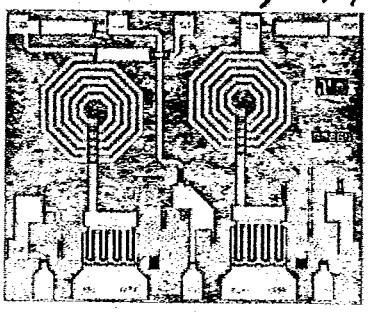
MODEL AM-260 GaAs MMIC AMPLIFIER CHIP 2-8 GHz GAIN: 8 dB

T-74-13-01

Monolithic Amplifier Chip
10 dB Gain Block
On Chip Bias Network



Guaranteed Specifications*

(From −55°C to +85°C Case Temp)

Frequency Range	2-8 GHz
Gain (+25°C) @4 GHz	8.0 dB Min
Frequency Response	±1.5 dB Max
Gain Variation with Temperature	±2.0 dB Max
VSWR	2.5:1 Max

Operating Characteristics

Impedance	50 Ohms Nominal
Output Power (1 dB Compression)	+12 dBm Typ
Noise Figure	6.5 dB Typ
Reverse Transmission	−35 dB Typ
Maximum Rating	
RF Input	+10 dBm Max
Intermodulation Intercept Point (for two-tone output power up to 0 dBm)	
Second Order	+30 dBm Typ
Third Order	+25 dBm Typ
Bias Power	
V_{D1}	+3 to +5 VDC @ 35 mA Typ, 70 mA Max
V_{D2}	+3 to +5 VDC @ 45 mA Typ, 80 mA Max
V_G	−1 to −2 VDC @ 10 μA Typ, 200 μA Max
Die Size	0.058 x 0.048 x 0.010 inch (1.45 x 1.20 x 0.25 mm)

Environmental

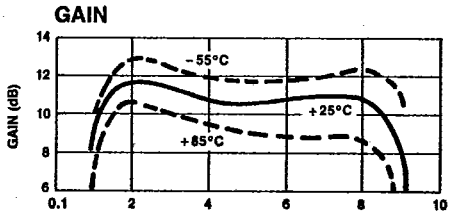
These units are designed to meet or exceed the following:

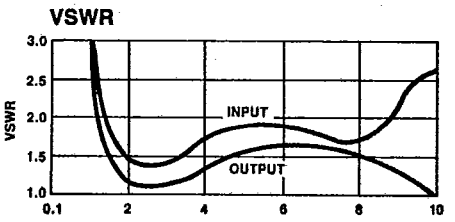
Test	Notes
Electrical	100% probing @25°C for selected parameters
Visual Inspection	100% with reference to MIL-STD-883 Method 2010, Condition B.
Lot Traceability	Supplied on request.

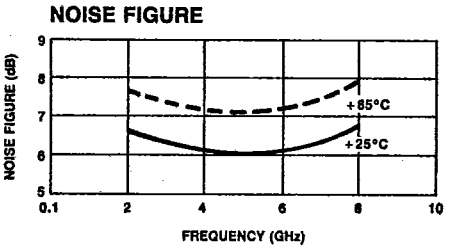
*All specifications apply when operated at $V_{D1} = V_{D2} = 4$ VDC, $V_G = -1.5$ VDC, with 50 ohm source and load impedance connected to IC with 0.0007 inch Au wire bonds.

For mounting and bonding instructions, see page 85.

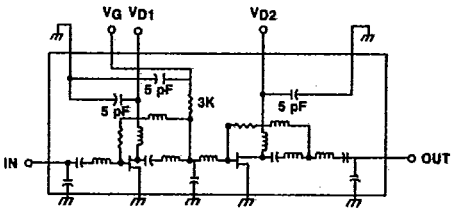
Typical Performance







Schematic



Ordering Information

Model No.	Part No.	Connector	Unit Price (1-24 Units)
AM-260	8950	Chip	$75

Delivery is from stock.

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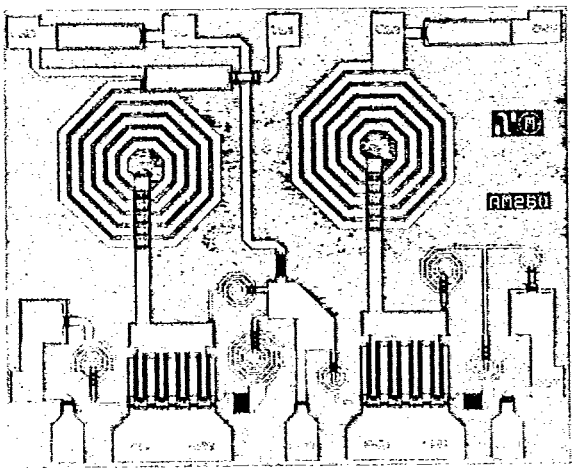
AM-260 Handling, Mounting, Bonding Procedure

Maximum Ratings

A. Drain Voltages: +5 Vdc
B. Drain Currents: +80 mA
C. RF Input Power: +13dBm
D. Operating Temperature: +125°C
E. Storage Temperature: -65°C to +175°C



BondPad Dimensions Inches (mm)

0.003 x 0.003
(0.080 x 0.080)

0.003 x 0.012
(0.080 x 0.294)

Die Size Inches (mm)

0.058 x 0.048 x 0.010
(1.47 x 1.22 x 0.25)

Handling Precautions

Permanent damage to the AM-260 may occur if the following precautions are not adhered to:

A. Cleanliness — The AM-260 should be handled in a clean environment. DO NOT attempt to clean unit after the AM-260 is installed.
B. Static Sensitivity — All chip handling equipment and personnel should be DC grounded.
C. Transients — Avoid instrument and power supply transients while bias is applied to the AM-260. Use shielded signal and bias cables to minimize inductive pick-up.

Mounting

The AM-260 is back-metallized with TiPtAu (300/1000/5000Å) metallization. It can be die-mounted with AuSn eutectic preforms or with thermally conductive epoxy. The package surface should be clean and flat before attachment.

Eutectic Die Attach:

A. A 80/20 gold/tin preform is recommended with a work surface temperature of approximately 255°C and a tool temperature of 265°C. When hot 90/10 nitrogen/hydrogen gas is applied, tool tip temperature should be approximately 290°C.
B. DO NOT expose the AM-260 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. Preheat assembly to 125-150°C. Apply a minimum amount of epoxy and place the AM-260 into position. A thin epoxy fillet should be visible around the perimeter of the chip.
B. Cure epoxy per manufacturer's recommended schedule.
C. Electrically conductive epoxy may be used but is not required.

Wire Bonding

A. Thermosonic wedge wire bonding of 0.001 diameter pure gold wire is recommended with a nominal stage temperature of 150°C and a bonding force of 18 to 22 grams. Ultrasonic energy and time should be adjusted to the minimum levels required to achieve reliable wirebonds.
B. Wirebonds should be started on the chip and terminated on the package. RF bonds should be as short as possible; every ground pad should be bonded to the package.