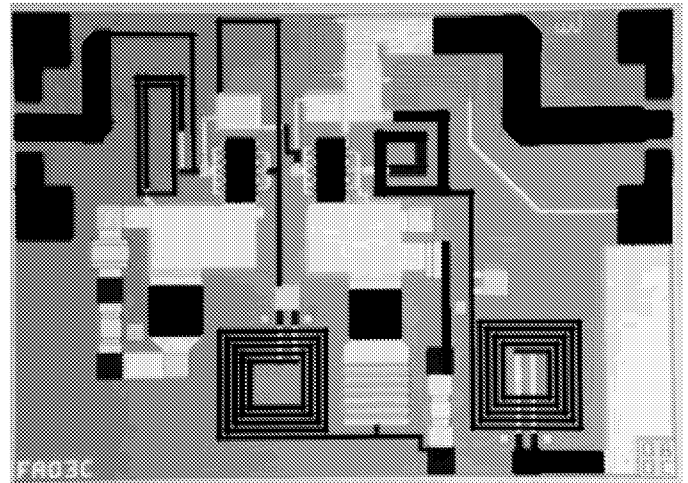




# ICA1007

## 2.0 to 8.0 GHz GaAs MMIC AMPLIFIER

- ◆ IDEAL FOR BUFFER, DRIVER, AND GAIN BLOCK APPLICATIONS
- ◆ SINGLE POWER SUPPLY: +11 V
- ◆ BROADBAND PERFORMANCE
- ◆ ON-CHIP BIAS NETWORK
- ◆ 100% ON-WAFER RF-TESTED
- ◆ TWO ON-CHIP BIAS OPTIONS



### Guaranteed Specifications\*

Characteristics	Minimum	Typical	Maximum
Small Signal Gain	10.0 dB	11.0 dB	
Low Current Bias		12.0 dB	
Small Signal Gain Flatness		±0.75 dB	
VSWR Input/Output		1.6:1	2.3:1
Power Output @1 dB Compression		15.0 dBm	
Low Current Bias	21.0 dBm		
Reverse Isolation		32.0 dB	
Noise Figure		6.1 dB	
Low Current Bias	6.8 dB		
3rd Order Output IP		25.0 dBm	
Low Current Bias	31.5 dBm		
DC Current @ +11 Volts		50 mA	65 mA
Low Current Bias		80 mA	120 mA
High Current Bias			

\* Measured in a 50Ω system at +25°C. S-Parameters are measured 100% on-wafer with low current bias.

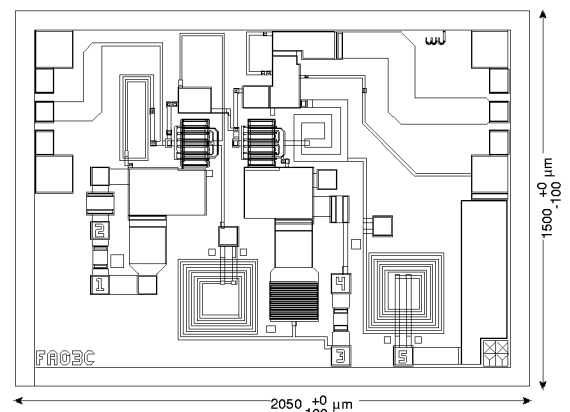
### Absolute Maximum Ratings

Storage Temperature .....-65°C to +150°C  
 Operating Temperature .....-55°C to +125°C  
 DC Voltage.....+13.5 Volts  
 Power Consumption .....1.6 Watts  
 CW RF Input Power.....+13.0 dBm

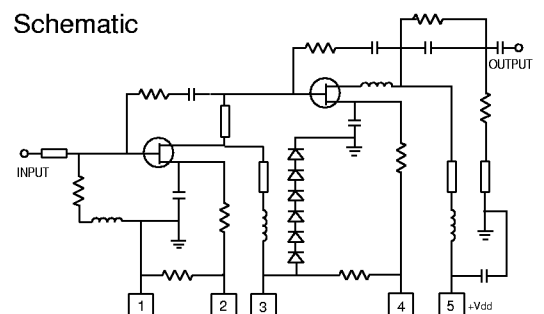
### Physical Characteristics

Chip Size: 2050 x 1500 x 120 μm (82 x 60 x 4.5 mils)  
 Bonding Pad Size: 75 μm sq (3 mils sq)  
 Bonding Pad and Back Side Metallization: Gold

ICA1007 Chip Outline

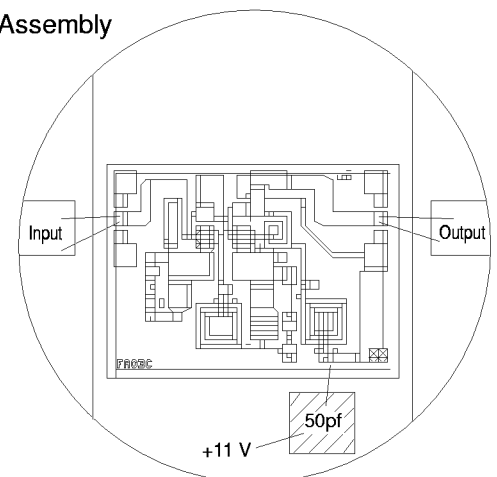


Schematic



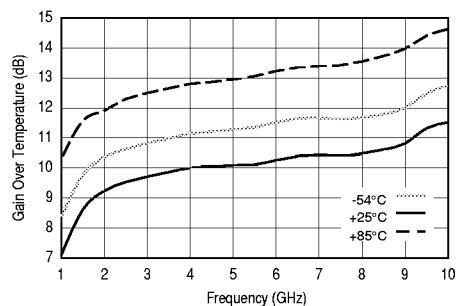
Configuration for Low Current Bias (11 V, 50 mA).  
 High Current Bias (11 V, 80 mA), bond Pad 1 to Pad 2, Pad 3 to Pad 4.

