

X=330µm Y=325µm

Features

- ◆ RF Frequency: dc to 9 GHz
- ◆ Gain: 14 dB typ.
- ◆ Noise figure: < 6 dB
- ◆ P1dB: 10 dBm
- ◆ Chip Back is Ground
- ◆ Unconditionally Stable
- ◆ GaAs HBT technology
- ◆ Die Size: < 0.11 sq. mm

Performance Characteristics
(Ta = 25°C, Ic = 35mA)

Specification	Min	Typ	Max	Unit
Gain at 1 GHz		14		dB
±0.5dB bandw idth		5		GHz
3 dB bandw idth		9		GHz
P1dB		10		dBm
Reverse Insertion		20		dB
NF ≤ 1 GHz		5.5		dB
Input Return Loss ≤ 1 GHz		15		dB
Output Return Loss ≤ 1 GHz		15		dB
Supply voltage		4		V
Supply current		35		mA

Applications

- ◆ Driver Amplifier
- ◆ IF Amplifier
- ◆ Cellular/PCS
- ◆ Wireless LANs

Product Description

The AHB111 monolithic HBT Darlington amplifier designed for use as a general purpose 50-ohm gain block for terrestrial use. External dc blocking capacitors determine low-frequency response, and an external bias resistor gives bias voltage flexibility.

Absolute Maximum Ratings (Ta = 25°C)

Parameter	Min	Max	Unit
Supply Current		40	mA
Supply Voltage *		6	V
Input Drive		10	dBm
Operating Temperature		85	deg. C
Assy. Temperature (60 seconds)		300	deg. C

* VCC specified at bonding pad only

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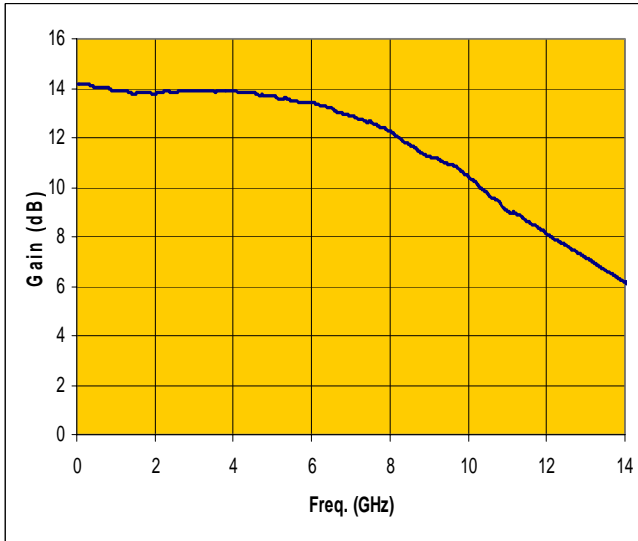
Product Datasheet **Discontinued 2/16/2006**

