



5 VOLT-SURFACE MOUNT

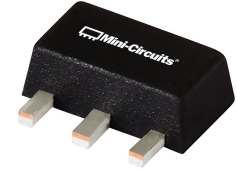
# Monolithic Amplifier

## GVA-82+

50Ω DC-7 GHz

### THE BIG DEAL

- Gain, 15 dB typ. at 100 MHz
- High Pout, P1dB 20 dBm typ.
- High IP3, 40 dBm typ. at 100 MHz
- Ruggedized design
- Fixed 5V operation
- Unconditionally stable
- Excellent ESD Protection
- Transient protected, US patent 6,943,629



Generic photo used for illustration purposes only

CASE STYLE: DF782

**+RoHS Compliant**

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

**LTE Performance**

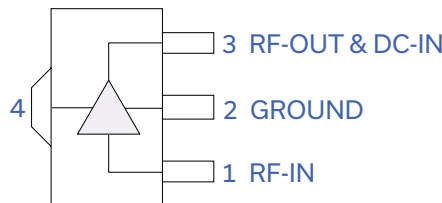
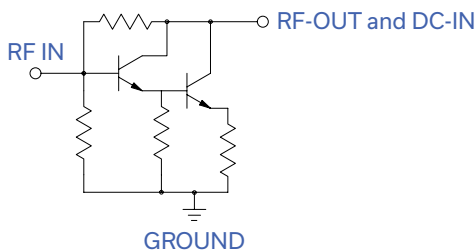
### APPLICATIONS

- Base station infrastructure
- Portable Wireless
- CATV & DBS
- MMDS & Wireless LAN
- LTE

### PRODUCT OVERVIEW

GVA-82+ (RoHS compliant) is a wideband amplifier offering high dynamic range. Lead finish is SnAgNi. It has repeatable performance from lot to lot and is enclosed in a SOT-89 package. It uses patented Transient Protected Darlington configuration and is fabricated using InGaP HBT technology.

### SIMPLIFIED SCHEMATIC AND PIN DESCRIPTION



Function	Pin Number	Description
RF IN	1	RF input pin. This pin requires the use of an external DC blocking capacitor chosen for the frequency of operation.
RF-OUT and DC-IN	3	RF output and bias pin. DC voltage is present on this pin; therefore a DC blocking capacitor is necessary for proper operation. An RF choke is needed to feed DC bias without loss of RF signal due to the bias connection, as shown in "Recommended Application Circuit", Fig. 2
GND	2,4	Connections to ground. Use via holes as shown in "Suggested Layout for PCB Design" to reduce ground path inductance for best performance.

REV. B  
ECO-010563  
GVA-82+  
210811



ELECTRICAL SPECIFICATIONS<sup>(1)</sup> AT 25°C AND 5V, UNLESS NOTED

Parameter	Condition (GHz)	Min.	Typ.	Max.	Units
Frequency Range <sup>(2)</sup>		DC		7	GHz
Gain	0.1	13.7	15.3	16.8	dB
	1.0	—	14.9	—	
	2.0	12.2	13.8	15.2	
	3.0	—	12.5	—	
	4.0	9.8	11.7	13.0	
	6.0	—	10.6	—	
	7.0	—	9.9	—	
Magnitude of Gain Variation versus Temperature <sup>(3)</sup> (values are negative)	0.1	—	0.0002	—	dB/°C
	1.0	—	0.0012	—	
	2.0	—	0.0020	0.005	
	3.0	—	0.0027	—	
	4.0	—	0.0037	—	
	6.0	—	0.0062	—	
	7.0	—	0.0108	—	
Input Return Loss	0.1	—	35.0	—	dB
	1.0	—	24.0	—	
	2.0	14.0	18.5	—	
	3.0	—	15.9	—	
	4.0	—	15.8	—	
	6.0	—	19.7	—	
	7.0	—	14.4	—	
Output Return Loss	0.1	—	17.7	—	dB
	1.0	—	15.7	—	
	2.0	9.0	12.3	—	
	3.0	—	10.8	—	
	4.0	—	10.0	—	
	6.0	—	10.9	—	
	7.0	—	10.5	—	
Reverse Isolation	2.0	—	23.6	—	dB
Output Power @1 dB compression	0.1	18.0	20.1	—	dBm
	1.0	18.0	20.1	—	
	2.0	18.0	20.6	—	
	3.0	—	20.6	—	
	4.0	—	20.2	—	
	6.0	—	18.2	—	
	7.0	—	18.2	—	
Output IP3	0.1	—	40.3	—	dBm
	1.0	—	38.0	—	
	2.0	34.0	36.0	—	
	3.0	—	34.3	—	
	4.0	—	32.7	—	
	6.0	—	31.0	—	
	7.0	—	30.9	—	
Noise Figure	0.1	—	6.5	8.0	dB
	1.0	—	6.6	—	
	2.0	—	6.6	8.2	
	3.0	—	6.8	—	
	4.0	—	6.9	—	
	6.0	—	7.5	—	
	7.0	—	8.2	—	
Group Delay	2.0	—	100	—	psec
Device Operating Voltage		4.8	5.0	5.2	V
Device Operating Current		90	106	120	mA
Device Current Variation vs. Temperature		—	70.5	—	µA/°C
Device Current Variation vs Voltage		—	0.038	—	mA/mV
Thermal Resistance, junction-to-ground lead		—	68	—	°C/W

