

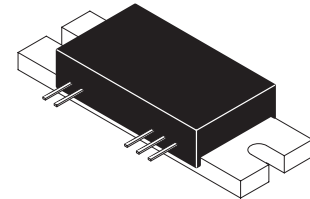
The RF Line UHF Silicon FET Power Amplifier

Designed specifically for the European Digital Extended Group Special Mobile (GSM) Base Station applications in the 925–960 MHz frequency range. MHW910 operates from a 24 volt supply and requires 17 dBm of RF input power. It includes a micropower voltage regulator in the biasing circuit. This allows MHW910 to operate from any bias voltage between 8 and 28 volts.

- Specified 24 Volt Characteristics:
 - RF Input Power — 17 dBm Maximum
 - RF Output Power — 10 W @ 1 dB Compression Point
 - Minimum Gain — 23 dB
 - Harmonics — -35 dBc Maximum @ 2 f_o
- 50 Ω Input/Output System

MHW910

10 W
925 – 960 MHz
RF POWER AMPLIFIER



CASE 301AB-02, STYLE 1

MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|----------------------------------|------------------|-------------|------|
| DC Supply Voltage | V _S | 28 | Vdc |
| DC Bias Voltage | V _B | 28 | Vdc |
| RF Input Power | P _{in} | 21 | dBm |
| RF Output Power | P _{out} | 30 | W |
| Operating Case Temperature Range | T _C | -40 to +95 | °C |
| Storage Temperature Range | T _{stg} | -40 to +100 | °C |

ELECTRICAL CHARACTERISTICS (V_{S1} = V_{S2} = 24 Vdc, V_{bias} = 8 to 28 Vdc, T_C = 25°C, 50 Ω system, unless otherwise noted)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|--|--------------------|---|-----|-----|------|
| Frequency Range | BW | 925 | – | 960 | MHz |
| Total Quiescent Current (P _{in} = 0 mW) | I _Q | – | 160 | – | mA |
| Power Gain (P _{out} = 10 W) ⁽¹⁾ | G _p | 23 | – | – | dB |
| Output Power at 1 dB Compression | P _{1dB} | 10 | – | – | W |
| Efficiency (P _{out} = 10 W) | η | 35 | 40 | – | % |
| Input VSWR (P _{out} = 10 W) | VSWR _{in} | – | – | 2:1 | – |
| Harmonics (P _{out} = 10 W) | | | | | |
| 2f _o | H2 | – | – | -35 | dBc |
| 3f _o | H3 | – | – | -45 | dBc |
| Ripple (P _{out} = 10 W) | – | – | – | 2 | dB |
| Power Gain Variation (P _{out} = 1 mW to 10 W) | – | – | – | 2 | dB |
| Load Mismatch Stress (P _{out} = 10 W; Load VSWR 3:1, All Phase Angles) | ψ | No Degradation in Output Power | | | |
| Stability (P _{out} = 10 mW to 10 W; Load VSWR 3:1; All Phase Angles; T _C = -40°C to +95°C) | – | All Spurious Outputs More Than 70 dB Below Desired Signal | | | |

(1) Adjust P_{in} for specified P_{out}.

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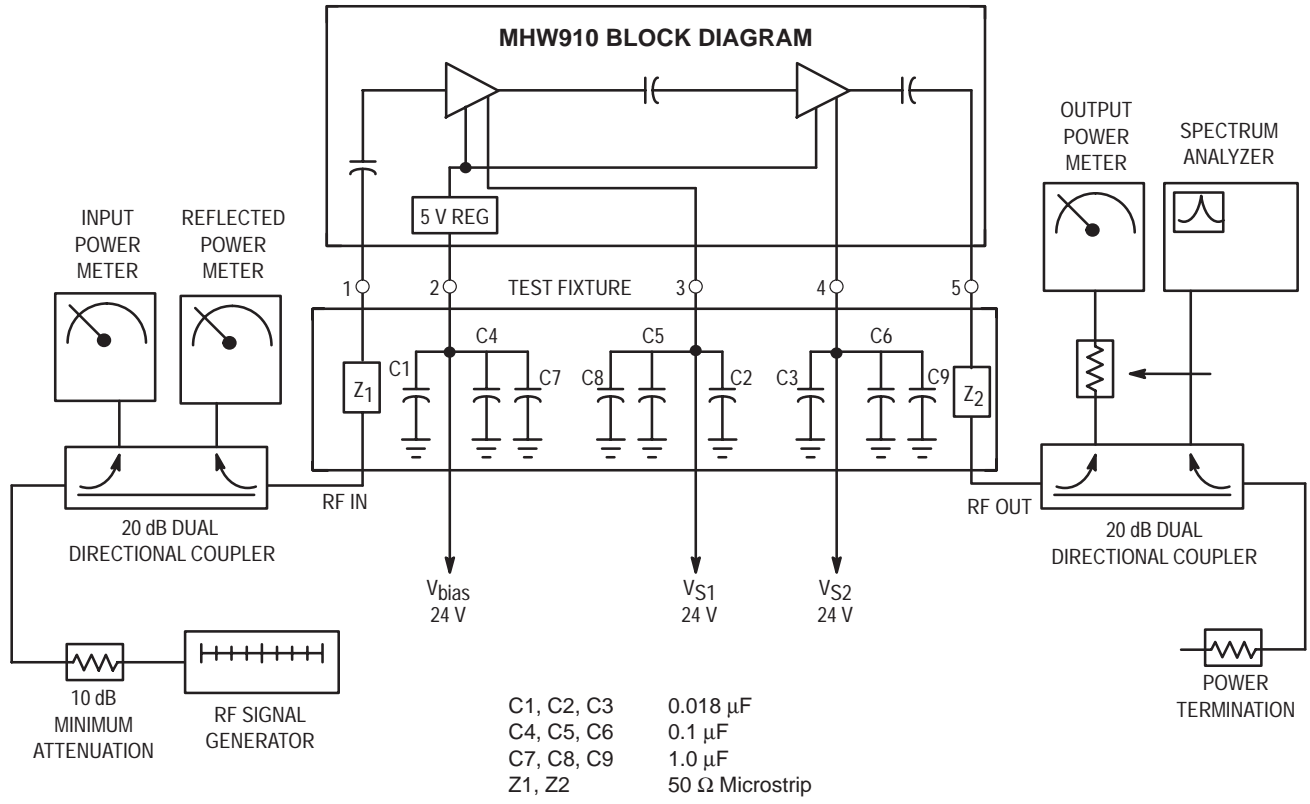


Figure 1. MHW910 Test Circuit Diagram

TYPICAL CHARACTERISTICS

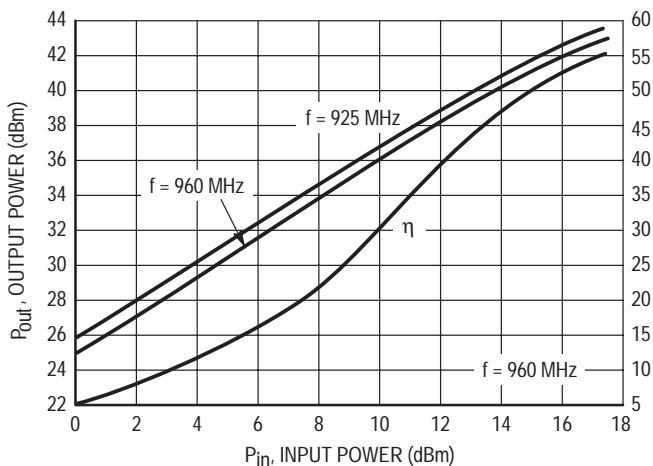


Figure 2. Output Power versus Input Power

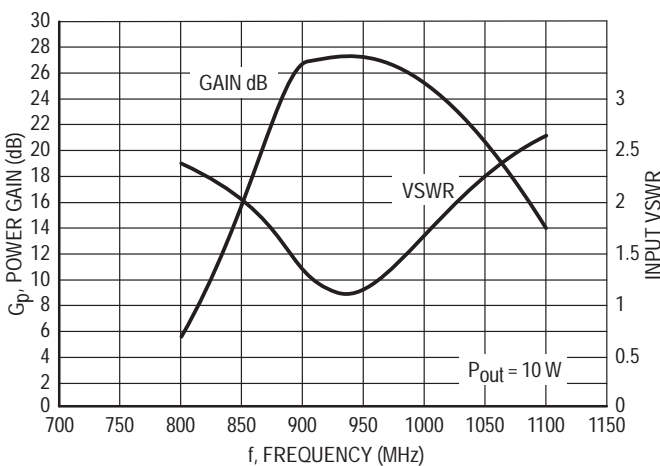


Figure 3. Power Gain versus Frequency

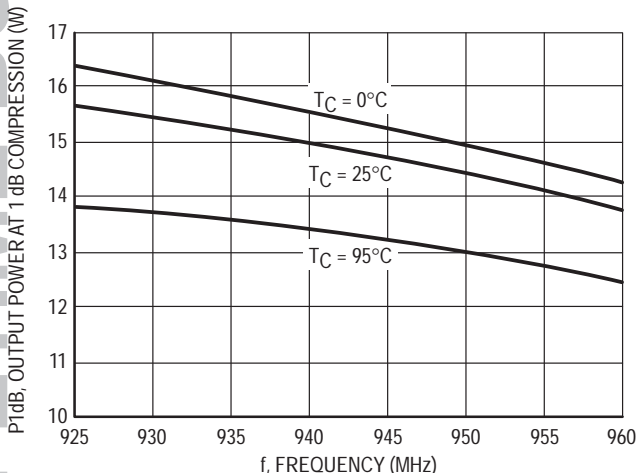


Figure 4. P1dB versus Temperature

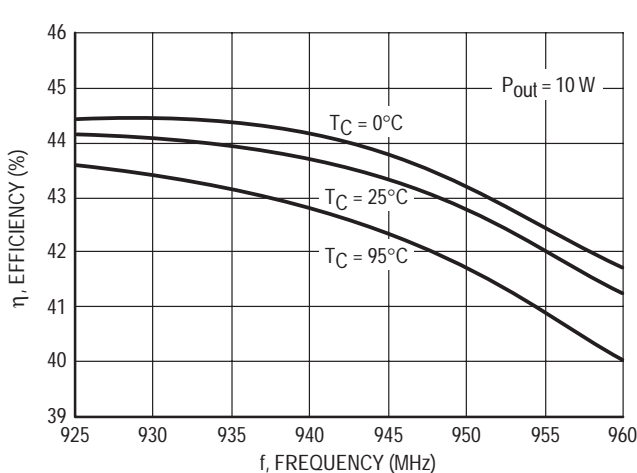


Figure 5. Efficiency versus Temperature

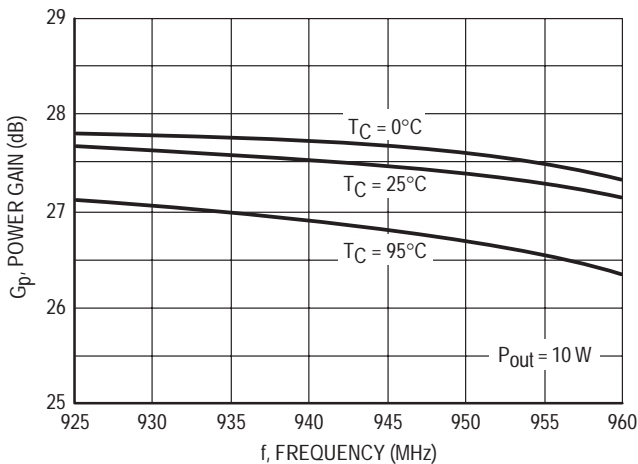
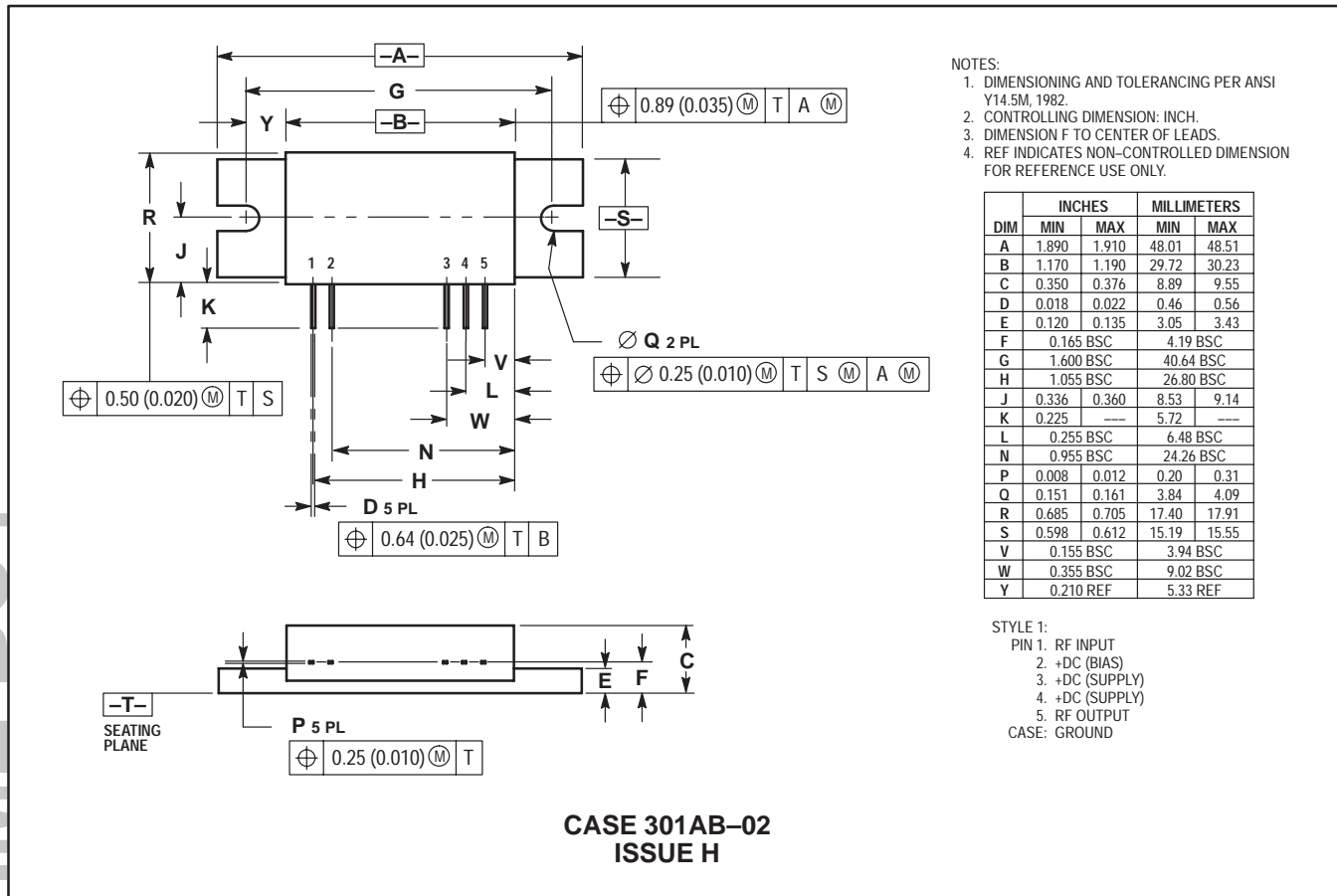


Figure 6. Power Gain versus Temperature

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