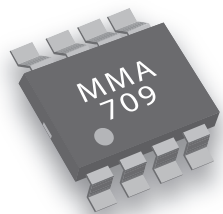


PRELIMINARY

MMA709 2 Watt InGaP HBT Amplifier



3030 OUTLINE

SOIC8 OUTLINE

Description:

The MMA709-3030 is a Power InGaP HBT device that is designed to provide moderate power levels from 100 MHz to 2.5 GHz. Best operation is obtained across narrow bandwidths, typically 10%. The device is characterized in Class A operation. The device is assembled in a low profile plastic package that is a 3mm square DFN style that has eight leads. The backside of the packages are DC/RF/Thermal ground. The device is also available in SOIC8 Package.

Features:

- High Output Power: +34 dBm (Typ)
- High 3rd Order OIP3: +54 dBm (Typ)
- High Dynamic Range: 97 dB (Typ)
- 3mm square DFN plastic package

RF Specifications:

Parameter	Symbol	Condition	1960 MHz			2140 MHz			Units
			MIN	TYP	MAX	MIN	TYP	MAX	
Gain	SSG	1, 2	10	11		9	9.5	13.5	dB
Output Power	P_{1dB}	1, 2	+33	+34		+33	+34		dBm
3 rd Order IP	OIP3	1, 2, 3	+52	+55		+50	+53		dBm
Input VSWR		1, 2			2:1			2:1	
Noise Figure	NF	1, 2		6.5	6.5		6.5	7.0	dB
Spur Free Dynamic Range	SFDR		95	102		95	102		dB
Thermal Resistance	θ_{JC}	2						12	°C/W

- NOTES:
1. All measurements from device evaluation boards.
 2. $V_s = 7.00$ V, $I_{CC} = 700$ mA.
 3. IP3: Power output per tone = +15dBm, separation = 1.22 MHz

Absolute Maximum Ratings:

Parameters	Symbol	Minimum	Maximum	Unit
Operating temperature Range	T_{OP}	-40	+85	°C
Storage Temperature Range	T_{STOR}	-54	+125	°C
Breakdown Voltage, Collector to Emitter	BV_{CEO}	14.5		V
DC Collector Current	I_{CC}		900	mA
Operating Junction Temperature	T_J		150	°C

Contact the factory when using other than 7 volts.



Revision Date: 11/29/04

Typical PCS Band Performance, 3030 Package:

Figure 1.

Gain vs Frequency

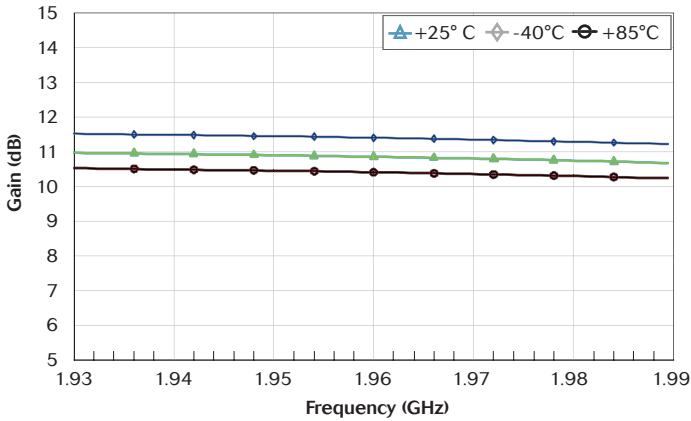


Figure 2.

Output Power vs Frequency

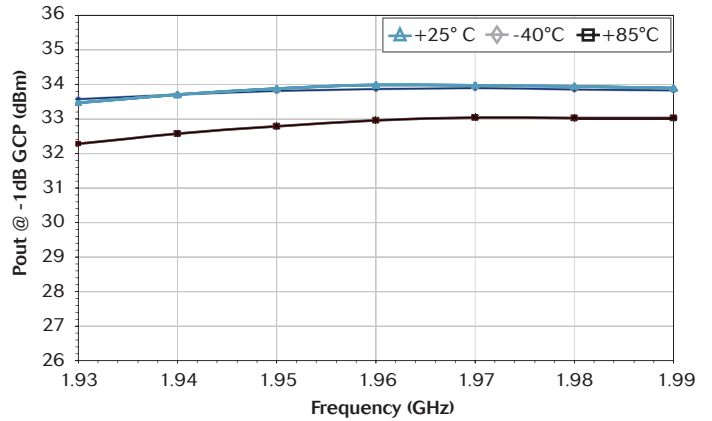


Figure 3.