(1) Measured on Mini-Circuits test board TB-313. See Characterization Test Circuit (Fig. 1)

(2) Guaranteed specification DC\*-7 GHz. \*Low frequency cut off determined by external coupling capacitors and RF Choke (RFC).

(3) (Gain at 85°C, Gain at -45°C)/130



### MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature (ground lead)	-40°C to 85°C
Storage Temperature	-65°C to 150°C
Operating Current at 5V	160mA
Power Dissipation	0.84W
Input Power	20 dBm
DC Voltage on Pin 3	5.8V

Permanent damage may occur if any of these limits are exceeded. Electrical maximum ratings are not intended for continuous normal operation. For continuous operation, do not exceed 5.2V device voltage.

### CHARACTERIZATION TEST CIRCUIT

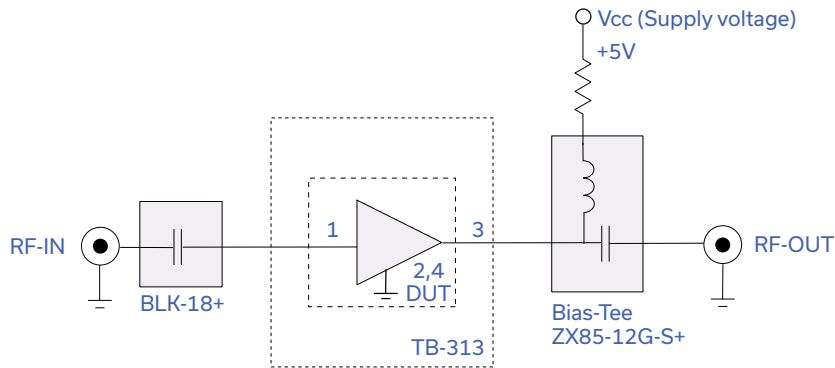


Fig 1. Block Diagram of Test Circuit used for characterization. (DUT soldered on Mini-Circuits Test Board TB-313)

Gain, Output power at 1dB compression (P1 dB) and output IP3 (OIP3) are measured using R&S Network Analyzer ZVA-24. Noise Figure measured using Agilent's N5242A PNA-X microwave network analyzer.

Conditions:

1. Gain and Return loss: Pin= -25dBm
2. Output IP3 (OIP3): Two tones, spaced 1 MHz apart, 0 dBm/ tone at output.

### RECOMMENDED APPLICATION CIRCUIT

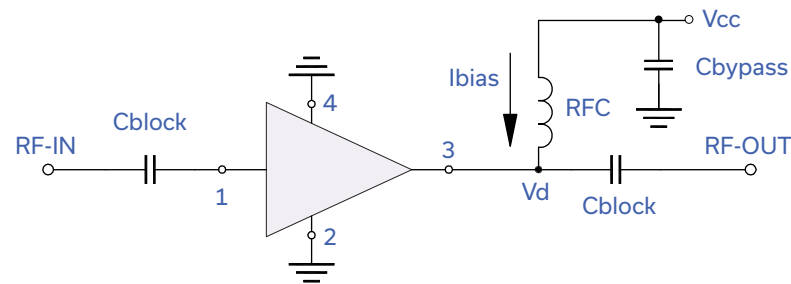
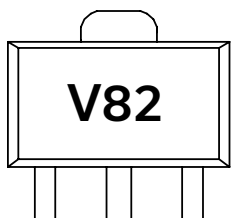


Fig 2. Test Board includes case, connectors, and components soldered to PCB

### PRODUCT MARKING



Marking may contain other features or characters for internal lot control