Product Features

Operating Frequency: 2GHz ~ 18GHz

Slope: 3dB

Application

Fixed Satellite

Mobile

Radio Location

Space Research

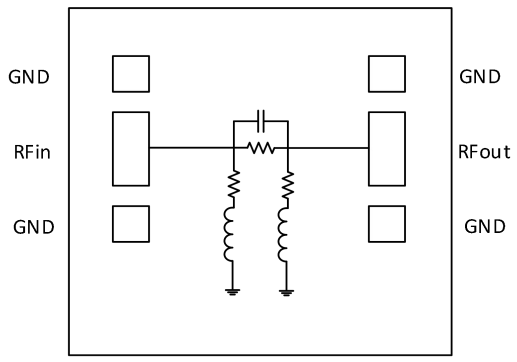
Ordering Information

Part Number	Package	Description
BR9318LD	DIE	2GHz~18GHz 3dB Equalizer

General Description

BR9318LD is an absorptive gain equalizer fabricated using GaAs IPD MMIC process, incorporating resistors, capacitors and inductors having negative insertion loss slope. Covering a frequency range of 2GHz to 18GHz, BR9318LD has a nominal attenuation slope of 3dB with Π structure topology. The product has the advantage of the wide band of frequencies, low insertion loss, and good equalization slope, which can meet the gain equalization compensation of amplifier, receiver and transmitter system to improve the gain flatness in the working frequency band.

Functional Block Diagram



Electrical Specifications

Parameters	Test Conditions	Min.	Typ.	Max.	Units
Insertion Loss	2GHz	-	-3.69	-	dB
	6GHz	-	-3.32	-	dB
	12GHz	-	-2.20	-	dB
	18GHz	-	-0.81	-	dB
Input Return	2GHz	-	-21.35	-	dB
	6GHz	-	-17.47	-	dB
	12GHz	-	-14.42	-	dB
	18GHz	-	-13.25	-	dB
Output Return	2GHz	-	-23.10	-	dB
	6GHz	-	-18.56	-	dB
	12GHz	-	-15.60	-	dB
	18GHz	-	-14.37	-	dB
Test Condition: TA=+25℃					

Absolute Maximum Ratings

Maximum RF input Power: +28dBm;

Recommended Operating Conditions

Storage Temperature: -65℃ ~ +150℃

Operating Temperature: -55℃ ~ +125℃

Note: Operation of the device outside the parameter ranges given absolute-maximum-ratings conditions may cause permanent damage, and. exposure to absolute-maximum-ratings conditions for extended periods will affect the reliability.

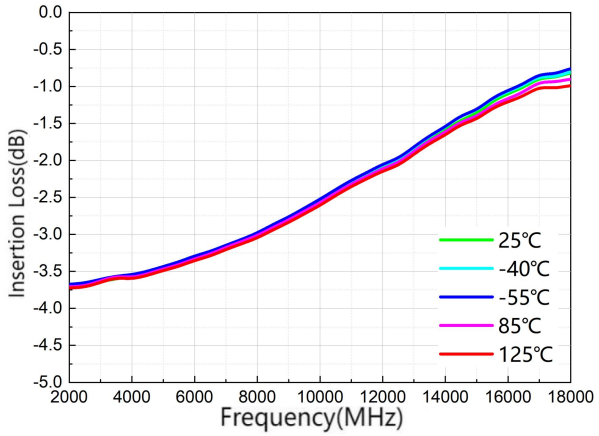
ESD WARNING

ELECTROSTATIC SENSITIVE DEVICE

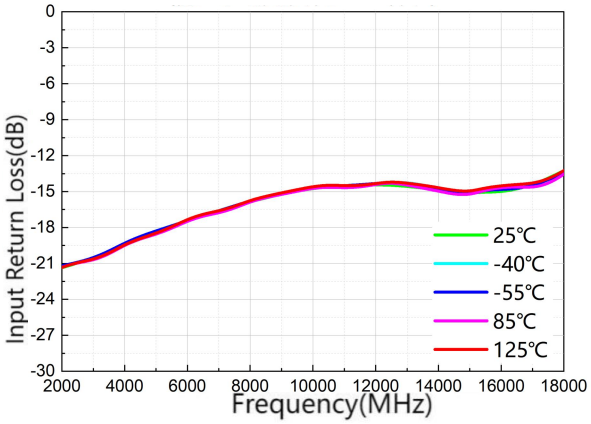
OBSERVE HANDLING PRECAUTIONS

Typical Performance (EVB test results)

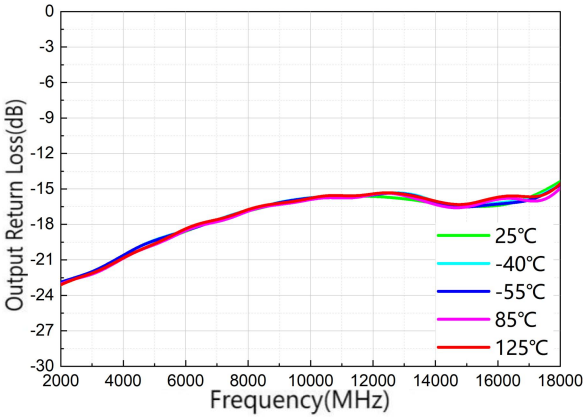
Parameters	Typ.								Units
Frequency	2000	3000	4000	5000	6000	7000	8000	9000	MHz
Insertion Loss	-3.69	-3.64	-3.57	-3.46	-3.32	-3.17	-3.00	-2.78	dB
Input Return	-21.35	-20.51	-19.45	-18.46	-17.47	-16.59	-15.84	-15.19	dB
Output Return	-23.10	-22.03	-20.81	-19.64	-18.56	-17.65	-16.86	-16.23	dB
Parameters	**Typ.**								**Units**
Frequency	11000	12000	13000	14000	15000	16000	17000	18000	MHz
Insertion loss	-2.31	-2.08	-1.84	-1.60	-1.37	-1.10	-0.88	-0.81	dB
Input Return	-14.51	-14.44	-14.56	-14.84	-15.12	-15.02	-14.44	-13.25	dB
Output Return	-15.57	-15.62	-15.82	-16.25	-16.49	-16.42	-15.75	-14.37	dB
Test Condition: Pin=0dBm, Temp=+25℃									



Insertion Loss

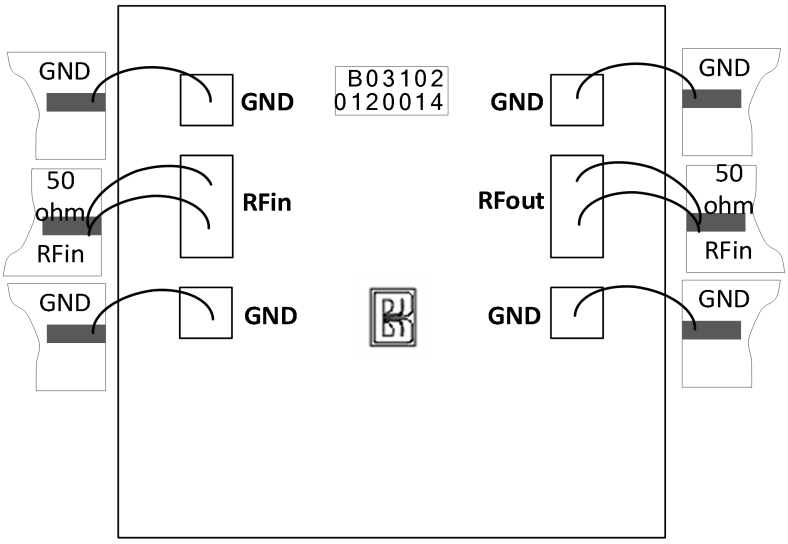


Input Return Loss



Output Return Loss

Assembly Diagram



Handling Precautions:

1. **Storage:** All bare die are placed in ESD protective containers, and then sealed in an ESD protective bag for shipment. Once the sealed ESD protective bag has been opened, all die should be stored in a dry nitrogen environment.

2. **Cleanliness**: Handle the chips in a clean environment. DO NOT attempt to clean the chip using liquid cleaning systems.

3. **Electrostatic protection:** Follow ESD precautions to protect against ESD strikes

4. **General Handling**: Handle the chip along the edges with a vacuum collet or with a sharp pair of bent tweezers. The surface of the chip should not be touched with vacuum collet, tweezers, or fingers.

5. **Mouning:** The chip is back-metallized and can be die mounted with AuSn eutectic preforms or with electrically conductive epoxy. The mounting surface should be clean and flat.

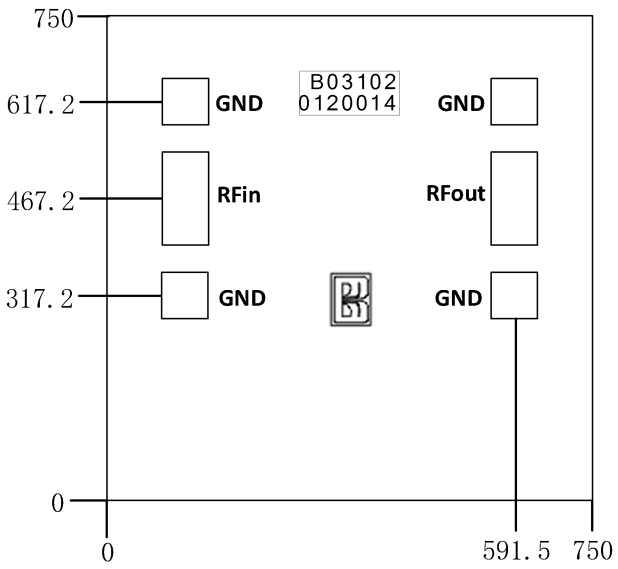
6. **Eutectic Die Attach**: A 80/20 gold tin preform is recommended with a work surface temperature of 255 °C and a tool temperature of 265 °C. When hot 90/10 nitrogen/hydrogen gas is applied, tool tip temperature should be 290 °C. DO NOT expose the chip to a temperature greater than 320 °C for more than 20 seconds. No more than 3 seconds of scrubbing should be required for attachment

7. **Conductive epoxy Die Attach:** Apply conductive epoxy to the mounting surface so that the overflow of conductive epoxy on all four sides should not be less than 75%, and the height of conductive epoxy climbing on all four sides should not exceed the surface of the chip. Cure conductive epoxy per the manufacturer's schedule.

8. **Die bonding process unless otherwise noted**: Ball or wedge bond with 0.025mm (1 mil) diameter pure gold wire. Thermosonic wirebonding with a nominal stage temperature of 150 °C is recommended. Use the minimum level of ultrasonic energy to achieve reliable wirebonds. Wirebonds should be started on the chip and terminated on the package or substrate.

9. If you have any questions, please contact customer service.

Mechanical Information（Units：mm）



Notes:

1. Backside and bond pad metal: Gold
2. Backside is RF and DC ground
3. PAD size: RFin: 75um×150um; RFout: 75um×150um;
4. Cannot be bonded on the via;
5. Overall dimension tolerance: ±30um.

Pad Description

PAD	Description
RFin	RF Input, matched to 50 Ohms.
RFout	RF Output, matched to 50 Ohms.
GND	Connected to DC/RF ground.