

## REPLACEMENT PART REFERENCE GUIDE:

**AN-60-060**

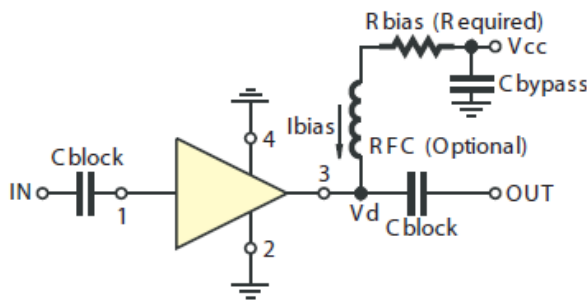
ORIGINAL PART: MAR-8SM+, MSA-0886 (Avagotech)

REPLACEMENT PART<sub>a,b</sub>: MAR-8ASM+

*This replacement part has been judged by Mini-Circuits Engineering as a suitable replacement part<sub>a,b</sub>*

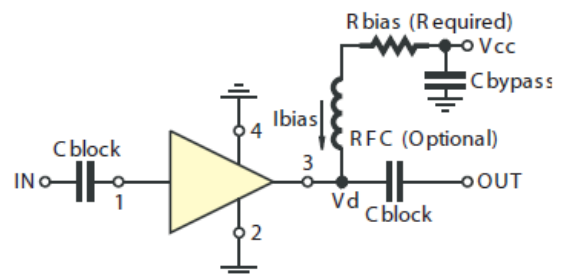
## APPLICATION CIRCUITS

**ORIGINAL PART:**  
**MAR-8SM+ & MSA-0886 (Avagotech)**



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:**  
**MAR-8ASM+**



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

<sup>1</sup> When being used as a substitute for MAR-8SM or MSA-0886, the bias resistor values must be changed to the values in this table.  
<sup>2</sup> 1% Resistor values (ohms) for optimum bias.

## CONCLUSION:

- 1) **FORM-FIT COMPATIBLE:** Same Circuit and PCB Layout, change in Bias Resistor Value per table above
- 2) If Rbias > 250 ohms, RFC can be eliminated.
- 3) Original part MAR-8SM+/MSA-0886 has poor Input and output return loss, 4 to 14 dB vs. MAR-8ASM+ has 12-16 dB typically over 50-1000 MHz. May affect external matching elements.
- 4) Typical Performance Comparison<sub>a,b</sub>:

Performance	Condition(GHz)	MAR-8SM+/MSA-0886	MAR-8ASM+
Gain (dB)	1.0	22.5	25
Noise Figure (dB)	1.0	3.3	3.1
Pout 1dB (dBm)	1.0	12.5	12.5
Output IP3 (dBm)	1.0	27.0	25
Input Return Loss (dB)	DC-1	See Page 2	15.5
Output Return Loss (dB)	DC-1	See Page 2	11.0
Operating Voltage (V)	---	See table above	See table above
Operating Current (mA)	---	36	36
Status	---	Qualified, last time buy	Qualified, in production

Notes:  
a. Suitability 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.

