

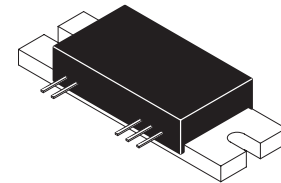
## The RF Line UHF Silicon FET Power Amplifier

Designed specifically for the European Digital Extended Group Special Mobile (GSM) Base Station applications in the 925–960 MHz frequency range. MHW916 operates from a 26 Volt supply and requires 15.5 dBm of RF input power.

- Specified 26 Volt Characteristics
  - RF Input Power: 15.5 dBm Max
  - RF Output Power: 16 Watts at 1.0 dB Compression Point
  - Minimum Gain: 26.5 dB
  - Harmonics: –35 dBc Max at 2Fo
- 50 Ω Input/Output System
- Meet GSM Linearity Specification for Base Station up to 12.5 Watts

**MHW916**

**16 WATT  
925–960 MHz  
RF POWER  
AMPLIFIER**



CASE 301AB–02, STYLE 1

### MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
DC Supply Voltage	V <sub>S</sub>	28	Vdc
DC Bias Voltage	V <sub>B</sub>	16	Vdc
RF Input Power	P <sub>in</sub>	19	dBm
RF Output Power	P <sub>out</sub>	25	W
Operating Case Temperature Range	T <sub>C</sub>	–5.0 to +85	°C
Storage Temperature Range	T <sub>stg</sub>	–30 to +100	°C
Standby Current (Pin Removed, I <sub>stdby</sub> = I <sub>S1</sub> + I <sub>S2</sub> )	I <sub>stdby</sub>	400	mA

### ELECTRICAL CHARACTERISTICS (T<sub>C</sub> = 25°C, V<sub>S1</sub> = V<sub>S2</sub> = 26 Vdc, V<sub>bias</sub> = 15 Vdc, 50 ohm system)

Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range	BW	925	—	960	MHz
Quiescent Current (P <sub>in</sub> = 0 mW)	I <sub>dq1</sub> + I <sub>dq2</sub>	—	400	—	mA
Power Gain (P <sub>out</sub> = 16 W) (1)	G <sub>p</sub>	26.5	30	32.5	dB
Output Power at 1.0 dB Compression	P <sub>1dB</sub>	16	—	—	W
Efficiency (1.0 dB Compression Power)	η <sub>1</sub>	37	44	—	%
Efficiency (P <sub>out</sub> = 16 W) (1)	η <sub>2</sub>	33	39	—	%
Input VSWR (P <sub>out</sub> = 16 W) (1)	VSWR <sub>in</sub>	—	—	2:1	—
Harmonic 2 f <sub>o</sub> (P <sub>out</sub> = 16 W) (1)	H <sub>2</sub>	—	–40	–35	dBc
Harmonic 3 f <sub>o</sub> (P <sub>out</sub> = 16 W) (1)	H <sub>3</sub>	—	–60	–45	dBc
Ripple (P <sub>out</sub> = 16 W) (1)	R <sub>p</sub>	—	1.0	—	dB
Load Mismatch Stress (P <sub>out</sub> = 16 W) Load VSWR = 5:1, All Phase Angles	Ψ	No Degradation in Output Power			
Stability (P <sub>out</sub> = 10 mW to 16 W) Load VSWR = 3:1, All Phase Angles (Except Harmonics)	—	All Spurious Outputs More Than 60 dB Below Desired Signal			
Stability (P <sub>out</sub> = –5.0 dBm to 42 dBm, f = 925 to 960 MHz) Load VSWR = 2:1, All Phase Angles	—	All Spurious Outputs Lower Than –46 dBm or –85 dBc (Whichever the Higher)			

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

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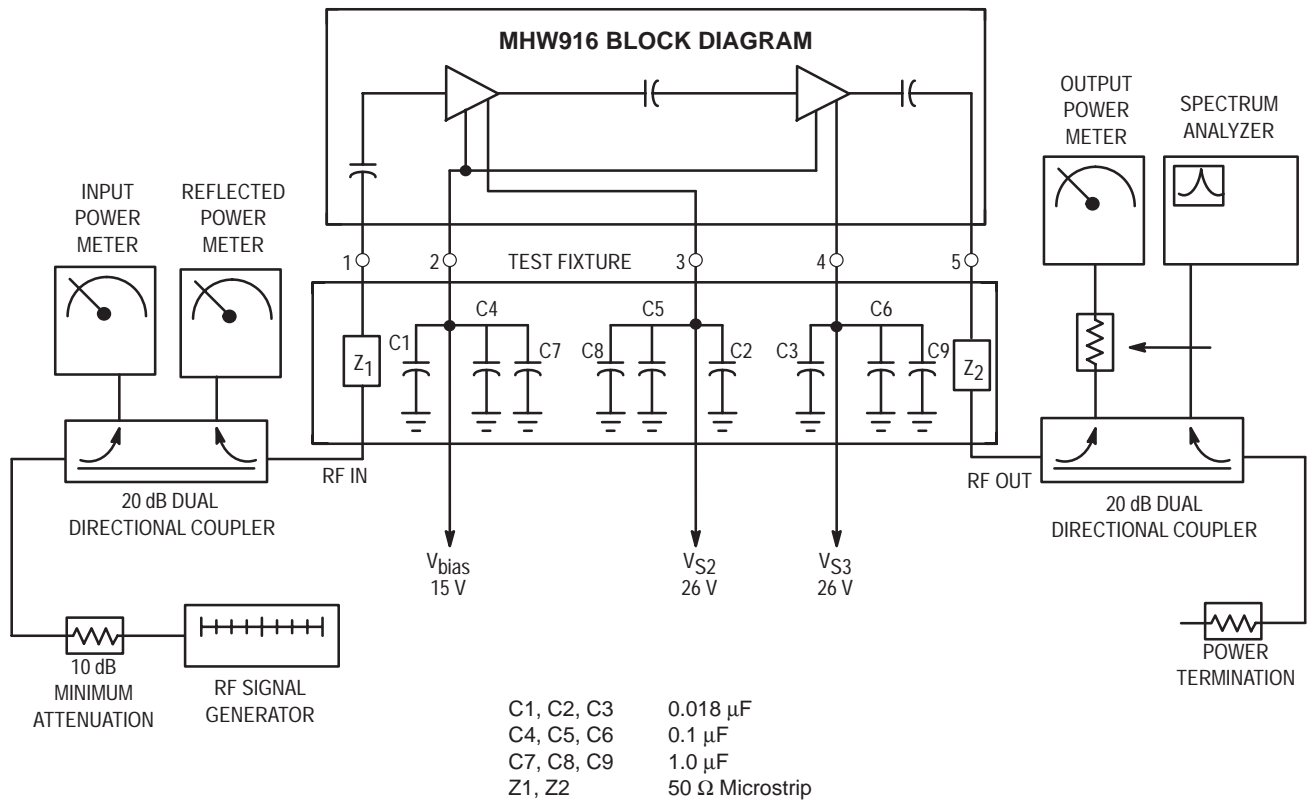
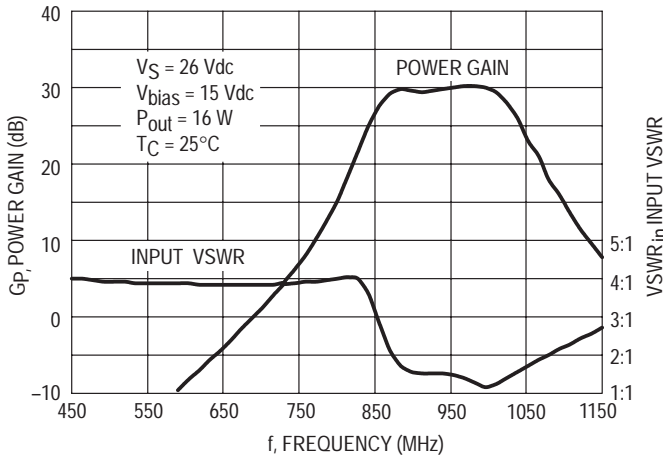
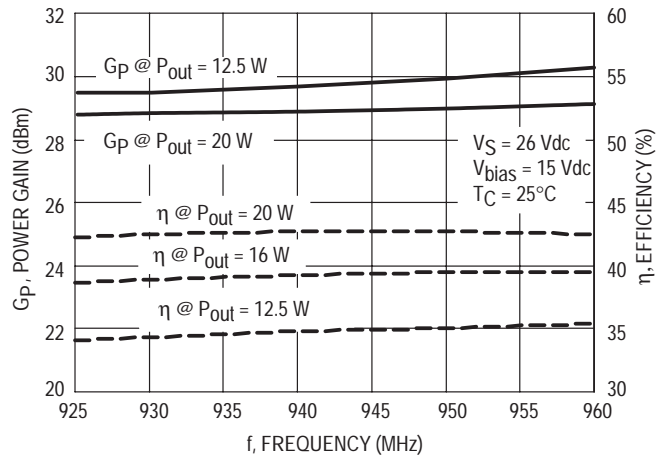


Figure 1. MHW916 Test Circuit Diagram

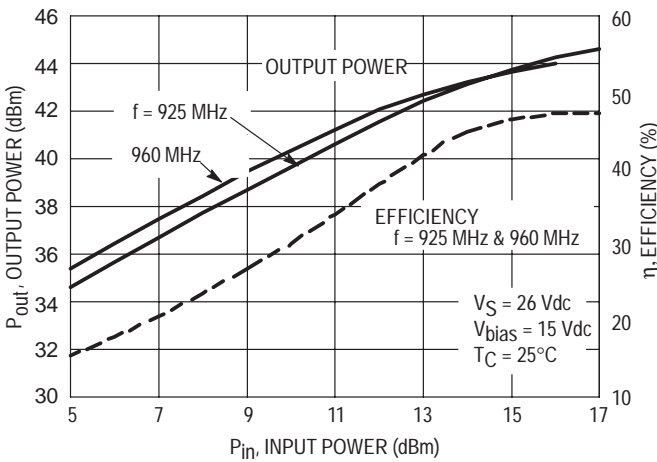
## TYPICAL CHARACTERISTICS



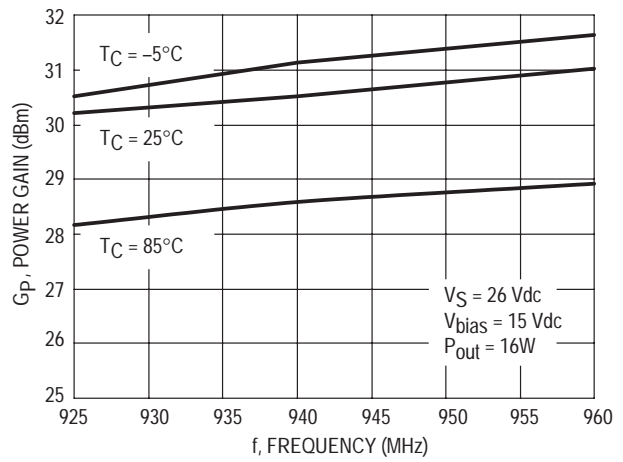
**Figure 2. Power Gain and Input VSWR versus Frequency**



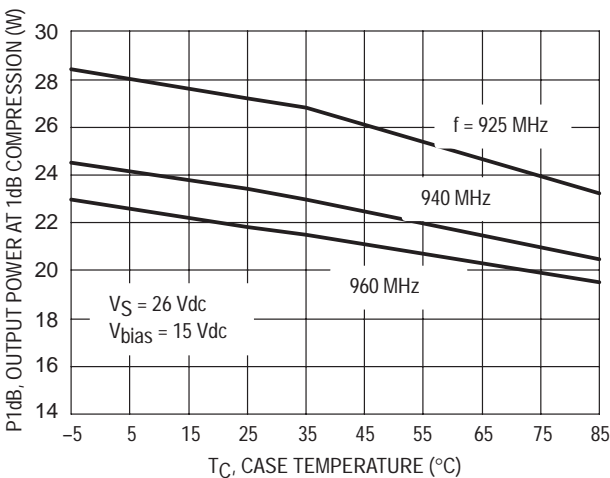
**Figure 3. Power Gain and Efficiency versus Frequency**



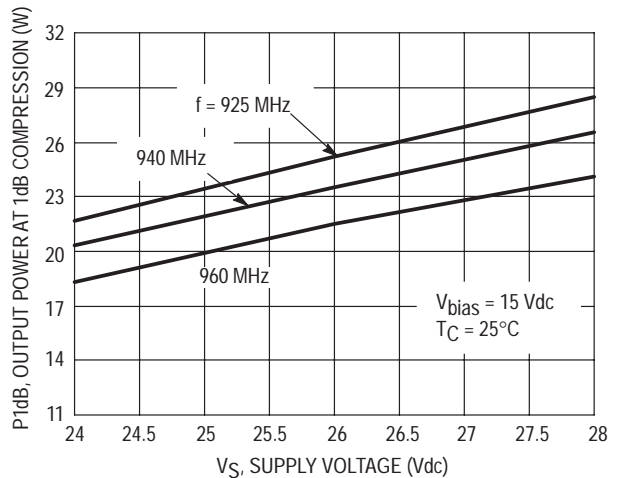
**Figure 4. Output Power and Efficiency versus Input Power**



**Figure 5. Power Gain versus Frequency**



**Figure 6. Output Power at 1 dB Compression versus Temperature**

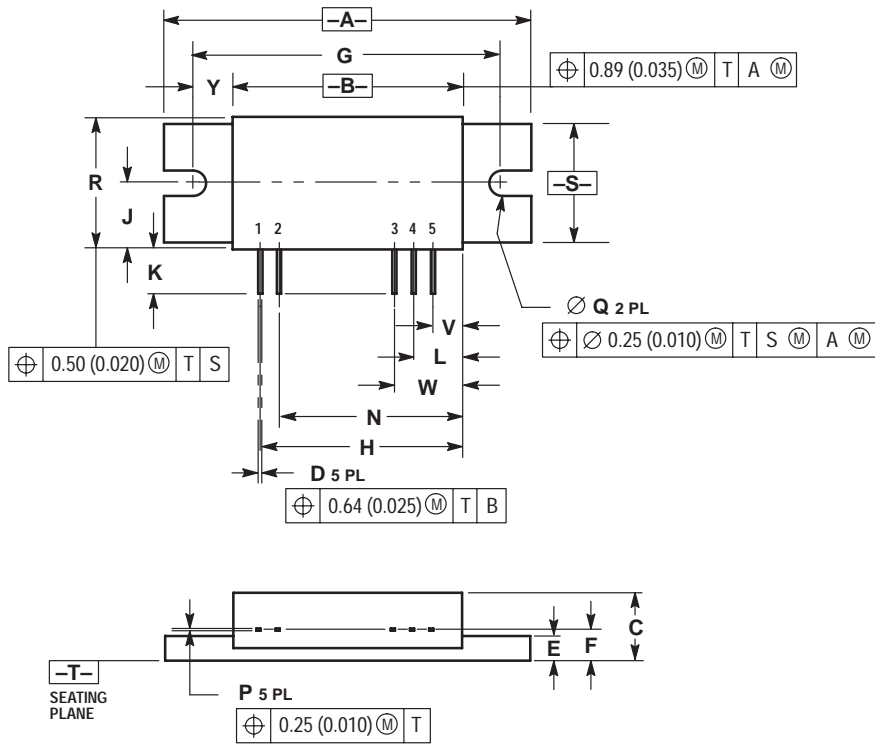


**Figure 7. Output Power at 1dB Compression versus Supply Voltage**

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# 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.

DIM	INCHES		MILLIMETERS	
	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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