



MMA707

1 Watt InGaP HBT Amplifier



FEATURES

- High Output Power: +31 dBm (Typ)
- High 3rd Order IP: +50 dBm (Typ)
- High Dynamic Range: 97 dB (Typ)
- 3mm square QFN plastic package

MMA707
-3030



3mm x 3mm square

DESCRIPTION

The MMA707-3030 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 QFN style that has eight leads. The backside of the package is DC/RF/Thermal ground.

ELECTRICAL CHARACTERISTICS (Ambient Temperature, T_A , = +25°C)

Item	Symbol	Condition	1960 MHz			2140 MHz			Unit
			MIN	TYP	MAX	MIN	TYP	MAX	
Gain	SSG	1, 2	11	12		10.5	11.5	13.5	dB
Output Power	P-1dB	1, 2	+29.5	+31		+29.5	+31		dBm
3 rd Order IP	IP3	1, 2, 3	+47	+50		+47	+50		dBm
Input VSWR		1, 2			2:1			2:1	
Noise Figure	NF	1, 2		5.8	6.5		6.0	7.0	dB
Spur Free Dynamic Range	SFDR		95	97		95	97		dB
Thermal Resistance	θ_{JC}	2						25	°C/W

NOTES:

- 1) All measurements from device evaluation boards.
- 2) $V_{supply} = 7.00$ V, $I_{cc} = 350$ mA.
- 3) IP3: Power output per tone = +15 dBm, separation = 1.2288 MHz

ABSOLUTE MAXIMUM RATINGS

Item	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}		576	mA
Operating Junction Temperature	T_J		150	°C

CONTACT THE FACTORY WHEN USING OTHER THAN 7 VOLTS.



MMA 707-3030, PCS Band Data

Figure 1.

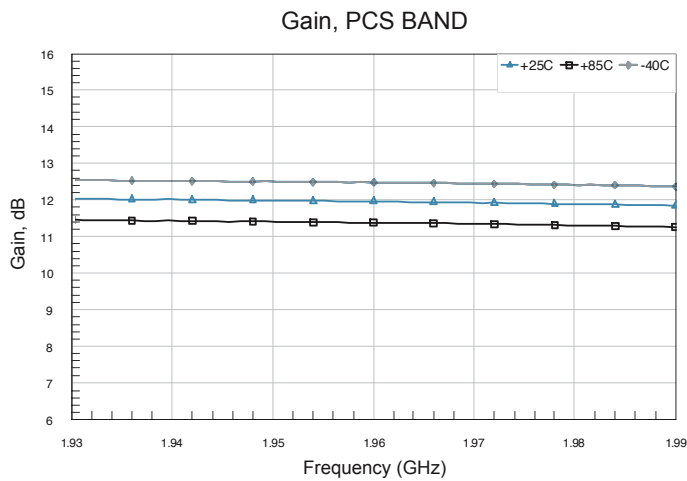


Figure 2.

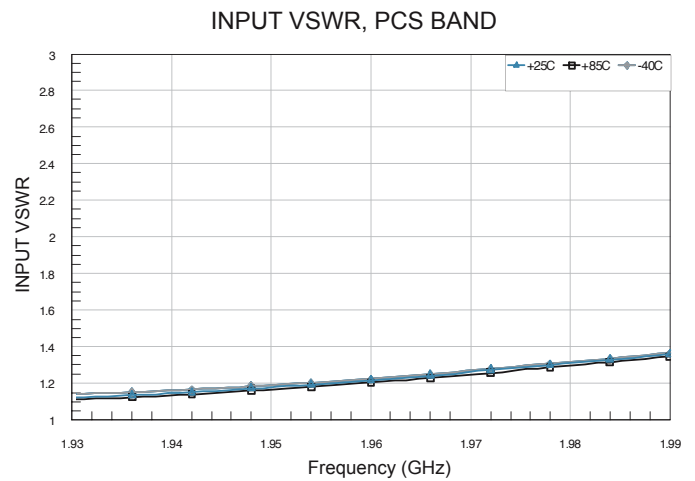


Figure 3.

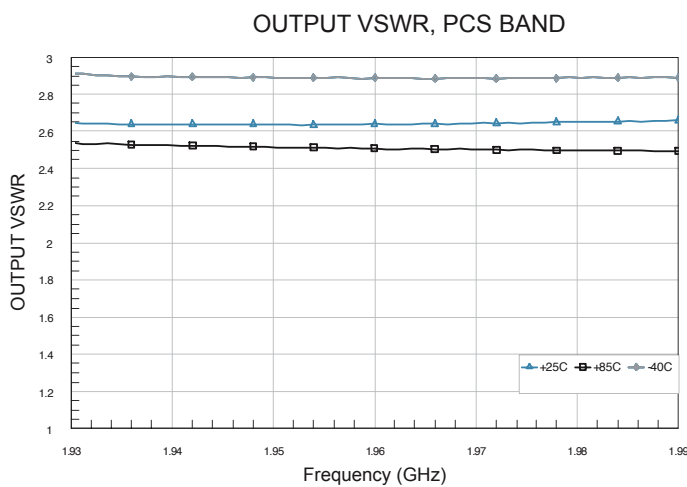
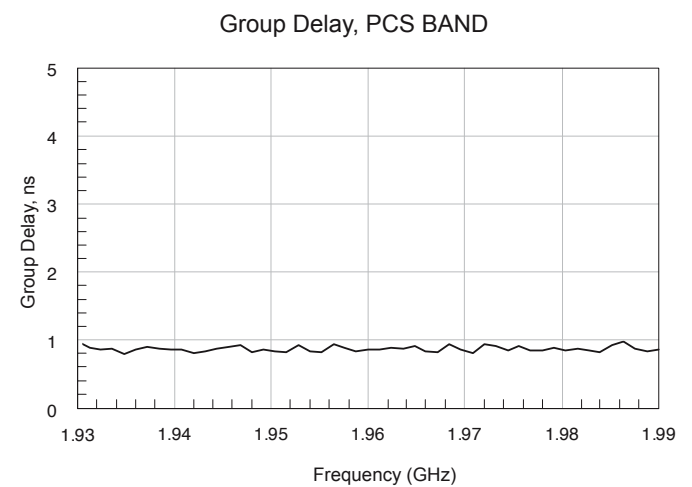


Figure 4.



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MMA 707-3030, PCS Band Data

Figure 5.

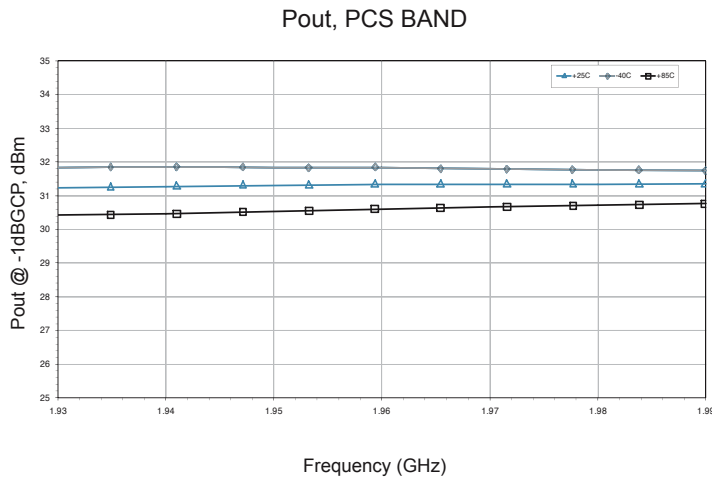


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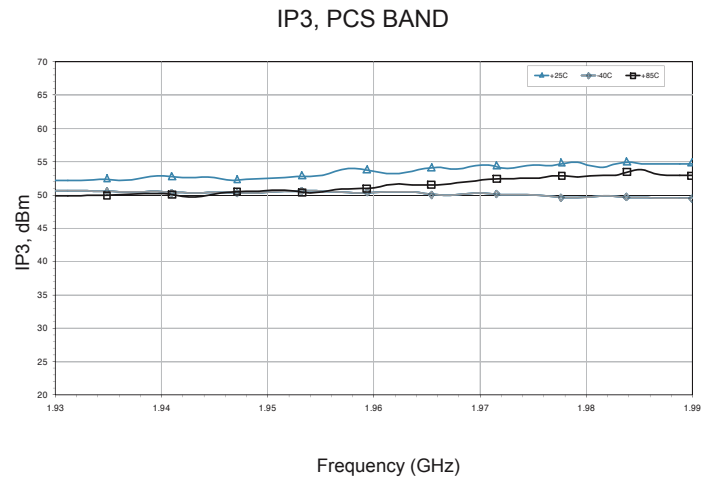


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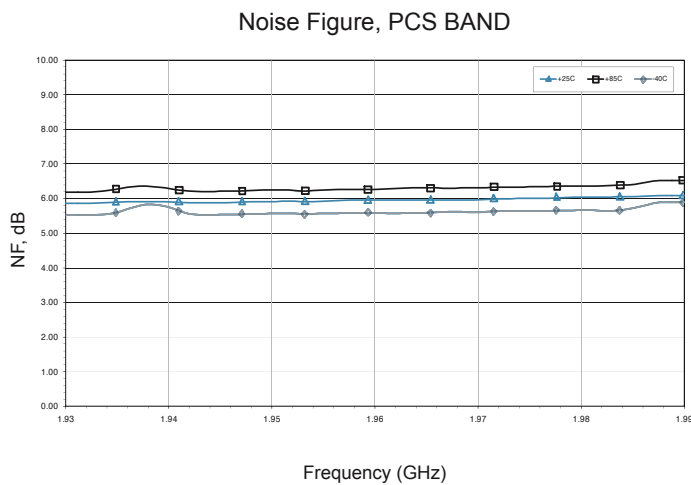
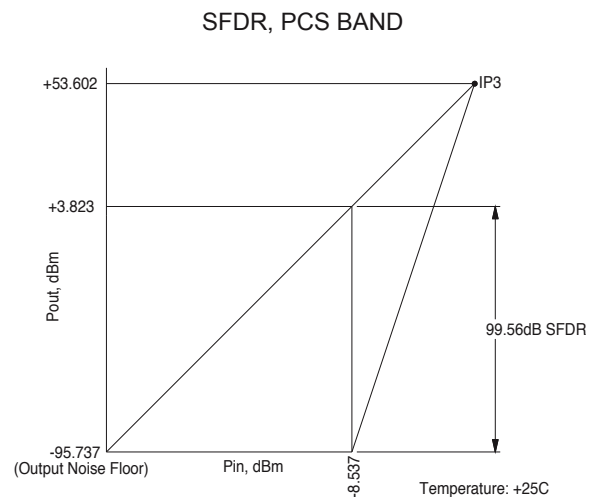


Figure 8.



MMA 707-3030, UMTS Band Data

Figure 9.

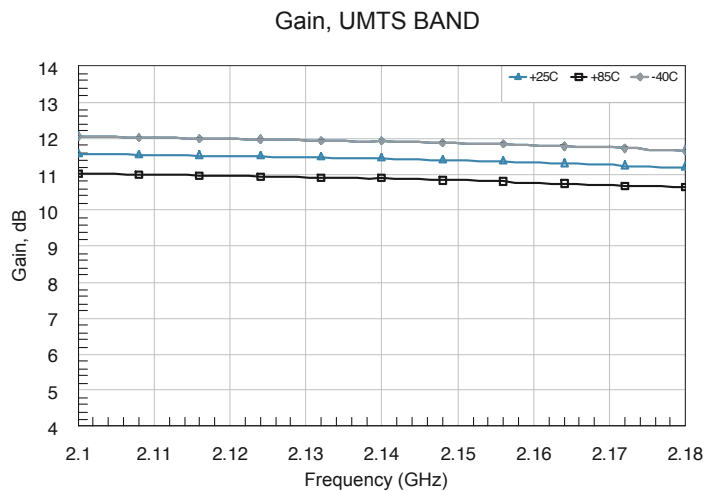


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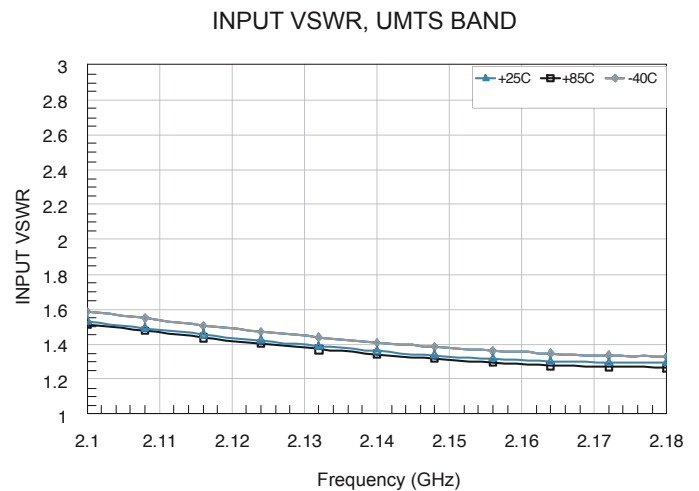


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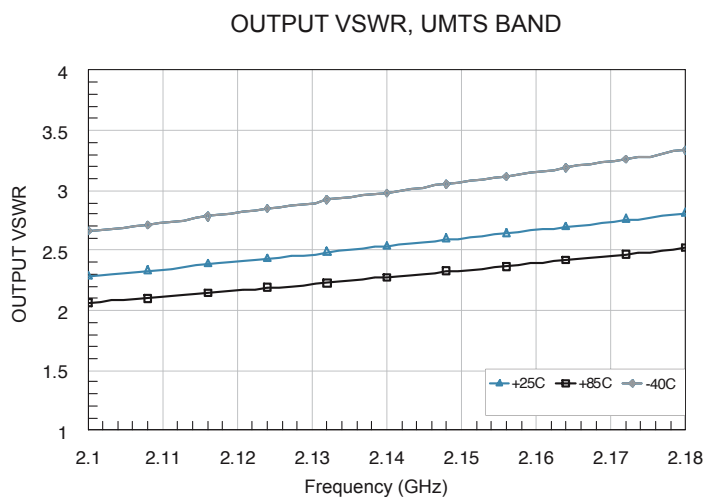
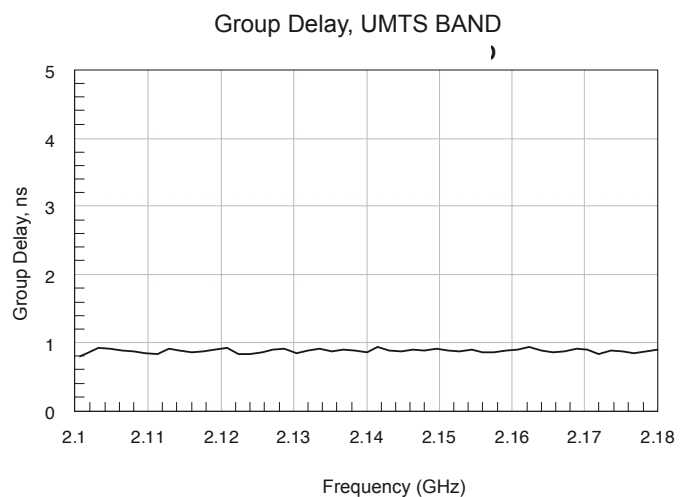


Figure 12.



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MMA 707-3030, UMTS Band Data

Figure 13.

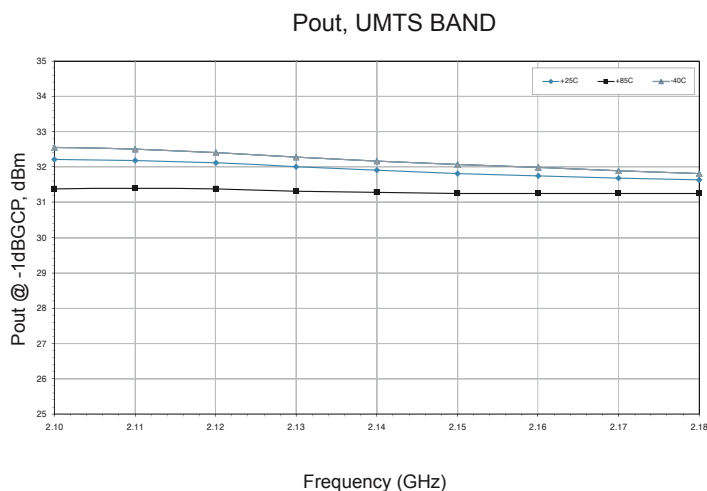


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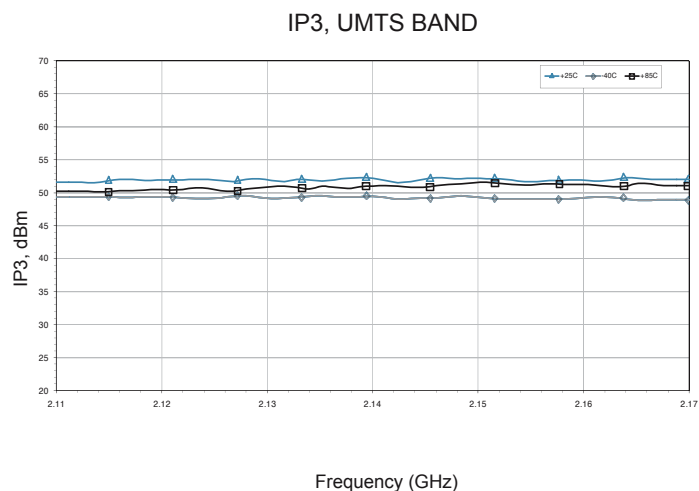


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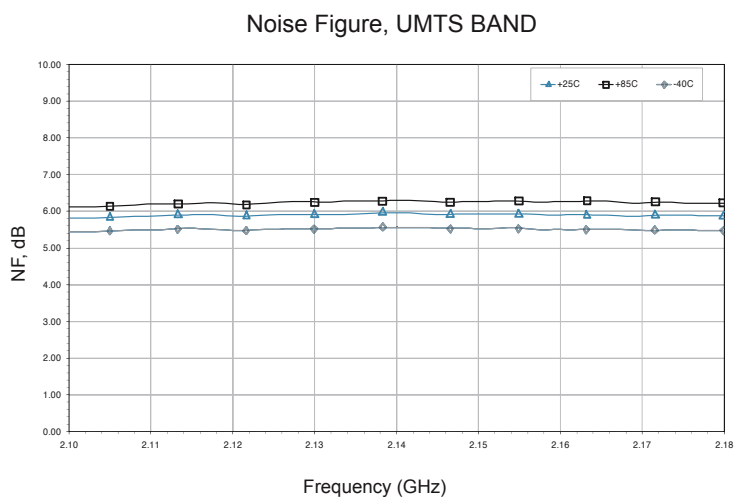
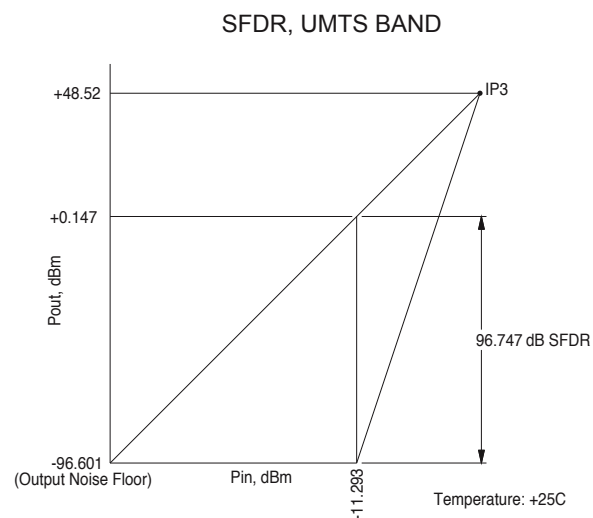
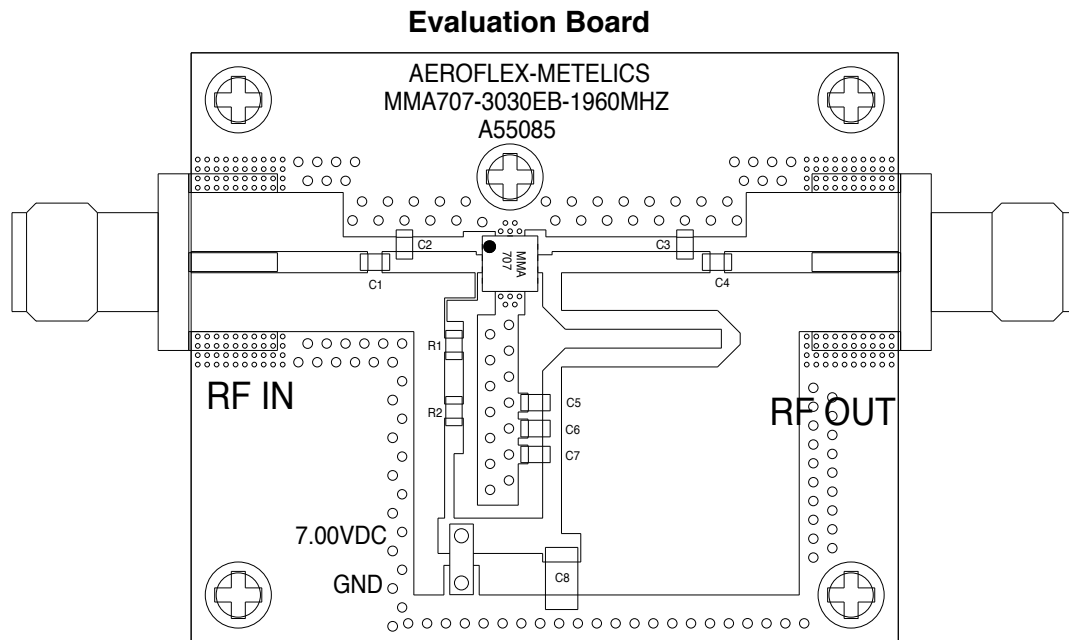


Figure 16.



PCS, UMTS Evaluation Board

Figure 17.



Reference	Units	1960MHz PCS	2140MHz UMTS	Manufacturer/Series
C1	pF	3.3	1.5	ATC 600S
C2	pF	2.2	1.5	ATC 600S
C3	pF	0.6	1.0	ATC 600S
C4	pF	1.8	1.8	American Technical Ceramics / ATC600S1R8AT250*T
C5	pF	33	33	American Technical Ceramics / ATC600S330KT250*T
C6	pF	220	220	MuRata / GRM39COG221J050AD
C7	uF	0.1	0.1	MuRata / GRM39Y5V104025AD
C8	uF	4.7	4.7	MuRata / GRM230Y5V475016AL
R1	Ohm	1.1k	1.1k	KOA / RM73B1J112J
R2	Ohm	390	390	KOA / RM73B1J391J

Board Material:

Rogers Corporation RO4003

0.020" thick, 1oz Copper both sides.

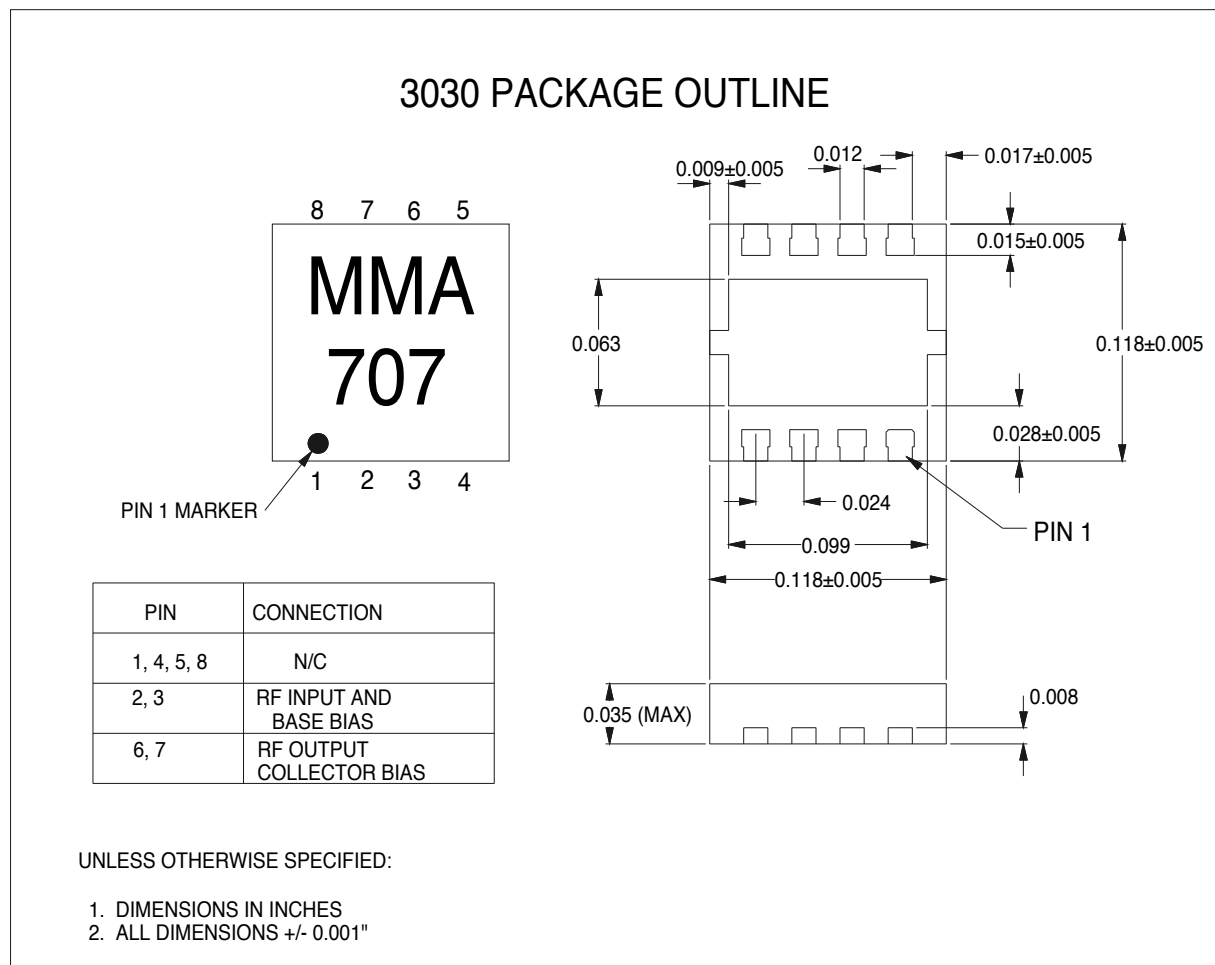
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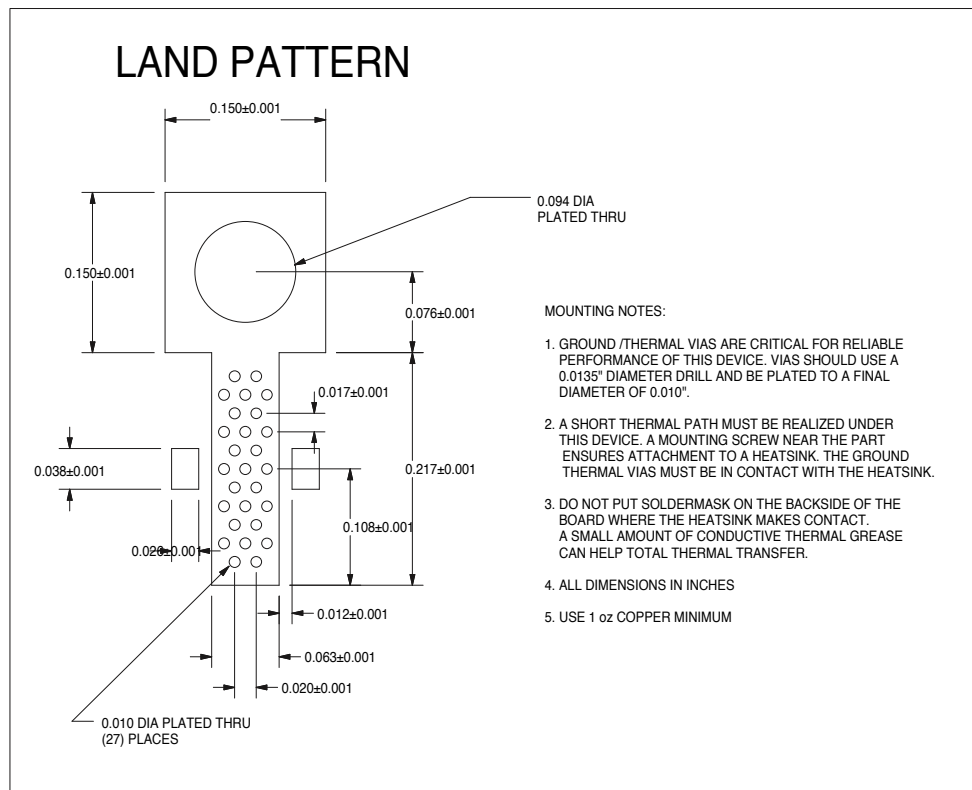
MMA707-3030 Package Outline

Figure 18.



MMA707-3030 Land Pattern

Figure 19.



Aeroflex / Metelics

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