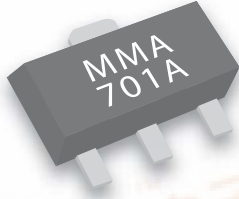


MMA701A +24 dBm InGaP HBT Amplifier



SOT89 OUTLINE



Description:

The MMA701A is designed for common emitter, class A amplifier applications from 100 MHz to 2.5 GHz. Best performance is obtained over bandwidths not exceeding 10%.

Features:

- Lead Free and RoHS Compliant
- 92 dB Dynamic Range
- Operates Up to 7.0 V Vce
- Industry Standard SOT89 Package

RF / DC Specifications:

Parameter	Symbol	Condition	1960 MHz			2140 MHz			Units
			MIN	TYP	MAX	MIN	TYP	MAX	
Gain	SSG	1, 2	13.0	14.5		13.0	14.0		dB
Output Power	P_{1dB}	1, 2	+24	+25		+24	+25		dBm
3 rd Order IP	OIP3	1, 2, 3	+39	+42		+39	+42		dBm
Input Standing Wave Ratio	VSWR	1, 2		1.3	2.0		1.5	2.0	
Output Standing Wave Ratio	VSWR	1, 2		1.3	2.0		1.6	2.0	
Noise Figure	NF	1, 2		3.5	5.0		4.0	5.0	dB
Current Transfer Ratio	h_{FE}	2	60 Min			80 Typ			

- NOTES:
1. All measurements performed in evaluation boards.
 2. $V_{CE} = 5.0$ V, $I_C = 130$ mA.
 3. IP3: Power output per tone = +12dBm, separation = 1.22 MHz

Absolute Maximum Ratings:

Parameters	Symbol	Limit	Unit
Collector to Emitter Voltage	V_{CE}	+12.0	V
Collector Current	I_C	300	mA
Thermal Resistance	θ_{JC}	70	°C / W
Junction Temperature	T_J	+150	°C
Storage Temperature Range	T_{STG}	-54 to +150	°C

Contact factory for 7 volt performance data.

Typical PCS Band Performance at 5 Volts

Figure 1.

Gain Vs. Frequency

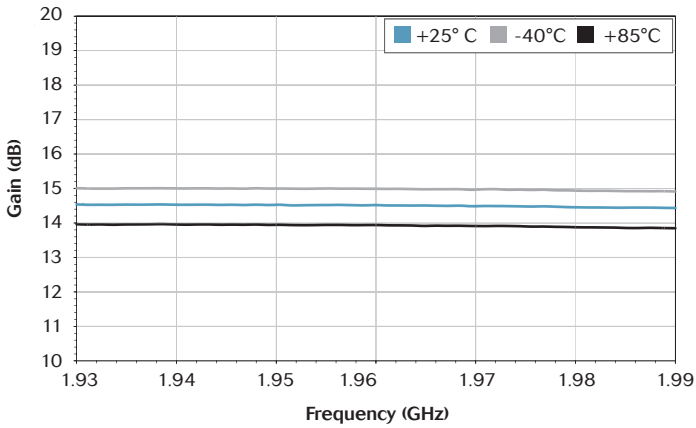


Figure 2.

P_{1dB} vs Frequency

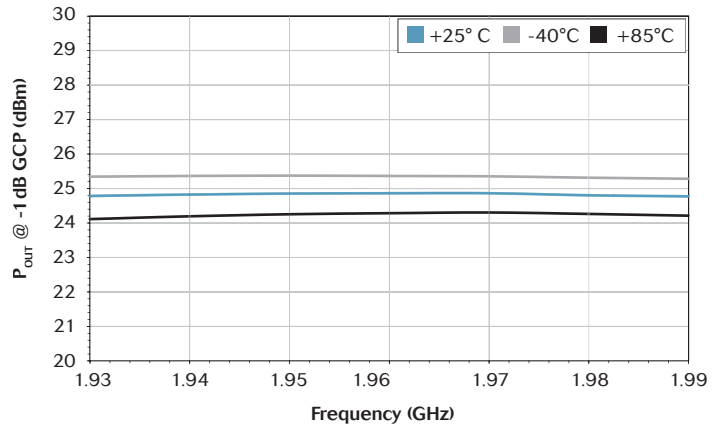


Figure 3.

