

REPLACEMENT PART REFERENCE GUIDE:

AN-60-061

ORIGINAL PART: RAM-8+ & MSA-0836 (Avago Technologies)

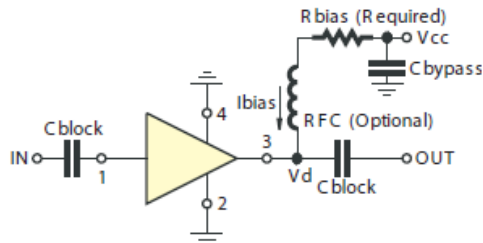
REPLACEMENT PART: RAM-8A+

This replacement part has been judged by Mini-Circuits Engineering as a suitable replacement part

APPLICATION CIRCUITS

ORIGINAL PART:

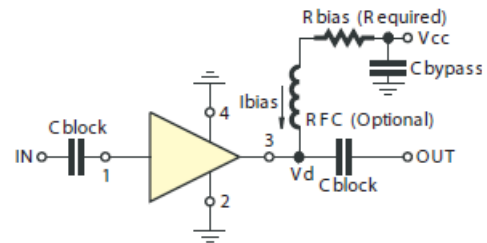
RAM-8+ & MSA-0836 (Avago Technologies)



R BIAS	
Vcc	"1%" Res. Values (ohms) for Optimum Biasing
10	63.4
11	90.9
12	115
13	143
14	169
15	200

REPLACEMENT PART:

RAM-8A+



R BIAS ¹	
Vcc	Bias Resistor Value ²
7	88.7
8	118
9	143
10	174
11	200
12	226
13	255
14	280
15	309

1 When being used as a substitute for RAM-8+ or MSA-0836, the bias resistor values must be changed to the values in this table.

2 1% Resistor values (ohms) for optimum bias.

CONCLUSION:

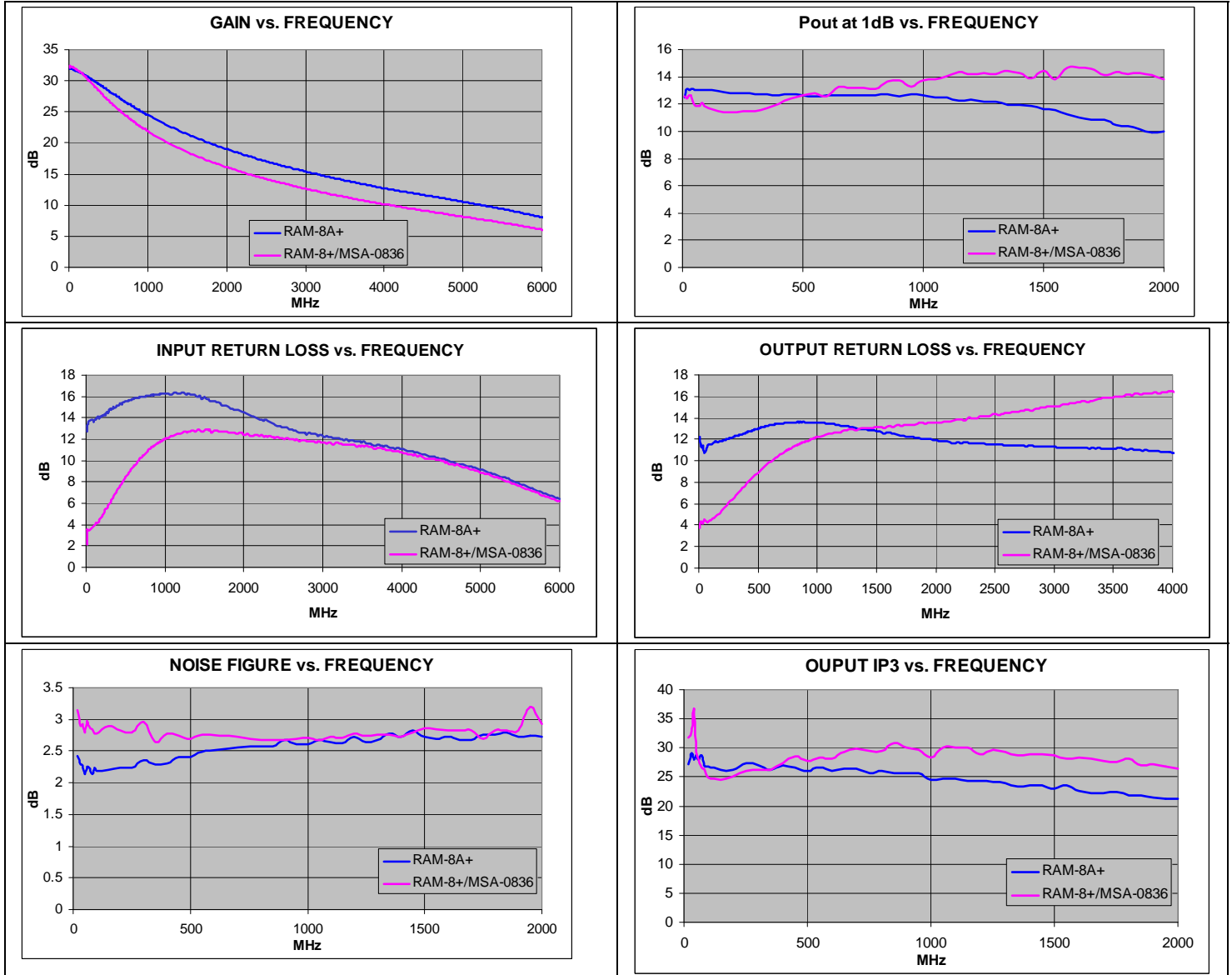
- 1) **FORM-FIT-FUNCTIONAL COMPATIBLE:** Is Form Fit compatible. Performance; needs a different bias resistor (see above), has higher gain, better NF, better return loss and lower OIP3, see graphs on Page 2.
- 2) Typical Performance Comparison :

Performance	Condition (GHz)	RAM-8+	MSA-0836	RAM-8A+
Gain (dB)	0.1	31.8	32.5	31.5
	1	21.8	23.0	24.4
	4	10.1	10.5	12.7
Input Return Loss (dB)	0.1 to 3	10	10	15
Output Return Loss (dB)	0.1 to 3	11	14	13
Output Power at P1dB (dBm)	1	13.8	12.5	12.6
Output IP3-USB (dBm)	1	28.5	27.0	24.5
Noise Figure (dB)	1	2.7	3.0	2.6
Operating Voltage (V)	----	See Table above	See Table above	See Table above
Device Operating Current (mA)	----	36	36	36
Status	----	Qualified, last time buy	Obsolete	Qualified, in production

General Notes:

- a. The RAM-8A+ part number is a potential replacement for the MSA-0836 part number based on a comparison of data and characterization information available for the MSA-0836 versus similar data and the measured performance of RAM-8A+; the final determination of whether this RAM-8A+ part number is suitable for model replacement within a particular system must be determined by and is solely the responsibility of the customer based on, among other things, electrical performance criteria, stimulus conditions, application, compatibility with other components, and environmental conditions and stresses.
- b. The MSA-0836 part number is used for identification and comparison purposes only.
- c. Avago Technologies is a registered trademark of Avago Technologies and is in no way affiliated with Mini-Circuits.
- d. Data in Table for the MSA-0836 was taken from Avago Technologies published datasheet April 12, 2007 and is used solely for informational purposes to identify MSA-0836

3) COMPARISON PERFORMANCE CURVES:



General Notes:

- The RAM-8A+ part number is a potential replacement for the MSA-0836 part number based on a comparison of data and characterization information available for the MSA-0836 versus similar data and the measured performance of RAM-8A+; the final determination of whether this RAM-8A+ part number is suitable for model replacement within a particular system must be determined by and is solely the responsibility of the customer based on, among other things, electrical performance criteria, stimulus conditions, application, compatibility with other components, and environmental conditions and stresses.
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