

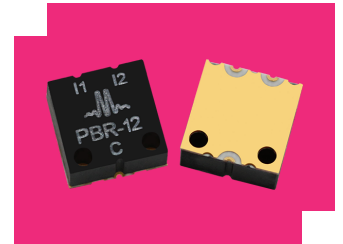
PBR-0012SMG

High Isolation Power Combiner

DEVICE OVERVIEW

General Description

The PBR-0012SMG is a 10 MHz to 12 GHz surface mount high isolation power combiner. This power combiner features a unique hand tuned construction that enables 30 dB typical isolation across the operational bandwidth. High isolation power combiners are ideal for power combining uncorrelated signals, such as when performing intermodulation distortion (IMD) tests like IP2 and IP3. Their higher insertion loss and uncontrolled phase balance makes them unsuitable for power dividing applications.



[Download s-parameters here](#)

Features

- 10 MHz to 12 GHz Power Combiner/Divider
- 30 dB Typ Isolation

Applications

- High Isolation Power Combining for Test Equipment
- Transceiver duplexing

Functional Block Diagram

N/A

Part Ordering Options

Part Number	Description	Package	Green Status	Product Lifecycle	Export Classification
PBR-0012SMG	High Isolation Power Combiner	SMG	REACH RoHS	Released	EAR99
<u>EVAL-PBR-0012</u>	Evaluation Board, 10 MHz to 12 GHz High Isolation Power Combiner	EVAL	REACH RoHS	Released	EAR99

Table Of Contents

- **Device Overview**
 - General Description
 - Features
 - Applications
- **Port Configuration and Functions**
 - Port Functions
- **Revision History**
- **Specifications**
 - Absolute Maximum Ratings
 - Package Information
 - Electrical Specifications
 - Typical Performance
- **Operation**
 - Application Information
- **Mechanical Data**
 - Outline Drawing
- **Footprint Image**
- **Evaluation Board**
 - Evaluation Board Outline Drawing

Revision History

Revision Code	Revision Date	Comment
-	2019-09-01	Datasheet initial Release

Port Configuration and Functions

Port Functions

Port	Function	Description	DC Equivalent Circuit
C	Common	Combined output port.	-
I1	Input 1	RF input 1 of the combiner.	-
I2	Input 2	RF input 2 of the combiner.	-

Specifications

Absolute Maximum Ratings

Parameter	Maximum Rating	Unit
Maximum Operating Temperature	100	°C
Maximum Storage Temperature	125	°C
Minimum Operating Temperature	-55	°C
Minimum Storage Temperature	-65	°C
RF Power Handling, Average	1	W

Package Information

Parameter	Details	Rating
Weight	Package name: SMG	0.24g
Dimensions	-	8.13 x 8.13 mm
Moisture Sensitivity Level	-	MSL 1

