



# THE DATASHEET OF EP2RCW+





MMIC SURFACE MOUNT

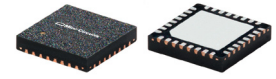
# Power Splitter/Combiner

## EP2RCW+

2 Way-0° 50Ω DC to 8 GHz

### THE BIG DEAL

- Ultra-Wide bandwidth, DC to 8 GHz
- High Isolation, 21 dB typ. at 4 GHz
- Excellent amplitude unbalance, 0.1 dB typ. to 8 GHz
- Good phase unbalance, 1.0 deg. typ. at 4 GHz
- Small size, 5x5 mm
- Aqueous washable
- Patent pending



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

### PRODUCT OVERVIEW

Mini-Circuits' EP2RCW+ is a MMIC 2-way 0° splitter/combiner designed for wideband operation from DC to 8.0 GHz supporting many applications requiring high performance across a wide frequency range including all the LTE bands through WiMax and WiFi, as well as instrumentation and more. This model provides excellent power handling up to 0.6W (as a splitter/combiner) with low insertion loss, good isolation, and low phase and amplitude unbalance in a tiny 5 x 5mm QFN package. Manufactured using GaAs IPD technology, the EP2RCW+ not only provides a repeatable performance, but also a high level of ESD protection.

### KEY FEATURES

Feature	Advantages
Wideband, DC to 8.0 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.
High Isolation, 21 dB typ. at 4 GHz Excellent power handling, • 0.6W as a splitter / combiner	In power combiner applications, half the power is dissipated internally. EP2RCW+ is designed to handle 0.6W internal dissipation as a combiner allowing reliable operation without excessive temperature rise.
Excellent Amplitude unbalance, 0.1 dB typ. Good phase unbalance, 1.0° typ. at 4 GHz	Ideal for Applications such as WMO & phased array radars
Tiny size, 5 x 5mm QFN package	Tiny footprint saves space in dense layouts while providing low inductance, repeatable transitions, and excellent thermal contact to the PCB.





### ELECTRICAL SPECIFICATIONS<sup>1</sup> AT 25°C

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Unit
Frequency Range		DC		8.0	GHz
Insertion Loss <sup>2</sup> , above 3.0 dB	DC - 0.4	—	5.5	5.8	dB
	0.4 - 0.7	—	5.5	5.9	
	0.7 - 7.5	—	4.8	6.1	
	7.5 - 8.0	—	4.3	4.9	
Isolation	DC - 0.4	13	16.7	—	dB
	0.4 - 0.7	15	19.5	—	
	0.7 - 7.5	17	23.0	—	
	7.5 - 8.0	17	22.0	—	
Phase Unbalance	DC - 0.4	—	0.04	2	Degree
	0.4 - 0.7	—	0.2	2	
	0.7 - 7.5	—	0.9	9	
	7.5 - 8.0	—	1.7	9	
Amplitude Unbalance	DC - 0.4	—	0.01	0.3	dB
	0.4 - 0.7	—	0.01	0.3	
	0.7 - 7.5	—	0.02	0.4	
	7.5 - 8.0	—	0.01	0.3	
VSWR (Port S)	DC - 0.4	—	1.1	—	:1
	0.4 - 0.7	—	1.1	—	
	0.7 - 7.5	—	1.5	—	
	7.5 - 8.0	—	1.3	—	
VSWR (Port 1-2)	DC - 0.4	—	1.6	—	:1
	0.4 - 0.7	—	1.8	—	
	0.7 - 7.5	—	1.7	—	
	7.5 - 8.0	—	1.1	—	
Power Handling	As a splitter	DC - 8	—	0.6	W
	As a combiner <sup>3</sup>	DC - 8	—	0.6	

1. Tested on Mini-Circuits Test Board TB-EP2RCW+
2. De-embedded from Test Board Loss.
3. As a combiner of non-coherent signals, max. power per port is 0.3 watt

### MAXIMUM RATINGS

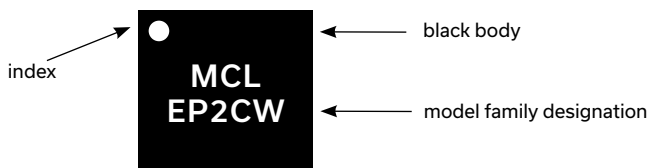
Parameter	Ratings
Operating temperature	-55°C to 105°C
Storage temperature	-65°C to 150°C

Permanent damage may occur if any of these limits are exceeded.

### PAD CONNECTIONS

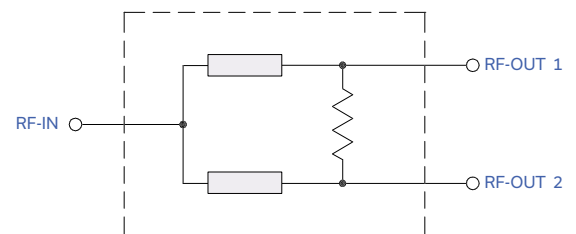
Function	Pad Number
RF IN	21
RF OUT 1	10
RF OUT 2	31
GROUND	9,11,20,22,30,32 & Paddle
NOT USED GROUND EXTERNALLY	1-8, 12-19, 23-29

### PRODUCT MARKING



Marking may contain other features or characters for internal lot control

### SIMPLIFIED ELECTRICAL SCHEMATIC





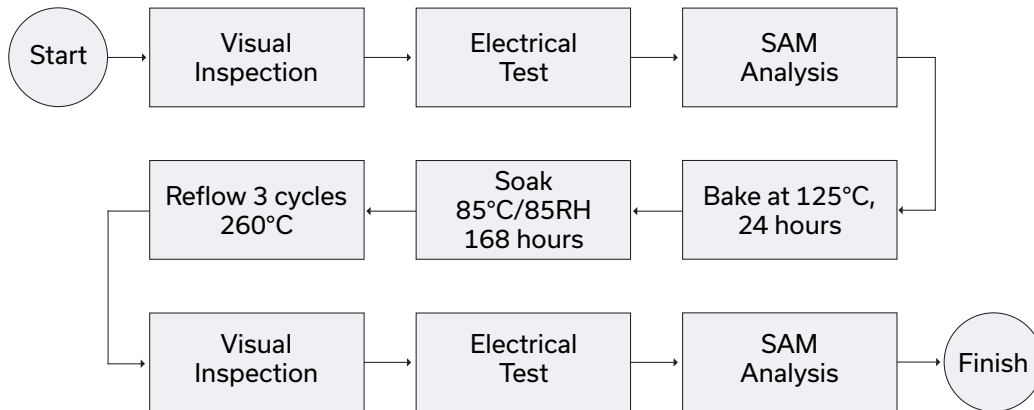
ADDITIONAL DETAILED TECHNICAL INFORMATION IS AVAILABLE ON OUR DASH BOARD. TO ACCESS [CLICK HERE](#)

<b>Performance Data</b>	Data Table Swept Graphs S-Parameter (S3P Files) Data Set (.zip file)
<b>Case Style</b>	DG1677-2 Plastic package, exposed paddle; lead finish: Matte Tin
<b>Tape &amp; Reel</b> Standard quantities available on reel	F68 7" reels with 20, 50, 100, 200, 500 & 1000 devices
<b>Suggested Layout for PCB Design</b>	PL-647
<b>Evaluation Board</b>	TB-EP2RCW
<b>Environmental Ratings</b>	ENV08T1

### ESD RATING

Human Body Model (HBM): Class 2 (Pass 2000V) in accordance with ANSI/ESD STM 5.1 - 2001

### 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](http://www.minicircuits.com/MCLStore/terms.jsp)

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