Assembly

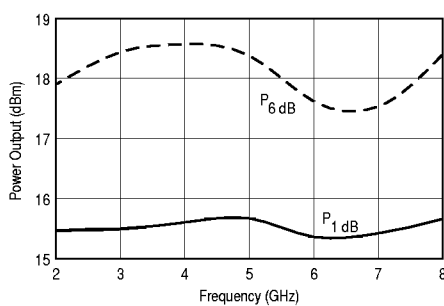


# WJ-ICA1007 Typical Performance (+11 V, 50 mA) and (+11 V, 80 mA)

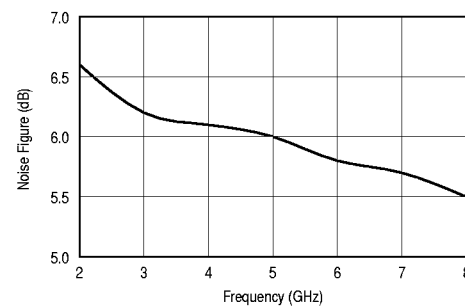
**Gain Over Temperature (+11 V, 50 mA)**



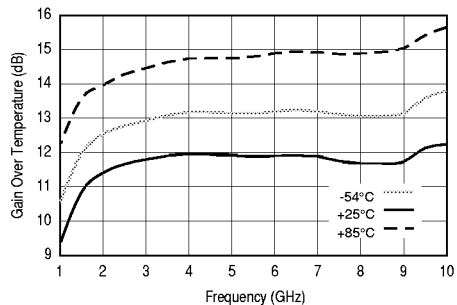
**Power Output (+11 V, 50 mA)**



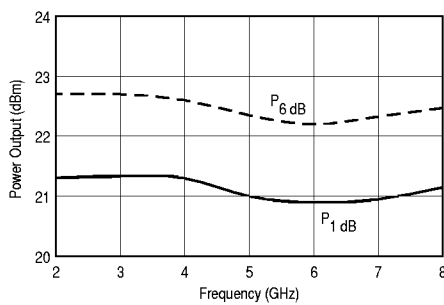
**Noise Figure (+11 V, 50 mA)**



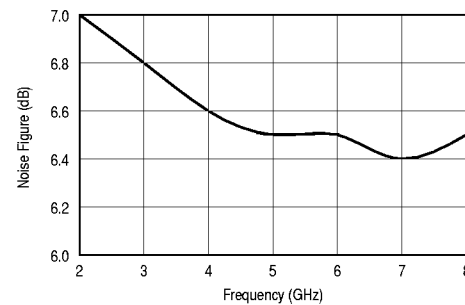
**Gain Over Temperature (+11 V, 80 mA)**



**Power Output (+11 V, 80 mA)**



**Noise Figure (+11 V, 80 mA)**



## Typical Automatic Test Data (+11 V, 50 mA)

### Linear S-Parameters

Frequency (GHz)	S11		S21		S12		S22	
	MAG (dB)	ANG (Deg)	MAG (dB)	ANG (Deg)	MAG (dB)	ANG (Deg)	MAG (dB)	ANG (Deg)
1.00	-14.80	-119.13	8.48	56.02	-32.73	52.04	-15.78	164.31
1.50	-15.22	-141.35	10.01	8.12	-31.53	27.73	-27.40	-127.49
2.00	-15.49	-157.03	10.57	-24.54	-31.19	12.87	-20.41	-107.51
2.50	-15.70	-168.82	10.85	-51.08	-31.12	1.66	-17.50	-114.06
3.00	-15.98	-178.11	11.07	-74.70	-31.23	-7.07	-15.79	-122.08
3.50	-16.27	174.19	11.24	-96.74	-31.43	-14.69	-14.64	-129.20
4.00	-16.63	167.85	11.37	-117.79	-31.77	-21.12	-13.72	-136.29
4.50	-17.28	164.27	11.48	-137.65	-31.98	-25.59	-13.25	-141.81
5.00	-17.53	162.66	11.61	-157.40	-32.37	-30.63	-12.54	-147.59
5.50	-17.73	162.78	11.76	-176.72	-32.65	-34.14	-12.05	-152.68
6.00	-17.67	164.07	11.87	164.00	-33.07	-37.34	-11.56	-158.34
6.50	-17.17	165.46	11.94	145.04	-33.45	-40.30	-11.16	-164.20
7.00	-16.54	167.62	12.03	126.56	-33.89	-39.61	-10.84	-168.83
7.50	-15.42	168.25	12.15	107.84	-34.00	-39.50	-10.38	-174.17
8.00	-14.16	167.18	12.24	89.12	-33.91	-38.79	-9.94	-179.59
8.50	-12.83	164.14	12.31	70.26	-33.70	-37.52	-9.56	-172.77
9.00	-11.49	159.67	12.36	51.33	-33.25	-36.85	-9.24	-165.33
9.50	-10.19	154.18	12.40	32.30	-32.61	-35.94	-8.93	-157.14
10.00	-8.92	147.36	12.40	12.86	-31.78	-36.50	-8.66	-147.88

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