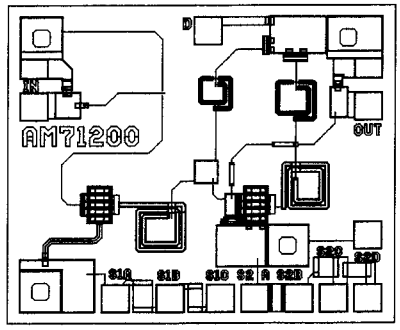
Low Noise GaAs MMIC Amplifier
7.5 -12 GHz

MAAM71200

V 2.00

Features

- 2.3 dB Typical Noise Figure[1]
- 16.5 dB Typical Gain[1]
- Low Bias Current
- Single Bias Supply
- On-Chip Bias Network
- DC Decoupled RF Input and Output



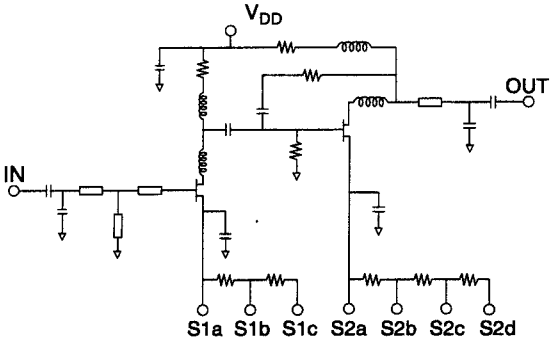
Electrical Specifications @ T_A= +25°C

Frequency Range			7.5 – 12.0 GHz
Gain[1]		16.5 dB Typ	15.0 dB Min
Gain Flatness			±0.8 dB Typ
Noise Figure[1]		3.2 dB Max	2.3 dB Typ
VSWR[1]	Input		1.8:1 Typ
	Output		1.5:1 Typ
Third Order Intercept			+22 dBm Typ
Output Power at 1 dB Gain Compression			+12 dBm Typ
Reverse Isolation			30 dB Typ
Impedance			50Ω Nominal
Bias Voltage			V_{DD} = +4 Vdc
Bias Current			I_{DD} = 40 mA Typ, 55 mA Max

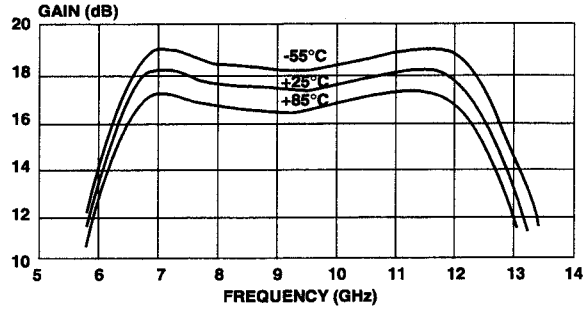
Maximum Ratings

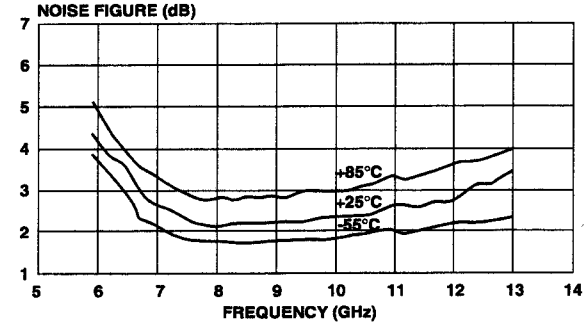
Voltage	+7 Volts
Input Power	+20 dBm
Storage Temperature	–65°C to +150°C
Operating Temperature	–55°C to +125°C

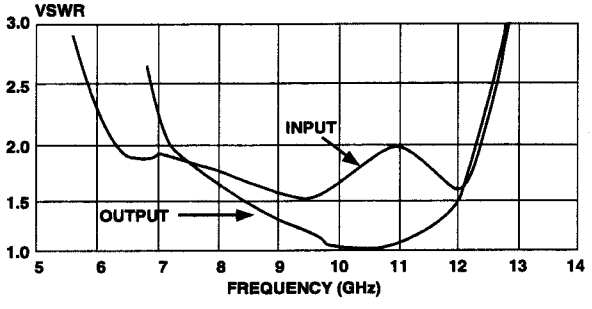
1. 100% on-wafer tested.



Typical Performance







North America: Tel. (800) 366-2266 Fax (800) 618-8883 ■ Asia/Pacific: Tel. +81 (03) 3226-1671 Fax +81 (03) 3226-1451 ■ Europe: Tel. +44 (1344) 869 595 Fax +44 (1344) 300 020

Handling

Permanent damage to the MAAM71200 may occur if the following precautions are not adhered to:

A. Cleanliness — The MAAM71200 should be handled in a clean environment. DO NOT attempt to clean assembly after the MAAM71200 is installed.

