



CL1012

InGaP HBT Active Bias Gain Block
50MHz to 6000MHz

RFMD SBB-5082S replacement ^{a,b}

Criteria Labs CL1012 is a high-performance InGaP HBT MMIC amplifier utilizing a 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 CL1012 is designed for high linearity gain block military and industrial applications requiring excellent gain flatness, small size, minimal external components and hermetic packaging. Criteria Labs can provide various levels of device screening for military or high-reliability space applications.



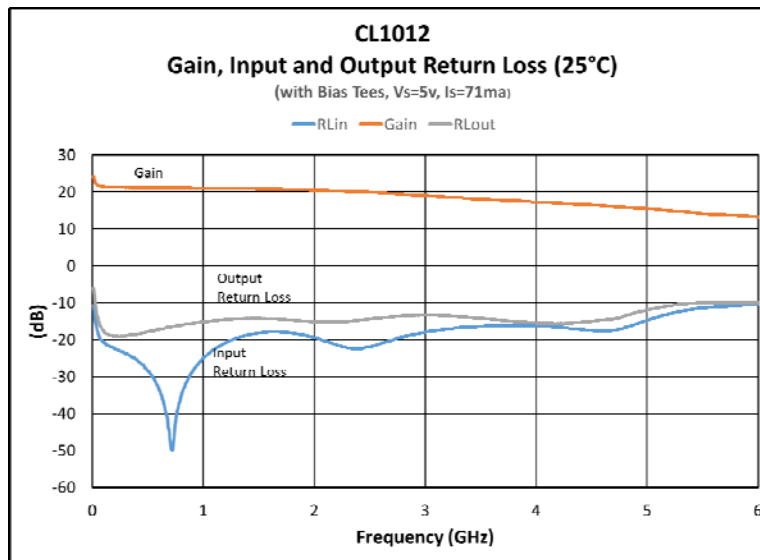
Package: Hermetic, 2-pin, 5.8mm x 2.8mm

Product Features

- Single Fixed 5v Supply
- Hermetic Package for High Reliability Applications
- Ultra Flat Gain
- OIP3= 35dBm@ 1950MHz
- P1db=19dBm @ 1950MHz

Applications:

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



- Suitability for model replacement within a system must be determined and is solely the responsibility of the customer.
- The RFMD SBB-5082S part number is used for identification and comparison purposes only.



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40-0012 Rev E

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Absolute Maximum Ratings		
Parameter	Rating	Units
Device Current (Id)	110	mA
Device Voltage	5.5V	V
RF Input Power	+24	dBm
Junction Temperature (Tj)	+150	°C
Operating Temperature Range	-40 to +85	°C
Storage Temperature Range	-65 to +150	°C
Moisture Sensitivity Level	Hermetic	
ESD Rating - Human body Model (HBM)	Class 1C	



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.

Nominal Operating Parameters						
	Units	Specifications			Units	Conditions
		Min	typ	Max		
General Performance						Test conditions: Vd = 5Vdc, Id = 71mA, OIP3 tone spacing 1 MHz, Pout per tone = 5 dBm TL=25C, 50 ohm system. Bias Tee tested.
Small Signal Gain	dB	18	20	22	dB	1.95 GHz
	dB		17		dB	4 GHz
P1dB	dBm	17.5	18.2	20	dBm	1.95 GHz
OIP3	dB	31	35		dBm	1.95 GHz, 1.951 GHz
Input Return Loss	dB	13	18		dB	1.95 GHz
	dB		13		dB	4 GHz
Output Return Loss	dB	12	14		dB	1.95 GHz
	dB		8		dB	4 GHz
Reverse Isolation	dB	20	22.5		dB	1.95 GHz
Noise Figure	dB		3.7	4.4	dB	1.95 GHz
Operating Voltage	V		5		V	
Operating Current	mA	55	71	92	mA	
Thermal Resistance	C/W		87		°C/W	Junction to Case

