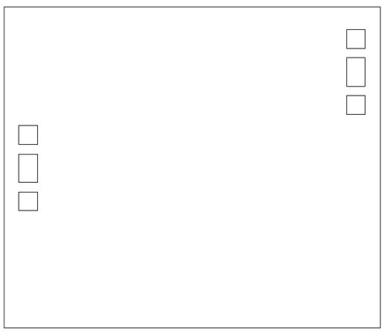
LR201SB

2-4 GHz 200 W Limiter

Product Features

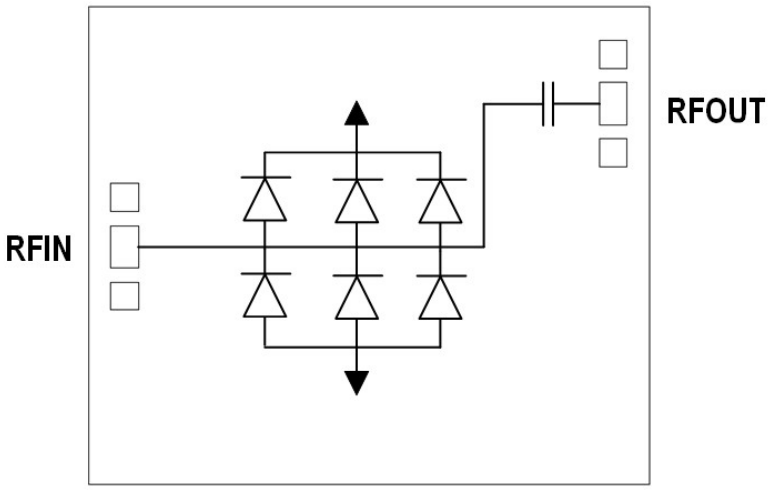
- Frequency band 2.0-4.0 GHz
- Insertion Loss: 0.45 dB
- Peak Power Handling: 200 W (pulsed)
- Flat Leakage: 15 dBm
- Passive (no DC bias required)
- Integrated DC Block on output
- Die Dimensions: 2.0×1.7 mm

Performance is typical at room temperature. Please reference electrical specification table and data plots for more details.



2.0 mm × 1.7 mm bare die

Functional Block Diagram



Description

The LR201SB is a high-power receive protection circuit (limiter) operating from 2-4 GHz. Capable of withstanding up to 200 W incident power levels, the LR201SB allows < 15 dBm flat leakage to pass through and contributes < 0. 45 dB in insertion loss.

Applications

- Receive Chain Protection
- Commercial and Military Radar
- Communications
- Electronic Warfare

Recommend Operating Conditions

PARAMETER	MIN	TYP	MAX	UNIT
Passive – No Bias				
Temperature Range	-40	25	85	°C

Electrical specifications are measured at specified test conditions.
Specifications are not guaranteed over all recommended operating conditions.

Absolute Maximum Ratings

PARAMETER	VALUE	UNIT
Incident Power, Pulsed (500 μs / 15 %), 50 Ω, 25°C	54	dBm
Incident Power, Pulsed (500 μs / 15 %), 50 Ω, 85°C	50.5	dBm
Mounting Temperature (30 s max)	200	°C
Storage Temperature	-55 to 150	°C

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.

Electrical Specifications

PARAMETER	Conditions	MIN	TYP	MAX	UNIT
Frequency		2.0		4.0	GHz
Insertion loss	2.0 – 4.0 GHz	0.37	0.45	0.51	dB
Input return loss			18		dB
Output return loss			20		dB
Flat Leakage Power	@ Pin>30 dBm		15		%

Note: Test conditions unless otherwise noted: Temp = +25°C, S-Parameters CW, Power Pulse Parameters: PW = 500μs, Duty Cycle = 15 %

