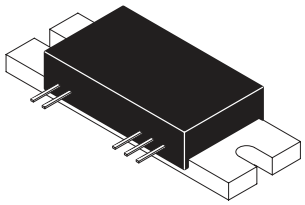
The RF Line
UHF Silicon FET Power Amplifier

MHW910

10 W
925 – 960 MHz
RF 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



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	P1dB	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) $2f_o$ $3f_o$	 H2 H3	 – –	 – –	 –35 –45	 dBc 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}.

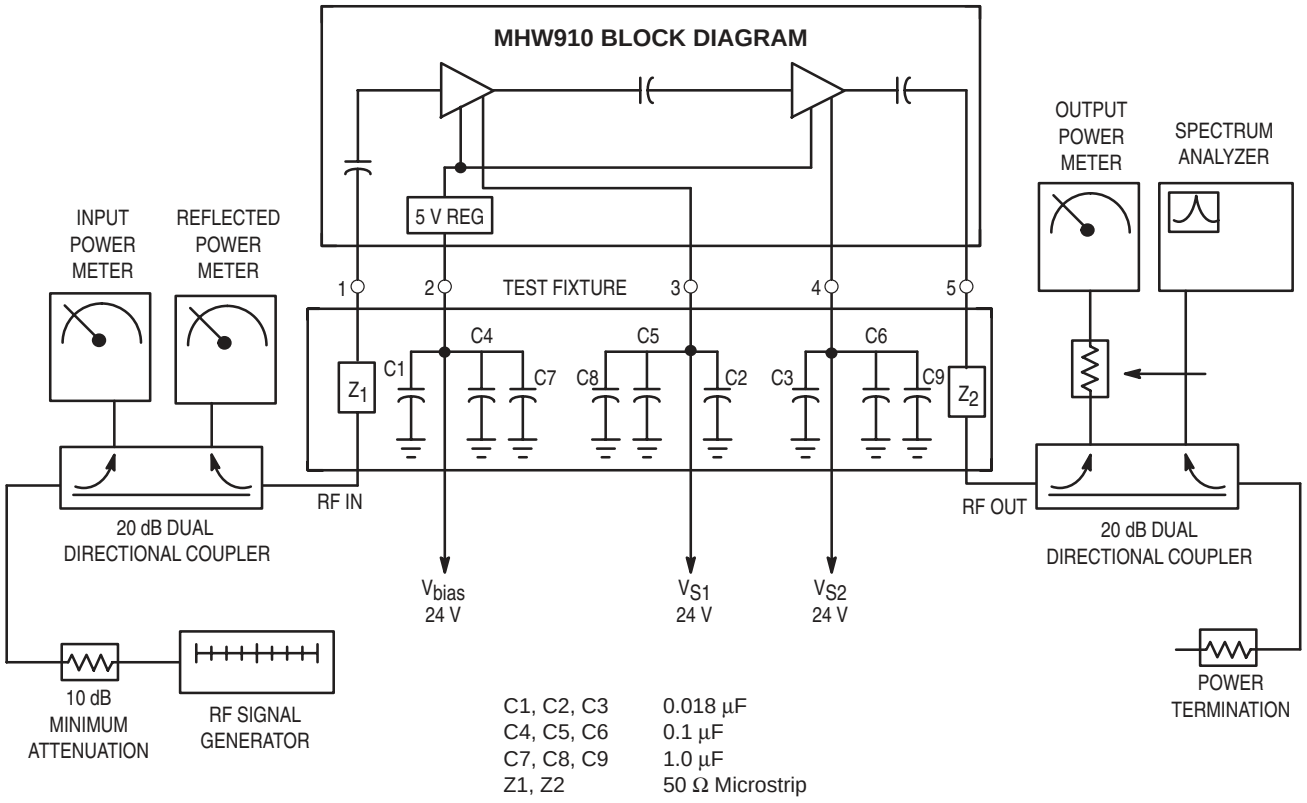


Figure 1. MHW910 Test Circuit Diagram

TYPICAL CHARACTERISTICS

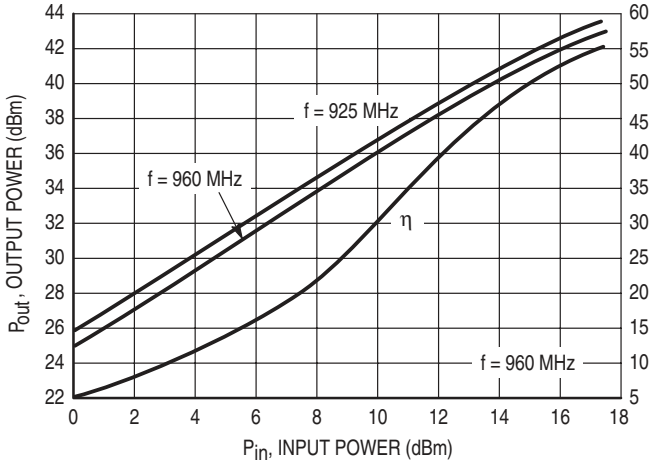


Figure 2. Output Power versus Input Power

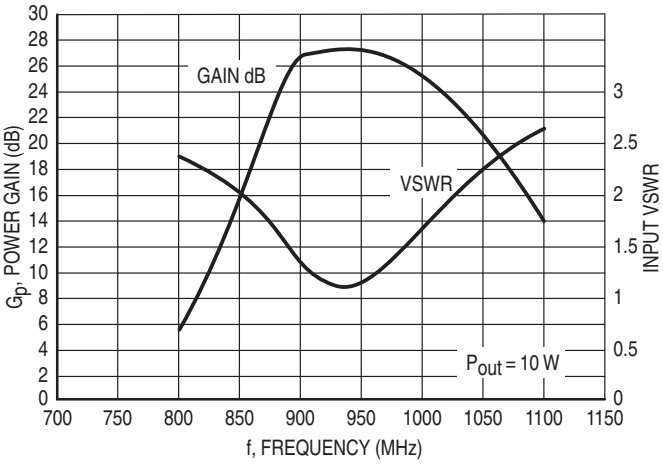