Input VSWR vs Frequency

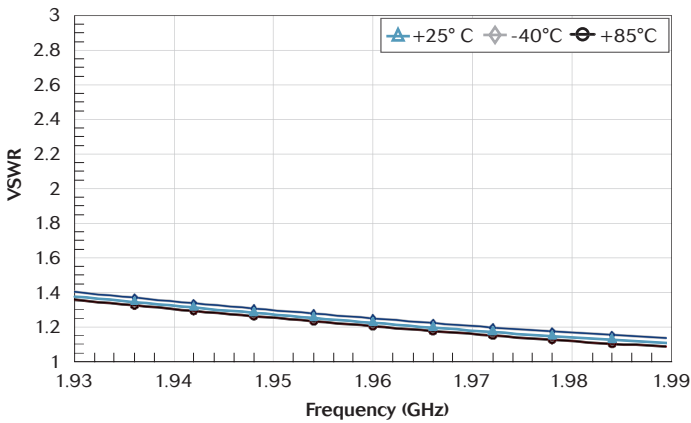


Figure 4.

Output VSWR vs Frequency

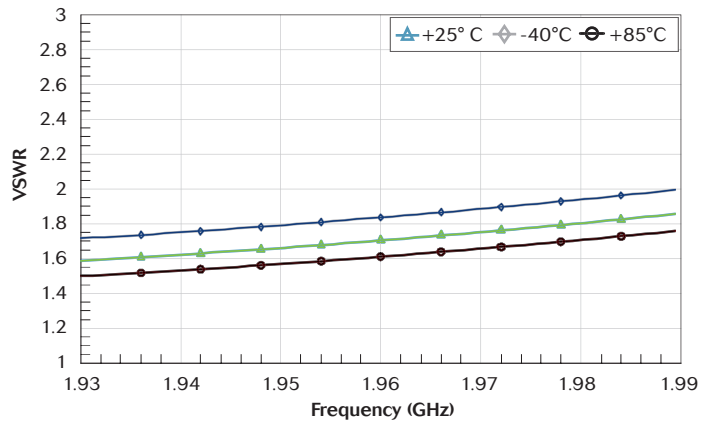


Figure 5.

Output 3rd Order Intercept Point vs Frequency

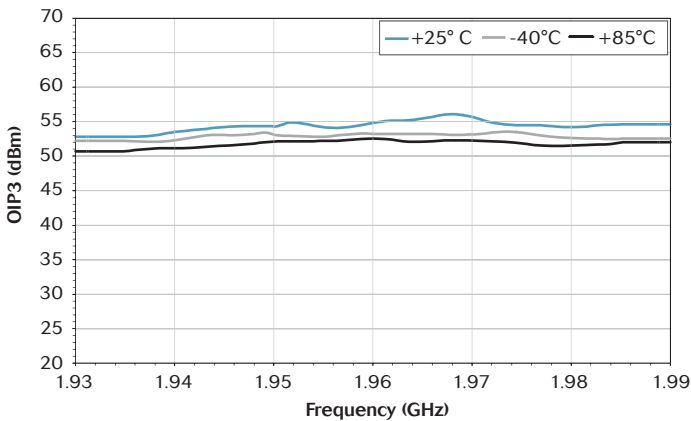
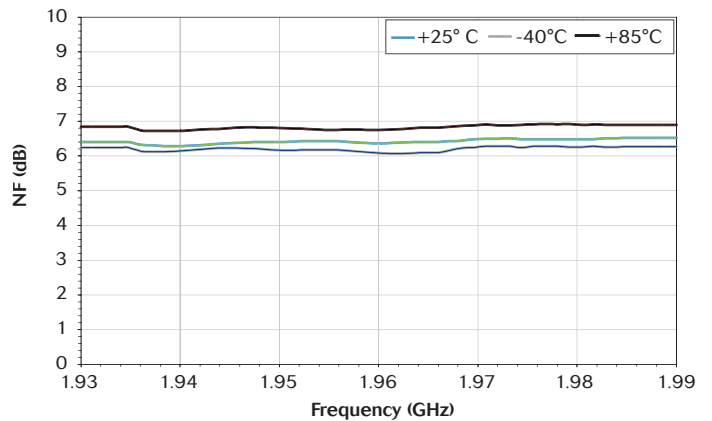


Figure 6.

Noise Figure vs Frequency



MMA709

2 Watt InGap HBT Amplifier



Typical UMTS Band Performance, 3030 Package:

Figure 7.

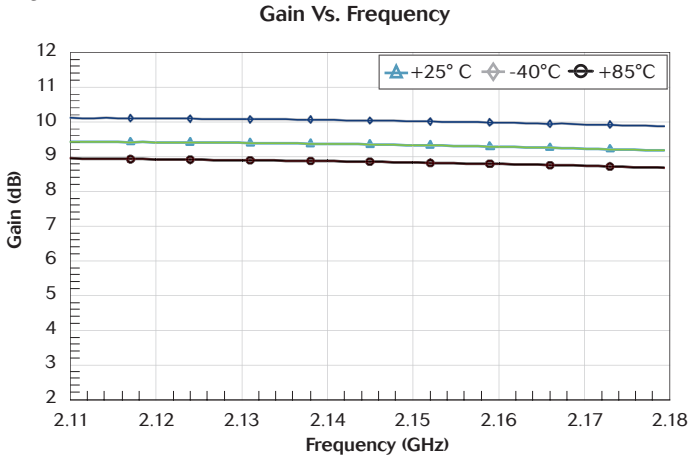


Figure 8.