Thermal and Reliability Information

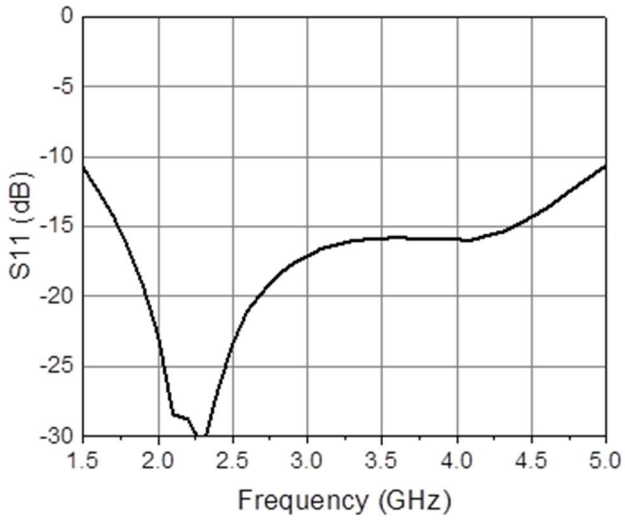
PARAMETER	Conditions	TYP	UNIT
Incident Power (RF Operational Life Test 168 Hours)	-	200	W

Note: Test conditions unless otherwise noted: Temp = +25°C, S-Parameters CW, Power Pulse Parameters: PW = 500μs, Duty Cycle = 15 %

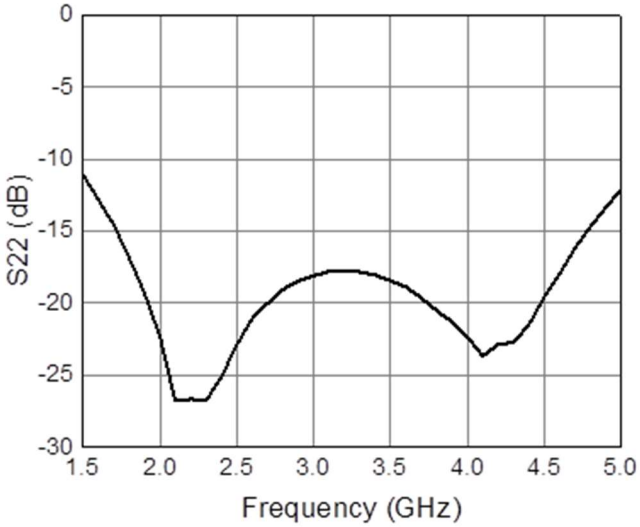
Small Signal Performance

Test conditions unless otherwise noted: 25 °C, S-Parameters CW, Power Pulse Parameters: PW = 500 us, Duty Cycle = 15%

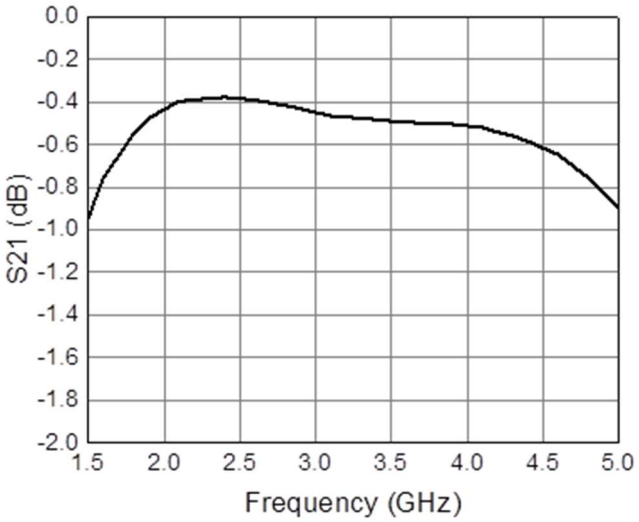
Input Return Loss



Output Return Loss



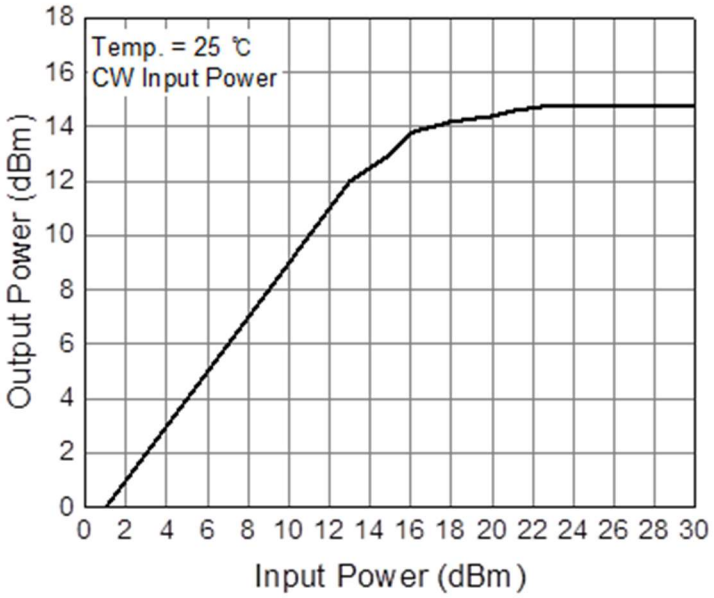
Gain



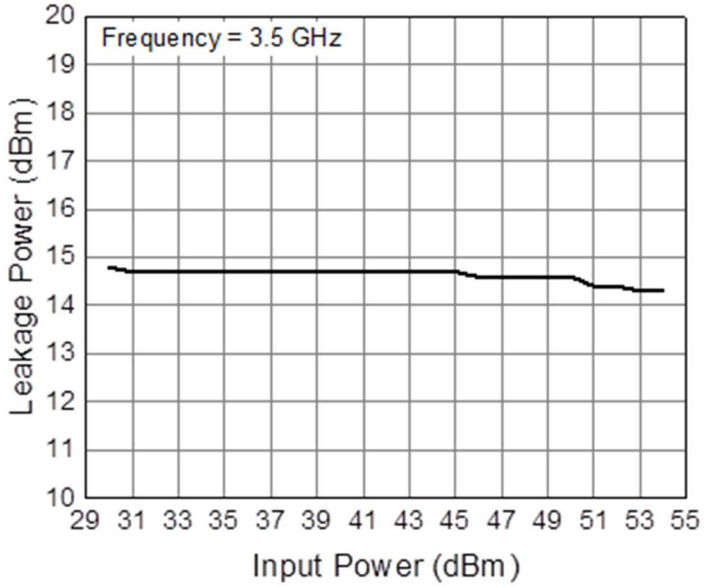
Large Signal Performance, Transmit

Test conditions unless otherwise noted: 25 °C, S-Parameters CW, Power Pulse Parameters: PW = 500 us, Duty Cycle = 15%

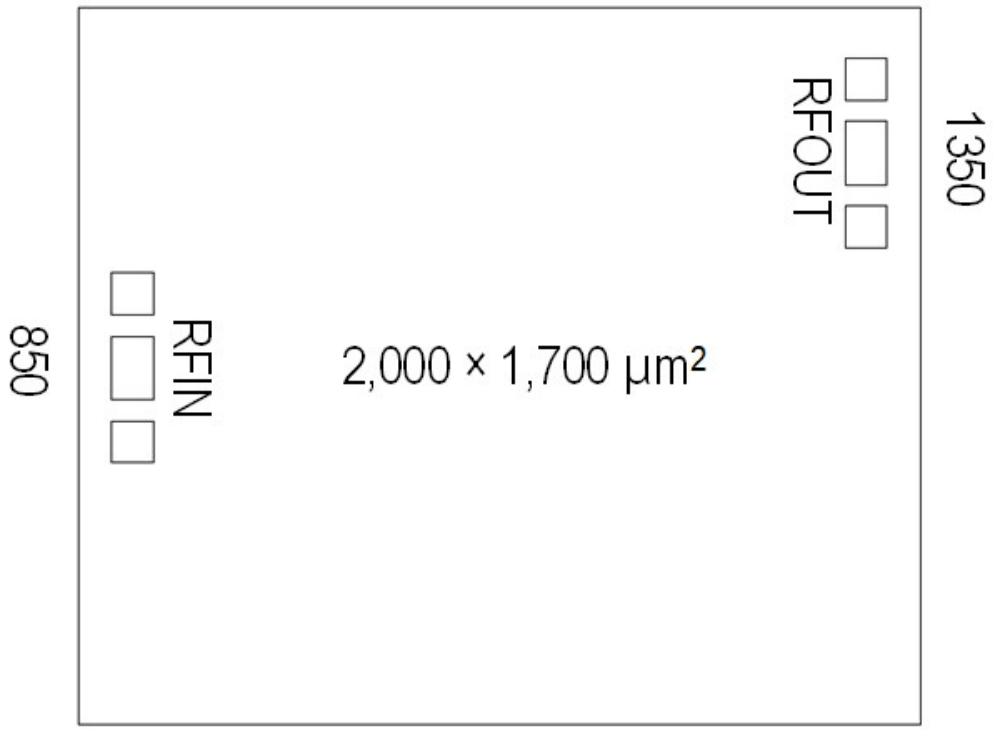
Output Power vs Input Power



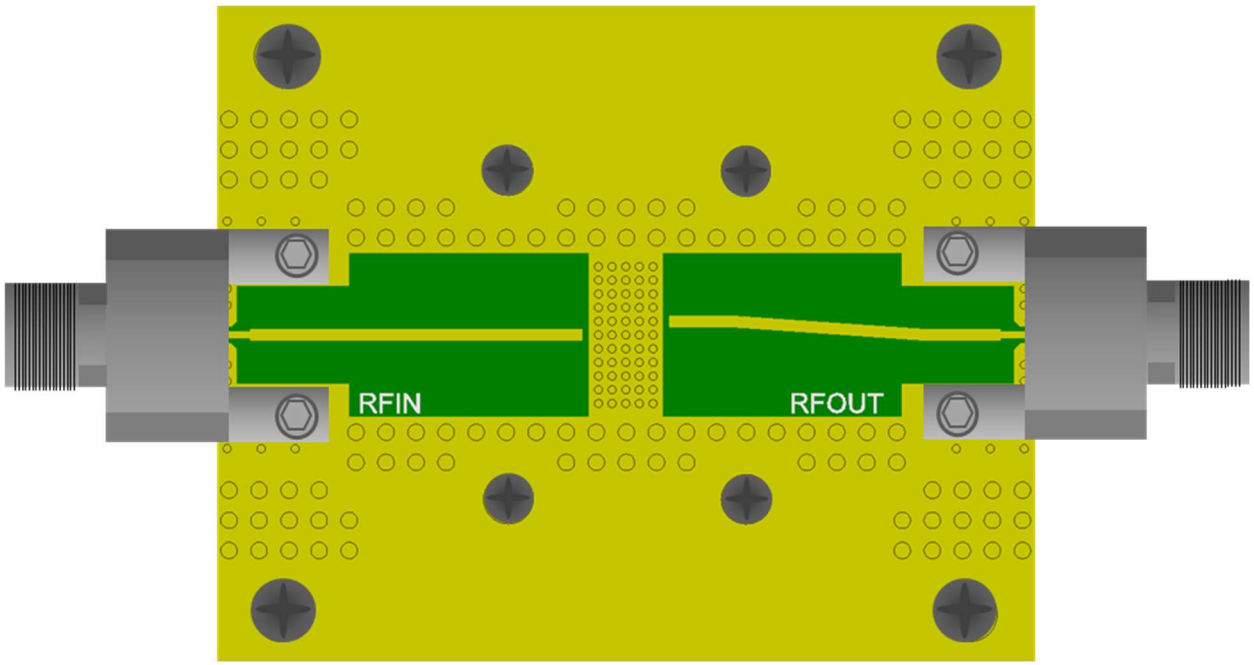
Output Power vs Input Power



Mechanical Drawing & Pad Description



LR201SB Evaluation Board



RF Layer is 8 mil thick Rogers Corp. RO4003C, εr = 3.38. Metal layers are 0.5 oz. copper. The microstrip line at the connector interface is optimized for the With-wave end launch connector NE02FS001.

For pulsed applications, only. Increased pulse width and/or duty cycle results in lower power handling capability of the EVB.
Notes:
1. Ground / thermal vias under the DUT are critical for the proper performance of this device.
2. The EVB shown herein utilizes copper filled vias (10 mil diameter) under the DUT to maximize heat transfer away from the DUT under large signal conditions.
3. Thermal dissipation is low for normal non-limiting operation.

Electrostatic Discharge (ESD) Classifications

PARAMETER	SYMBOL	CLASS	TEST METHODOLOGY
Human body model	HBM	TBD	TBD
Charge device model	CDM	TBD	TBD

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