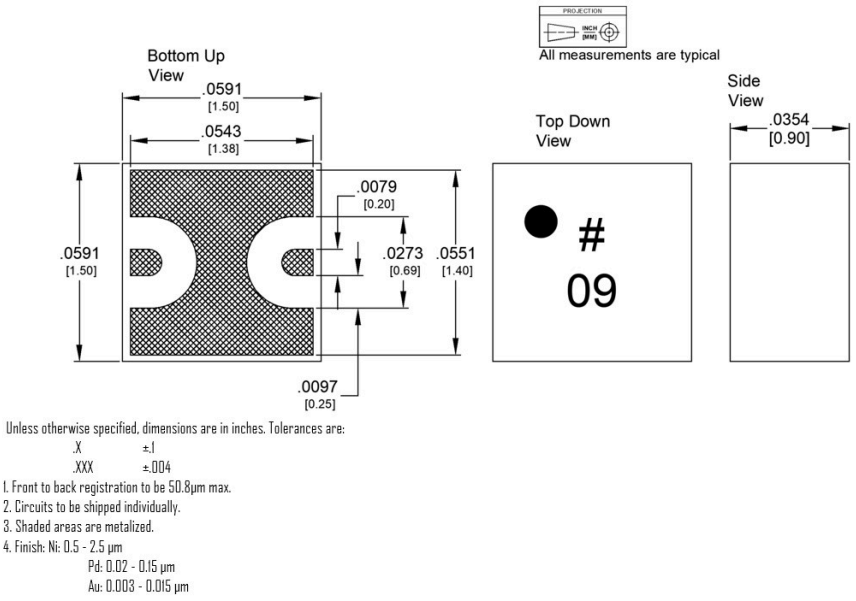
Table Of Contents

Revision History

Revision Code	Revision Date	Comment
-	2022-07-01	Datasheet Initial Release
A	2023-02-01	Package Description Updated

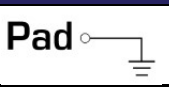
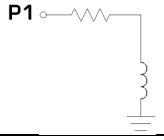
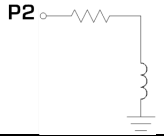
Port Configuration and Functions

Port Diagram



Unless otherwise specified, dimensions are in inches. Tolerances are:
.X ±.1
.XXX ±.004
1. Front to back registration to be 50.8µm max.
2. Circuits to be shipped individually.
3. Shaded areas are metalized.
4. Finish: Ni: 0.5 - 2.5 µm
Pd: 0.02 - 0.15 µm
Au: 0.003 - 0.015 µm

Port Functions

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

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
Power Handling, at any Port	2	W

Package Information

Parameter	Details	Rating
ESD	250 to < 500 Volts	HBM Class 1A
Weight	Package name: CSP1	0.04g
Dimensions	-	1.50 x 1.50 mm
Moisture Sensitivity Level	-	MSL 3

Electrical Specifications

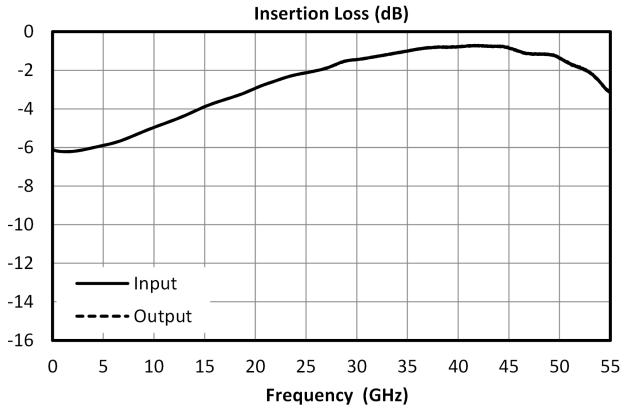
The electrical specifications apply at TA=+25°C in a 50Ω system. Typical data shown is for the equalizer in a CSP package with a sine wave input applied to port 1.

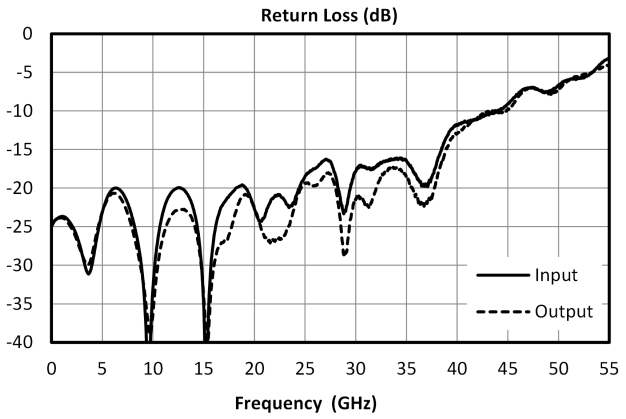
Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Impedance [1]	-	0	45	-	50	-	Ω
Insertion Loss [2]	-	45	45	-	0.85	-	dB
Insertion Loss at DC [3]	-	0	0	-	6	-	dB
Return Loss [4]	-	40	45	-	10	-	dB
Return Loss [5]	-	0	40	10	17	-	dB

[1][2][3][4][5] Equalizer is symmetrical. Reverse measurement is equivalent to forward measurement. All measurements taken in EVB package and de-embedded to the CSP1 pad interface.

