



## Features

- Very Low Noise 0.8 dB Typ.
- High +36 dBm Typ. IP3
- 13.5 dB Typical Gain
- 7.5 Volt Bias
- 26% High Power Added Efficiency

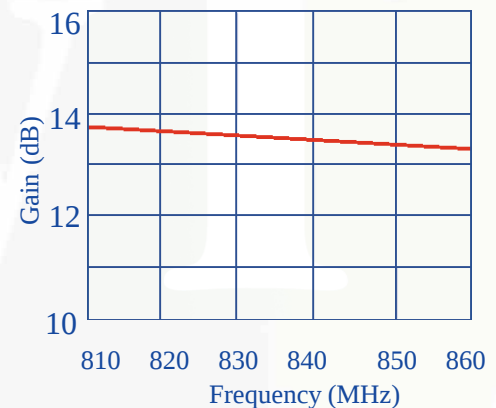
The MPS-080817N-85 is a low noise, high dynamic range amplifier designed for ultralinear receiver applications in the 806 to 849 MHz frequency range. The circuit is matched to 50 ohm and employs a single stage GaAs FET with internal matching to provide exceptional noise figure, 0.8 dB combined with extremely high IP3, +36 dBm. Typical applications are cellular base station receivers, Tower mounted LNA's, smart antenna systems, picocell repeaters and receiver multi-couplers.

## Specifications

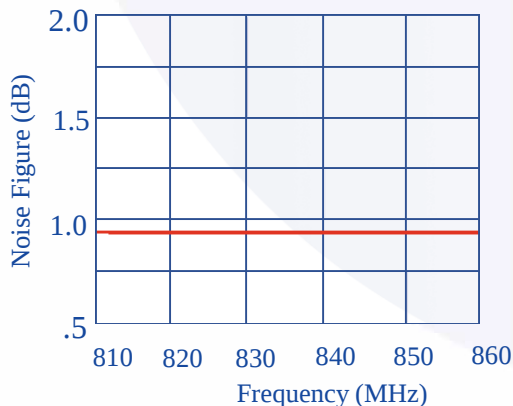
- Electrical at 25°C, V<sub>dd</sub>= 7.5 V, Z<sub>o</sub>= 50 Ω

| Symbol          | Parameter                 | Min. | Typical | Max    | Unit  |
|-----------------|---------------------------|------|---------|--------|-------|
| Freq            | Frequency Range           | 806  |         | 849    | MHz   |
| SSG             | Small Signal Gain         | 12   | 13.5    |        | dB    |
| P1dB            | P out at 1 dB Compression |      | +23.0   |        | dBm   |
| IP3             | Third-order Intercept     | +33  | +36.0   |        | dBm   |
| NF              | Noise Figure              |      | 0.8     | 1.0    | 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. |      | -0.015  |        | dB/°C |
| I <sub>dd</sub> | DC Current                |      | 180     | 250    | mA    |
| PAE             | Power Added Efficiency    |      | 26      |        | %     |

Gain vs. Frequency



Noise Figure vs. Frequency



## Absolute Maximum Ratings

|                                    |                 |
|------------------------------------|-----------------|
| Maximum Bias Voltage               | 8.0 V           |
| Maximum Continuous RF Input Power  | 950 mW          |
| Maximum Peak Input Power           | 1400 mW         |
| Maximum Case Operating Temperature | +85°C           |
| Maximum Storage Temperature        | -65°C to +150°C |



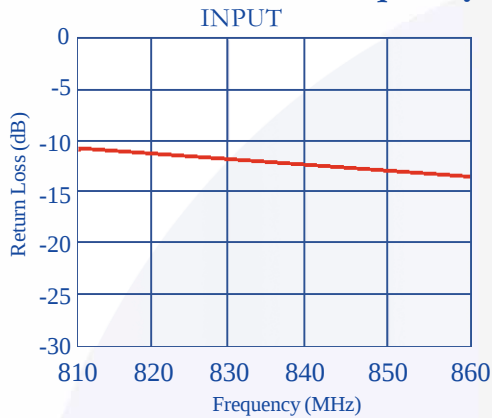
# MPS-080817N-85

806 to 849 MHz Low Noise Receiver Amplifier

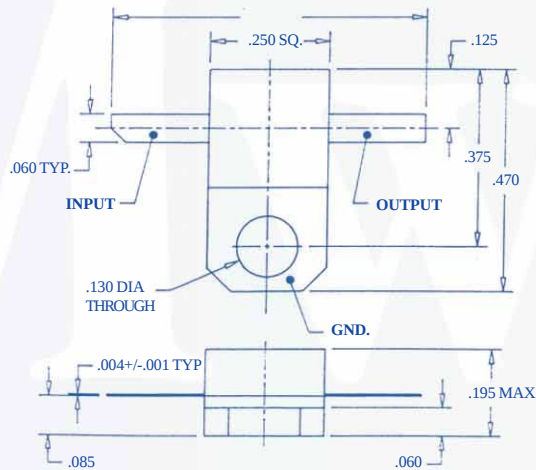
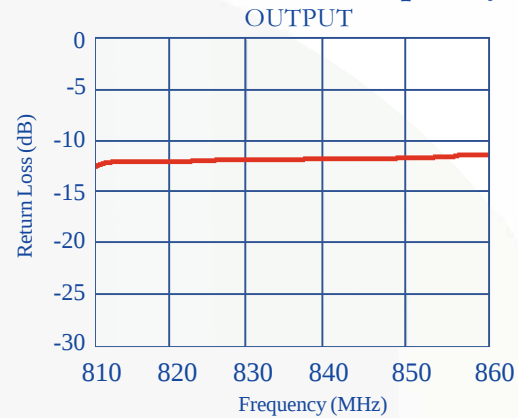
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## Return Loss vs. Frequency



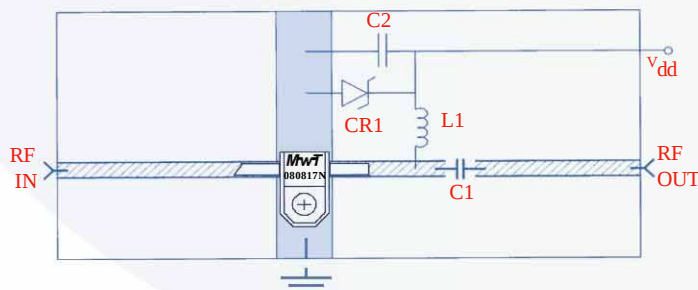
## Return Loss vs. Frequency



| Pin  | Connection     |
|------|----------------|
| 1    | N/C            |
| 2    | N/C            |
| 3    | RF Input       |
| 4    | NC             |
| 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 $\mu$ F | Capacitor                   |
| L1  | 160 nH      | Printer or Wound Coil       |
| CR1 | 8.0 V       | Zener Diode                 |
|     |             | 50 $\Omega$ Microstrip Line |