Surface Mount

Monolithic Amplifier

DC-4 GHz

Features

- InGaP HBT microwave amplifier
- Miniature SOT-89 package
- Internally Matched to 50 Ohms
- Frequency range, DC to 4 GHz
- Output power, 15.0 dBm typ.
- Excellent package for heat dissipation, exposed metal bottom
- Low thermal resistance for high reliability
- Aqueous washable
- Protected by US Patent 6,943,629

Generic photo used for illustration purposes only

Gali 55+

CASE STYLE: DF782

+RoHS Compliant

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

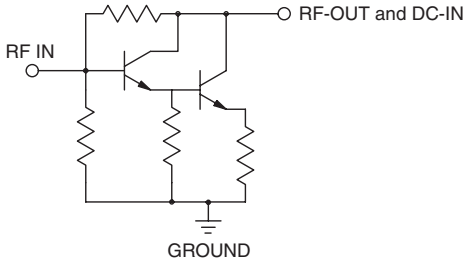
Applications

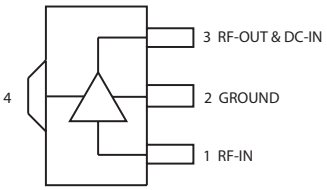
- Cellular
- PCS
- Communication receivers & transmitters

General Description

Gali 55+ (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. Expected MTBF is 8,500 years at 85°C case temperature. Gali 55+ is designed to be rugged for ESD and supply switch-on transients.

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".
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.

Notes

A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
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Electrical Specifications at 25°C and 50mA, unless noted

Parameter		Min.	Typ.	Max.	Units
Frequency Range*		DC		4	GHz
Gain	f=0.1 GHz	—	21.9	—	dB
	f=1 GHz	—	20.6	—	
	f=2 GHz	17	18.5	—	
	f=3 GHz	—	17.0	—	
	f=4 GHz	—	15.5	—	
	f=6 GHz	—	15.7	—	
Input Return Loss	f= DC to 3 GHz		19		dB
	f= 3 to 4 GHz		16.5		
Output Return Loss	f= DC to 3 GHz		17.5		dB
	f= 3 to 4 GHz		14		
Output Power @ 1 dB compression	f=1 GHz	13.5	15.0	—	dBm
Output IP3	f=1 GHz		28.5		dBm
Noise Figure	f=1 GHz		3.3		dB
Recommended Device Operating Current			50		mA
Device Operating Voltage		3.8	4.3	4.8	V
Device Voltage Variation vs. Temperature at 50 mA			-3.2		mV/°C
Device Voltage Variation vs. Current at 25°C			3.5		mV/mA
Thermal Resistance, junction-to-case[1]			100		°C/W

*Guaranteed specification DC-4 GHz. Low frequency cut off determined by external coupling capacitors.

Absolute Maximum Ratings

Parameter	Ratings
Operating Temperature*	-45°C to 85°C
Storage Temperature	-65°C to 150°C
Operating Current	65mA
Input Power	13dBm

Note: Permanent damage may occur if any of these limits are exceeded.
These ratings are not intended for continuous normal operation.
[1]Case is defined as ground leads.
*Based on typical case temperature rise 3°C above ambient.

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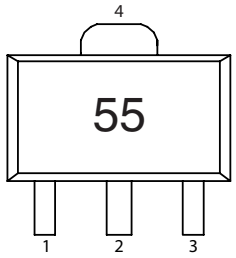
Product Marking



Markings in addition to model number designation may appear for internal quality control purposes.

Additional Detailed Technical Information

Additional information is available on our web site. To access this information enter the model number on our web site home page.

Performance data, graphs, s-parameter data set (.zip file)

Case Style: DF782

Plastic package, exposed paddle, lead finish: Matte-Tin

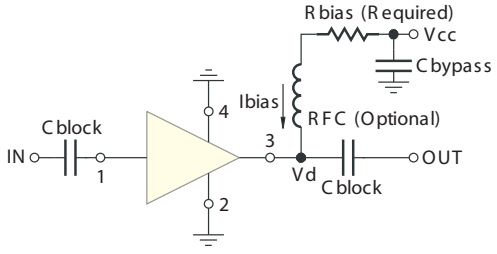
Tape & Reel: F55

Suggested Layout for PCB Design: PL-019

Evaluation Board: TB-409-55+

Environmental Ratings: ENV08T2

Recommended Application Circuit



Test Board includes case, connectors, and components (in bold) soldered to PCB

R BIAS	
Vcc	**"1%" Res. Values (ohms) for Optimum Biasing**
7	52.3
8	71.5
9	90.9
10	110
11	130
12	150
13	169
14	191
15	215
16	232
17	249
18	274
19	287
20	309

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