Typical Performance Plots

Electrical Performance Plots are de-embedded to the CSP package ports.

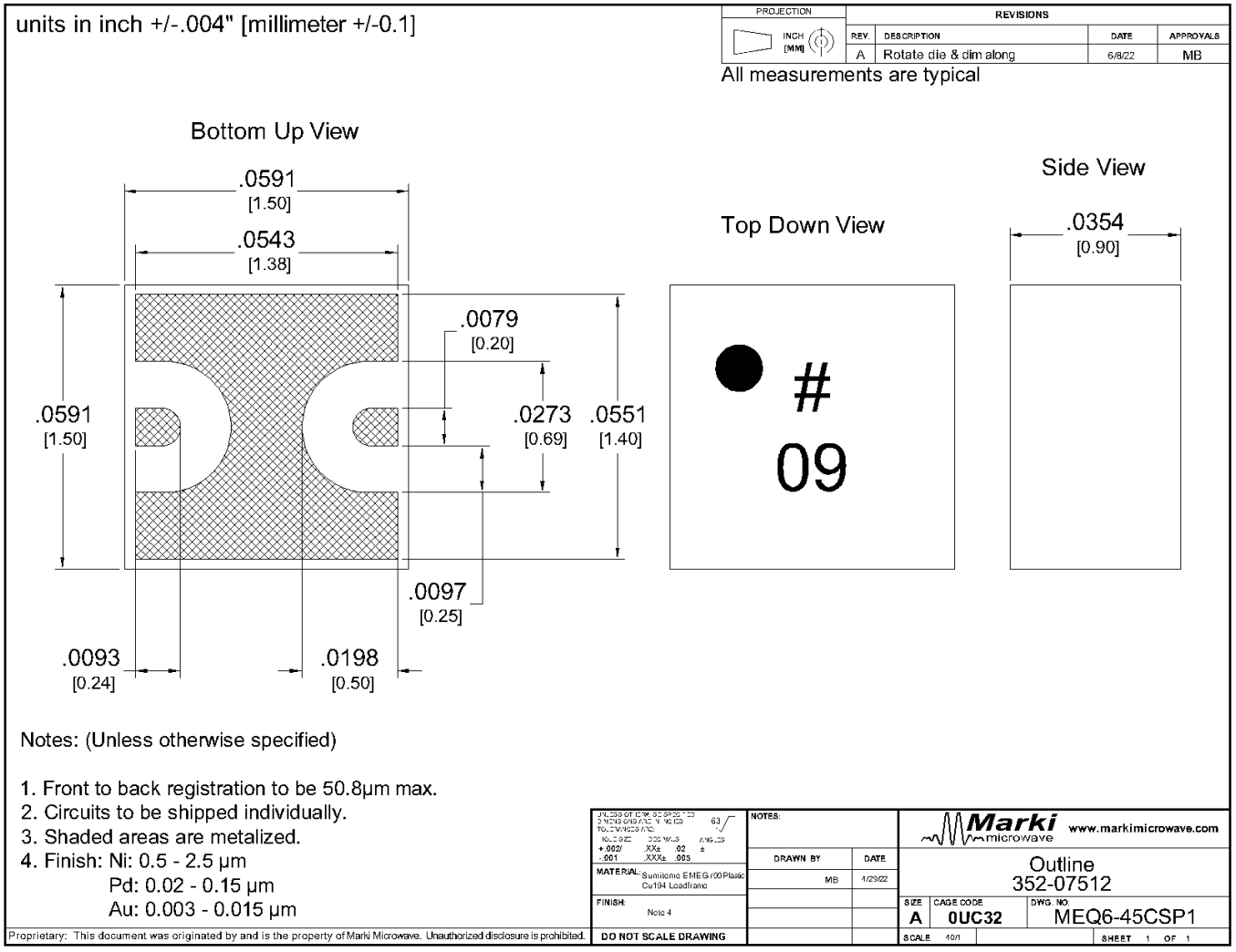




Mechanical Data

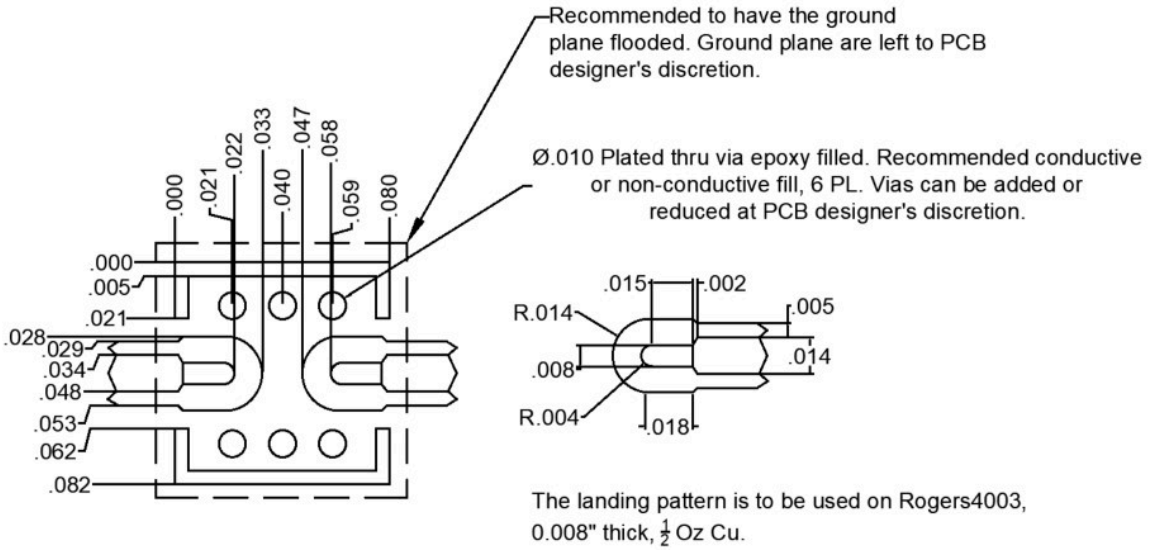
Outline Drawing

Download : Outline 2D Drawing | Outline 3D Drawing | Outline 3D STP