B. Static Sensitivity — All die handling equipment and personnel should comply with DOD-STD-1686 Class I.

C. Transients — Avoid instrument and power supply transients while bias is connected to the MAAM71200. Use shielded signal and bias cables to minimize inductive pick-up.

D. General Handling — DO NOT touch the surface of the die. It is recommended that the MAAM71200 die be handled along the long side with a sharp pair of tweezers.

Mounting

The MAAM71200 is back-metallized with Pd/Ni/Au (100/1,000/30,000Å) metallization. It can be die-mounted using Au/Sn eutectic preforms or a thermally and electrically conductive epoxy.The attachment surface should be clean and flat.

Eutectic Die Attach:

A. An 80/20 Au/Sn preform is recommended with a work surface temperature of approximately 255°C and a tool temperature of 265°C. When hot 95/5 nitrogen/hydrogen gas is applied, solder temperature should be approximately 290°C.

B. DO NOT expose the MAAM71200 to a temperature greater than 320°C for more than 20 seconds. No more than 3 seconds of scrubbing should be required for attachment.

Epoxy Die Attach:

A. Electrically conductive epoxy is required.

B. Apply a minimum amount of epoxy and place the MAAM71200 into position. A thin epoxy fillet should be visible around the perimeter of the die.

C. Cure epoxy per manufacturer's recommended schedule.

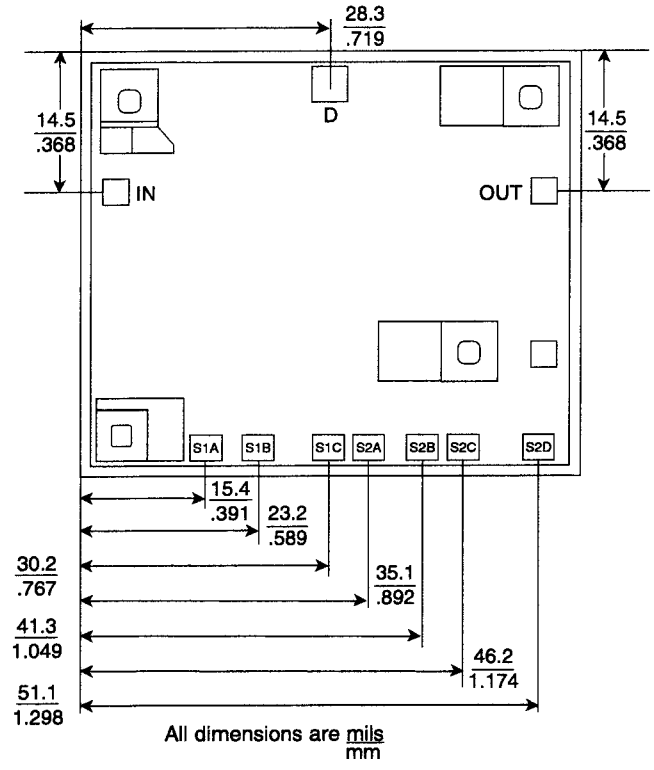
Bonding

A. Ball or wedge bond with 1.0 mil diameter gold wire or 3.0 mil x 0.5 mil ribbon. Thermosonic bonding with a nominal stage temperature of 150°C and a ball bonding force of 40 to 50 grams or wedge bonding force of 18 to 22 grams is recommended. Ultrasonic energy and time should be adjusted to the minimum levels necessary to achieve reliable bonds.

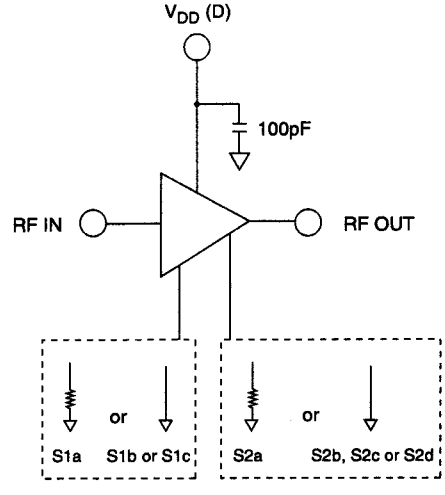
B. Bonds should be started on the die and terminated on the package.

C. Bonding pads are 4.0 x 4.0 mils.

Outline



Die Size 55.1 x 45.3 x 4.0
(1.40 mm x 1.15 mm x 0.102 mm)



1. Nominal bias is obtained with on-chip resistors by grounding pads S1b and S2b.
2. Ground pads S1b and S2c for lower current or ground pads S1c and S2d for lowest current using on-chip resistors.
3. Optional biasing can be obtained with external resistors bonded to pads S1a and S2a. Adjusting the bias can customize the performance to suit special requirements.

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