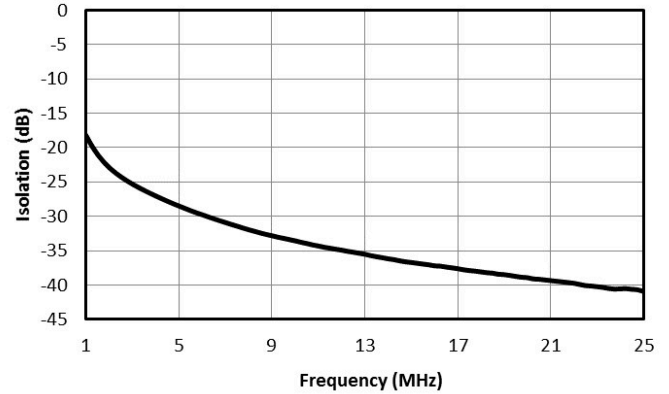
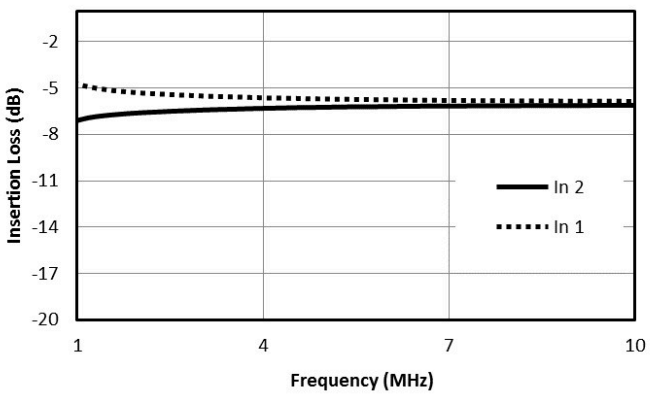
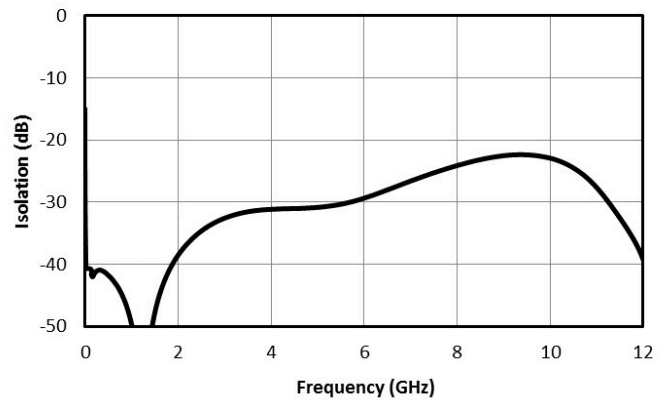
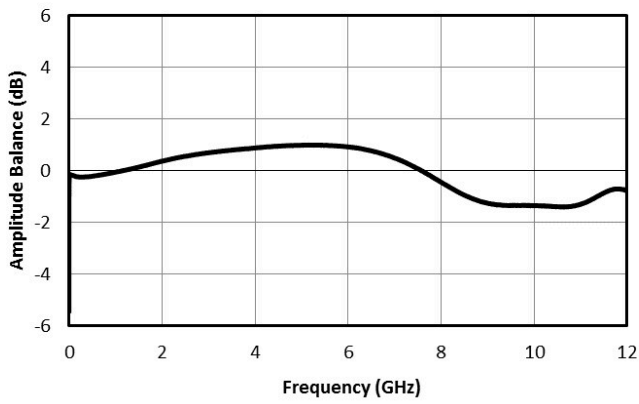
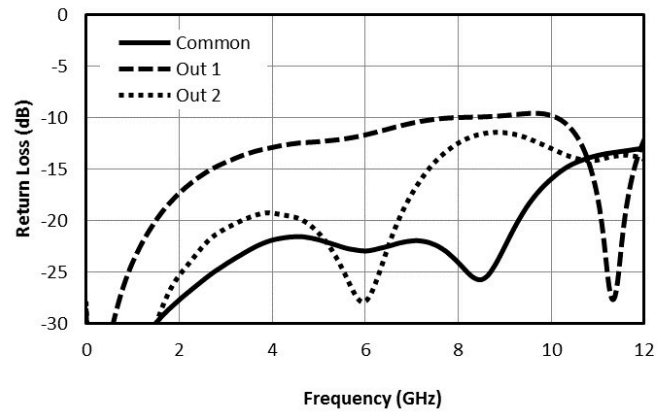
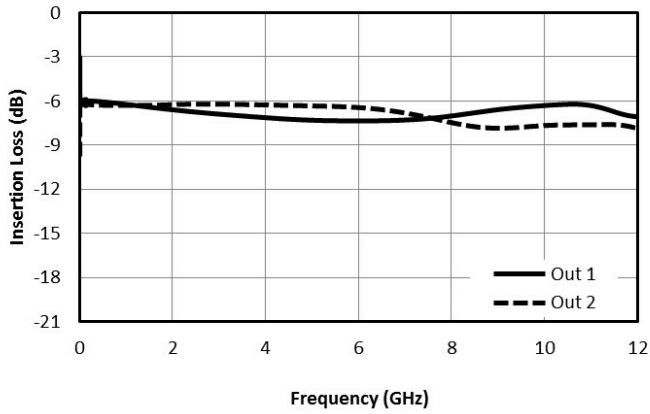
Electrical Specifications

Specifications guaranteed from -55 to +100°C, measured in a 50Ω system.

Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Amplitude Balance	-	0.01	12	-	1	-	dB
Common Port VSWR (Return Loss dB)	-	0.01	12	-	1	2	
Insertion Loss ¹	-	0.01	12	-	1.7	3.5	dB
Isolation	-	0.01	8	22	30	-	dB
Isolation	-	8	12	20	25	-	dB
Nominal Power Splitting (dB)	-	0.01	12	-	6	-	dB
Split Port VSWR (Return Loss dB)	-	0.01	12	-	2	-	

^[1] Excess Insertion Loss = (Input Port to Common Port Insertion Loss) – 6 dB.

Typical Performance



Application Information

IP3 measurement using high isolation power combiner

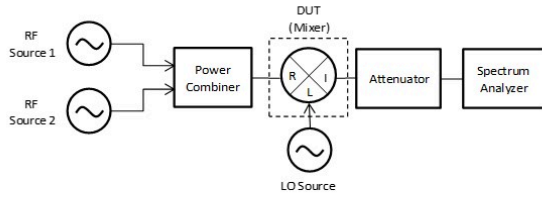


Fig. 1. Mixer IP3 measurement

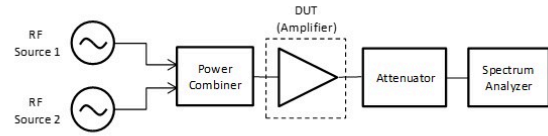
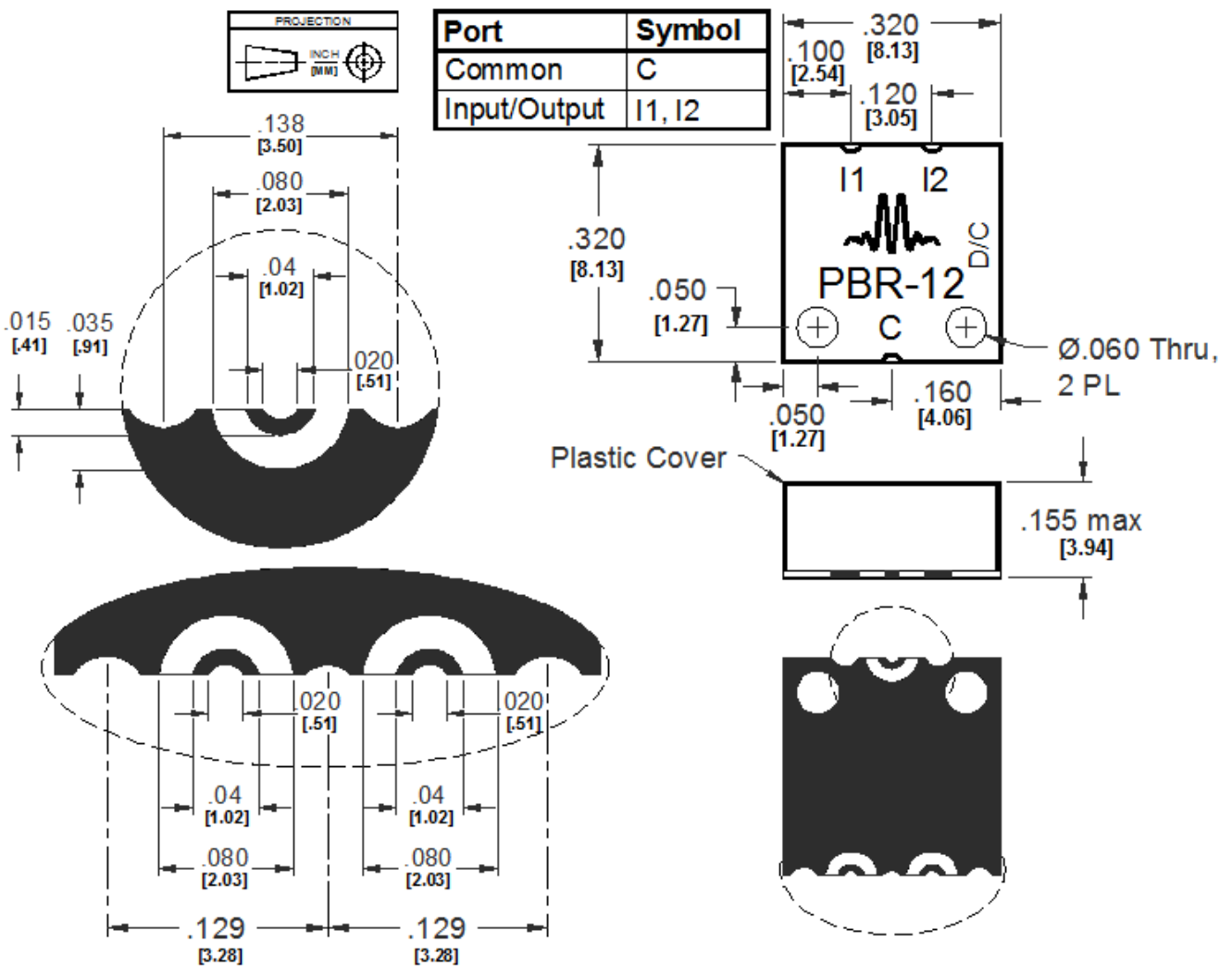