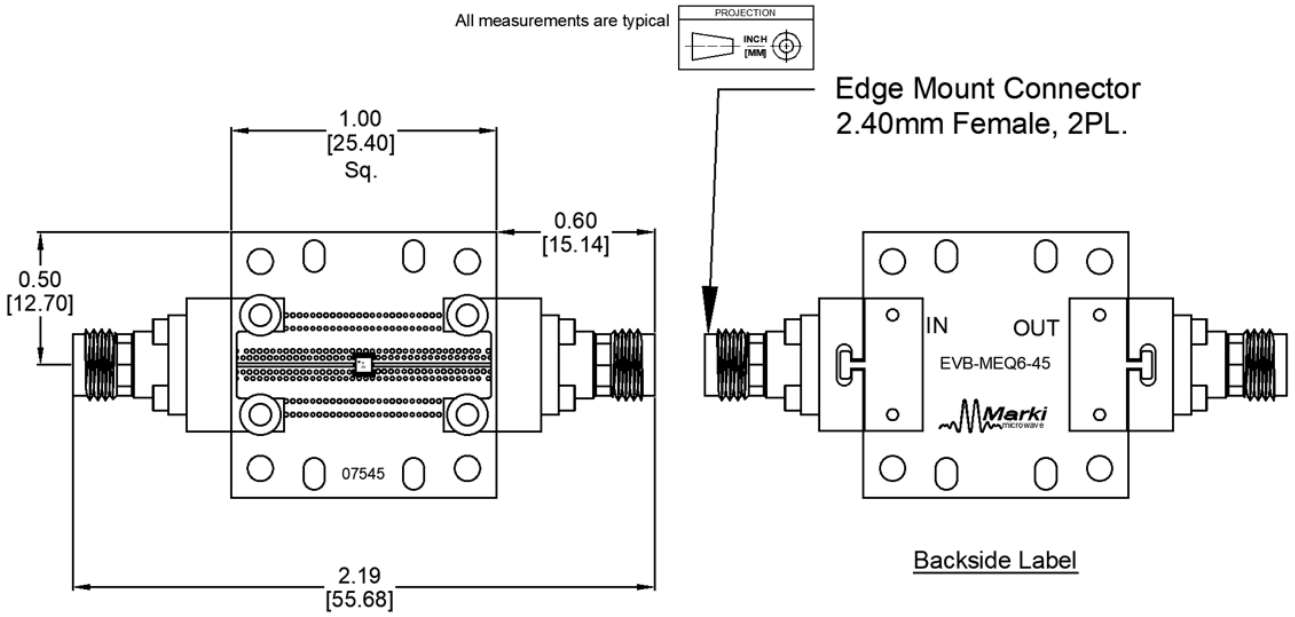


Footprint Image

Download : Footprint Drawing



Evaluation Board - Outline Drawing



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

.XX	±.02
.XXX	±.005

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