AM4008 – Splitter

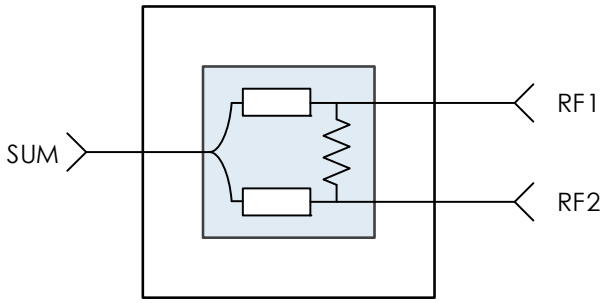
1.5 GHz to 26.5 GHz 2-Way 0° Splitter

AM4008 is a broadband two-way power splitter / combiner providing low loss and high isolation from 2 GHz to 26.5 GHz. With internal 50Ω matching and packaged in a 1.3mm by 2.0mm DFN, the AM4008 represents a compact total PCB footprint.

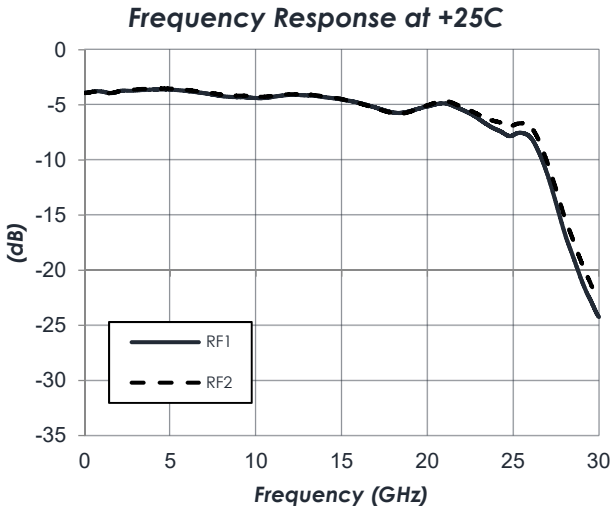
FEATURES

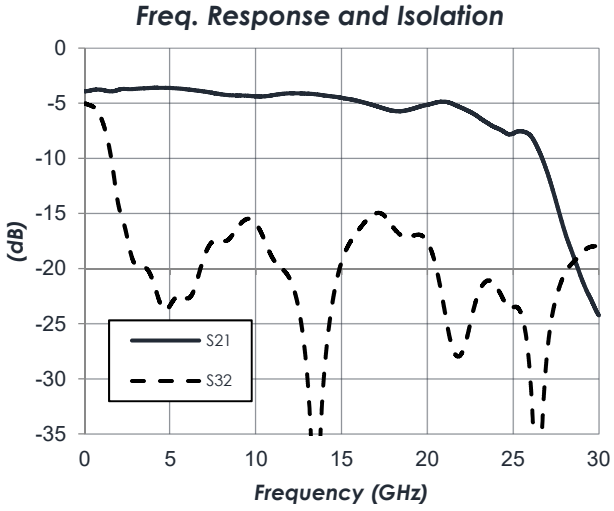
- Broadband, 2 to 26.5 GHz
- 2 dB Insertion Loss
- 22 dB Isolation
- 15 dB Return Loss
- 0.1 dB Amplitude Unbalance, TYP
- 0.5 deg Phase Unbalance, TYP
- 1.3mm x 2mm DFN Package
- 40C to +85C Operation

FUNCTIONAL DIAGRAM



CHARACTERISTIC PERFORMANCE





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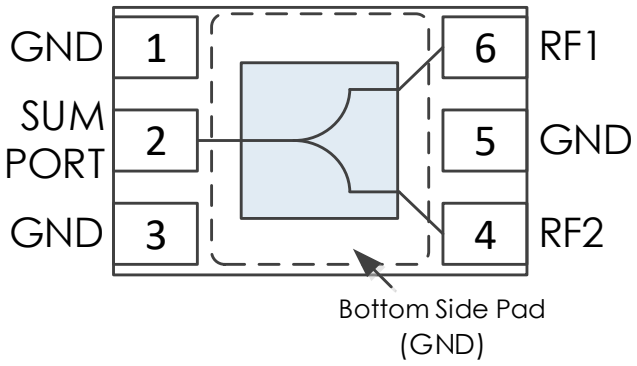
REVISION HISTORY

Date	Revision	Notes
April 4, 2018	1	Initial Release.
July 15, 2019	2	Updated to Latest Datasheet Format, More Comprehensive Part Data Added.
July 30, 2019	3	Plot Typos Corrected.
May 15, 2020	4	Package information moved to main product page.
July 22, 2024	5	Changed to Mercury branding. No content changes.