Fig. 2. Amplifier IP3 measurement

Mechanical Data

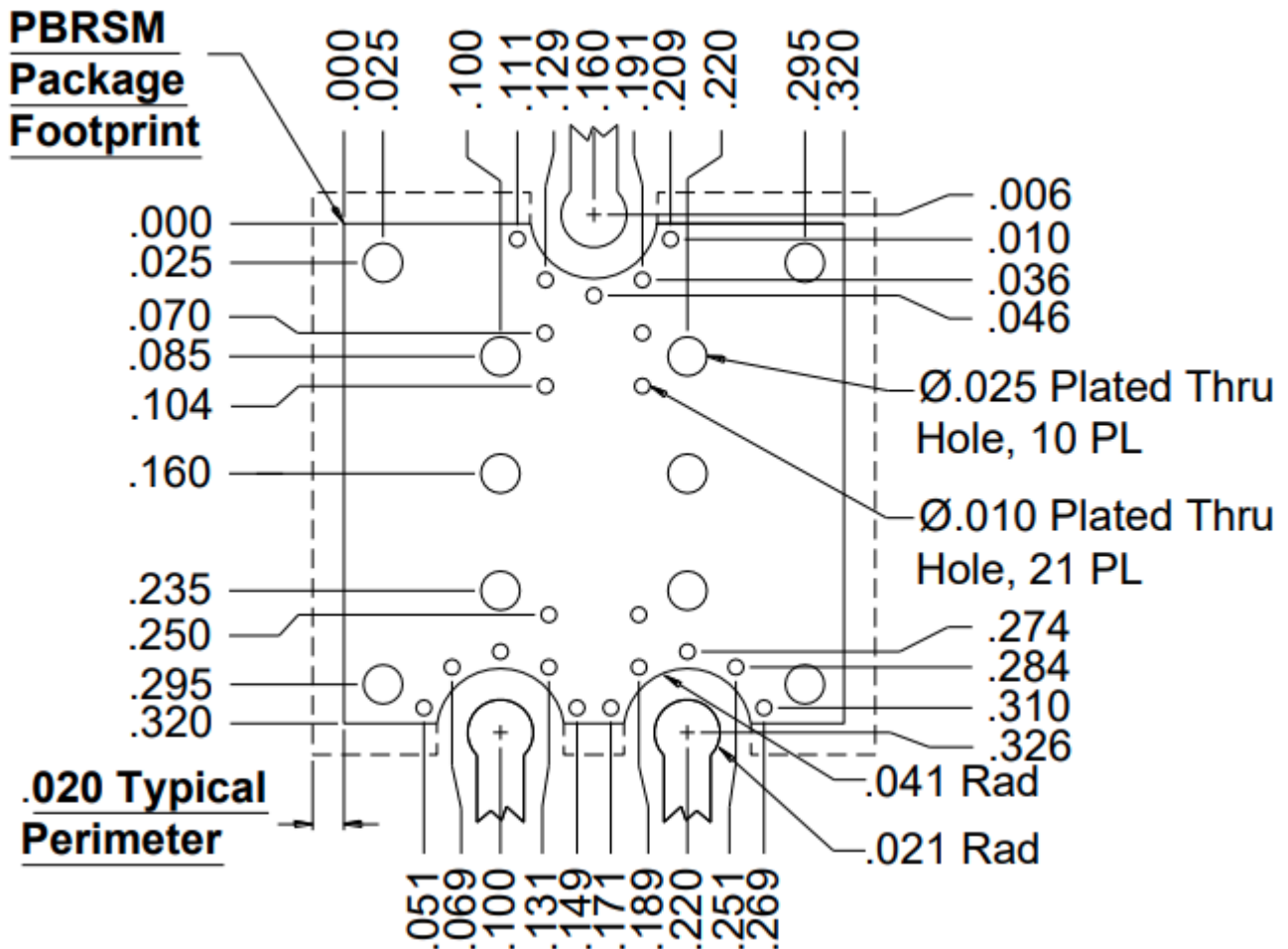
Outline Drawing

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

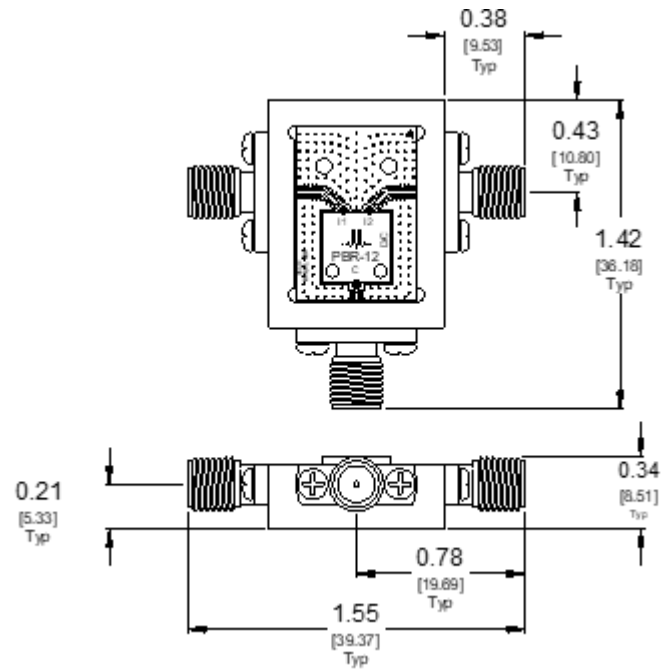


Footprint Image

Download: [Footprint Drawing](#)



Evaluation Board - Outline Drawing



DISCLAIMER

MARKI MICROWAVE, LLC., ("MARKI") PROVIDES TECHNICAL SPECIFICATIONS AND DATA (INCLUDING DATASHEETS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, AND OTHER INFORMATION AND RESOURCES "AS IS" AND WITH ALL FAULTS. MARKI DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT.

These resources are intended for developers skilled in the art designing with Marki products. You are solely responsible for (1) selecting the appropriate products for your application, (2) designing, validating, and testing your application, and (3) ensuring your application meets applicable standards and other requirements. Marki makes no guarantee regarding the suitability of its products for any particular purpose, nor does Marki assume any liability whatsoever arising out of your use or application of any Marki product.

Marki grants you permission to use these resources only for development of an application that uses Marki products. Other reproduction or use of these resources is strictly prohibited. No license is granted to any other Marki intellectual property or to any third-party intellectual property. Marki reserves the right to make changes to the product(s) or information contained herein without notice.

MARKI MICROWAVE and T3 MIXER are trademarks or registered trademarks of Marki Microwave, LLC. All other trademarks used are the property of their respective owners.

© 2019, Marki Microwave, LLC