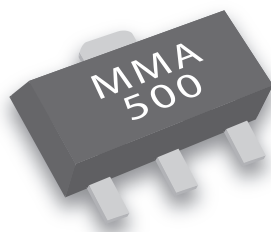


MMA500

DC to 4 GHz Amplifier



SOT89 OUTLINE



Description:

The MMA500 is a fully matched amplifier fabricated in Aeroflex / Metelics reliable InGaP HBT technology. The economical SOT89 package provides excellent wide-band performance with **RoHS** compliance.

Features:

- DC - 4 GHz Broadband Gain Block
- ± 0.5 dB Typical Gain Flatness
- 50 Ohms Input/Output Impedances

RF Specifications:

Parameter	Term	Minimum	Typical	Maximum	Units
3dB Bandwidth	BW	DC	---	4	GHz
Frequency Range	f_o	DC	---	2	GHz
Gain @ 2GHz	G_p	19	20	---	dB
Output Power	P_{1dB}	+16.5	+17.5	---	dBm
Standing Wave Ratio	VSWR	---	1.3:1	2.0:1	---
3 rd Order Intercept Point	IP3	+26	+28	---	dBm
Noise Figure	NF	---	3	4	dB
Device Current	I_c	---	45	---	mA
Device Voltage	V_{cc}	3.8	4	4.2	V

NOTES: 1. $T_A = +25^\circ\text{C}$.
2. $V_S = 5.0\text{ Vdc}$, $R_{BIAS} = 22\ \Omega$
3. IP3 measured with two tones offset 10 MHz at 0 dBm per tone.

Absolute Maximum Ratings:

Parameters	Rating
Device Current (I_c)	60 mA
RF Input Power, continuous	+10 dBm
Operating Temperature	-40 to +85 °C
Storage Temperature	-55 to +125 °C
Thermal Resistance (θ_{JC})	125 °C/W



Typical RF Performance:

Figure 1.

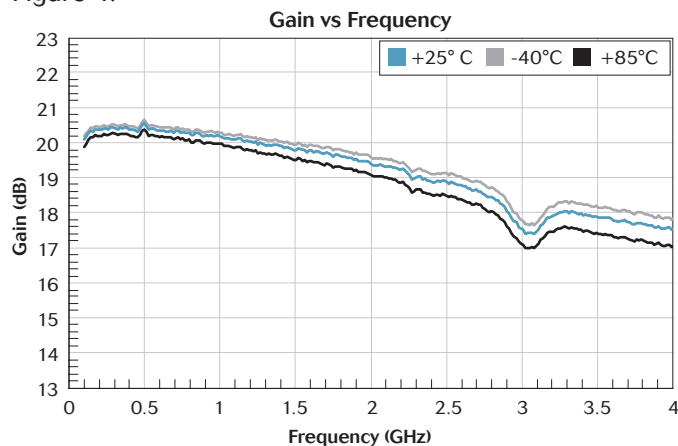


Figure 2.

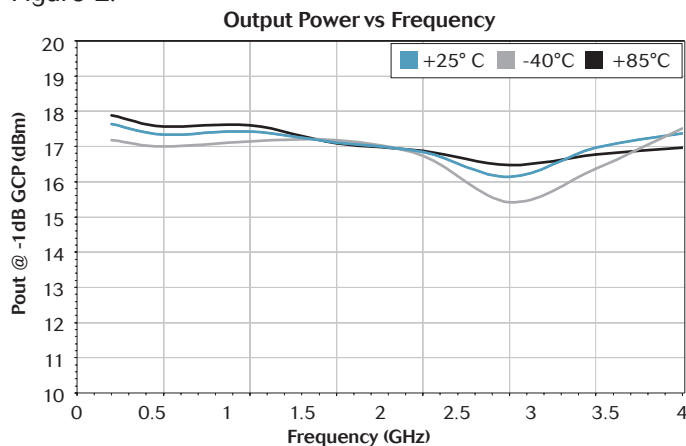


Figure 3.

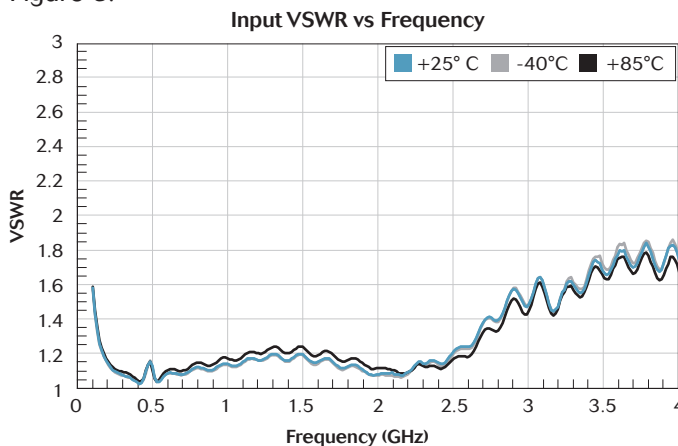


Figure 4.

