



## CL1010

InGaP HBT Active Bias Gain Block  
50MHz to 6000MHz

### RFMD SBB-4082S replacement *a,b*

Criteria Labs CL1010 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 CL1010 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.



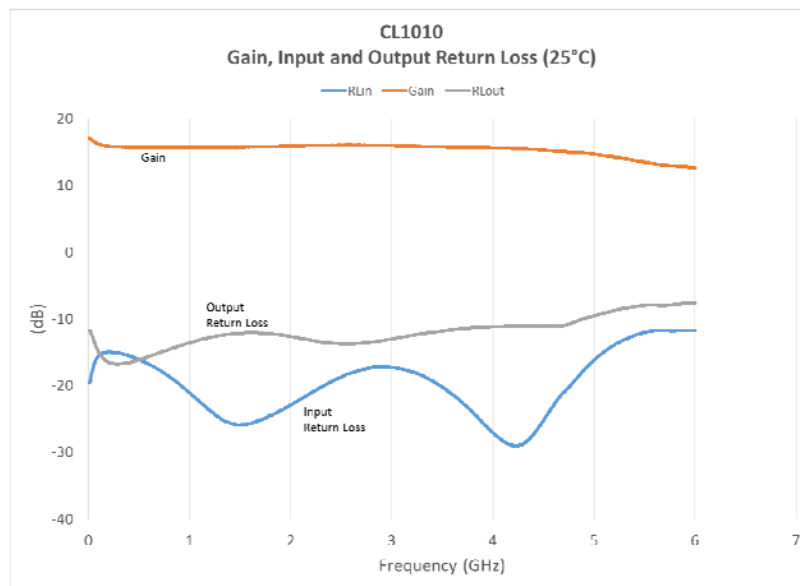
Package: Hermetic, 2-pin, 5.8mm x 2.8mm

#### Product Features

- Single Fixed 5v Supply
- Ultra Flat Gain
- OIP3= 38dBm@ 1150MHz
- P1dB=19dBm @ 1150MHz

#### 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-4082S part number is used for identification and comparison purposes only.



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Absolute Maximum Ratings		
Parameter	Rating	Units
Device Current (Id)	120	mA
Device Voltage *	6	V
RF Input Power	24	dBm
Junction Temperature (Tj)	150	C
Operating Temperature Range	-40 to 85	C
Storage Temperature Range	-55 to 150	C
Moisture Sensitivity Level	Hermetic	
ESD Rating - Human body Model (HBM)	Class 1C	
* For continuous use, do not exceed 5.2V.		



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.

	Units	CL1010 Specifications			Conditions
		Min	typ	Max	
General Performance					Test conditions: Vd = 5Vdc, Id = 82mA, OIP3 tone spacing 1 MHz, Pout per tone = 0 dBm TL=25C, 50 ohm system. Bias Tee tested.
Small Signal Gain	dB	14	15.5	18	1.15 GHz
	dB		15		4 GHz
P1dB	dBm	18	19	22	1.15 GHz
OIP3	dB	32	38		1.15 GHz, 1.151 GHz
Input Return Loss	dB	11	20		1.15 GHz
	dB		14		4 GHz
Output Return Loss	dB	10	20		1.15 GHz
	dB		10		4 GHz
Reverse Isolation	dB		20		1.15 GHz
Noise Figure	dB		4.5	6	1.15 GHz
Operating Voltage	V		5		
Operating Current	mA	58	80	92	
Thermal Resistance	C/W		56		Junction to Case