Input VSWR vs Frequency

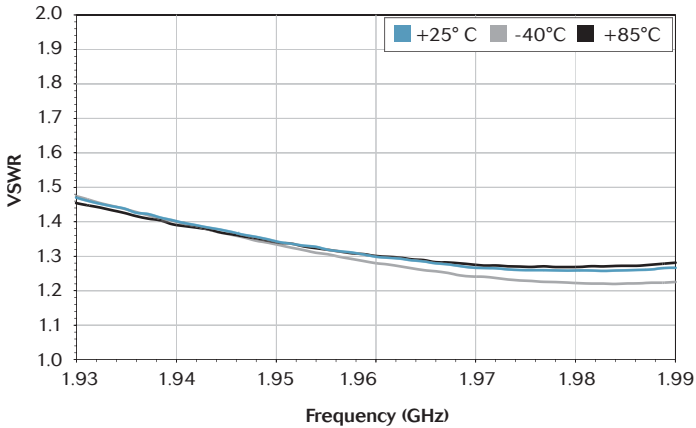


Figure 4.

Output VSWR vs Frequency

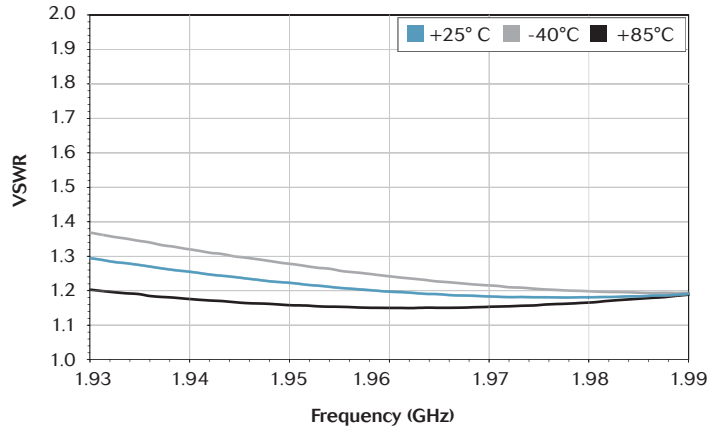


Figure 5.

3rd Order Intercept vs Frequency

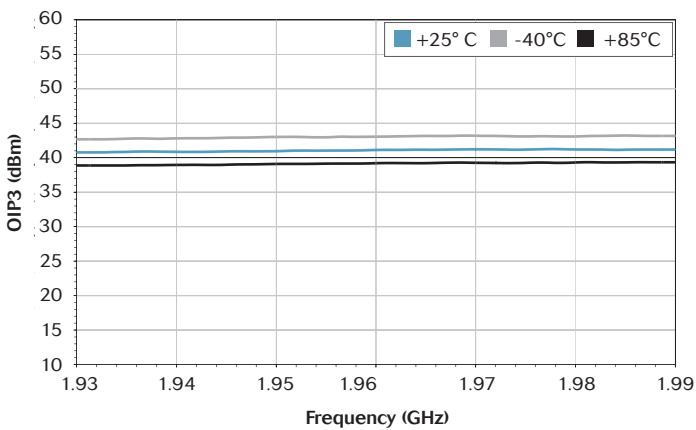
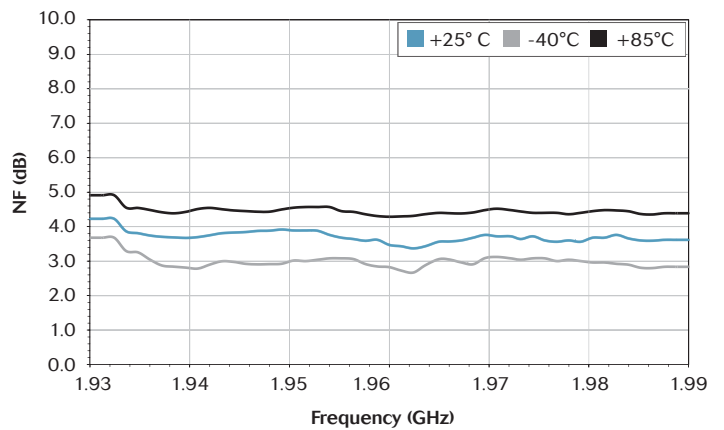


Figure 6.

Noise Figure vs Frequency



MMA701A +24 dBm InGaP HBT Amplifier



Typical UMTS Band Performance at 5 Volts:

Figure 7.

Gain Vs. Frequency

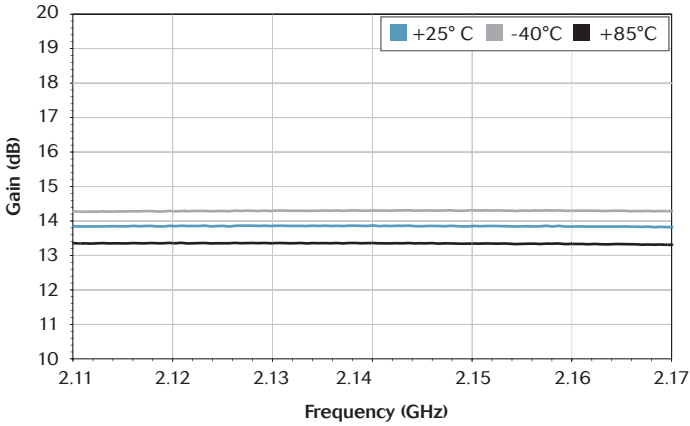


Figure 8.