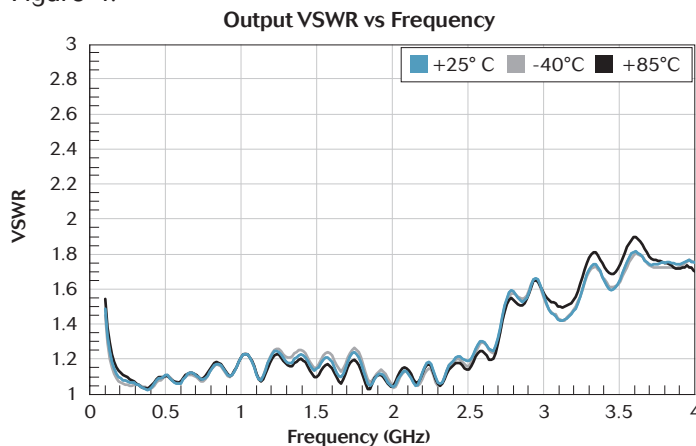


Figure 5.

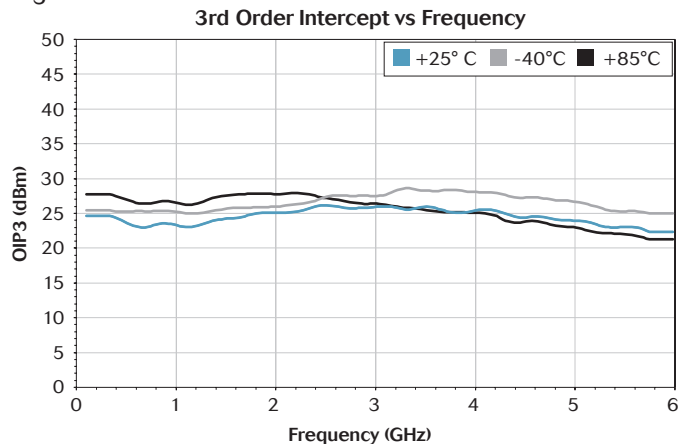
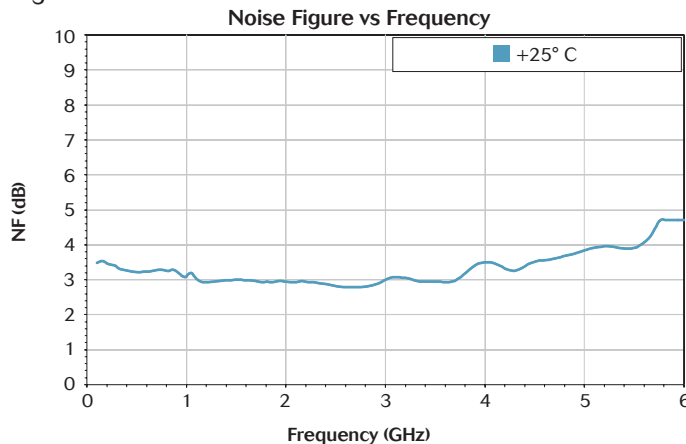


Figure 6.

