

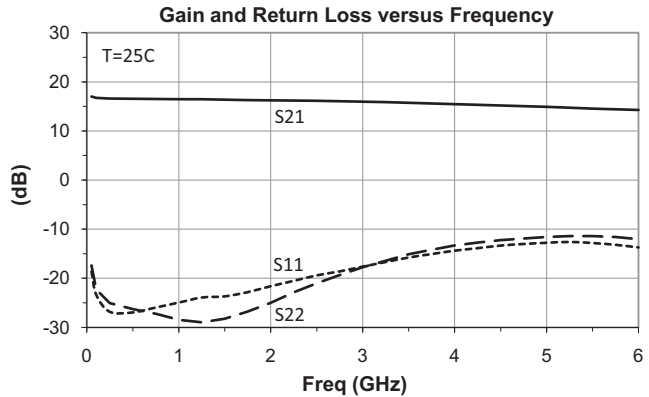


**Features**

- Single Fixed 5V Supply
- Patented Self Bias Circuit and Thermal Design
- Hermetic Package for High-Reliability Applications
- OIP3=29dBm at 1.15 GHz
- PldB=15.1 at 1.15 GHz

**Applications**

- Military and Space Communications.
- Industrial Applications
- Aerospace and Defense



**Product Description**

RFMD’s SBB-3082S is a high-performance InGaP HBT MMIC amplifier utilizing Darlington configuration with an active bias network in a hermetic package. The active bias network provides stable current over temperature and Beta process variations. The SBB-3082S is designed for high linearity gain block military and industrial applications requiring excellent gain flatness, small size, minimal external components and hermetic packaging. RFMD can provide various levels of device screening for military or high-reliability space applications.

**Ordering Information**

SBB-3082S      Hermetic Package

**Optimum Technology Matching® Applied**

- |   |                                      |                                     |                                   |
|---|--------------------------------------|-------------------------------------|-----------------------------------|
| <input type="checkbox"/> GaAs HBT             | <input type="checkbox"/> SiGe BiCMOS | <input type="checkbox"/> GaAs pHEMT | <input type="checkbox"/> GaN HEMT |
| <input type="checkbox"/> GaAs MESFET          | <input type="checkbox"/> Si BiCMOS   | <input type="checkbox"/> Si CMOS    | <input type="checkbox"/> RF MEMS  |
| <input checked="" type="checkbox"/> InGaP HBT | <input type="checkbox"/> SiGe HBT    | <input type="checkbox"/> Si BJT     |                                   |

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## Absolute Maximum Ratings

Parameter	Rating	Unit
Max Device Current ( $I_D$ )	100	mA
Max Device Voltage ( $V_D$ )	6	V
Max RF Input Power	+20	dBm
Max Junction Temperature ( $T_J$ )	+150	°C
Operating Temperature Range	-40 to +85	°C
Storage Temperature Range	-55 to +150	°C
ESD - Human Body Model (HBM)	Class 1C	
MSL - Moisture Sensitivity Level	Hermetic	



Caution! ESD sensitive device.

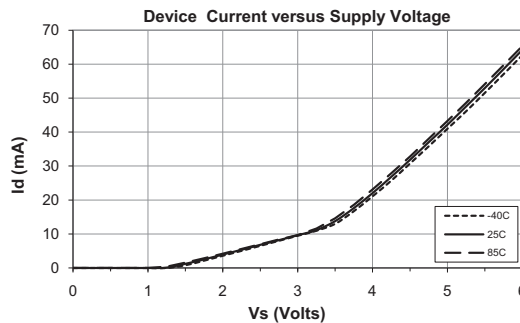
Exceeding any one or a combination of the Absolute Maximum Rating conditions may cause permanent damage to the device. Extended application of Absolute Maximum Rating conditions to the device may reduce device reliability. Specified typical performance or functional operation of the device under Absolute Maximum Rating conditions is not implied.

RoHS status based on EU Directive 2002/95/EC (at time of this document revision).