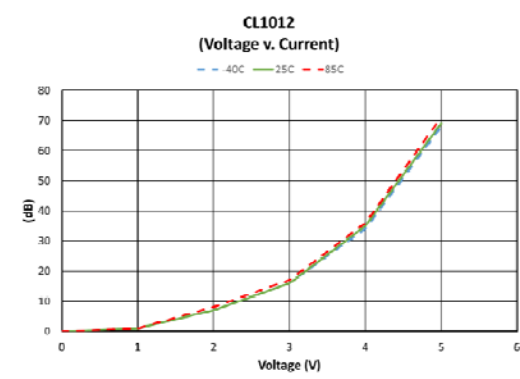
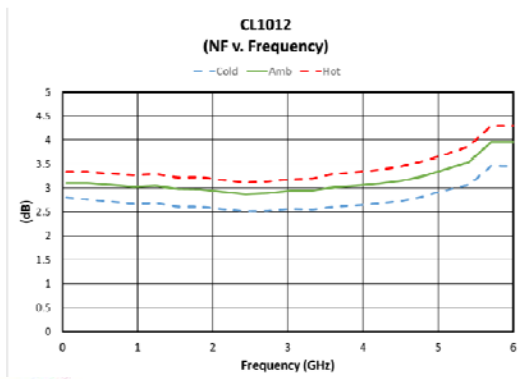
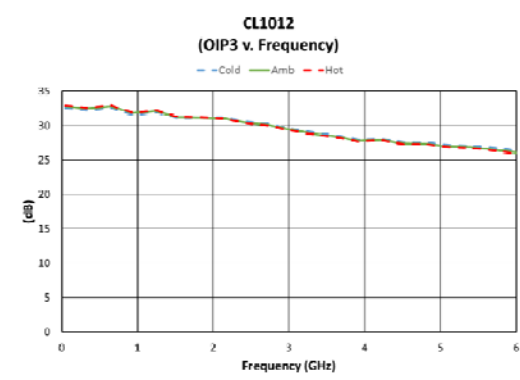
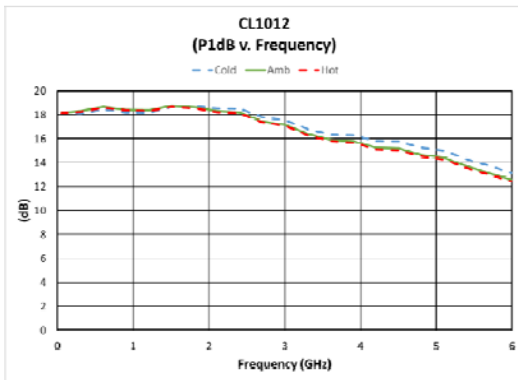
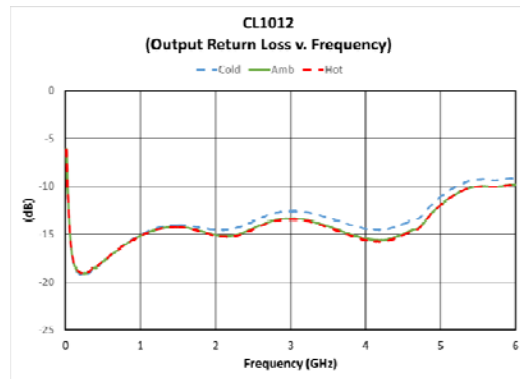
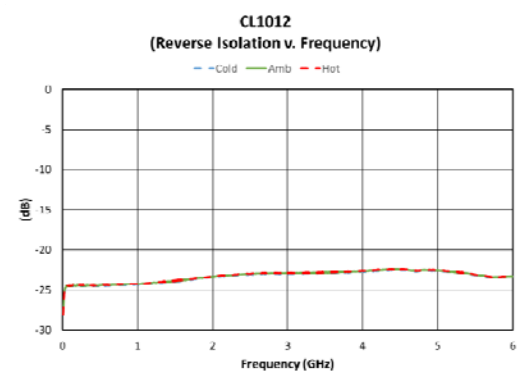
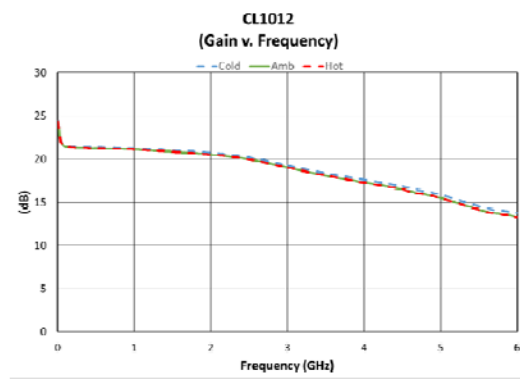
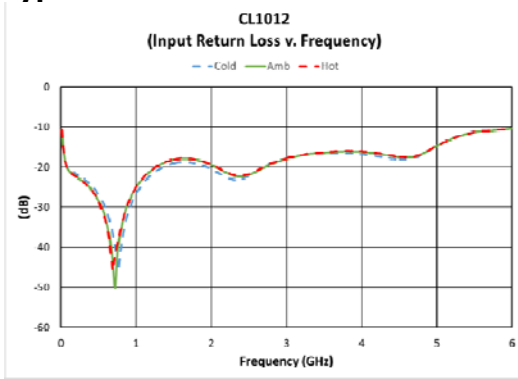