PIN LAYOUT AND DEFINITIONS



Pin	Name	Function
1	GND	Ground – Common
2	SUM PORT	Sum Port – 50 Ohms
3	GND	Ground – Common
4	RF2	RF Port 2 – 50 Ohms
5	GND	Ground – Common
6	RF1	RF Port 1 – 50 Ohms
Bottom Pad	GND	Ground – Common

RELATED PARTS

Part Number	Description			
AM4001	2 GHz	to	18 GHz	2 Way 0 Degree Splitter, 4mm QFN

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	

Mercury 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)

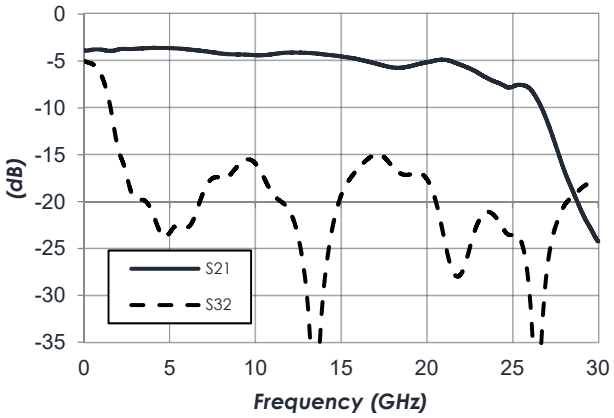
Parameter	Test Conditions	Min	Typical	Max
Frequency Range		1.5 GHz		26.5 GHz
Additional Insertion Loss*	2.0 GHz to 5.0 GHz		0.65 dB	0.75 dB
	5.0 GHz to 10.0 GHz		1.05 dB	1.40 dB
	10 GHz to 18 GHz		1.55 dB	2.70 dB
	18 GHz to 26.5 GHz		3.25 dB	6.30 dB
Return Loss	2 GHz to 5 GHz		24 dB	
	5 GHz to 10 GHz		16 dB	
	10 GHz to 18 GHz		11 dB	
	18 GHz to 26.5 GHz		20 dB	
Isolation	2 GHz to 5 GHz	14 dB	19 dB	
	5 GHz to 10 GHz	16 dB	21 dB	
	10 GHz to 18 GHz	15 dB	23 dB	
	18 GHz to 26.5 GHz	16 dB	0.40 deg	
Phase Unbalance	2 GHz to 5 GHz		0.15 deg	0.80 deg
	5 GHz to 10 GHz		0.50 deg	0.50 deg
	10 GHz to 18 GHz		2.25 deg	0.70 deg
	18 GHz to 26.5 GHz		0.10 dB	3.95 deg
Amplitude Unbalance	2 GHz to 5 GHz		0.10 dB	0.10 dB
	5 GHz to 10 GHz		0.10 dB	0.15 dB
	10 GHz to 18 GHz		0.05 dB	0.15 dB
	18 GHz to 26.5 GHz		0.40 dB	1.05 dB