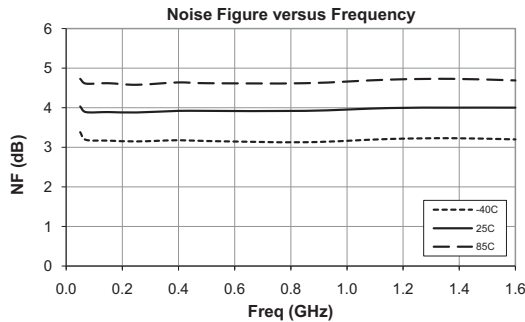
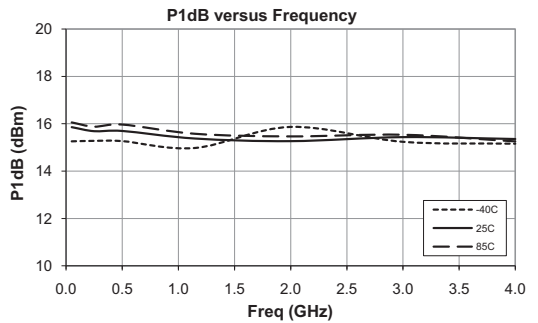
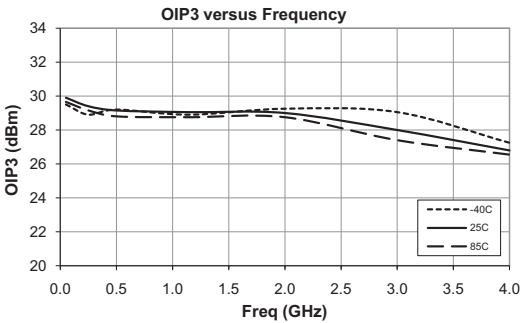
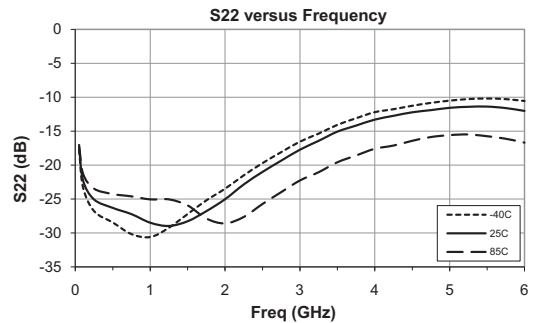
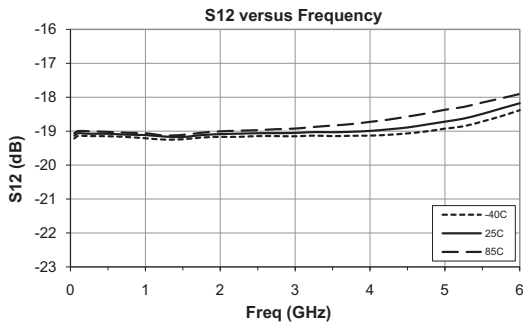
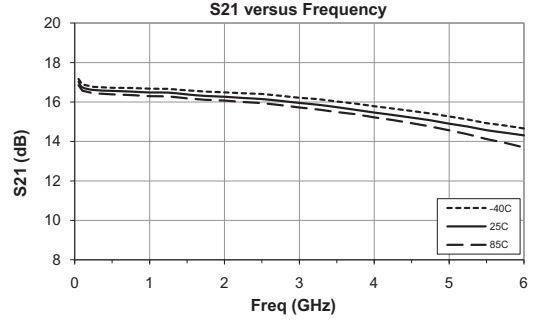
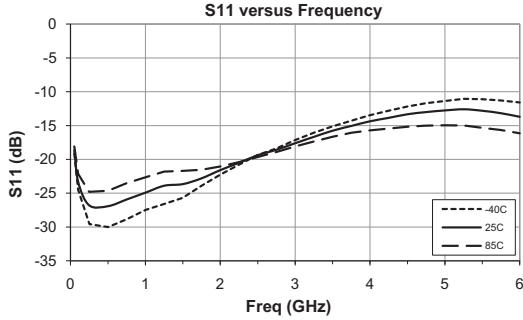
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Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
Small Signal Gain	15	16.4	21	dB	Frequency Range 1.0GHz to 1.3GHz
		15.4		dB	4GHz
Output Power at 1dB Compression	14.5	15.1	18.5	dBm	1.150GHz
OIP3	27.5	29.0		dBm	$F_1 = 1150\text{MHz}$ , $F_2 = 1151\text{MHz}$
Input Return Loss	17	21		dB	1.0GHz to 1.3GHz
		14		dB	4GHz
Output Return Loss	17	25.0		dB	1.0GHz to 1.3GHz
		13		dB	4GHz
Reverse Isolation	17	19		dB	1.150GHz
Noise Figure		4.0	5.0	dB	1.150GHz
Operating Voltage		4.2		V	$R_{DC} = 20\Omega$ , $V_S = 5.0\text{V}$
Operating Current	34	42	50	mA	$R_{DC} = 20\Omega$ , $V_S = 5.0\text{V}$
Thermal Resistance		99		C/W	1.150GHz

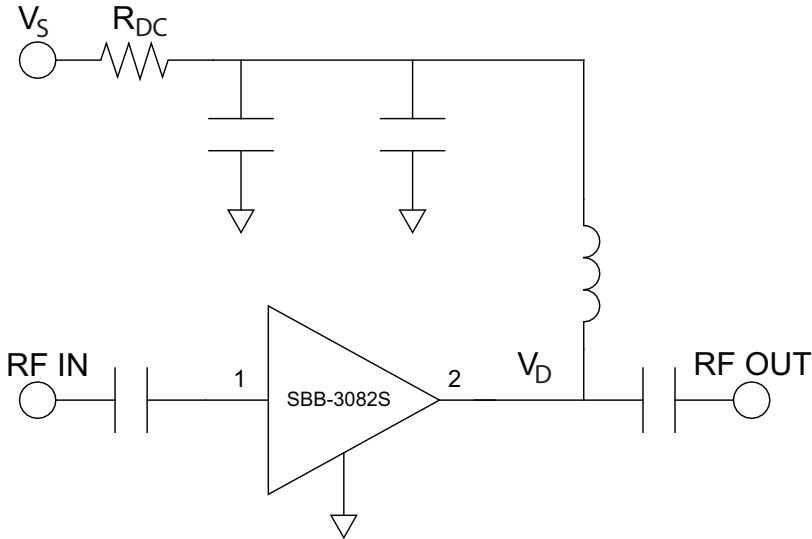
Typical performance with Bias Tees,  $V_D = 5\text{V}$  with  $R_{DC} = 20\Omega$ ,  $I_D = 42\text{mA}$ , OIP3 Pout = 0dBm/tone,  $T = 25\text{C}$



Typical Performance (50Ω test fixture with bias tees)  $V_D=5.0V$ ,  $R_{DC}=20\Omega$



## Typical Application Schematic



Pin	Function	Description
1	RF IN	RF input pin. This pin requires the use of an external blocking capacitor chosen for the frequency of operation.
2	RF OUT/DC Bias	RF output and bias pin. This pin requires the use of an external blocking capacitor chosen for the frequency of operation.
Package Paddle	GND	Package backside must be connected to RF/DC ground.

**Package Drawing**