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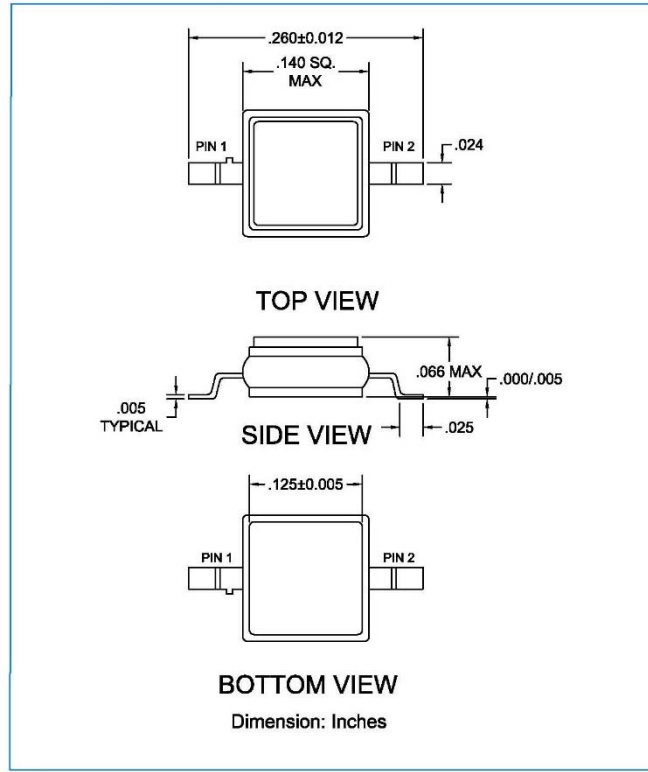
Typical Performance



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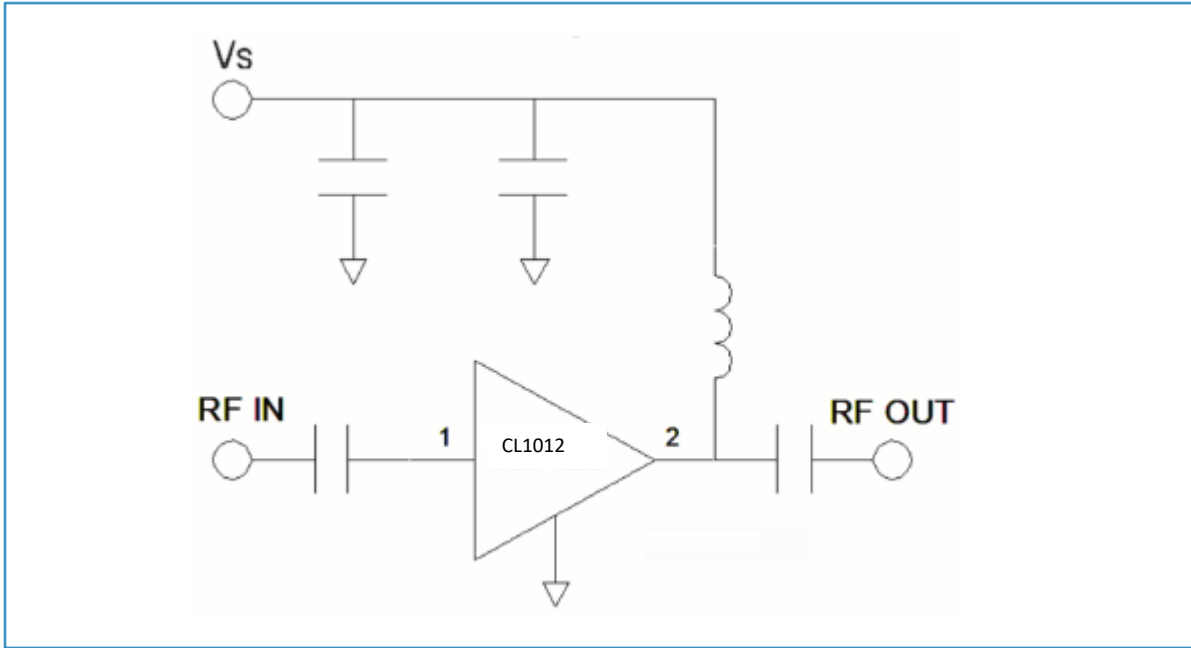
Package Drawing



Pin Names and Descriptions		
Pin	Name	Description
1	RFIN	RF input pin. This pin requires the use of an external blocking capacitor chosen for the frequency of operation
2	RFOUT/DC Bias	RF output and bias pin. This pin requires the use of an external blocking capacitor and inductor chosen for the frequency of operation.
Package Paddle	GND	Package backside must be connect to RF/DC ground

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Typical Application Schematic



Order Information:

CL1012-X-Y-Z

- Screening Level
 - Blank Mil-STD-883 screen flow
 - 3 temperature electrical
 - S Space Flow
- Lead Finish
 - Blank (Au finish)
 - D (63/37 solder dip leads only)
- Packaging
 - Blank (Foam ESD shipping box)
 - T (tape and reel)



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