AM4009 – Splitter

6 GHz to 24 GHz 2-Way 0° Splitter

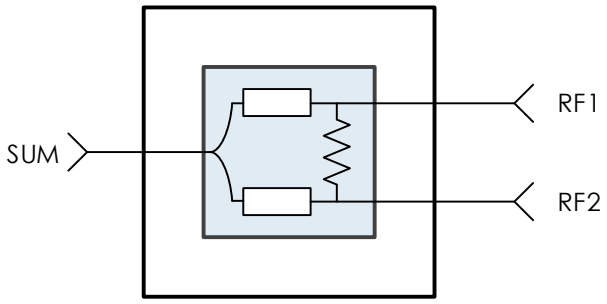
Description

AM4009 is a broadband two-way power splitter / combiner providing low loss and high isolation from 6 GHz to 24 GHz. With internal 50Ω matching and packaged in a 3mm QFN, the AM4009 represents a compact total PCB footprint.

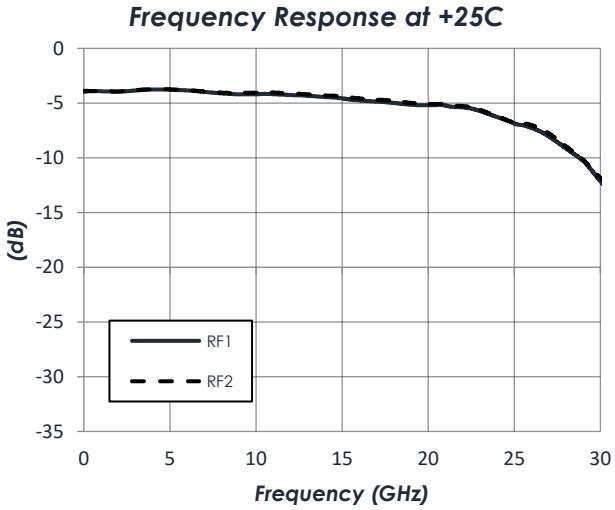
Features

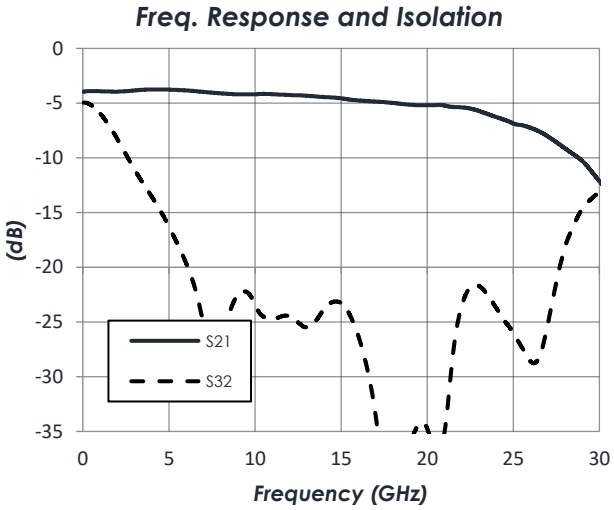
- Broadband, 6 to 24 GHz
- 2 dB Insertion Loss
- 25 dB Isolation
- 15 dB Return Loss
- 0.05 dB Amplitude Unbalance, TYP
- 0.5 deg Phase Unbalance, TYP
- 3mm QFN Package
- -40C to +85C Operation

