MMIC SURFACE MOUNT

Power Splitter/Combiner EP2K1+

2 Way-0° 50Ω 2 to 26.5 GHz

THE BIG DEAL

- Ultra-Wide bandwidth, usable over 1.8 to 28 GHz
- High Power Handling, 2.5W as a splitter
- Excellent amplitude unbalance, 0.1 dB typ.
- Good phase unbalance, 1 to 5° typ.
- High ESD level
- Small size, 4x4 mm
- Aqueous washable
- DC passing

Generic photo used for illustration purposes only

CASE STYLE: DG1847

+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 EP2K1+ is a MMIC splitter/combiner designed for wideband operation from 2 to 26.5 GHz. This model provides excellent power ratings in a tiny device package (4x4x1 mm), with up to 2.5 W power handling (as a splitter) and up to 1.2A DC current passing. Manufactured using GaAs IPD technology, it provides a high level of ESD protection and excellent reliability.

KEY FEATURES

Feature	Advantages
Wideband, 2 to 26.5 GHz	One power splitter can be used in many applications, saving component count. Also ideal for wideband applications such as military and instrumentation.
Excellent power handling 2.5W as a splitter at 25°C 1.7W internal dissipation as a combiner at 25°C	In power combiner applications, half the power is dissipated internally. EP2K1+ 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, EP2K1+ can handle up to 2.5W in a very small package.
DC Passing up to 1.2A	DC current passing is helpful in applications where both RF & DC need to pass through the DUT, such as antenna mounted hardware.
Small size 4 x 4mm QFN package	Tiny footprint saves space in dense layouts while providing low inductance, repeatable transitions, and excellent thermal contact to the PCB.

REV. B
ECO-012024
EP2K1+
RS/CP/PS
220222

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ELECTRICAL SPECIFICATIONS[1] AT 25°C

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Unit
Frequency Range		2		26.5	GHz
Insertion Loss[2] above 3.0 dB	2 - 5 5 - 10 10 - 18 18 - 26.5	— — — —	0.8 1.1 1.7 2.4	1.3 1.6 2.5 3.2	dB
Isolation	2 - 5 5 - 10 10 - 18 18 - 26.5	6 13 14 14	14 22 20 21	— — — —	dB
Phase Unbalance	2 - 5 5 - 10 10 - 18 18 - 26.5	— — — —	1.5 2.3 3.7 5.4	4 6 8 9	Degree
Amplitude Unbalance	2 - 5 5 - 10 10 - 18 18 - 26.5	— — — —	0.1 0.1 0.1 0.3	0.3 0.3 0.5 0.7	dB
VSWR (Port S)	2 - 5 5 - 10 10 - 18 18 - 26.5	— — — —	1.5 1.4 1.4 1.4	— — — —	:1
VSWR (Port 1-2)	2 - 5 5 - 10 10 - 18 18 - 26.5	— — — —	1.5 1.3 1.4 1.5	— — — —	:1

1. Tested on Mini-Circuits Test Board TB-845+
2. Insertion Loss Values are de-embedded from Test Board Loss; 0.3 dB at 2 GHz, 0.5 dB at 5 GHz, 0.8 dB at 10 GHz and 1.3 dB at 18 GHz & 2 dB at 26.5 GHz

MAXIMUM RATINGS

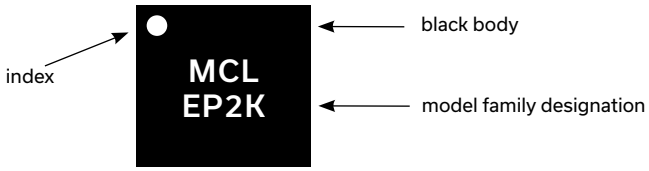
Parameter	Ratings
Operating Temperature	-40°C to 85°C
Storage Temperature	-65°C to 150°C
Power Input (as a splitter)	2.5W max. at 25°C. Derate linearly to 1.25W at 85°C
Internal Dissipation	1.7W max. at 25°C. Derate linearly to 1.1W at 85°C
DC Current	1.2A max. at 25°C. Derate linearly to 0.6A at 85°C

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

PAD CONNECTIONS

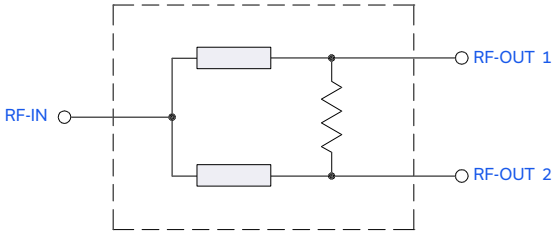
Function	Pad Number
SUM PORT	3
PORT 1	14
PORT 2	17
NOT USED, GROUND EXTERNALLY	1, 2, 4-13,15-16, 18-24, Paddle

PRODUCT MARKING



Marking may contain other features or characters for internal lot control

SIMPLIFIED ELECTRICAL SCHEMATIC



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

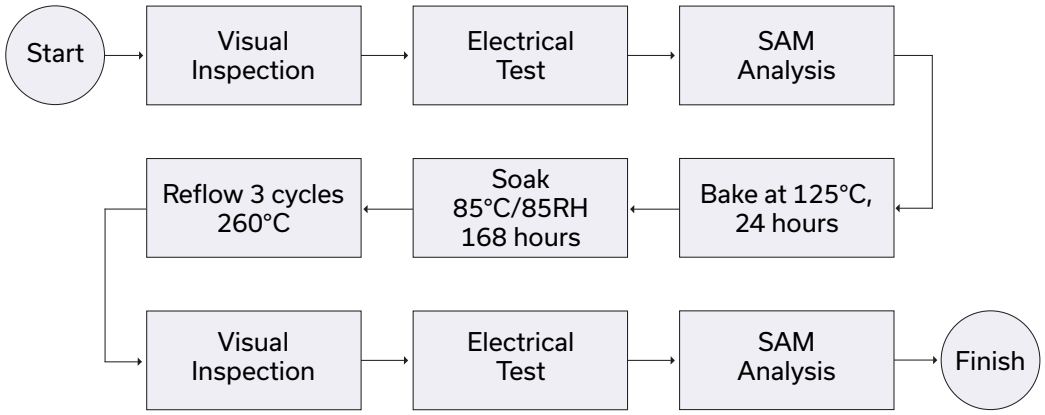
Performance Data	Data Table Swept Graphs S-Parameter (S3P Files) Data Set (.zip file)
Case Style	DG1847 Plastic package, exposed paddle; lead finish: Matte Tin
Tape & Reel **Standard quantities available on reel**	F68 7" reels with 20, 50, 100, 200, 500, 1000 devices 13" reels with 2000, 3000, 4000 devices
Suggested Layout for PCB Design	PL-472
Evaluation Board	TB-845+
Environmental Ratings	ENV82

ESD RATING

Human Body Model (HBM): Class 2 (2000 to <4000 V) in accordance with ANSI/ESD STM 5.1 - 2001

Machine Model (MM): Class M3 (200 to <400 V) in accordance with ANSI/ESD STM 5.2 - 1999

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