Figure 3. Power Gain versus Frequency

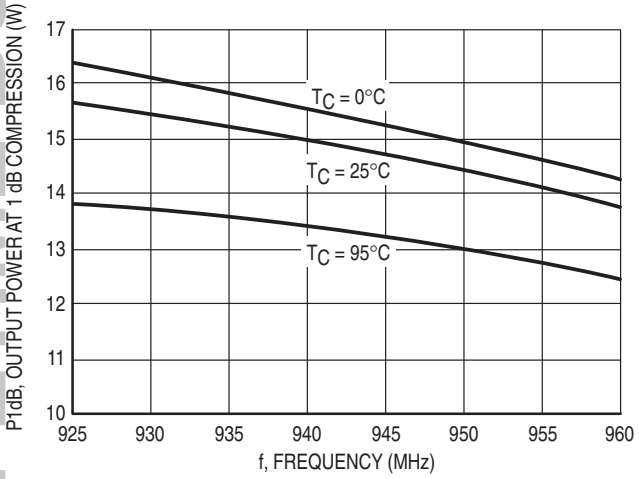


Figure 4. P1dB versus Temperature

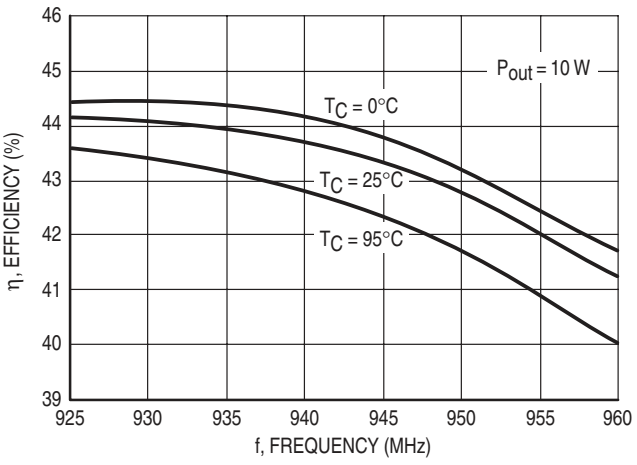


Figure 5. Efficiency versus Temperature

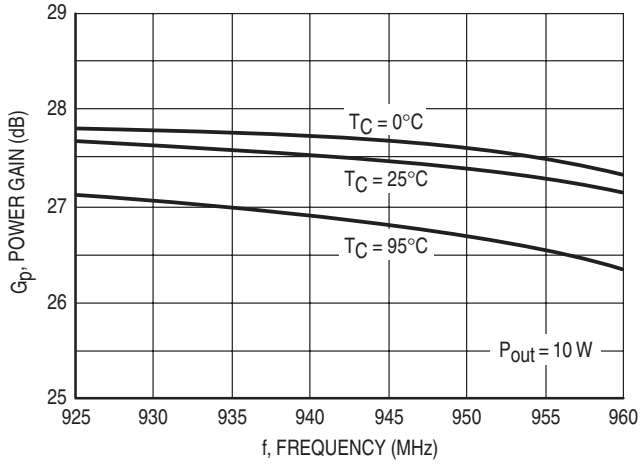
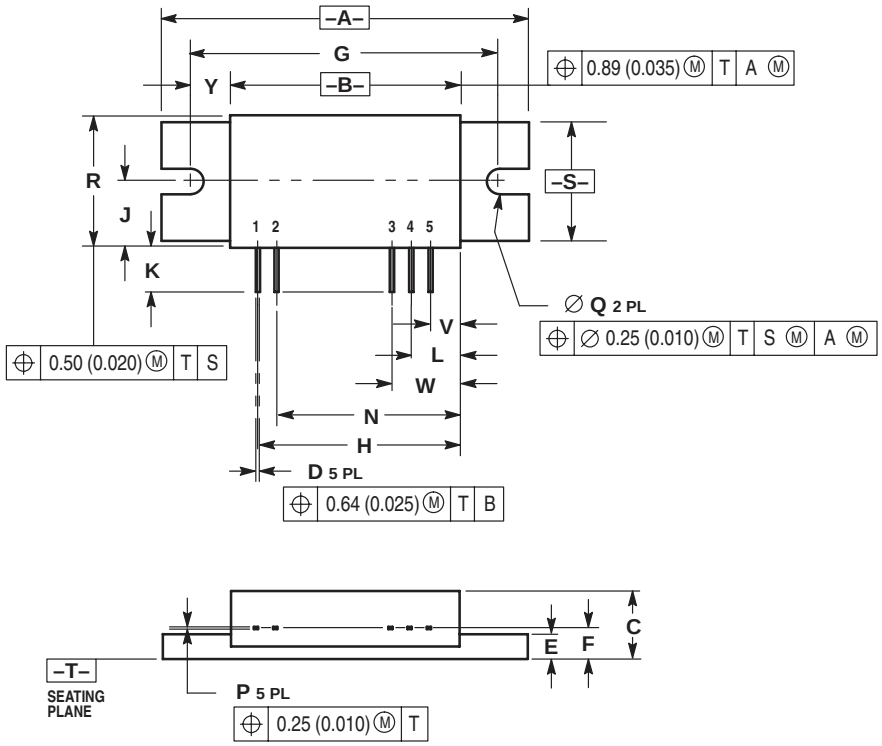


Figure 6. Power Gain versus Temperature

PACKAGE DIMENSIONS



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION F TO CENTER OF LEADS.
4. REF INDICATES NON–CONTROLLED DIMENSION FOR REFERENCE USE ONLY.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	1.890	1.910	48.01	48.51
B	1.170	1.190	29.72	30.23
C	0.350	0.376	8.89	9.55
D	0.018	0.022	0.46	0.56
E	0.120	0.135	3.05	3.43
F	0.165 BSC		4.19 BSC	
G	1.600 BSC		40.64 BSC	
H	1.055 BSC		26.80 BSC	
J	0.336	0.360	8.53	9.14
K	0.225	—	5.72	—
L	0.255 BSC		6.48 BSC	
N	0.955 BSC		24.26 BSC	
P	0.008	0.012	0.20	0.31
Q	0.151	0.161	3.84	4.09
R	0.685	0.705	17.40	17.91
S	0.598	0.612	15.19	15.55
V	0.155 BSC		3.94 BSC	
W	0.355 BSC		9.02 BSC	
Y	0.210 REF		5.33 REF	

STYLE 1:
PIN 1. RF INPUT
2. +DC (BIAS)
3. +DC (SUPPLY)
4. +DC (SUPPLY)
5. RF OUTPUT
CASE: GROUND

CASE 301AB–02
ISSUE H

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51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852–26629298

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