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

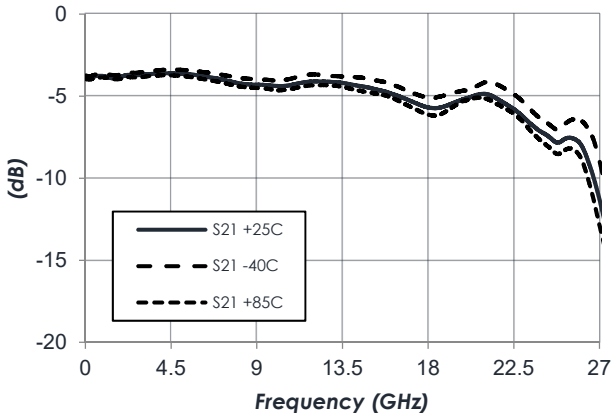
TYPICAL PERFORMANCE

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

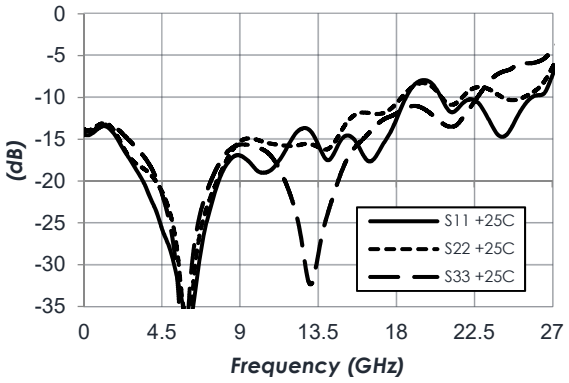
Freq. Response and Isolation



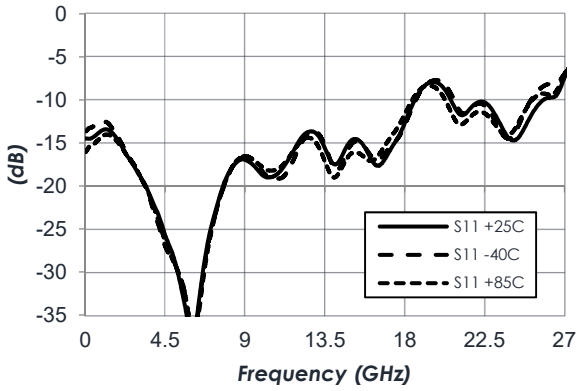
Total Insertion Loss vs. Temperature



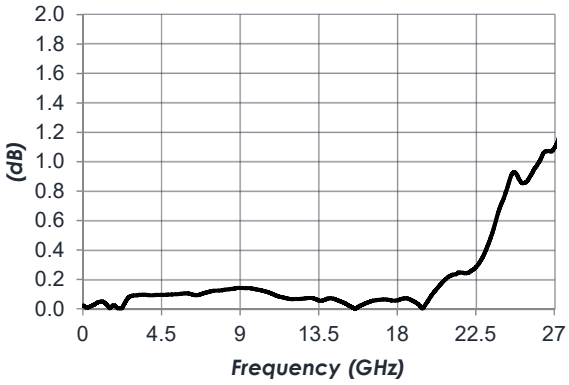
Return Loss at +25C



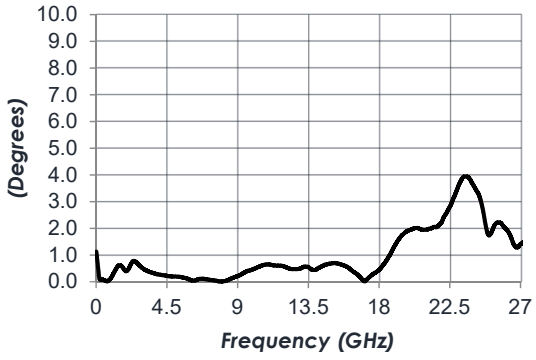
Return Loss vs. Temperature



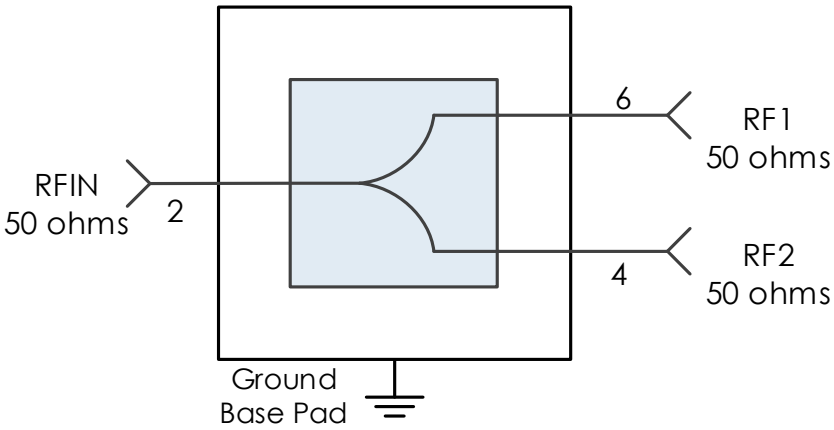
Amplitude Unbalance



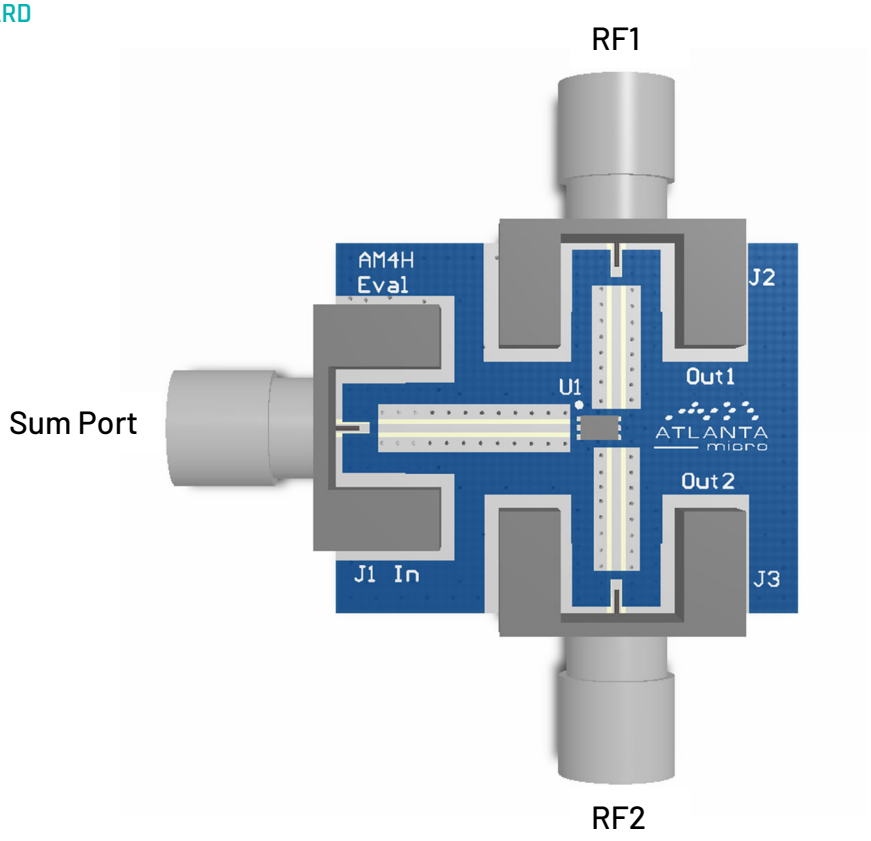
Phase Unbalance



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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