



# RF-LAMBDA

The power beyond expectations

R03M03GSA

## Low Noise Amplifier 0.3-3.0GHz NF: 1.6dB



- Cellular/PCS/3G
- WCS, MMDS & ISM
- Fixed Wireless & WLAN
- Private Land Mobile Radio
- Single Supply: Vdd = +3.0 to +3.6V
- Broadband Performance
- Low Noise Figure: 1.6 dB
- High Output IP 3: +35 dBm
- High Gain: 15 dB @ 0.6 GHz

### Electrical Specifications, Vdd= +3.3V

| Parameter                                               | Min. [2] | Typ. [1] | Max. [2] | Min. [2] | Typ. [1] | Max. [2] | Min. [2] | Typ. [1] | Max. [2] | Units  |
|---------------------------------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------|
| Frequency                                               | 0.6      |          |          | 1.0      |          |          | 3.0      |          |          | GHz    |
| Gain                                                    | 14       | 15       |          | 13       | 14.5     |          | 6        | 8.5      |          | dB     |
| Gain Variation Over Temperature<br>(-40 ° C to +25 ° C) |          | 0.005    |          |          | 0.008    |          |          | 0.012    |          | dB/° C |
| Gain Variation Over Temperature<br>(+25 ° C to +85 ° C) |          | 0.004    |          |          | 0.005    |          |          | 0.008    |          |        |
| Noise Figure                                            |          | 2        | 2.6      |          | 1.6      | 2.3      |          | 1.8      | 2.2      | dB     |
| Input Return Loss                                       | 4.5      | 5.5      |          | 6        | 7.5      |          | 8        | 9        |          |        |
| Output Return Loss                                      | 5.5      | 7.5      |          | 8        | 10       |          | 13       | 15       |          |        |
| Output 1 dB Compression (P1dB)                          | 15.5     | 16.5     |          | 16       | 17       |          | 16.5     | 18       |          | dBm    |
| Saturated Output Power (Psat)                           | 17.5     | 18.5     |          | 17.5     | 18.5     |          | 18       | 19       |          |        |
| Output Third Order Intercept (OIP3)                     |          | 34       |          |          | 33.5     |          |          | 36       |          |        |
| Supply Current (Idd) (Vdd = +3.3V)                      |          | 75       |          |          | 75       |          |          | 75       |          | mA     |
| Supply Voltage (Vdd)                                    | 3.0      | 3.3      | 3.6      | 3.0      | 3.3      | 3.6      | 3.0      | 3.3      | 3.6      | V      |

### Absolute Maximum Ratings

|                                                                    |                 |
|--------------------------------------------------------------------|-----------------|
| Drain Bias Voltage (Vdd)                                           | +7.0 Vdc        |
| RF Input Power (RFIN)(Vdd = +5.0 Vdc)                              | 15 dBm          |
| Channel Temperature                                                | 150 ° C         |
| Continuous Pdiss (T = 85 ° C)<br>(derate 4.88 mW/° C above 85 ° C) | 0.32 W          |
| Thermal Resistance<br>(channel to lead)                            | 205° C/W        |
| Storage Temperature                                                | -65 to +150 ° C |
| Operating Temperature                                              | -40 to +85 ° C  |
| ESD Sensitivity (HBM)                                              | Class 0         |

### Typical Supply Current vs. Vdd

| Vdd (V) | Idd (mA) |
|---------|----------|
| 3       | 75       |
| 3.3     | 75       |
| 3.6     | 75       |



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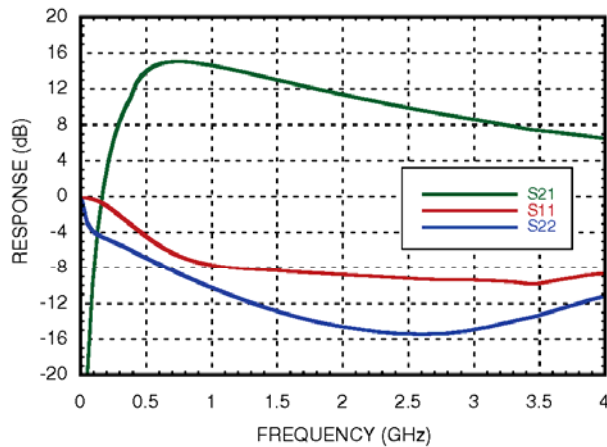


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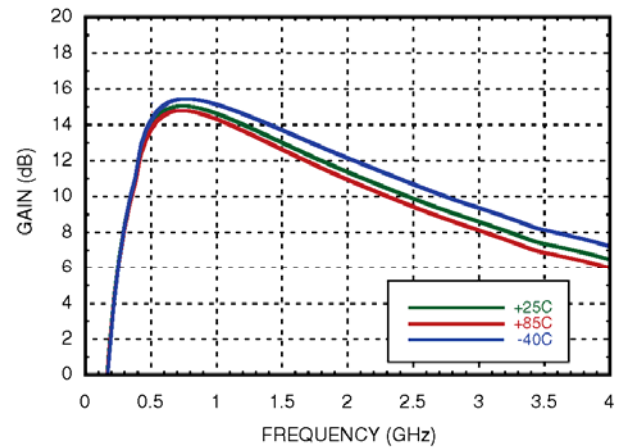
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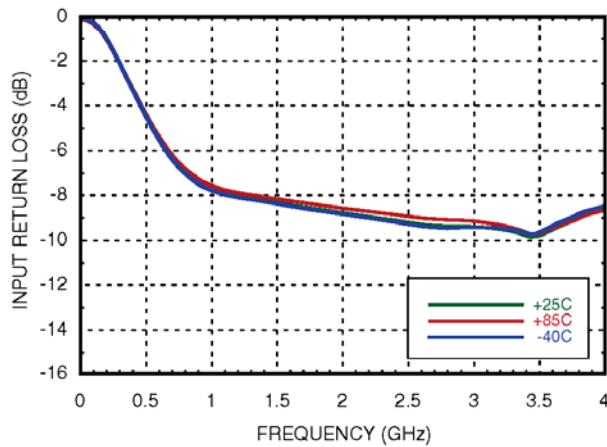
### Broadband Gain & Return Loss



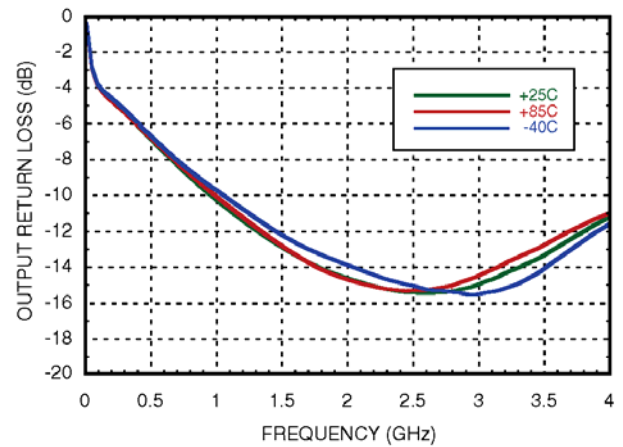
### Gain vs. Temperature



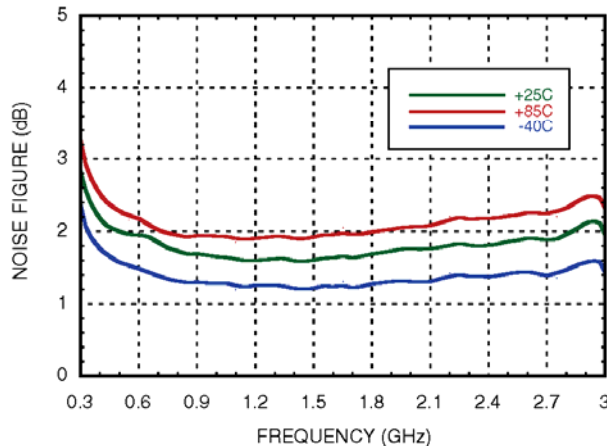
### Input Return Loss vs. Temperature



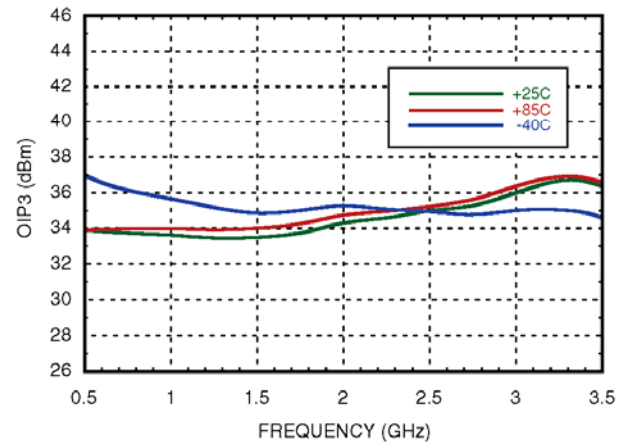
### Output Return Loss vs. Temperature



### Noise Figure vs. Temperature



### Output IP3 vs. Temperature <sup>[1]</sup>



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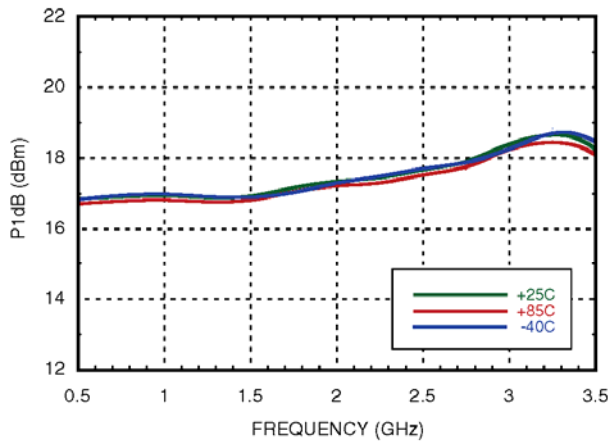
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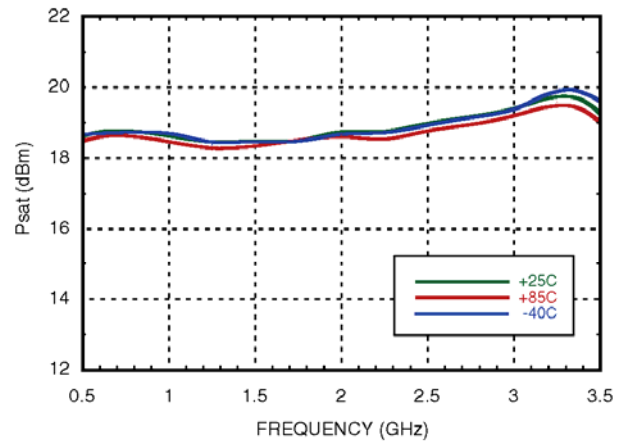
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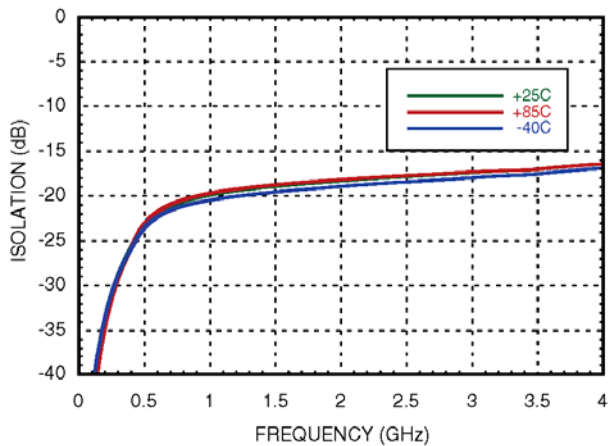
**Output P1dB vs. Temperature**



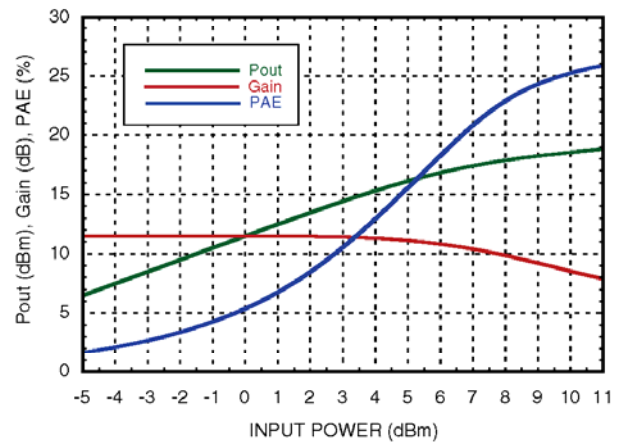
**Output Psat vs. Temperature**



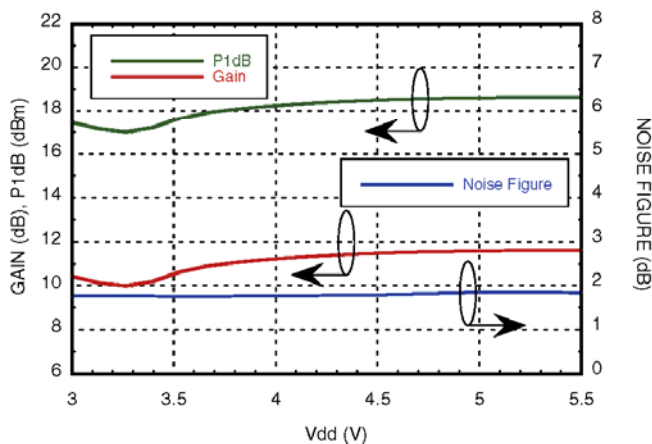
**Reverse Isolation vs. Temperature**



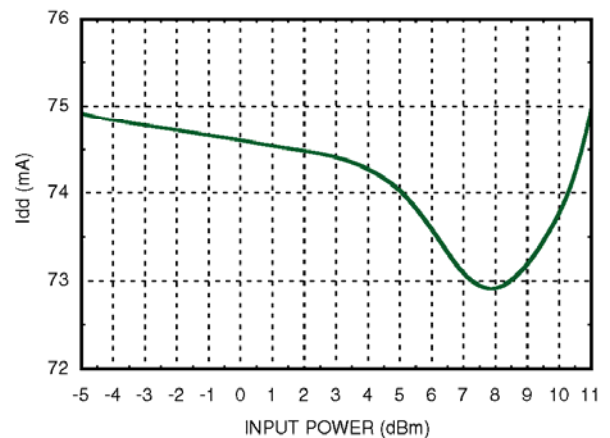
**Pout, Gain & PAE @ 2 GHz**



**Gain, Noise Figure & P1dB vs. Supply Voltage @ 2 GHz**



**Supply Current vs. Input Power @ 2 GHz**

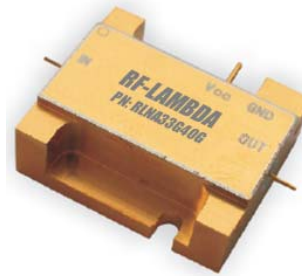
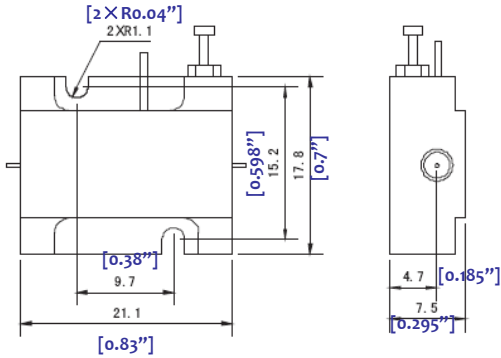




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**Heat Sink required during operation. (Heat Sink sold separately)**

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