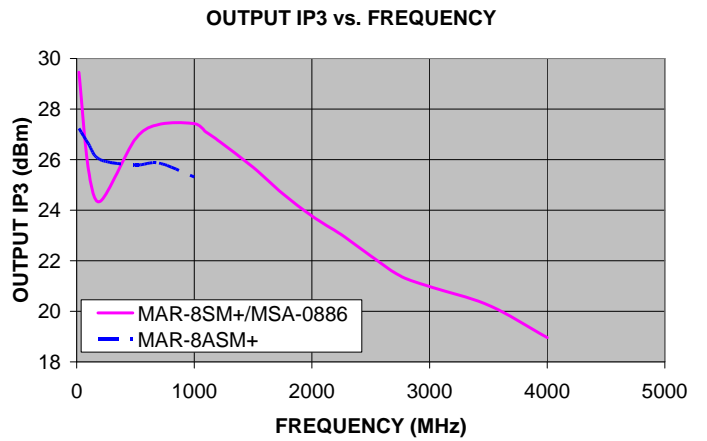
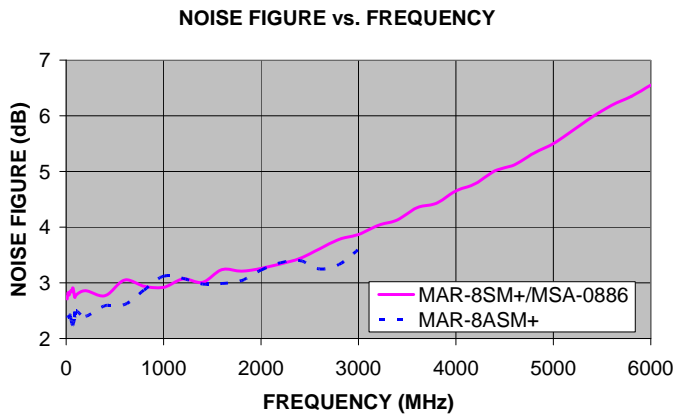
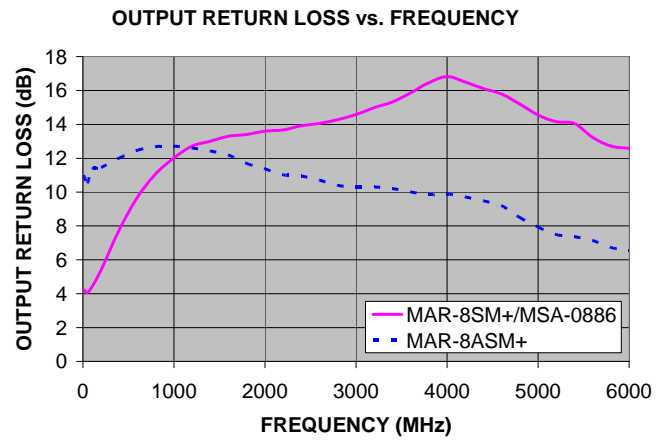
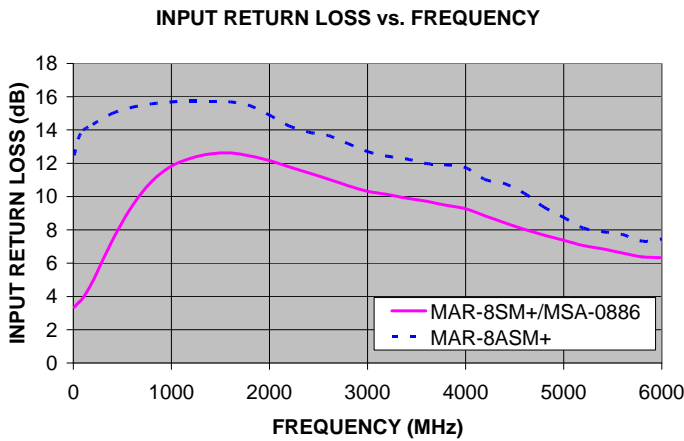
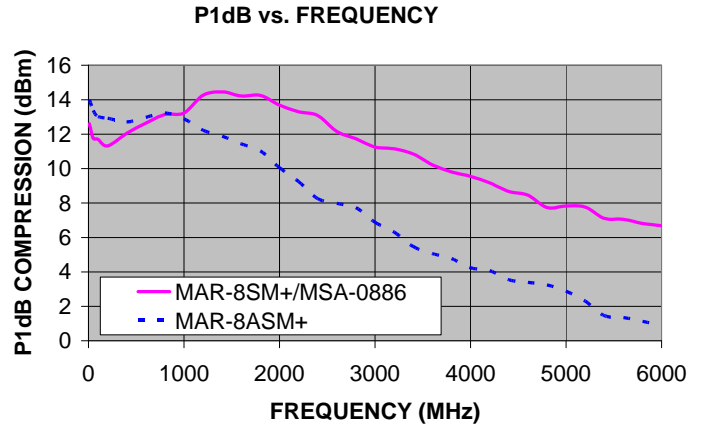
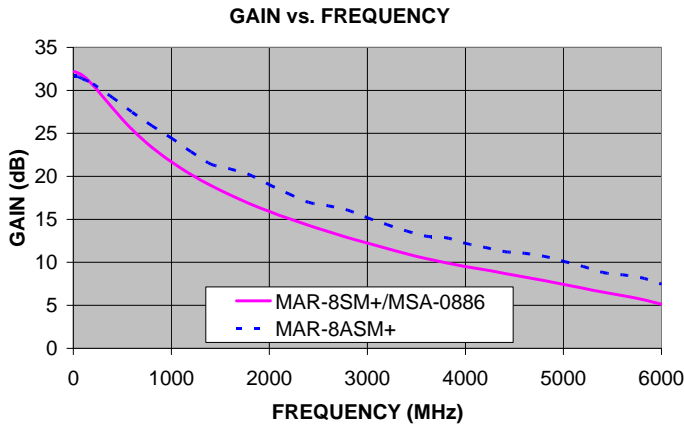
b. The MSA-0886 part number is used for identification and comparison purposes only.

Rev: Draft 1

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**COMPARISON PERFORMANCE CURVES:**



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 b. The MSA-0886 part number is used for identification and comparison purposes only.