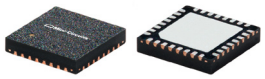
MMIC SURFACE MOUNT

Power Splitter/Combiner EP2W1+

2 Way-0° 50Ω 0.5 to 9.5 GHz

THE BIG DEAL

- Ultra-Wide bandwidth, 0.5 to 9.5 GHz
- Excellent amplitude unbalance, 0.1 dB typ. to 6 GHz
- Good phase unbalance, 1 to 3 deg. typ.
- Small size, 5x5 mm
- High ESD level
- Aqueous washable
- DC passing



Generic photo used for illustration purposes only

CASE STYLE: DG1677-2

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

APPLICATIONS

- WIMAX
- ISM
- Instrumentation
- Radar
- WLAN
- Satellite communications
- LTE

PRODUCT OVERVIEW

Mini-Circuits' EP2W1+ is a MMIC 2-way 0˚ splitter/combiner designed for wideband operation from 0.7 to 6.0 GHz supporting many applications requiring high performance across a wide frequency range including all the LTE bands through WiMax an WiFi, as well as instrumentation and more. This model provides excellent power handling up to 2.5W (as a splitter) with low insertion loss, good isolation, and low phase and amplitude unbalance in a tiny 5x5mm QFN package. Manufactured using GaAs IPD technology, the EP2W1+ provides a high level of ESD protection and excellent repeatability.

KEY FEATURES

Feature	Advantages
Wideband, 0.5 to 9.5 GHz	One power splitter can be used in all the LTE bands through WiMax and WiFi, saving component count. Also ideal for wideband applications such as military and instrumentation.
Tiny size, 5 x 5 mm QFN package	Tiny footprint saves space in dense layouts while providing low inductance, repeatable transitions, and excellent thermal contact to the PCB.
Excellent power handling • 2.5W as a splitter • 1.7W internal dissipation as a combiner	In power combiner applications, half the power is dissipated internally. EP2W1+ is designed to handle 1.7W internal dissipation as a combiner allowing reliable operation without excessive temperature rise. Similar splitters implemented as Wilkinson splitters on PCB require big resistors and additional heat sinking. As a splitter, EP2W1+ can handle up to 2.5W in a very small package.
DC Passing up to 0.4A	DC current passing is helpful in applications where both RF & DC need to pass through the DUT, such as antenna mounted hardware.

REV. A
ECO-012024
EP2W1+
CM/JM/PS
220225

Power Splitter/Combiner EP2W1+

ELECTRICAL SPECIFICATIONS[1] AT 25°C

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Unit
Frequency Range		0.5		9.5	GHz
Insertion Loss[2], above 3.0 dB	0.5 - 1.5 1.5 - 3.0 3.0 - 6.0 6.0 - 9.5	— — — —	1.0 1.3 1.8 3.4	1.5 1.9 2.5 4.5	dB
Isolation	0.5 - 1.5 1.5 - 3.0 3.0 - 6.0 6.0 - 9.5	6.3 16.8 16.4 7.0	9.3 19.8 19.4 10.2	— — — —	dB
Phase Unbalance	0.5 - 1.5 1.5 - 3.0 3.0 - 6.0 6.0 - 9.5	— — — —	0.5 0.9 1.7 2.5	2.5 2.9 6.0 —	Degree
Amplitude Unbalance	0.5 - 1.5 1.5 - 3.0 3.0 - 6.0 6.0 - 9.5	— — — —	0.1 0.1 0.1 0.5	0.3 0.3 0.4 —	dB
VSWR (Port S)	0.5 - 1.5 1.5 - 3.0 3.0 - 6.0 6.0 - 9.5	— — — —	1.6 1.5 1.6 1.7	— — — —	:1
VSWR (Port 1-2)	0.5 - 1.5 1.5 - 3.0 3.0 - 6.0 6.0 - 9.5	— — — —	1.3 1.3 1.4 1.5	— — — —	:1

