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PACIFIC MONOLITHICS

GALLIUM ARSENIDE SYSTEMS

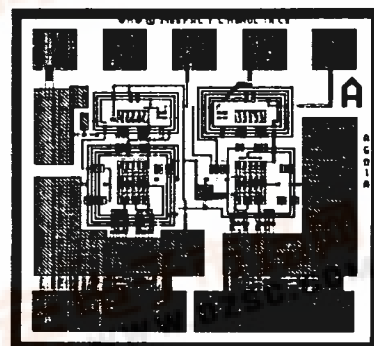
DATA SHEET

MODEL PM-AM0607

2-6 GHz MMIC CHIP AMPLIFIERS

FEATURES

10 dB GAIN
DIRECTLY CASCADABLE GAIN STAGE
LOW CURRENT
SINGLE SUPPLY VOLTAGE
SMALL SIZE



Pacific Monolithics MMIC amplifiers are easy-to-use gain stages. The components are small, highly reliable and highly efficient. Useful in almost any microwave system, these amplifiers may be used as stand-alone gain stages, or they may be directly cascaded for higher gains.

MIL STD 883 screening available

PERFORMANCE SPECIFICATIONS

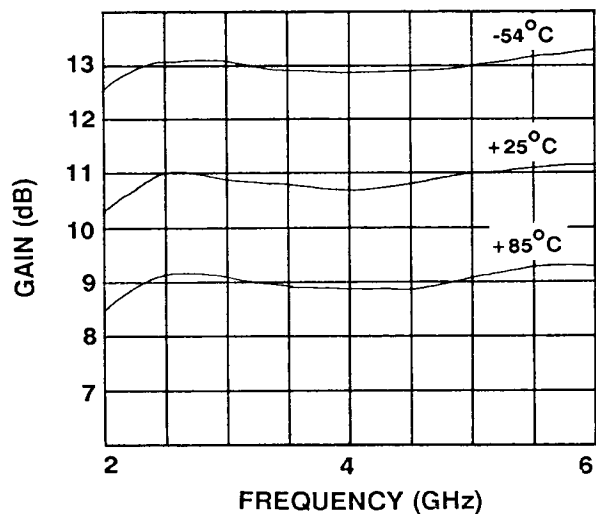
PARAMETER	MIN	TYP	MAX	UNITS
Small Signal Gain	9	10		dB
Gain Flatness			± 0.60	dB
Input VSWR			2.0:1	
Output VSWR			2.0:1	
Power Output (1 dB compression)	+3	+5		dBm
RF Input Power (CW)			20	dBm
Noise Figure		7	8	dB
Reverse Isolation	25	30		dB
Harmonics (at 1 dB Compression)	-20			dBc
Third Order Intercept Point	+13	+15		dBm
Current at 8 Volts		20	30	mA

Performance specifications guaranteed at 25°C

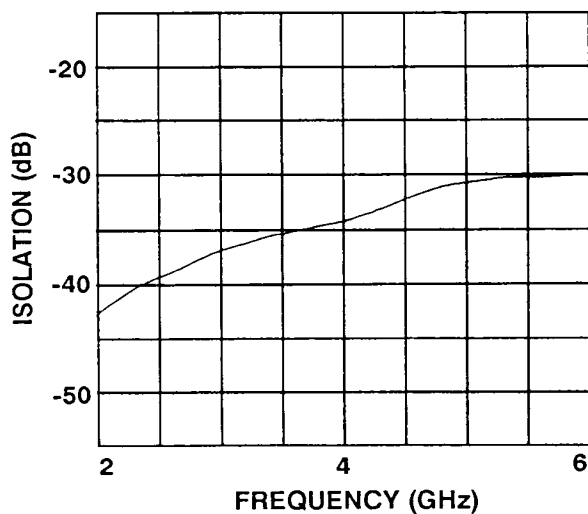


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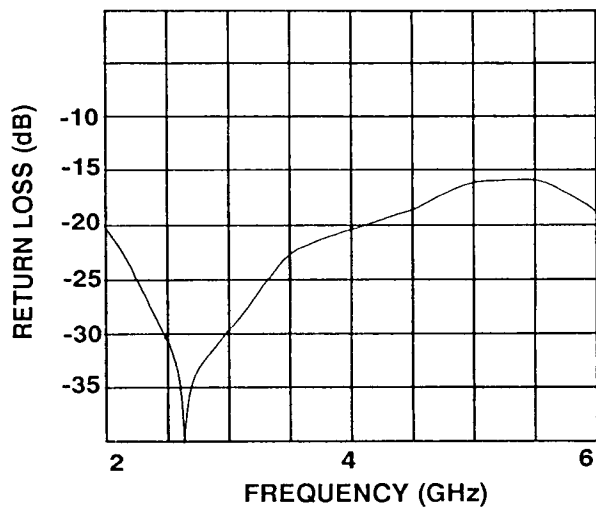
GAIN RESPONSE OVER TEMPERATURE



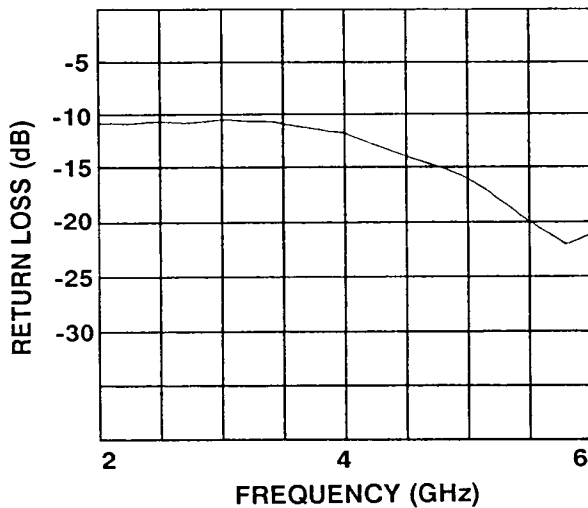
ISOLATION



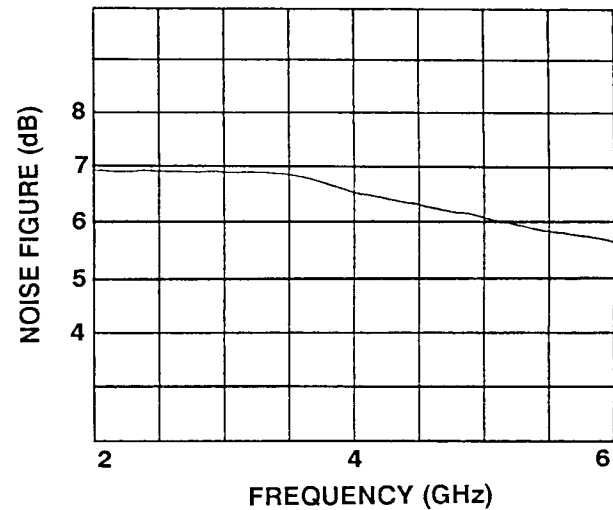
INPUT RETURN LOSS



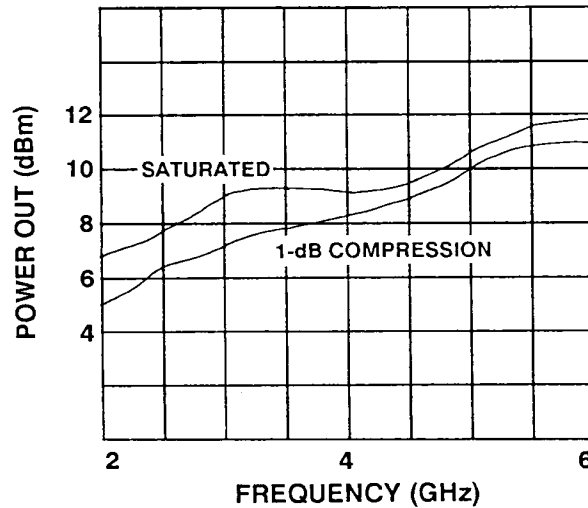
OUTPUT RETURN LOSS



NOISE FIGURE



POWER OUTPUT

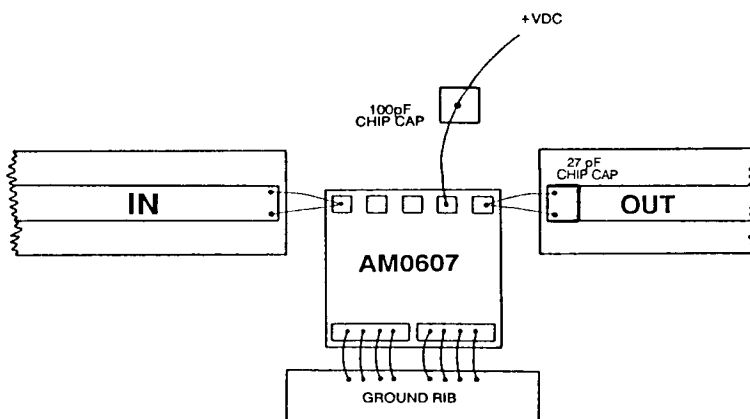


S-PARAMETERS

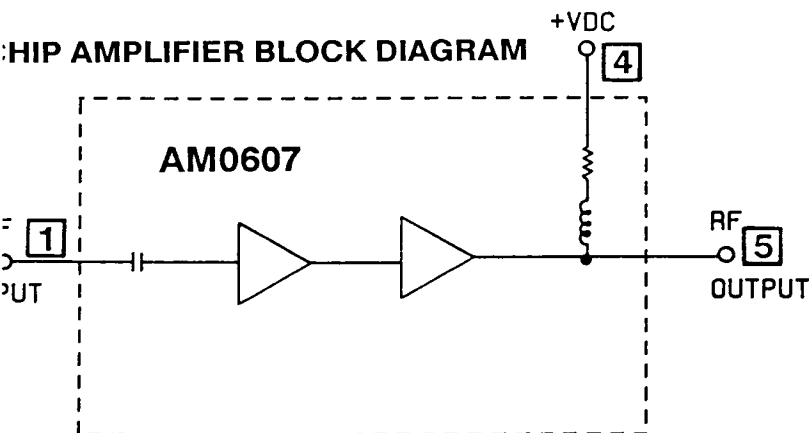
(Including bond wires as shown in assembly diagram)

Frequency	S_{11}	S_{21}	S_{12}	S_{22}
1.50 GHz	0.171 -65.67	2.560 11.03	0.004 160.11	0.208 125.26
2.00 GHz	0.104 -76.00	3.440 -25.61	0.009 131.97	0.199 109.01
2.50 GHz	0.030 -71.22	3.811 -62.64	0.012 120.96	0.201 100.89
3.00 GHz	0.055 18.26	3.803 -94.91	0.015 104.10	0.209 88.35
3.50 GHz	0.107 9.25	3.688 -121.34	0.016 90.68	0.206 73.79
4.00 GHz	0.143 -11.47	3.595 -145.82	0.020 83.31	0.195 56.34
4.50 GHz	0.174 -33.67	3.580 -168.25	0.023 77.25	0.184 36.34
5.00 GHz	0.196 -54.39	3.597 168.75	0.026 63.14	0.182 13.13
5.50 GHz	0.200 -76.57	3.656 146.17	0.030 55.17	0.189 -10.87
6.00 GHz	0.174 -99.74	3.706 121.48	0.031 40.75	0.192 -36.29
6.50 GHz	0.121 -118.30	3.686 95.46	0.029 23.00	0.190 -65.66

ASSEMBLY DIAGRAM

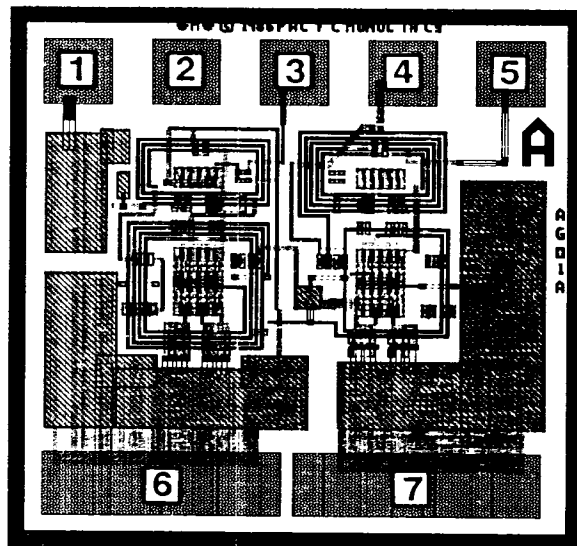


CHIP AMPLIFIER BLOCK DIAGRAM



CHIP SIZE: 36 x 36 MIL

- | | |
|------------|-------------|
| 1 RF INPUT | 5 RF OUTPUT |
| 2 NC | 6 GROUND |
| 3 NC | 7 GROUND |
| 4 +8 VDC | |



Handling, Assembly and Storage Recommendations for Pacific Monolithics GaAs MMIC Die

General

The same precautions which apply to discrete GaAs microwave FETs should be observed for GaAs MMICs.

Normal ESD protection measures should be observed.

No voltages which exceed the maxima recommended in the device data sheet should ever be applied, even instantaneously. All assembly and test equipment must be constructed to observe this very important precaution.

Assembly

This particular MMIC is supplied without backside metalization and thus requires epoxy die attach. A high purity, fine-grain, electrically conductive epoxy (such as Ablebond 84-1LMI) is recommended as the attachment material, and its glass transition temperature should be above the stage temperature of the wirebonder. Larger devices should be attached to a material with a good thermal expansion match to GaAs.

Thermosonic wedge or ball bonding wire up to 1.3 mil in diameter has been used successfully on GaAs MMICs with epoxy die attach. The same equipment and bonding parameters used on discrete GaAs microwave FETs generally will provide reliable bonds to GaAs MMICs. For epoxy die attached devices, thermosonic bonding will ordinarily be required in order to keep the stage temperature below the glass transition temperature of the epoxy. High-purity gold wire with 2 - 5% elongation and 1 mil (25 microns) or smaller diameter is recommended.

Long-Term Storage

Pacific Monolithics' GaAs MMICs are fabricated with a high-integrity, gold-based metalization system and are glassivated for further environmental protection. No shelf-life problems have been observed, provided that the maximum passive storage temperature is not exceeded and the devices are stored in ordinary cleanroom conditions. The customer may wish to store them in a desiccator purged with clean, dry nitrogen as added protection.

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