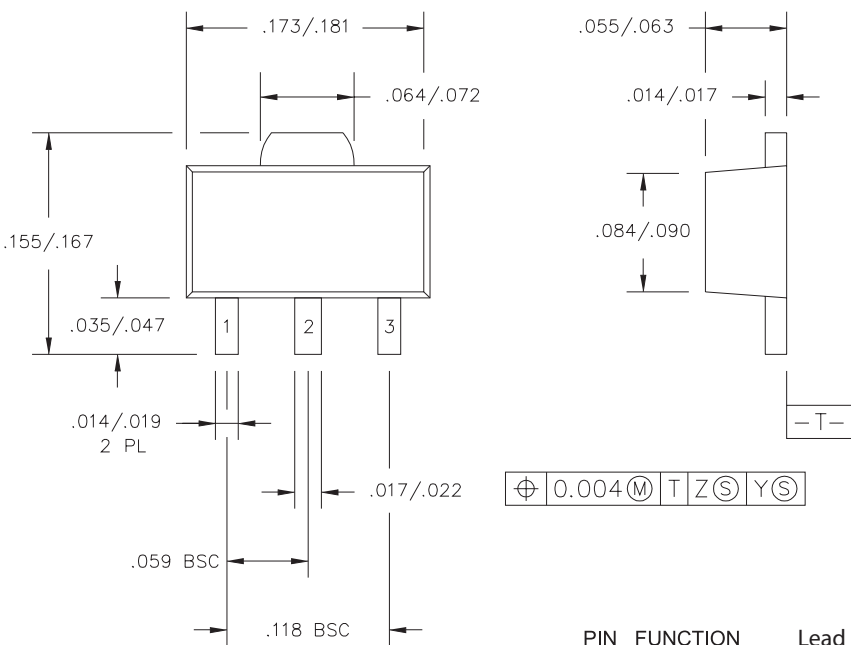


MMA500

DC to 4 GHz Amplifier



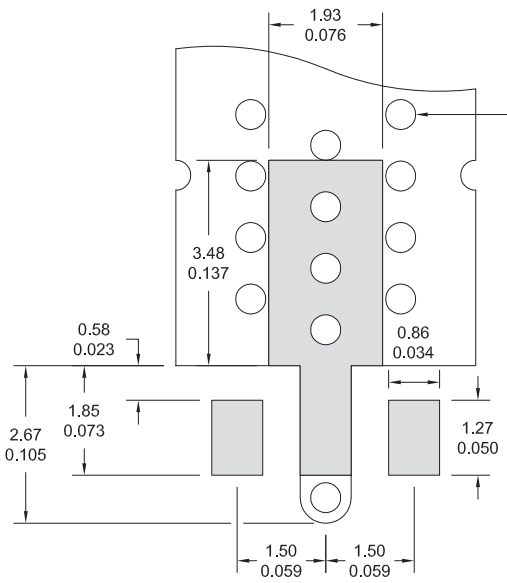
SOT89 Outline Dimensions:



ALL DIMENSIONS $\pm 0.003 \text{ INCH}$
0.07 MM

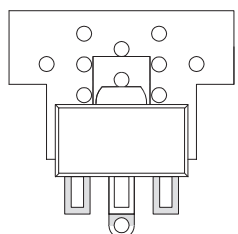
PIN	FUNCTION	Lead Finish:
1	INPUT	Matte Tin
2	GROUND	
3	OUTPUT	

Recommended PCB Layout:



ϕ 0.51 PLATED THRU HOLES
0.020 0.040 TO 0.050 GRID

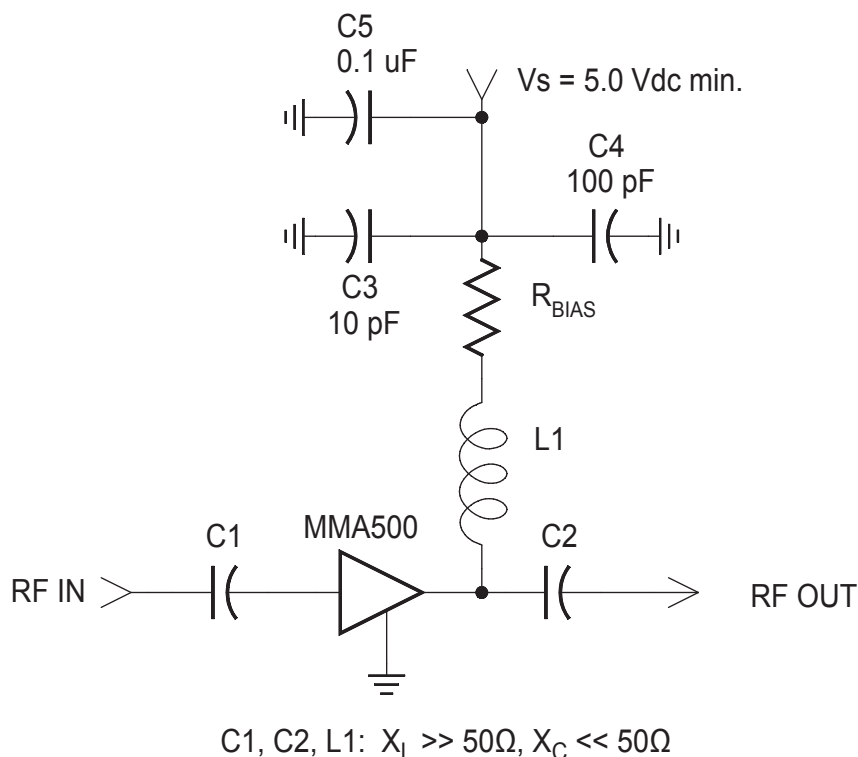
MM
INCH



NOTE
PLATED THRU HOLES ARE CRITICAL FOR GOOD RF AND THERMAL PERFORMANCE. AEROFLEX-METELICS RECOMMENDS 12 TO 15 HOLES FOR MOST APPLICATIONS.

SHADING INDICATES NO SOLDERMASK IN THESE AREAS

Application Circuit:



R_{BIAS} vs. V_S

V_S (V)	5.0	6.0	8.0	10.0	12.0
R_{BIAS} (Ω)	22	43	91	130	180
Power Dissipation (W)	0.05	0.1	0.2	0.3	0.4

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ISO 9001:2008 certified companies



Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused.