

### Product Features

- DC to 3.5GHz
- +16 dBm P-1dB at 2GHz
- +25 dBm OIP3 at 2GHz
- 20 dB Gain at 2GHz
- 3.5 dB Noise Figure
- Internally-Matched to 50  $\Omega$
- SOT-89 Lead-Free/green package
- Available as bare die

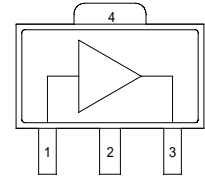
### Product Description

The GSA503-89 is a 50 Ohm matched General Purpose Gain Block Amplifier that covers the 1MHz to 3GHz frequency range with 20 dB nominal gain at 2GHz.

The GSA503-89 is a Darlington pair amplifier fabricated with high reliability InGaP/GaAs Heterojunction Bipolar Transistor (HBT) process. It only requires DC blocking capacitors, a bias stabilization resistor, Rbias, and a single RF choke for operation. The amplifier is ideal for wireless and test equipment applications. It is in a lead free/green RoHS compliant SOT-89 Surface Mount Transistor package.

This broadband RFIC can be used for current and next generation test equipment and wireless applications to 4GHz

### Package



Function	Pin No.
Input	1
Output/Bias	3
Ground	2,4

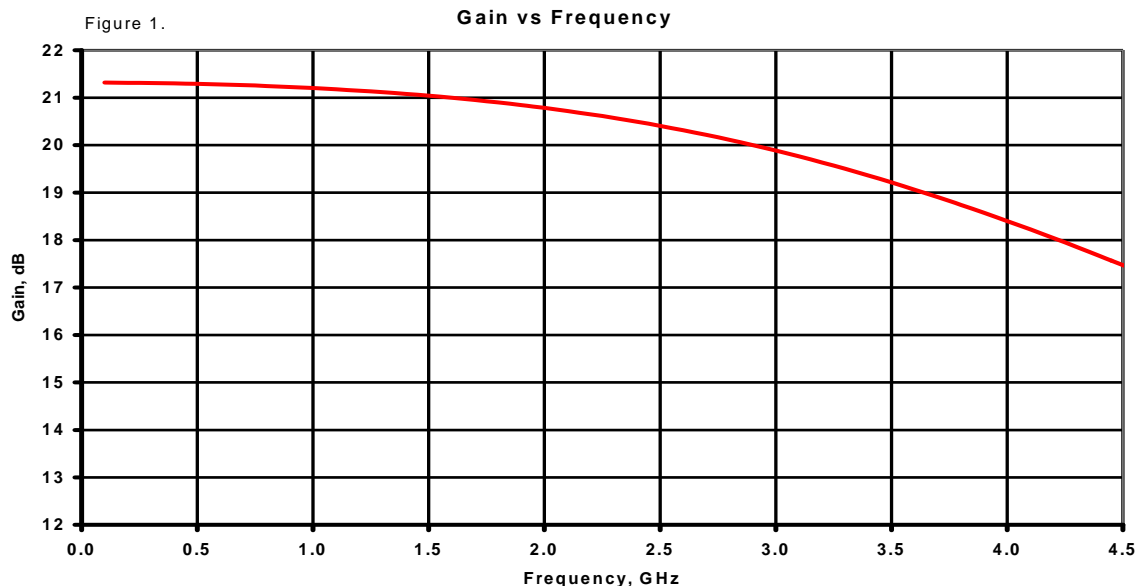
### Applications

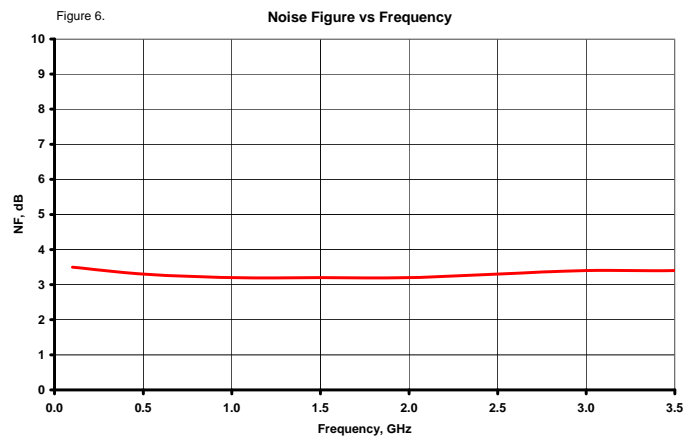
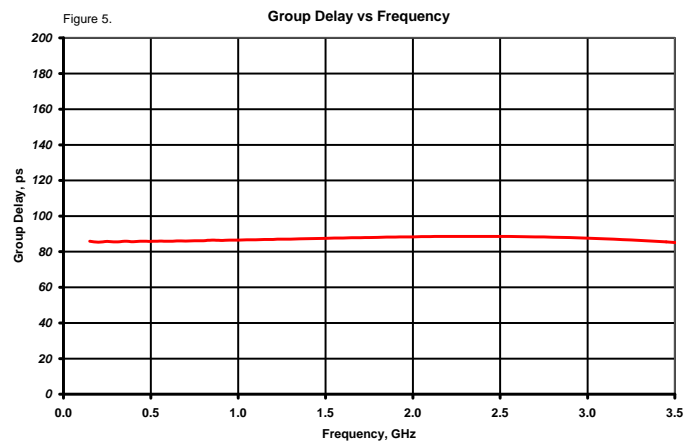
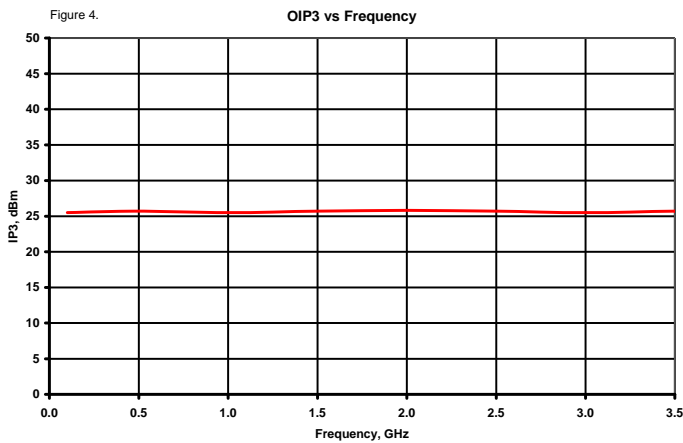
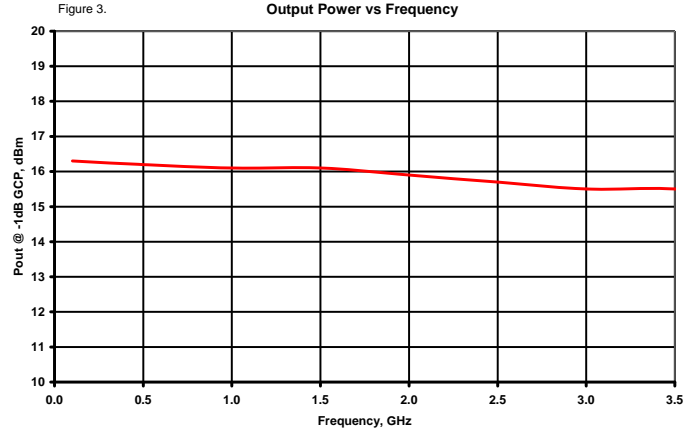
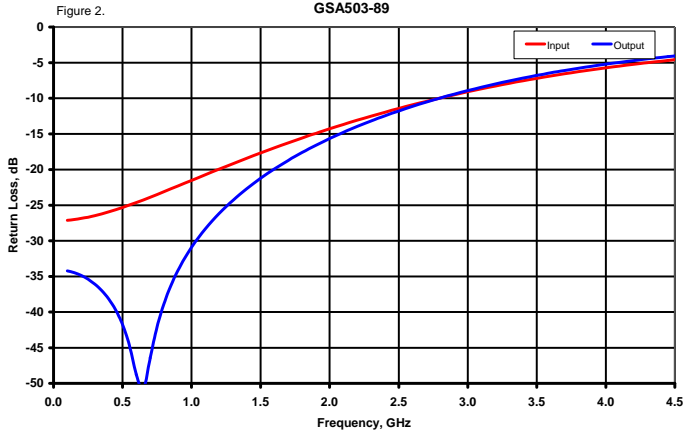
- Mobile infrastructure
- ISM
- WLAN
- RFID
- Test Equipment

### Specifications (1)

Parameter	Units	Min	Typ	Max
-3dB Bandwidth	MHz	DC		4000
Test Frequency	MHz		2000	
Gain	dB	19	20	
Pout @ -1dB GCP	dBm		+16	
Input Return Loss	dB		15	
Output Return Loss	dB		15	
OIP3	dBm		25	
Noise Figure	dB		3.5	

1. Test conditions unless otherwise specified: 25°C, Supply Voltage = +5.00V, Rbias=22 $\Omega$ , 50 Ohm System

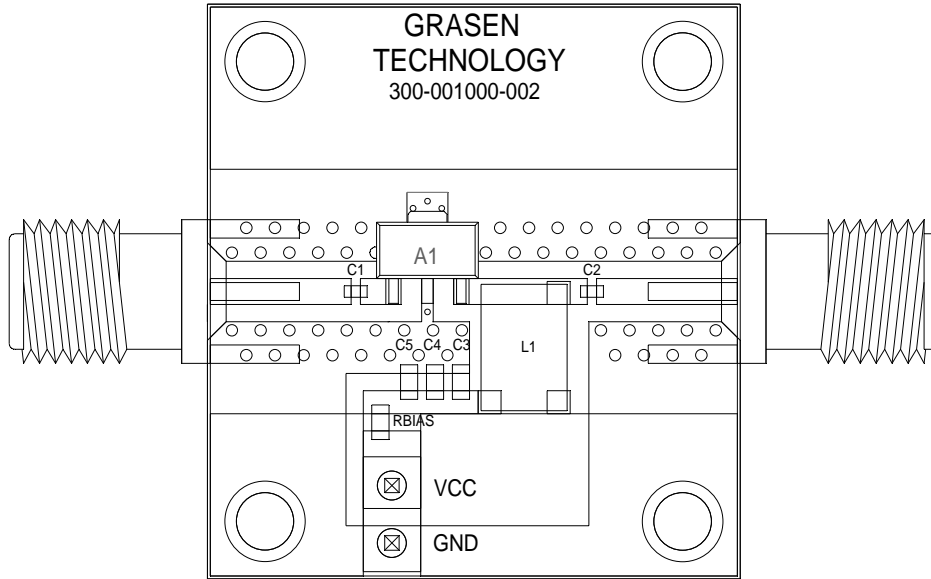




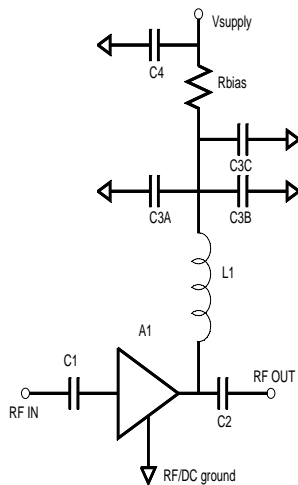
### Absolute Maximum Ratings

Parameter	Rating
Case Temperature, Operating	-40 to +85 °C
Storage Temperature	-55 to +150 °C
Device Current	80mA
RF Input Power, continuous	+10 dBm
Junction Temperature	250 °C

Operation of this device above any of these parameters will cause permanent damage.



Evaluation Board

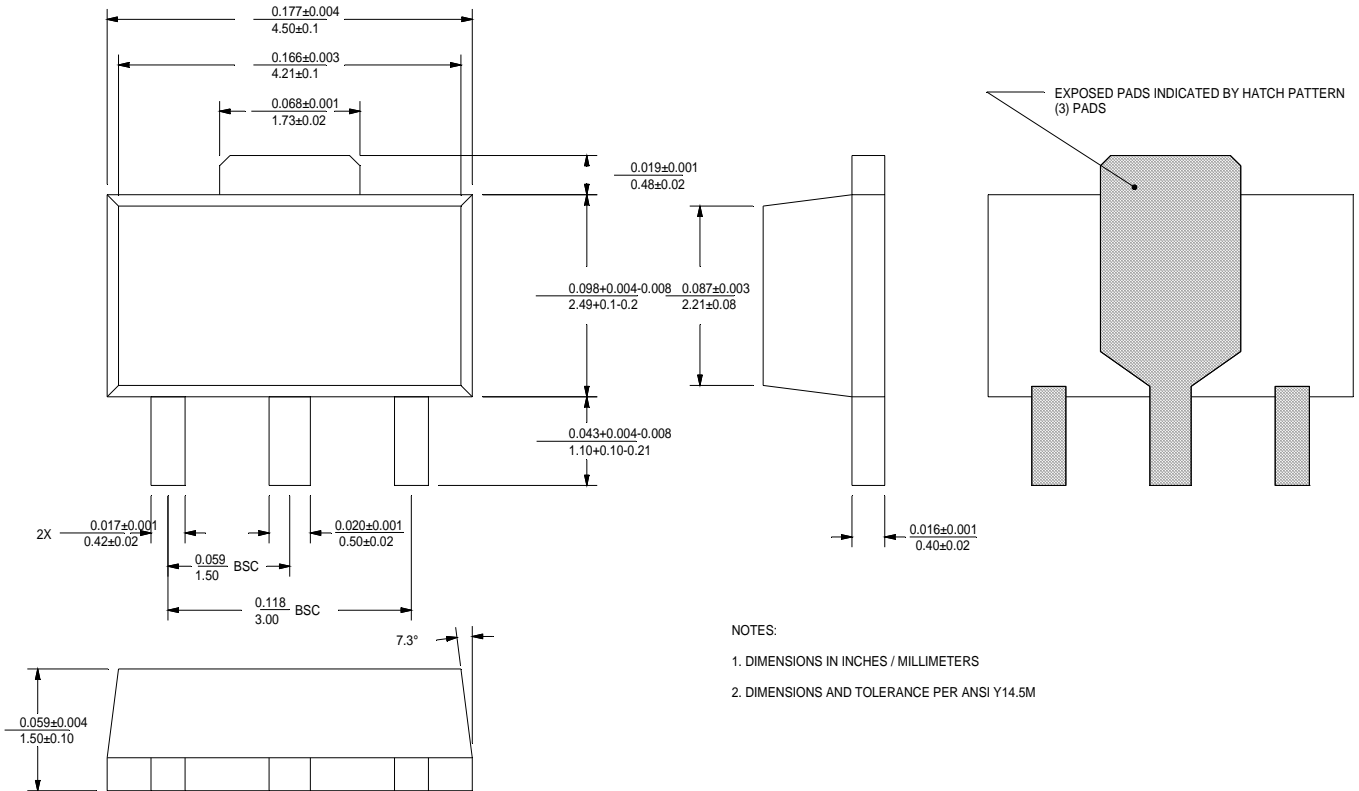


Application Schematic

Parts List: ( $V_{supply} = 5.00V_{dc}$ )

Rbias	22 Ohms	0603 size
C1, C2	10nF	0402 ATC520L103KT16T
C3A	10pF	0603
C3B	220pF	0603
C3C	0.1uF	0603
C4	4.7uF	1210
L1	8uH	Coilcraft BCS-802JLC

Note that Rbias is required for DC current stability with temperature.



SOT-89 Package outline

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