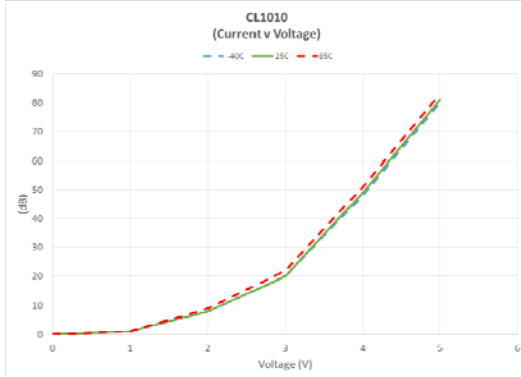
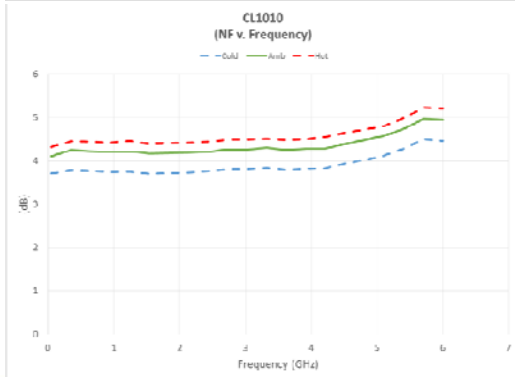
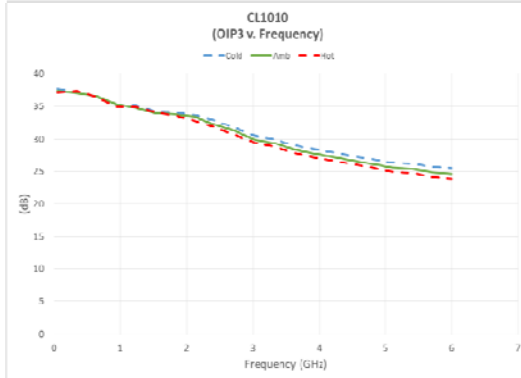
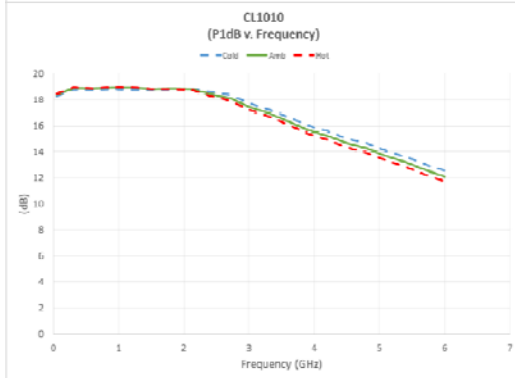
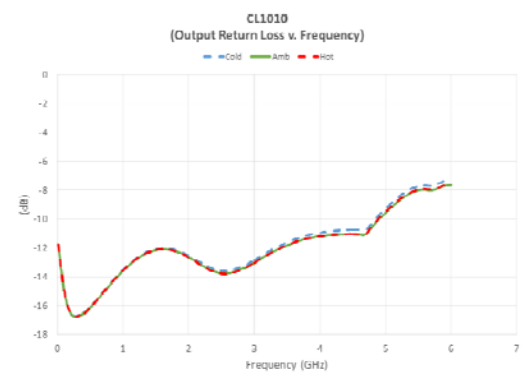
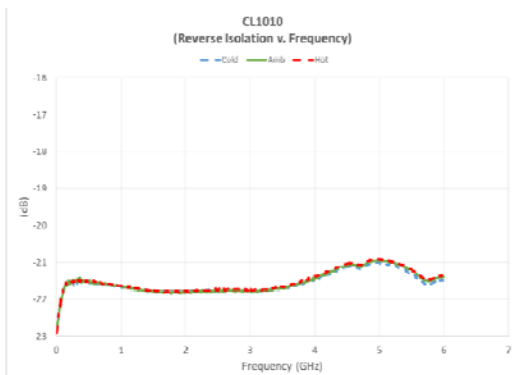
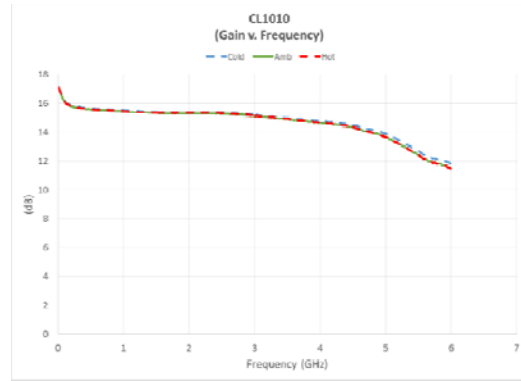
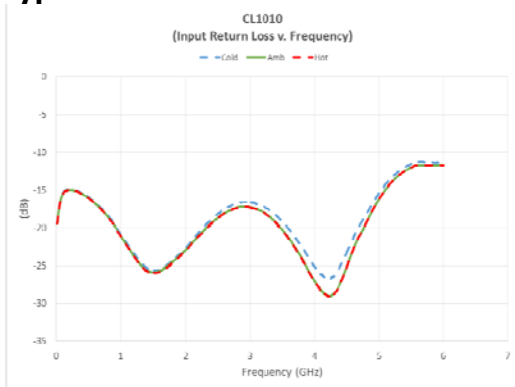


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## Typical Performance

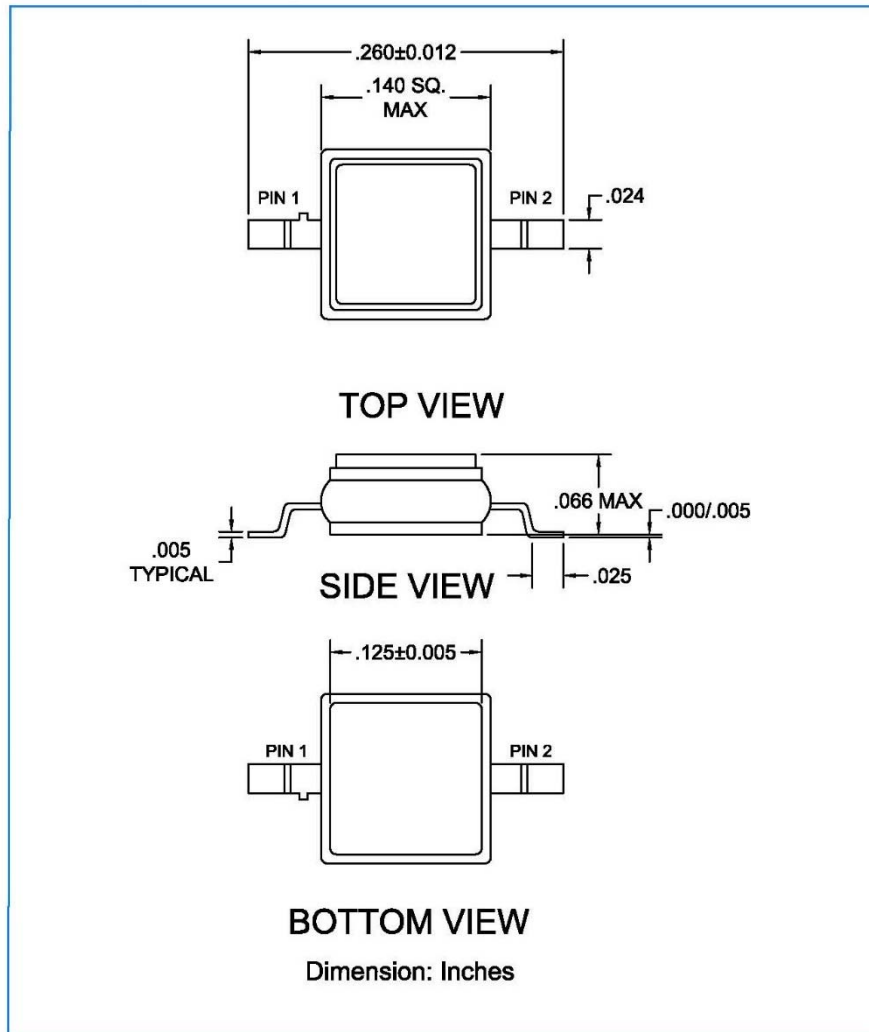


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## Package Drawing

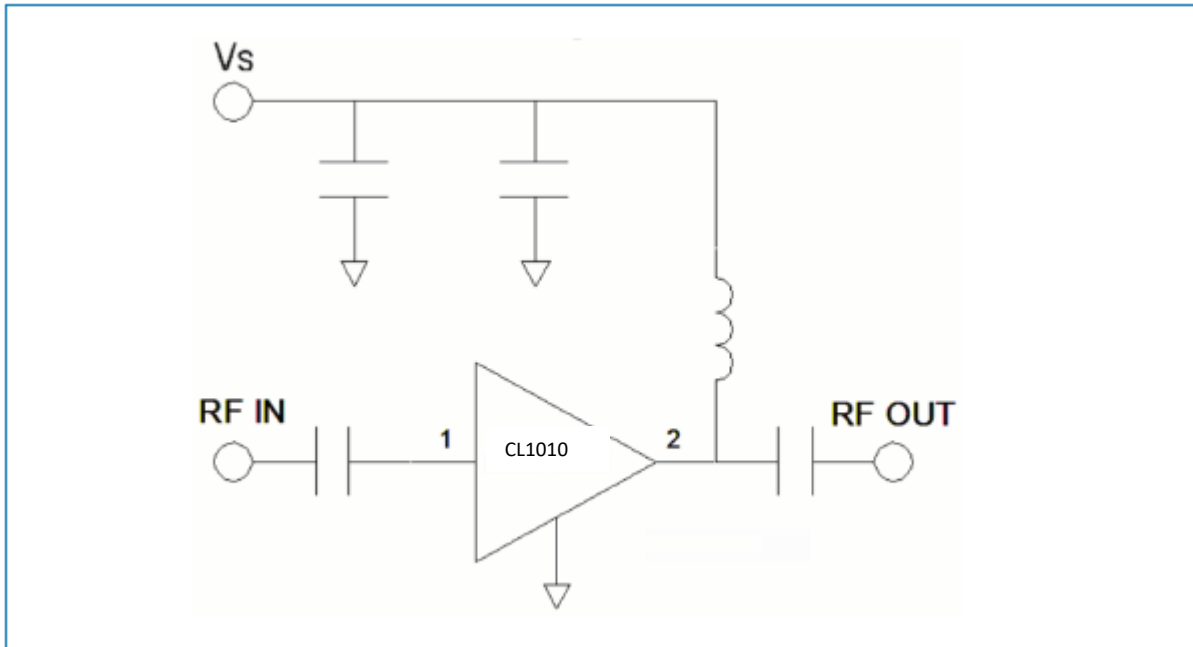


### Pin Names and Descriptions

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:

**CL1010-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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