XL1010-BD

Low Noise Amplifier 20.0-38.0 GHz



Rev. V1 Mimi× Broadband

Features

- 17.0 dB Small Signal Gain
- 3.0 dB Noise Figure
- Single, Positive Bias Supply
- 100% On-Wafer RF Testing
- RoHS* Compliant and 260°C Reflow Compatible

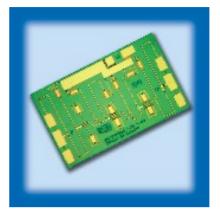
Description

M/A-COM Tech's three stage 20.0-38.0 GHz GaAs MMIC low noise amplifier has a small signal gain of 17.0 dB with a noise figure of 3.0 dB. The device uses M/A-COM Tech's GaAs PHEMT device model technology, and is based upon electron beam lithography to ensure high repeatability and uniformity. The device is well suited to multiple receiver applications which require broadband performance with simple bias requirements.

Ordering Information

| Part Number | Package | | |
|----------------|---|--|--|
| XL1010-BD-000X | Where "X" is RoHS compli- ant die packed in "V" – vac- uum released gel paks or "W" – waffle trays | | |
| XL1010-BD-EV1 | evaluation module | | |

Chip Device Layout



Absolute Maximum Ratings

| <u>v</u> | | | | |
|----------------------------|--------------------------------|--|--|--|
| Parameter | Absolute Max. | | | |
| Supply Voltage (Vd) | +7.0 VDC | | | |
| Supply Current (Id1,2,3) | 70 mA | | | |
| Input Power (Pin) | +12.0 dBm | | | |
| Storage Temperature (Tstg) | -65 to +165 °C | | | |
| Operating Temperature (Ta) | -55 to MTTF Graph ¹ | | | |
| Channel Temperature (Tch) | MTTF Graph ¹ | | | |

 Channel temperature directly affects a device's MTTF. It is recommended to keep channel temperature as low as possible to maximize lifetime.

Electrical Specifications: 20-38 GHz (Ambient Temperature T = 25°C)

| Parameter | Units | Min. | Тур. | Max. |
|---|-------|------|--------|------|
| Input Return Loss (S11) | dB | - | 12.0 | - |
| Output Return Loss (S22) | dB | - | 15.0 | - |
| Small Signal Gain (S21) | dB | - | 17.0 | - |
| Gain Flatness (∆S21) | dB | - | +/-2.0 | - |
| Reverse Isolation (S12) | dB | - | 45.0 | - |
| Noise Figure (NF) | dB | - | 3.0 | - |
| Output Power for 1dB Compression (P1dB) | dBm | - | TBD | - |
| Drain Bias Voltage (Vd) | VDC | 3.0 | 4.0 | 5.0 |
| Supply Current (Id) | mA | - | 45 | 60 |

¹

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Commitment to produce in volume is not guaranteed.

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Visit www.macomtech.com for additional data sheets and product information.

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Handling Procedures

Please observe the following precautions to avoid damage:

Static Sensitivity

Gallium Arsenide Integrated Circuits are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these class 2 devices.

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