



Features

- Very Low Noise 1.1 dB Typ.
- High +36 dBm Typ. IP3
- 16 dB Typical Gain
- 6.0 Volt Bias
- 26% High Power Added Efficiency

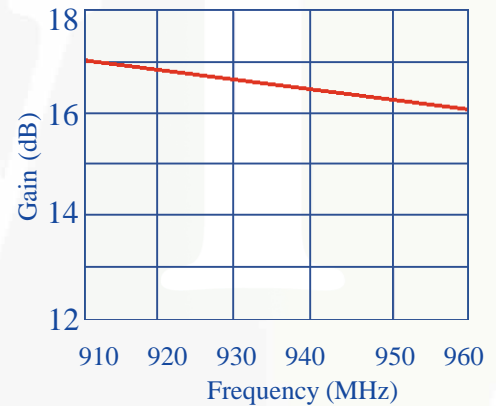
The MPS-0909A9-85 is a low noise, high dynamic range amplifier designed for PDC receiver applications. The circuit is matched to 50 ohm and employs a single stage GaAs FET with internal matching to provide exceptional noise figure, 1.1 dB combined with extremely high IP3, +36 dBm. Typical applications are cellular base station receivers, Tower mounted LNA's, smart antenna systems and receiver multi-couplers.

Specifications

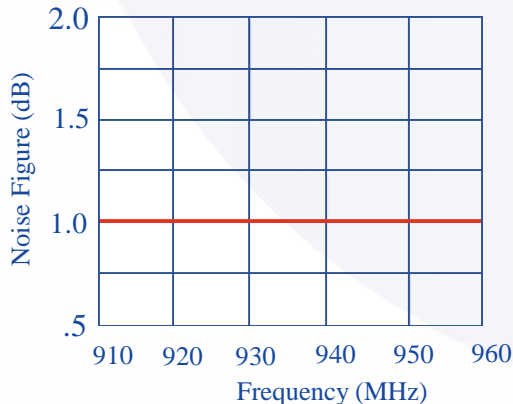
- Electrical at 25°C, V_{dd}= 6.0 V, Z_o= 50 Ω

| Symbol | Parameter | Min. | Typical | Max | Unit |
|-----------------|---------------------------|------|---------|--------|-------|
| Freq | Frequency Range | 925 | | 960 | MHz |
| SSG | Small Signal Gain | 14 | 16 | | dB |
| P1dB | P out at 1 dB Compression | | +22.0 | | dBm |
| IP3 | Third-order Intercept | +33 | +36.0 | | dBm |
| NF | Noise Figure | | 1.1 | 1.5 | dB |
| VSWR | Input VSWR | | 2.0:1 | 2.5:1 | |
| ΔGOF | Gain Variation over Freq. | | +/-0.2 | +/-0.5 | dB |
| ΔGOT | Gain Variation over Temp. | | -0.15 | | dB/°C |
| I _{dd} | DC Current | | 180 | 250 | mA |
| PAE | Power Added Efficiency | | 26 | | % |

Gain vs. Frequency



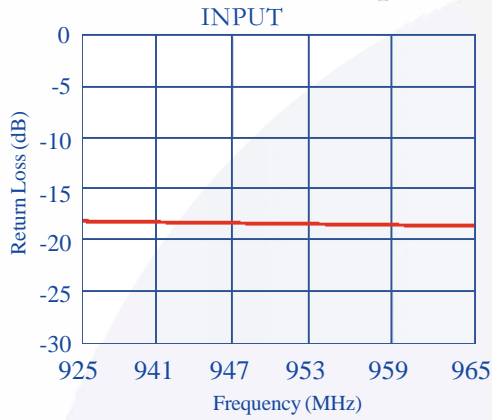
Noise Figure vs. Frequency



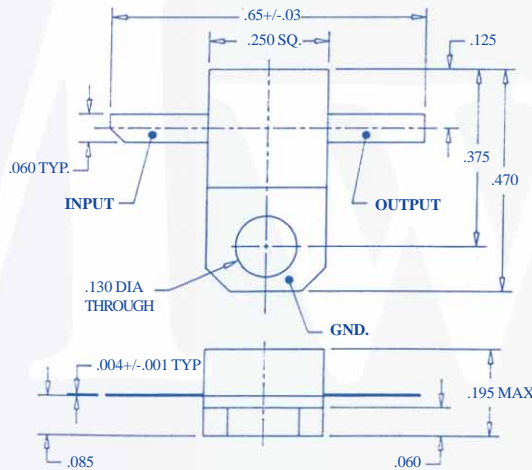
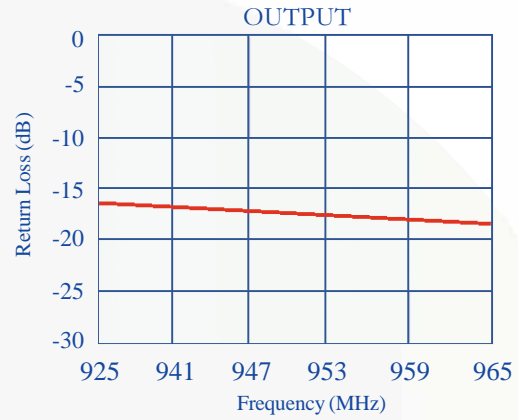
• Absolute Maximum Ratings

| | |
|------------------------------------|-----------------|
| Maximum Bias Voltage | 7.0 V |
| Maximum Continuous RF Input Power | 240 mW |
| Maximum Peak Input Power | 360 mW |
| Maximum Case Operating Temperature | +85°C |
| Maximum Storage Temperature | -65°C to +150°C |

Return Loss vs. Frequency



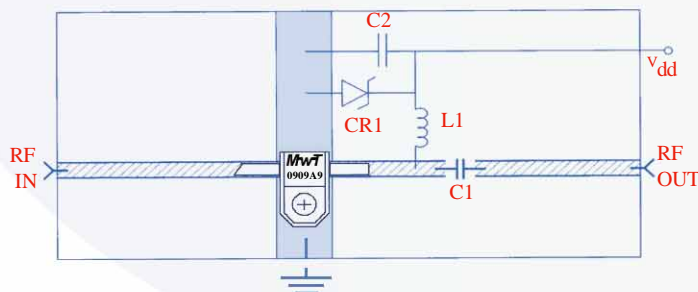
Return Loss vs. Frequency



| Pin | Connection |
|------|----------------|
| 1 | N/C |
| 2 | N/C |
| 3 | RF Input |
| 4 | N/C |
| 5 | N/C |
| 6 | N/C |
| 7 | N/C |
| 8 | RF Output, Vdd |
| 9 | N/C |
| 10 | N/C |
| Case | Ground |

Outline Diagrams

Application Circuit



| | | |
|-----|-------------|-----------------------------|
| C1 | 100 pF | Chip Capacitor |
| C2 | .22 μ F | Capacitor |
| L1 | 160 nH | Printer or Wound Coil |
| CR1 | 8.0 V | Zener Diode |
| | | 50 Ω Microstrip Line |