Functional Diagram



Characteristic Performance





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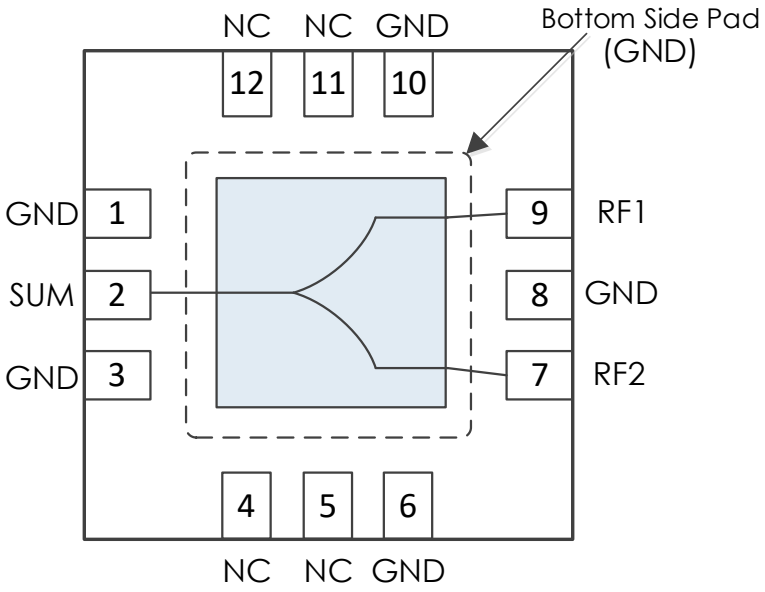
Revision History

Date	Revision Number	Notes
June 15, 2020	1	Initial Release

Pin Layout and Definitions



Pin Number	Pin Name	Pin Function
1	GND	Ground – Common
2	SUM	Sum Port – 50 Ohms
3	GND	Ground – Common
4, 5	NC	No Connect
6	GND	Ground – Common
7	RF2	RF Port 2 – 50 Ohms
8	GND	Ground – Common
9	RF1	RF Port 1 – 50 Ohms
10	GND	Ground – Common
11, 12	NC	No Connect
Bottom Pad	GND	Ground – Common

Note: NC pins may be grounded or left open

Related Parts

Part Number				Description
AM4001	2 GHz	to	18 GHz	2 Way 0 Degree Splitter, 4mm QFN
AM4008	2 GHz	to	26.5 GHz	2 Way 0 Degree Splitter, 1.3mm x 2mm DFN

Specifications

Absolute Maximum Ratings

	Minimum	Maximum
RF Input Power		+27 dBm
Operating Junction Temperature	-40 C	+150 C
Storage Temperature Range	-50 C	+150 C

Note: *Any device operation beyond the* Absolute Maximum Ratings *may result in permanent damage to the device. The values listed in this table are extremes and do not imply functional operation of the device at these or any other conditions beyond what is listed under* Recommended Operating Conditions. *Any part subjected to conditions outside of what is recommended for an extended amount of time may suffer from reliability concerns.*

Handling Information

	Minimum	Maximum
Storage Temperature Range (Recommended)	-50 C	+125 C
Moisture Sensitivity Level	MSL 3	

Atlanta Micro products are electrostatic sensitive.
Follow safe handling practices to avoid damage

Recommended Operating Conditions

	Minimum	Typical	Maximum
Operating Case Temperature	-40 C		+85 C
Operating Junction Temperature	-40 C		+125 C

RF Performance

(T = 25 °C unless otherwise specified)

