

# The RF Line

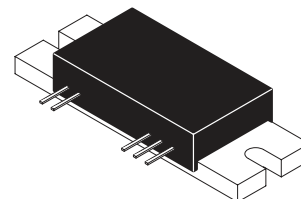
## UHF Silicon FET Power Amplifier

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<sub>o</sub>
- 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 <sub>S</sub>	28	Vdc
DC Bias Voltage	V <sub>B</sub>	28	Vdc
RF Input Power	P <sub>in</sub>	21	dBm
RF Output Power	P <sub>out</sub>	30	W
Operating Case Temperature Range	T <sub>C</sub>	-40 to +95	°C
Storage Temperature Range	T <sub>stg</sub>	-40 to +100	°C

### ELECTRICAL CHARACTERISTICS (V<sub>S1</sub> = V<sub>S2</sub> = 24 Vdc, V<sub>bias</sub> = 8 to 28 Vdc, T<sub>C</sub> = 25°C, 50 Ω system, unless otherwise noted)

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

(1) Adjust P<sub>in</sub> for specified P<sub>out</sub>.

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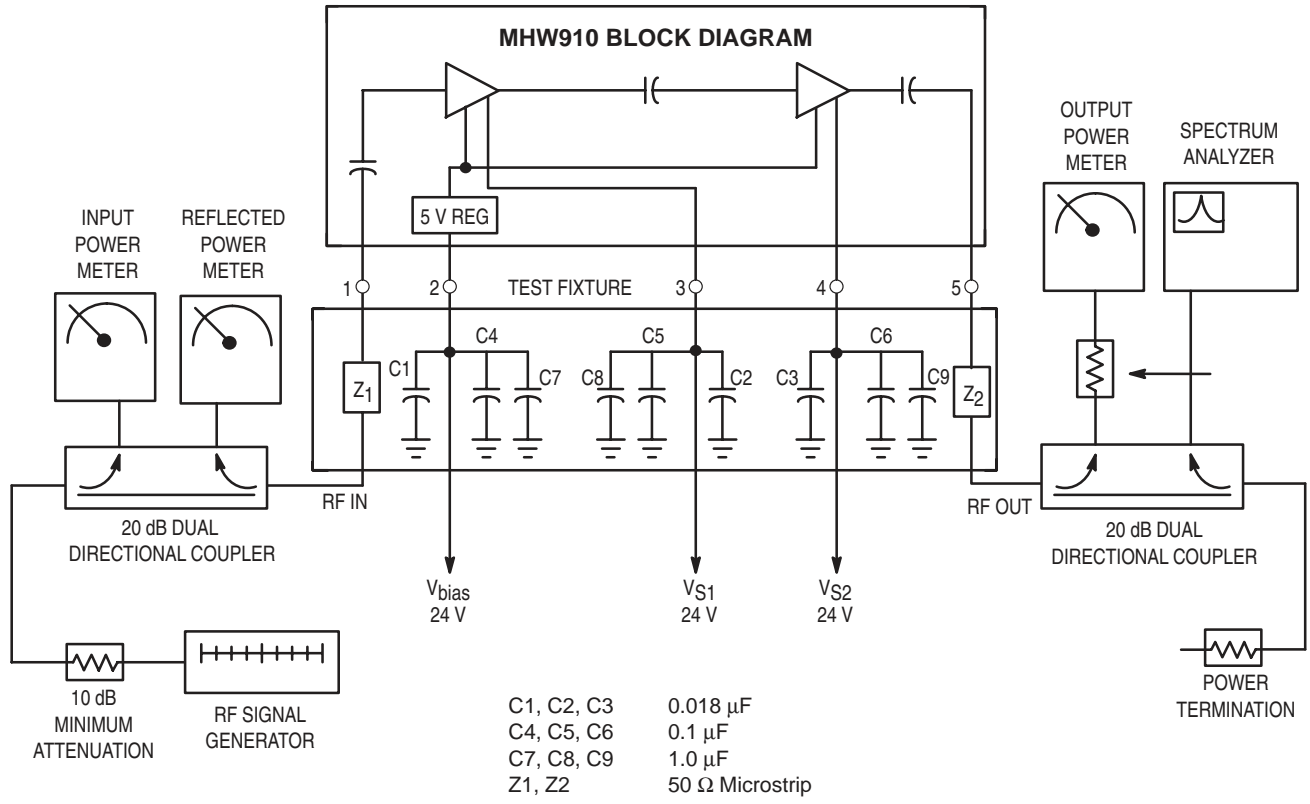


Figure 1. MHW910 Test Circuit Diagram

## TYPICAL CHARACTERISTICS

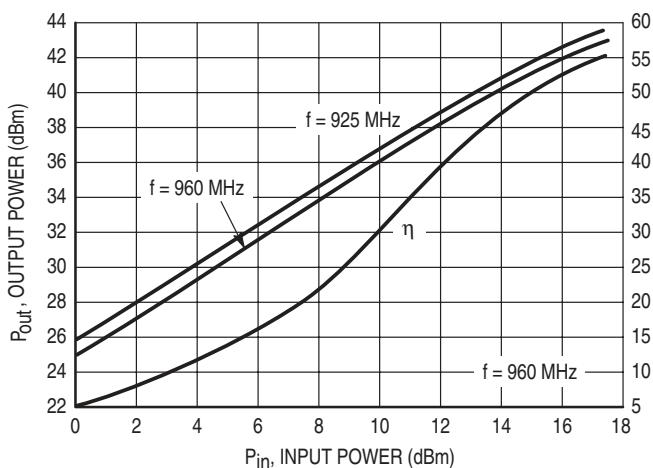


Figure 2. Output Power versus Input Power

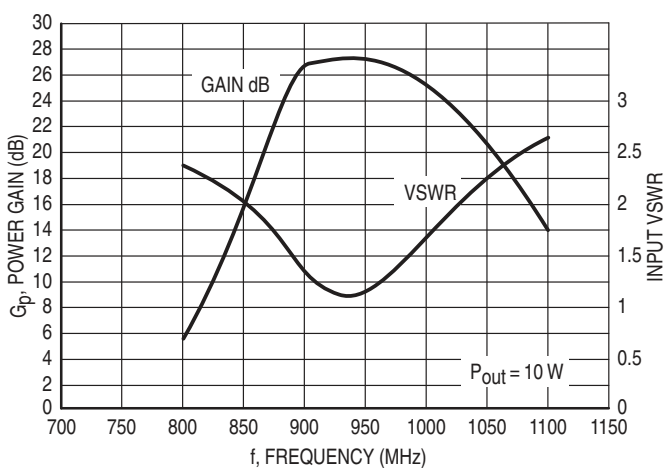


Figure 3. Power Gain versus Frequency

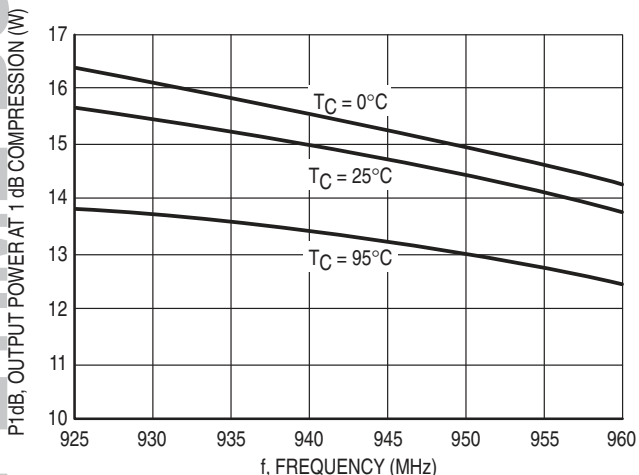


Figure 4. P1dB versus Temperature

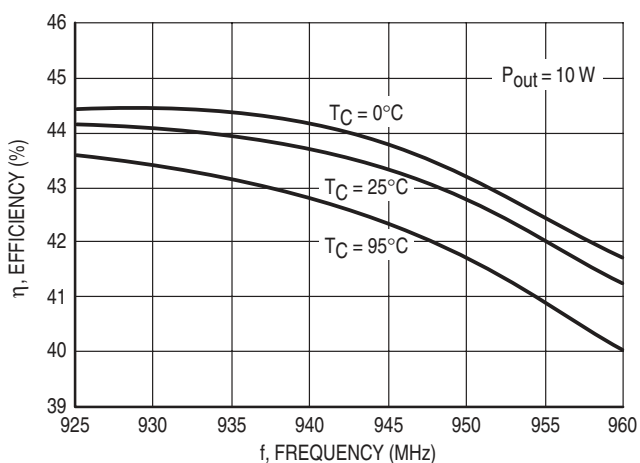


Figure 5. Efficiency versus Temperature

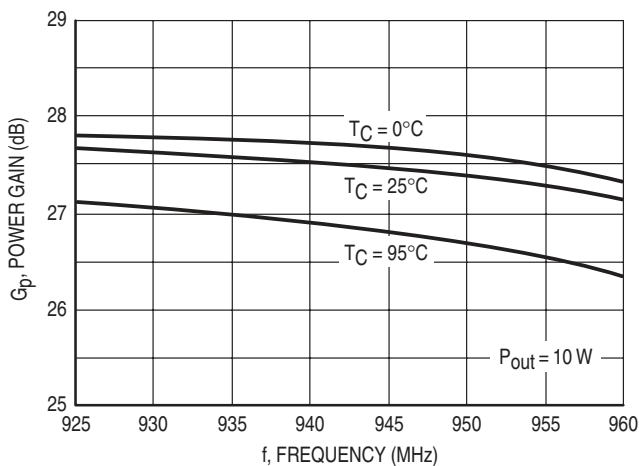
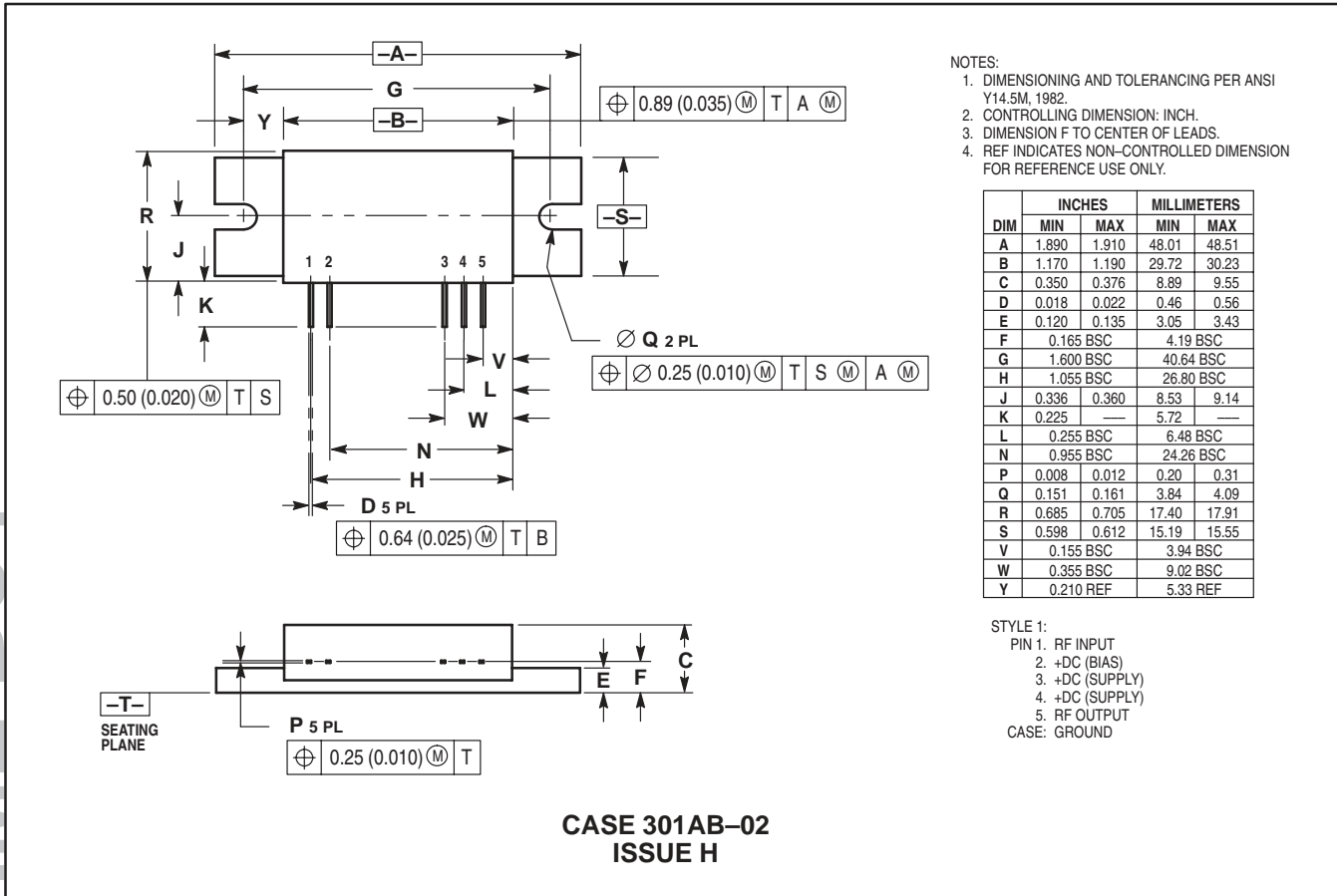


Figure 6. Power Gain versus Temperature

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