Revision: February 2006

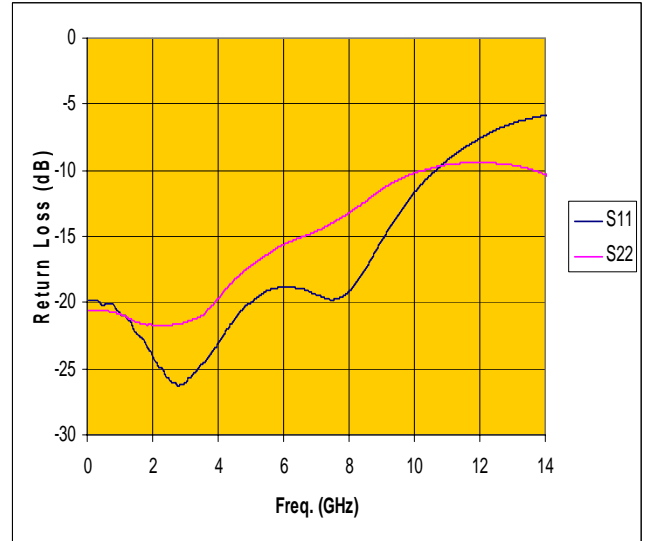
Typical Performance at 25°C

Performance is at $I_c = 35 \text{ mA}$

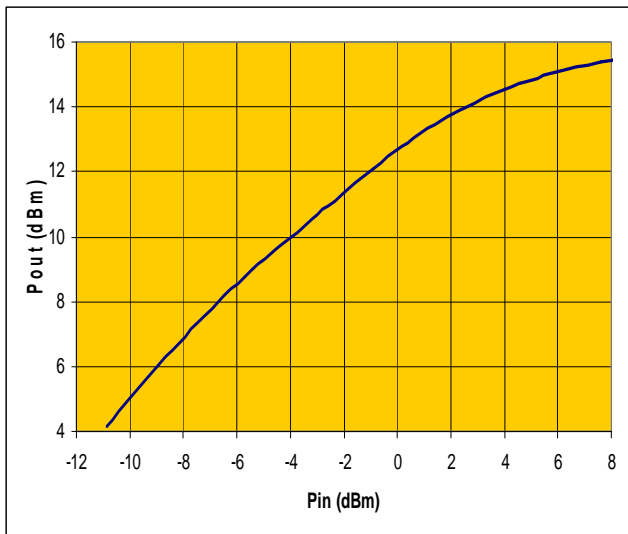
Linear Gain Versus Frequency



Return Loss Versus Frequency



Output Power Versus Input Power



$P_{1dB} = +10\text{dBm}$

Freq. = 2GHz

$I_c = 35\text{mA}$

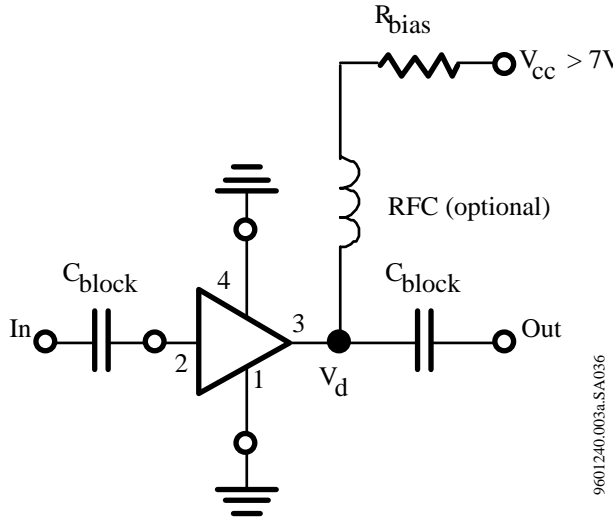
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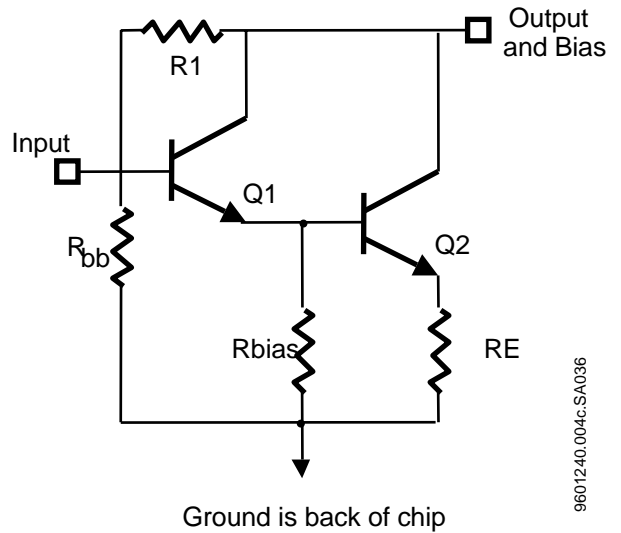
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Typical Bias Configuration



9601240.003a.SA036

Simplified Schematic of MMIC

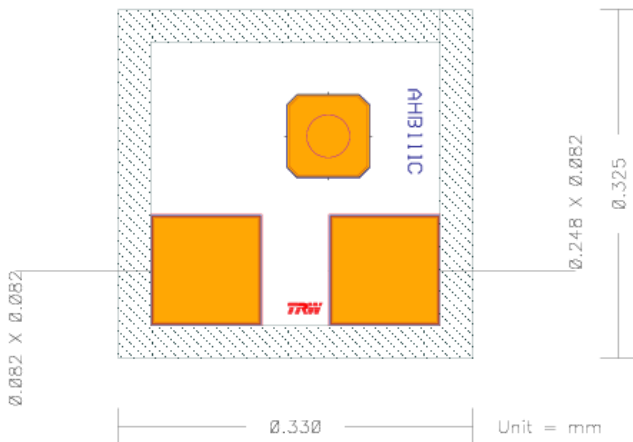


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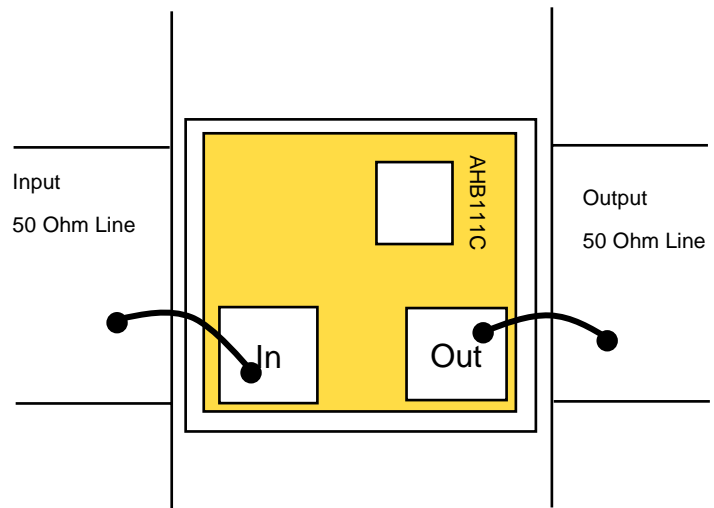
Note

Failure to use ≥ 1.5 V drop across R_{bias} may result in excessive device current at hot temperature and/or in overdrive conditions.

Die Size and Bond Pad Locations



Suggested Bonding Arrangement



Recommended Assembly Notes

- Chip input and output dc coupled.
- Backside of chip is ground.
- Third Pad is Ground via; do not bond.

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