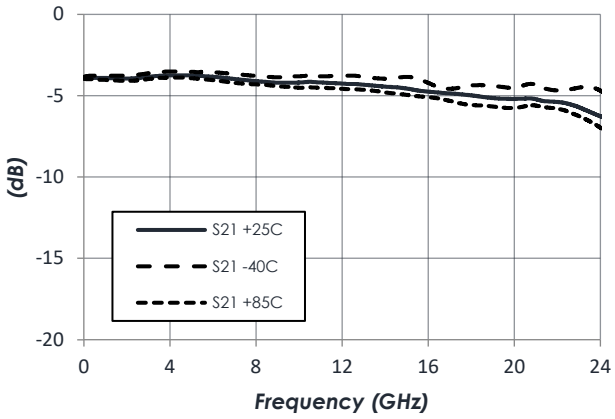
Parameter	Testing Conditions	Minimum	Typical	Maximum
Frequency Range		6 GHz		24 GHz
Additional Insertion Loss*	6.0 GHz to 12.0 GHz		1.05 dB	1.25 dB
	12.0 GHz to 18.0 GHz		1.6 dB	2.0 dB
	18.0 GHz to 24 GHz		2.6 dB	3.26 dB
Return Loss	6.0 GHz to 12.0 GHz		11 dB	
	12.0 GHz to 18.0 GHz		16 dB	
	18.0 GHz to 24 GHz		15 dB	
Isolation	6.0 GHz to 12.0 GHz	19.6 dB	24 dB	
	12.0 GHz to 18.0 GHz	23 dB	26 dB	
	18.0 GHz to 24 GHz	21.5 dB	25 dB	
Phase Unbalance	6.0 GHz to 12.0 GHz		0.4 deg	0.45 deg
	12.0 GHz to 18.0 GHz		0.4 deg	0.55 deg
	18.0 GHz to 24 GHz		0.35 deg	0.55 deg
Amplitude Unbalance	6.0 GHz to 12.0 GHz		0.04 dB	0.06 dB
	12.0 GHz to 18.0 GHz		0.04 dB	0.06 dB
	18.0 GHz to 24 GHz		0.01 dB	0.03 dB

***Note:** Insertion loss shown depicts loss of IC after passive 3.0 dB loss.

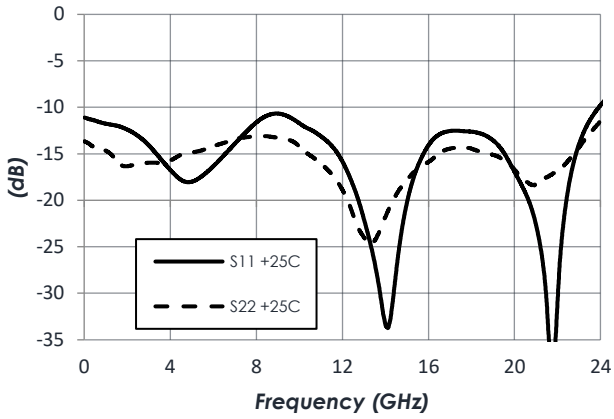
Typical Performance

(T = 25 °C unless otherwise specified. Port 1 = Sum Port, Port2 = RF1, Port 3 = RF2)

