# Low Noise Amplifier
# 5GHz ~ 11GHz



## *Features*

- Gain: 21.5dB Typical
- Noise Figure: 1.2dB Typical
- P1dB Output Power: +10.5dBm Typical
- Supply Voltage: +4V

## *Typical Applications*

- Wireless Infrastructure
- RF Microwave & VSAT
- Military & Aerospace
- Test Instrument

RoHS Compliant

*Electrical Specifications, TA = +25 ℃, Vcc = +4V*

| Parameter | Min. | Typ. | Max. | Units |
|---|---|---|---|---|
| Frequency Range | 5 | | 11 | GHz |
| Gain | | 21.5 | | dB |
| Gain Flatness | | - | | dB |
| Gain Variation Over Temperature (-45℃~+85℃) | | - | | dB |
| Noise Figure | | 1.2 | | dB |
| Input VSWR | | 1.5 | | : 1 |
| Output VSWR | | 1.5 | | : 1 |
| Output 1dB Compression Point (P1dB) | | 10.5 | | dBm |
| Saturated Output Power (Psat) | | - | | dBm |
| Output Third Order Intercept (IP3) | | 23 | | dBm |
| Supply Current(Vcc=+4V) | | 107 | | mA |
| Isolation S12 | | - | | dB |
| Weight | - | | | Ounces |
| Impedance | 50 | | | Ohms |
| Input / Output Connectors | SMA | | | |
| Finish | Standard: Gold 40 micron; Nickel 220 micron thickness | | | |
| | Option: Gold 80 micron; Nickel 180 micron thickness | | | |
| Material | Aluminum / copper | | | |
| Package Sealing | Epoxy Sealing (Standard) | | | |
| | Hermetically Sealed (Optional) | | | |

### *Absolute Maximum Ratings*

| | |
|---|---|
| Operating Voltage | +5.5V |
| RF Input Power | +23dBm |

### *Biasing Up Procedure*

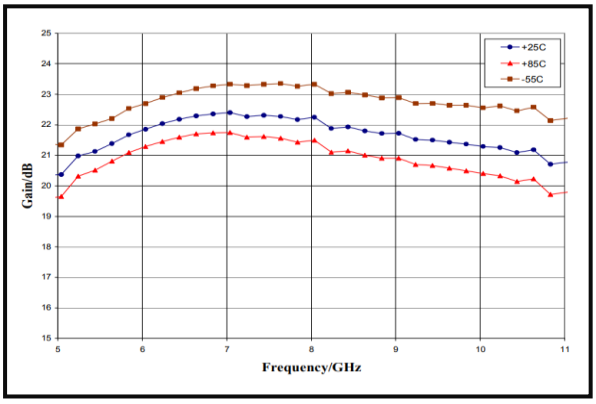
| | |
|---|---|
| Step 1 | Connect Ground Pin |
| Step 2 | Connect input and output |
| step3 | Connect +4V biasing |
| Power OFF Procedure | |
| Step 1 | Turn off +4V biasing |
| Step 2 | Remove RF connection |
| Step 3 | Remove Ground. |

### *Environmental Specifications and Test Standards*

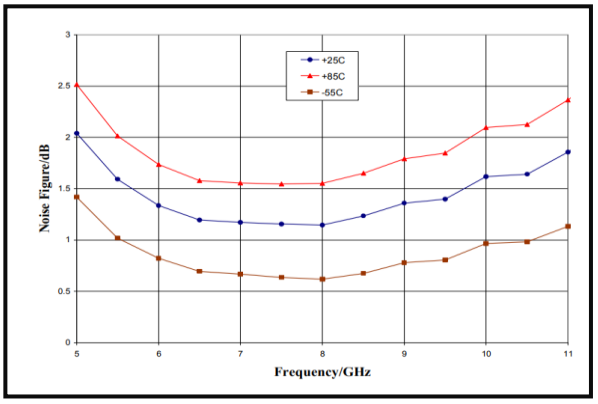
| Parameter | Standard | Description |
|---|---|---|
| Operational Temperature | MIL-STD-39016 | -45℃~+85℃ |
| Storage Temperature | | -50℃~+125℃ |
| Thermal Shock | | 1 Hour@ -45℃ → 1 Hour @ +85℃ (5 Cycles) |
| Electrical & Temperature Burn In | | Temperature +85℃ for 72 Hours |
| Shock | | 1. Weight >20g, 50g half sine wave for 11ms, Speed variation 3.44m/s<br>2. Weight <=20g, 100g Half sine wave for 6ms, Speed variation 3.75m/s<br>3. Total 18 times (6 directions, 3 repetitions per direction). |
| Altitude | | Standard: 30,000 Ft (Epoxy Sealed Controlled Environment)<br>Optional: Hermetically Sealed (60,000 ft. 1.0 PSI min) |
| Hermetically Sealed (Optional) | MIL-STD-883 | MIL-STD-883 (For Hermetically Sealed Units) |
| Random Vibration | MIL-STD-202 | Test Method 214A. Test Condition I. Test Condition Letter C. Duration 15 minutes |

## *Typical Performance Plots*

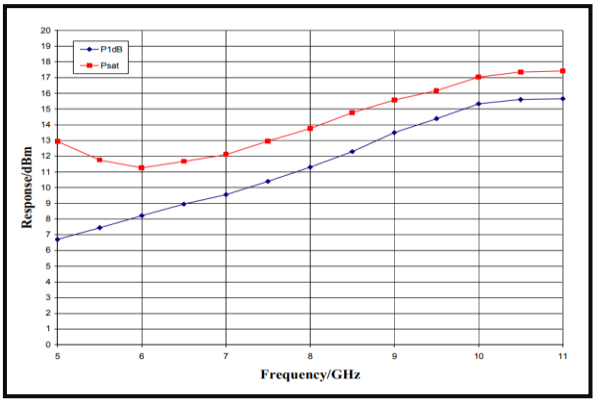
### Gain vs. Temperature



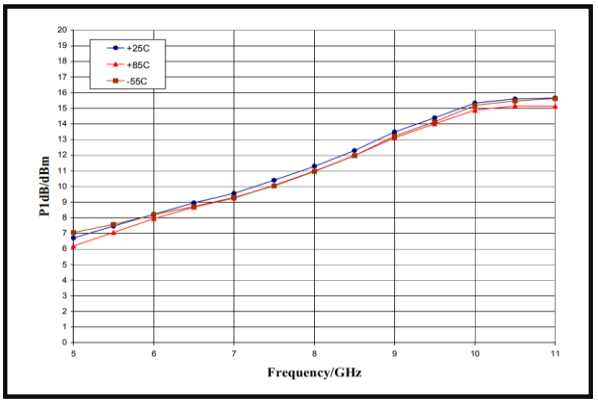

### Noise Figure vs. Temperature



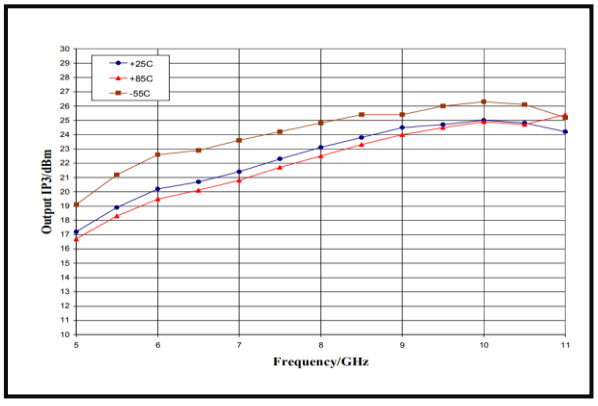

### Output Power




### P1dB vs. Frequency

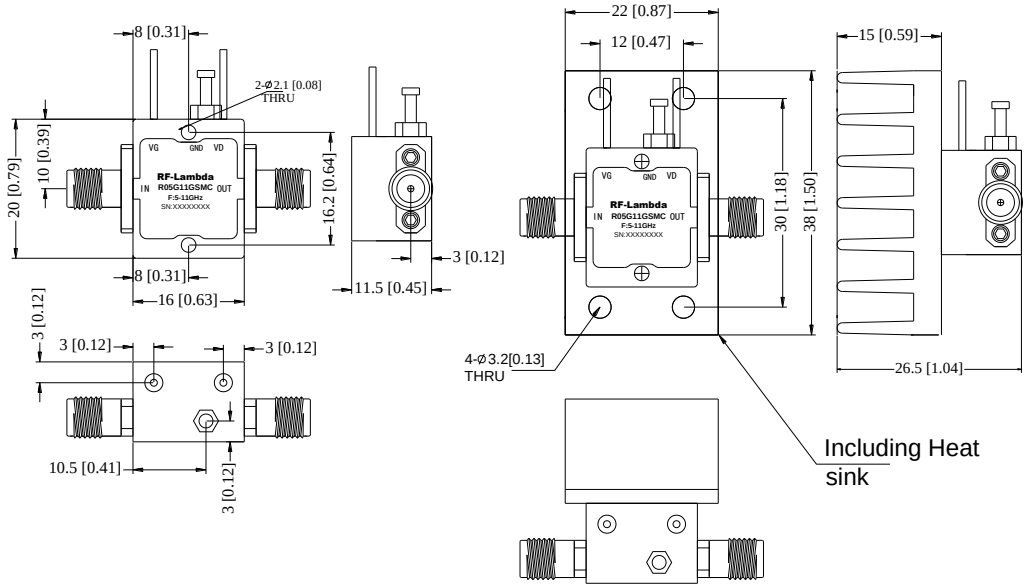



### Output Third Order Intercept (IP3)



## Outline Drawing:

All Dimensions in mm [inches]




Heat Sink required during operation (Sold Separately)

## Ordering Information

| Part No. | ECCN | Description |
|---|---|---|
| R05G11GSMC | EAR99 | 5-11GHz Low Noise Amplifier |

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