P_{1dB} vs Frequency

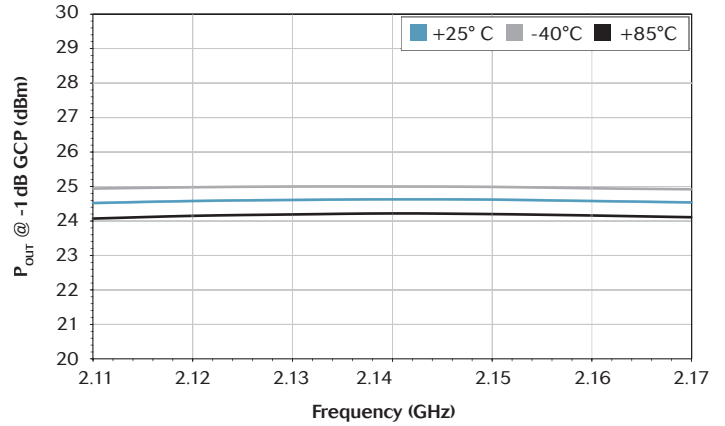


Figure 9.

Input VSWR vs Frequency

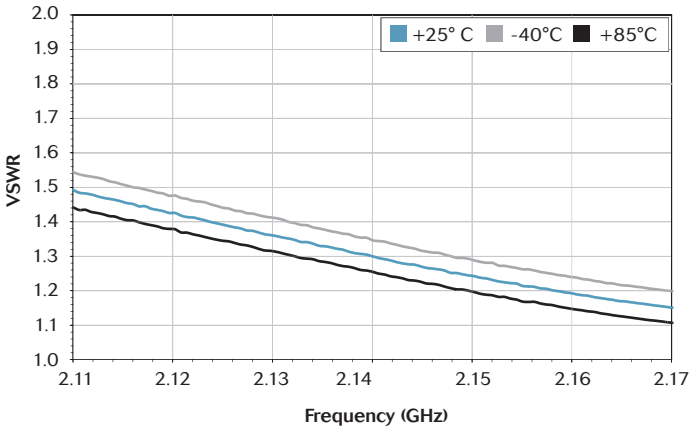


Figure 10.

Output VSWR vs Frequency

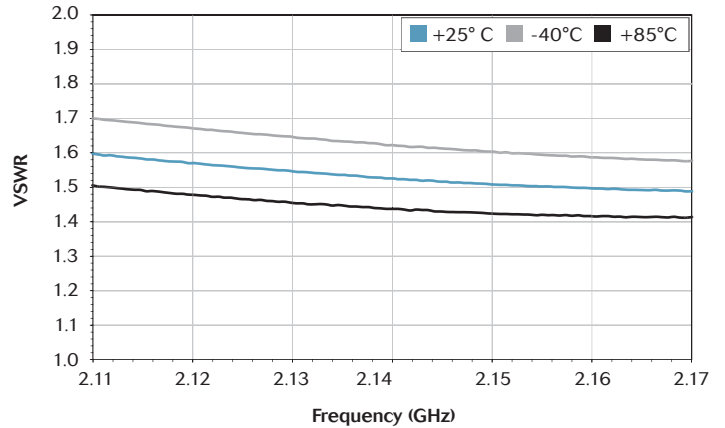


Figure 11.

Output 3rd Order Intercept Point vs Frequency

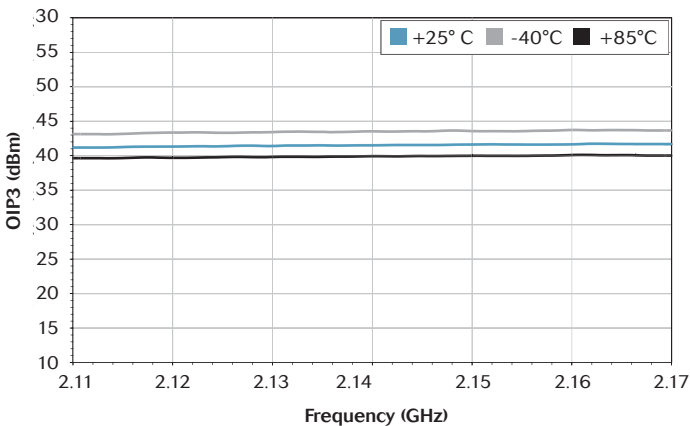
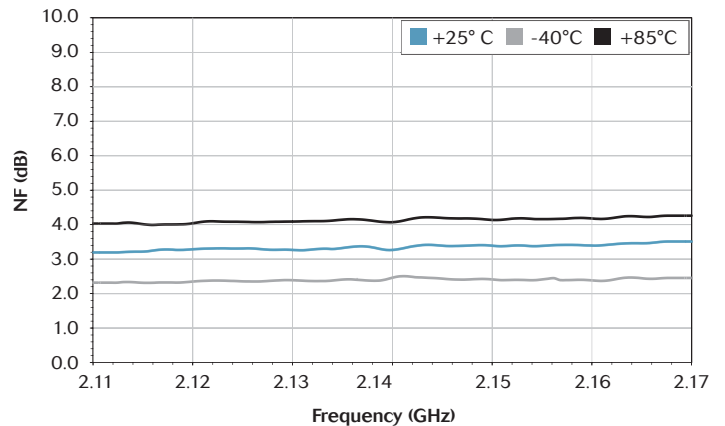


Figure 12.

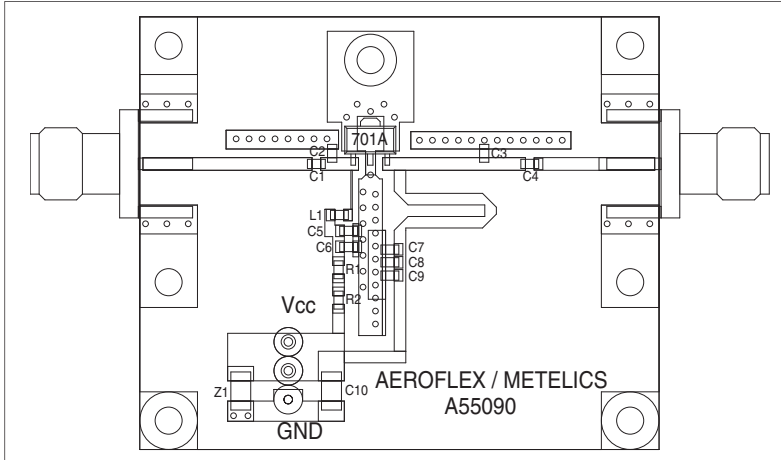
Noise Figure vs Frequency



MMA701A +24 dBm InGaP HBT Amplifier

Evaluation Board:

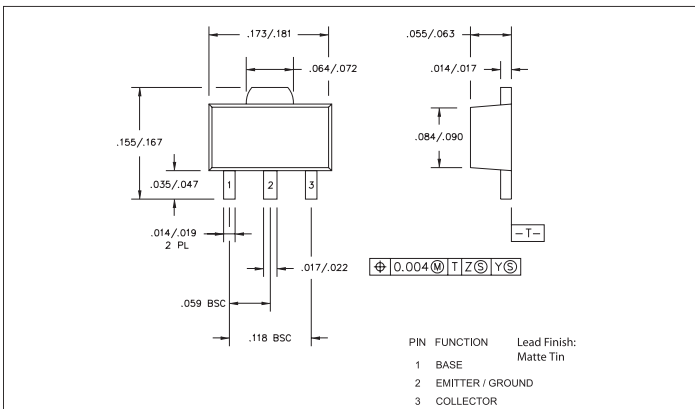
Figure 13.



	PCS	UMTS
C1	1.0 pF	
C2	1.3 pF	0.8 pF
C3	0.5 pF	0.3 pF
C4	12 pF	
C5 C7	33 pF	
C6 C9	0.1 μF	
C8	220 pF	
C10	4.7 μF	
L1	RFC	
R1	2.0K Ω	
R2	130 Ω	

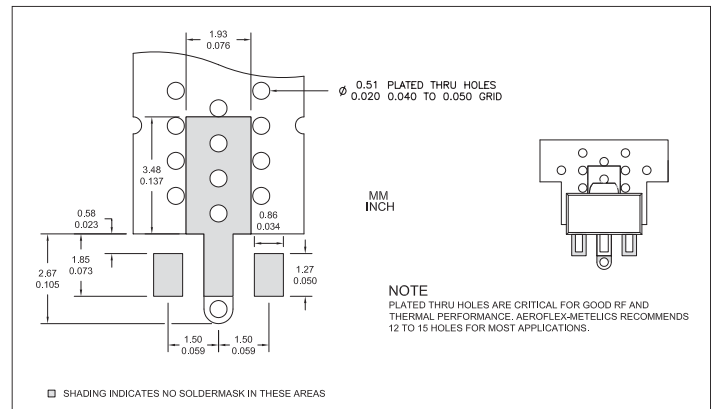
SOT89 Package Outline:

Figure 14.



SOT89 Land Pattern:

Figure 15.



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