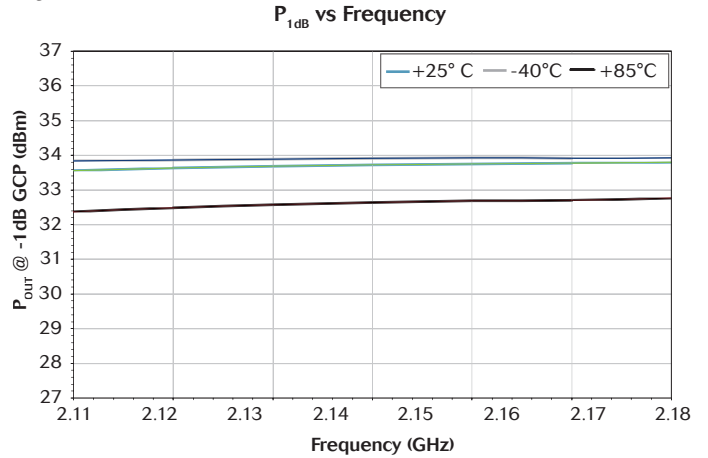


Figure 9.

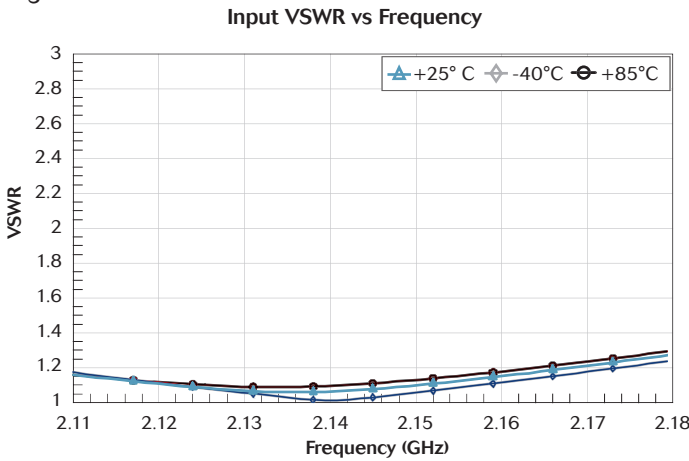


Figure 10.

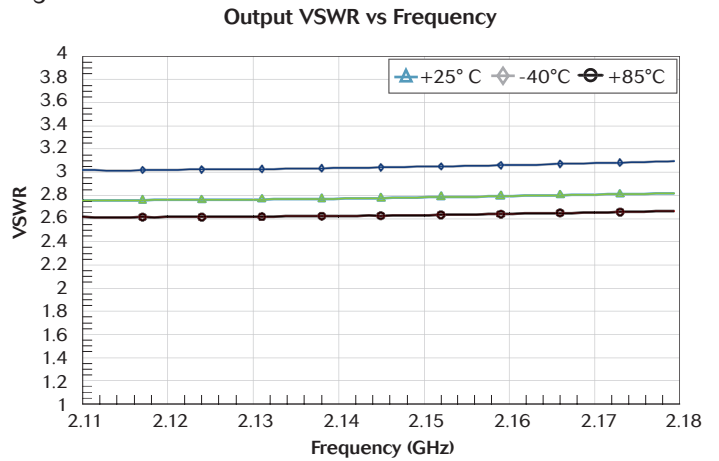


Figure 11.