1. Tested on Mini-Circuits Test Board TB-880W+
2. Insertion Loss Values are de-embedded from Test Board Loss.

MAXIMUM RATINGS

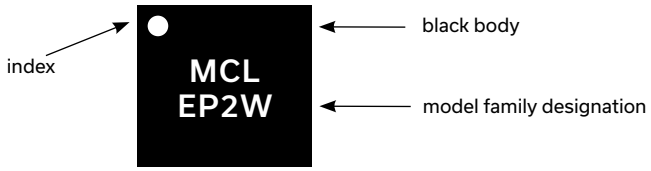
Parameter	Ratings
Operating temperature	-40°C to 85°C
Storage temperature	-65°C to 150°C
Power Input (as a splitter)	2.5W[3] Max. at 25°C
Internal Dissipation	1.7W[4] Max. at 25°C
DC Current	0.4A Max.

3. Derate linearly to 1.25W at 85°C
4. Derate linearly to 1.1W at 85°C
Permanent damage may occur if any of these limits are exceeded.

PAD CONNECTIONS

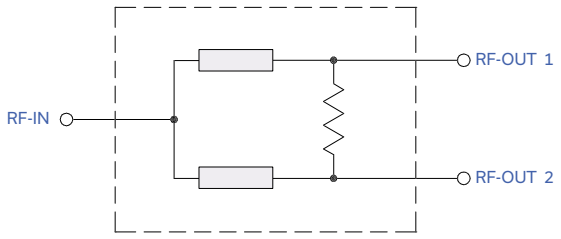
Function	Pad Number
SUM PORT	4
PORT 1	15
PORT 2	26
NOT USED, GROUND, EXTERNALLY	1-3, 5-14, 16-25, 27-32 & Paddle

PRODUCT MARKING



Marking may contain other features or characters for internal lot control

SIMPLIFIED ELECTRICAL SCHEMATIC



Power Splitter/Combiner EP2W1+

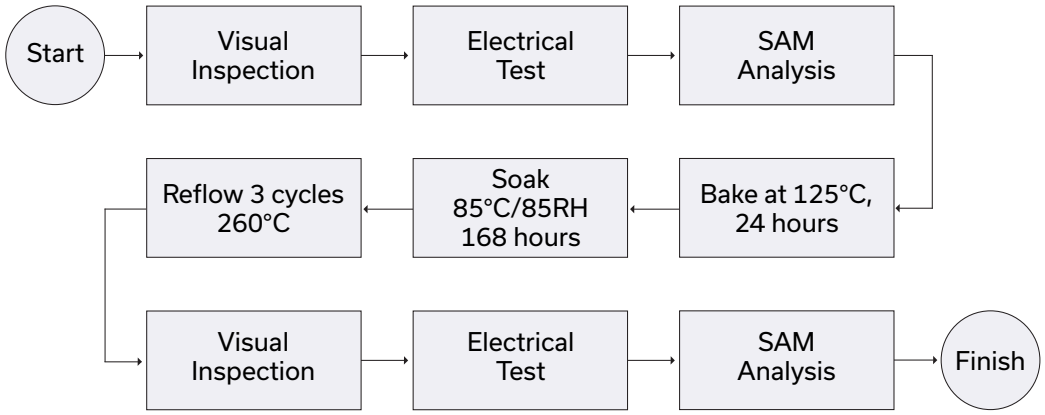
ADDITIONAL DETAILED TECHNICAL INFORMATION IS AVAILABLE ON OUR DASH BOARD. TO ACCESS CLICK HERE

Performance Data	Data Table Swept Graphs S-Parameter (S3P Files) Data Set (.zip file)
Case Style	DG1677-2 Plastic package, exposed paddle; lead finish: Matte Tin
Tape & Reel **Standard quantities available on reel**	F68 7" reels with 20, 50, 100, 200, 500 & 1000 devices
Suggested Layout for PCB Design	PL-488
Evaluation Board	TB-880W+
Environmental Ratings	ENV08T1

ESD RATING

Human Body Model (HBM): Class 2 (Pass 2000V) in accordance with ANSI/ESD STM 5.1 - 2001
Machine model: Class M3 (200 to <4000V) in accordance with ANSI/ESD 5.2-2009

MSL TEST FLOW CHART



NOTES

A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the standard. Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp