

**MODEL AT-200****GaAs MMIC ABSORPTIVE VVA**
DC - 5 GHz

Low Insertion Loss, 1.2 dB Typical
Fast Switching Speed, 4 ns Typical
Ultra Low DC Power Consumption
Outstanding Flatness

Guaranteed Specifications*

(From -55°C to +85°C)

Frequency Range		DC - 5 GHz
Insertion Loss	DC - 5 GHz	1.8dB Max
	DC - 2 GHz	1.5dB Max
	DC - 1 GHz	1.1dB Max
VSWR	DC - 5 GHz	1.7:1 Max
	DC - 2 GHz	1.5:1 Max
	DC - 1 GHz	1.2:1 Max
Attenuation	DC - 5 GHz	20dB Min
Flatness (Peak - Peak)	DC - 5 GHz	2.5dB Max
	DC - 2 GHz	1.5dB Max
	DC - 1 GHz	1.0dB Max
Attenuation vs. Temperature	0 to 10dB Att.	± 0.6dB
	20dB Att.	± 2.5dB

Operating Characteristics**Impedance** 50 Ohms Nominal**Switching Characteristics**

trise, tfall (10% to 90%)	4ns Typ
ton, toff (50% CTL to 90%/10% RF)	8ns Typ
Transients (in band)	10mv Typ

Input Power for 1dB Compression

Attenuation Level	0dB	20dB	
.05 GHz to 5 GHz	+16	+11	dBm Typ

Intermodulation Intercept Point

(for two-tone input power up to +5dBm)

Intercept points	IP2	IP3	
.05 GHz to 5 GHz	+25	+13	dBm Typ

Control Voltages

A Input (Shunt FETS)	-1.5 to -4V @ 100 μ A Max
B Input (Series FETS)	0 to -4V @ 100 μ A Max

Die Size 0.040" x 0.025" x 0.010"
(1.00mm x 0.60mm x 0.25 mm)

Environmental

These units are designed to meet or exceed the following: Electrical 100% probing @ 25°C for selected parameters. Visual 100% per MIL-STD-883 Method 2010 Condition B. Lot traceability supplied on request.

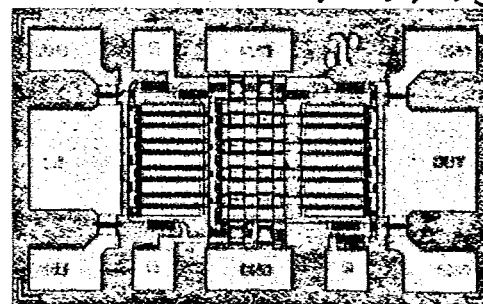
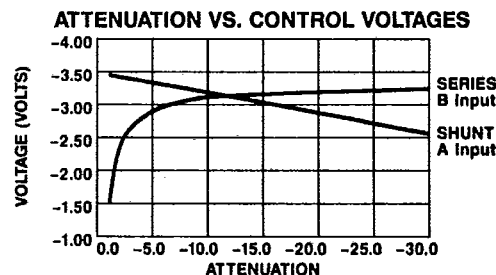
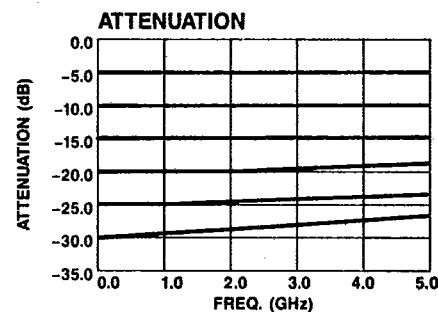
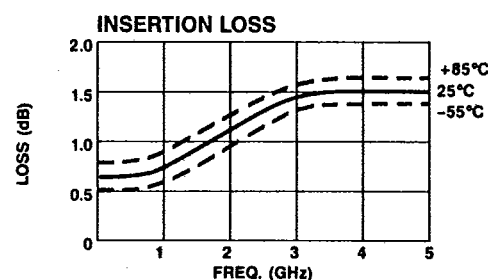
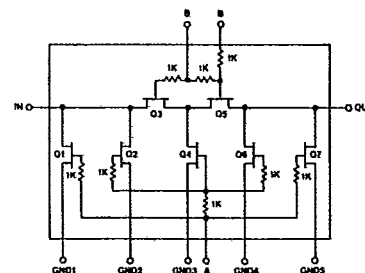
*All specifications apply with 50 ohm impedance at RF ports and 0 and -5 VDC control voltages.

†Faster switching speed can be achieved with enhanced driver waveform. Switching speed is measured between 20dB and 2dB attenuation levels.

Ordering Information

Model No.	Part No.	Connectors	Unit Price (1-49 Units)
AT-200	6032	CHIP	\$25

Delivery is from stock.

**Typical Performance****Schematic****ANZAC****Make the Connection...**

80 Cambridge Street, Burlington, MA 01803 Fax (617) 273-1921

For Technical Information, Call (617) 273-3333

200

Adams Russell
COMPONENTS GROUP

For Ordering Information, Call (617) 273-3333

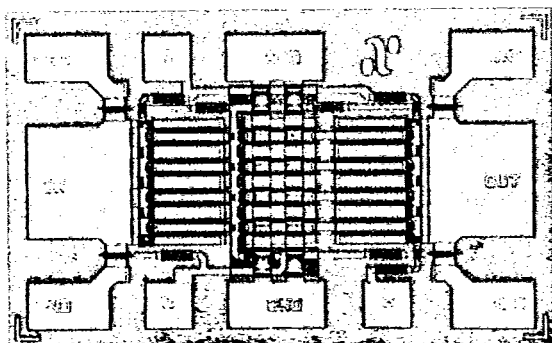


MODEL AT-200 Handling, Mounting, Bonding Procedure

T-74-13-01

Maximum Ratings

- A. Control Voltage (A or B): -8.5Vdc
- B. Max Input RF Power: +25 dBm
- C. Storage Temperature: -65°C to +175°C
- D. Maximum Operating Temperature: +175°C



BondPad Dimensions Inches (mm)

In, Out: 0.007 x 0.007
(0.18 x 0.18)

GND: 0.003 x 0.006
(0.08 x 0.16)

A, B: 0.003 x 0.003
(0.08 x 0.08)

Die Size Inches (mm)

0.040 x 0.025 x 0.010
(1.00 x 0.60 x 0.25)

Handling Precautions

Permanent damage to the AT-200 may occur if the following precautions are not adhered to:

- A. Cleanliness – The AT-200 should be handled in a clean environment. DO NOT attempt to clean unit after the AT-200 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 AT-200. Use shielded signal and bias cables to minimize inductive pick-up.
- D. Bias – Apply voltage to either control port A or B only when the other is biased. Neither A nor B should be allowed to "float."
- E. General Handling – It is recommended that the AT-200 chip be handled with a sharp pair of bent tweezers. DO NOT touch the surface of the chip with fingers or tweezers.

Mounting

The AT-200 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 AT-200 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 120-150°C. Apply a minimum amount of epoxy and place the AT-200 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; at least three and no more than four bond wires from ground pads to package are recommended.