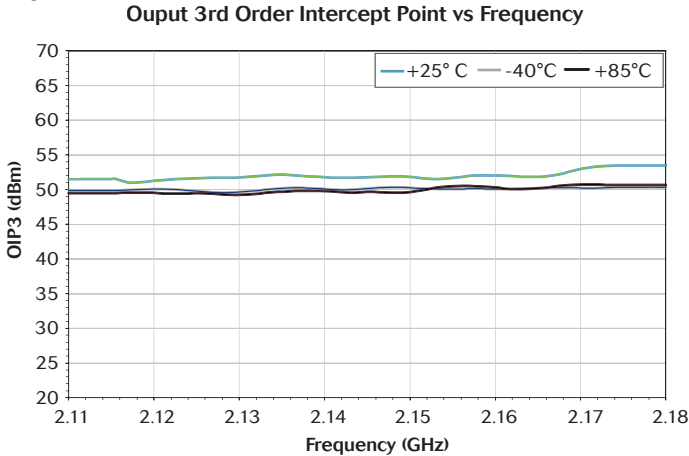
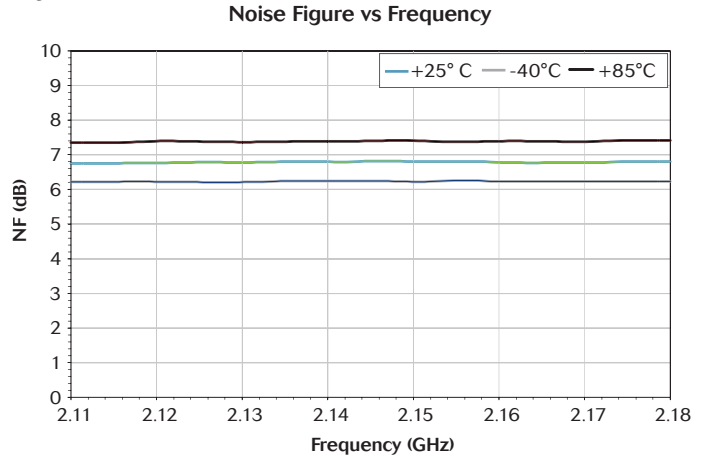
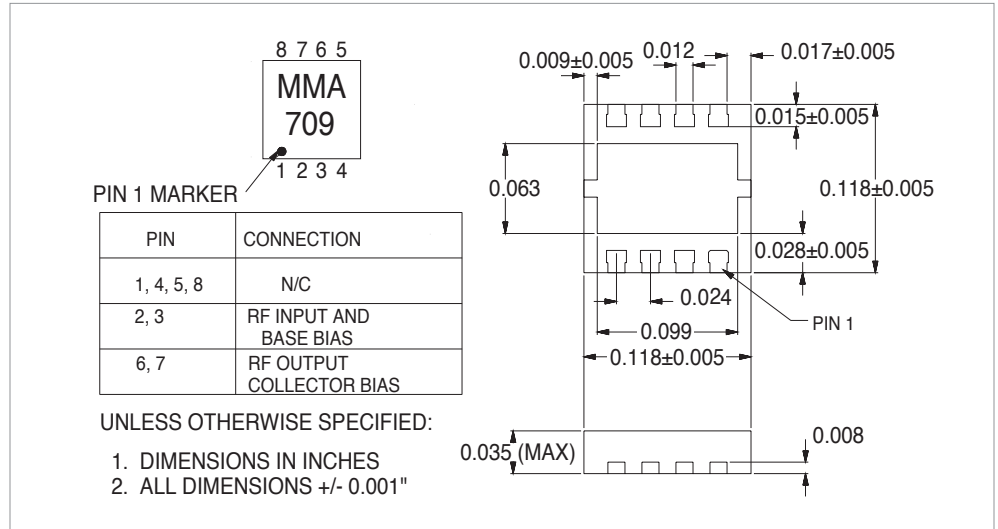


Figure 12.



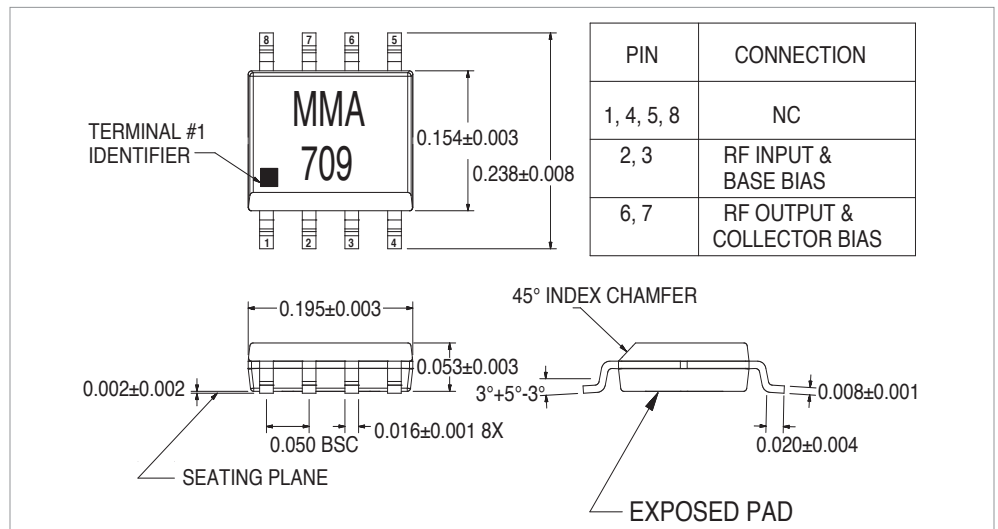
3030 Package Outline:

Figure 13.



SOIC8 Package Outline:

Figure 14.



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