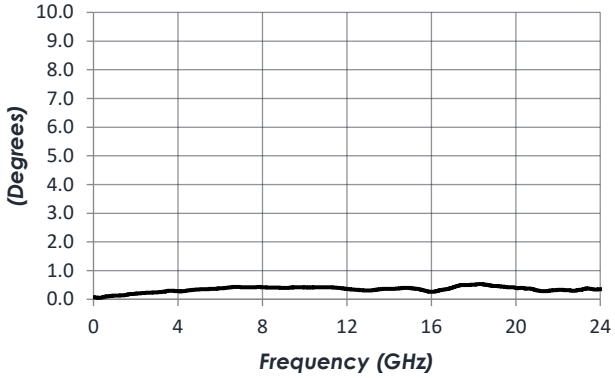
Total Insertion Loss vs. Temperature



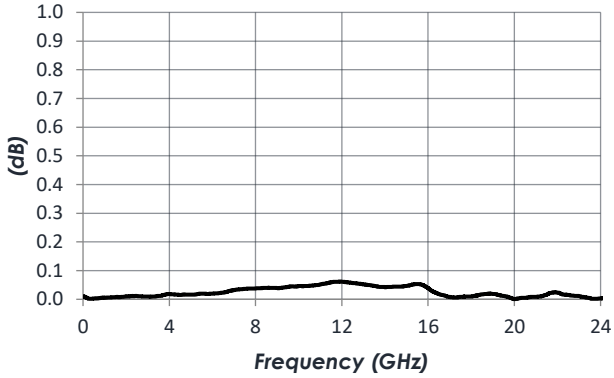
Return Loss at +25C



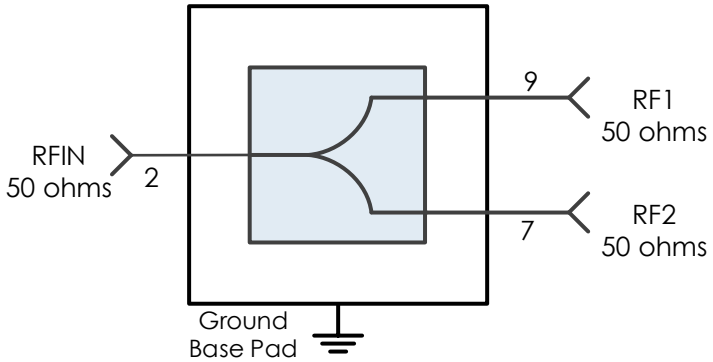
Phase Unbalance



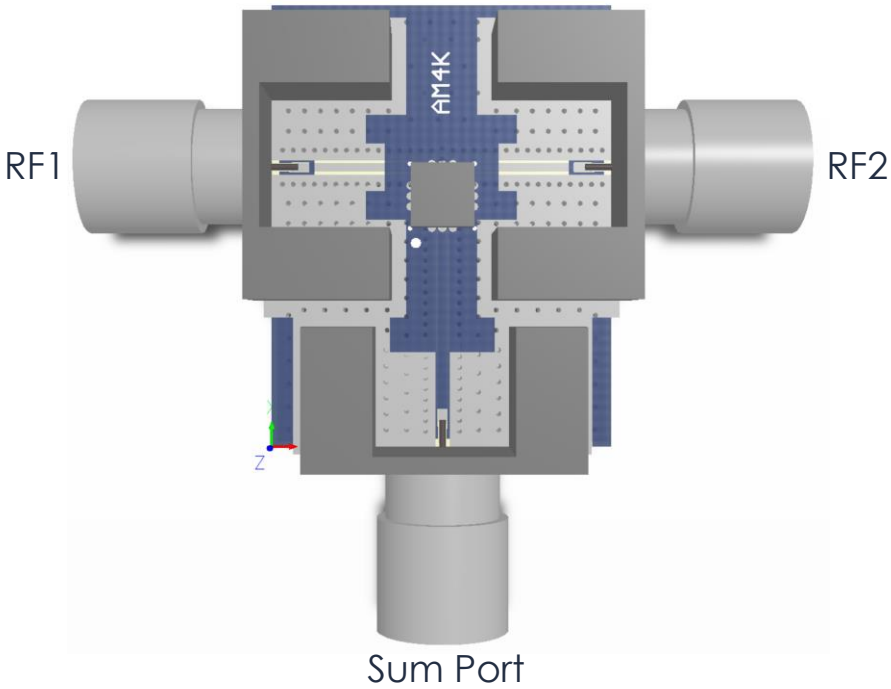
Amplitude Unbalance



Typical Application



Evaluation PC Board



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Substance List	Allowable Maximum Concentration
Lead (Pb)	<1000 PPM (0.1% by weight)
Mercury (Hg)	<1000 PPM (0.1% by weight)
Cadmium (Cd)	<75 PPM (0.0075% by weight)
Hexavalent Chromium (CrVI)	<1000 PPM (0.1% by weight)
Polybrominated Biphenyls (PBB)	<1000 PPM (0.1% by weight)
Polybrominated Diphenyl ethers (PBDE)	<1000 PPM (0.1% by weight)
Decabromodiphenyl Deca BDE	<1000 PPM (0.1% by weight)
Bis (2-ethylheyl) Phthalate (DEHP)	<1000 PPM (0.1% by weight)
Butyl Benzyl Phthalate (BBP)	<1000 PPM (0.1% by weight)
Dibutyl Phthalate (DBP)	<1000 PPM (0.1% by weight)
Diisobutyl Phthalate (DIBP)	<1000 PPM (0.1% by weight)

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