

## The RF Line

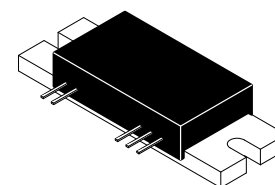
# UHF Silicon FET Power Amplifier

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 2F<sub>o</sub>
- 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>.

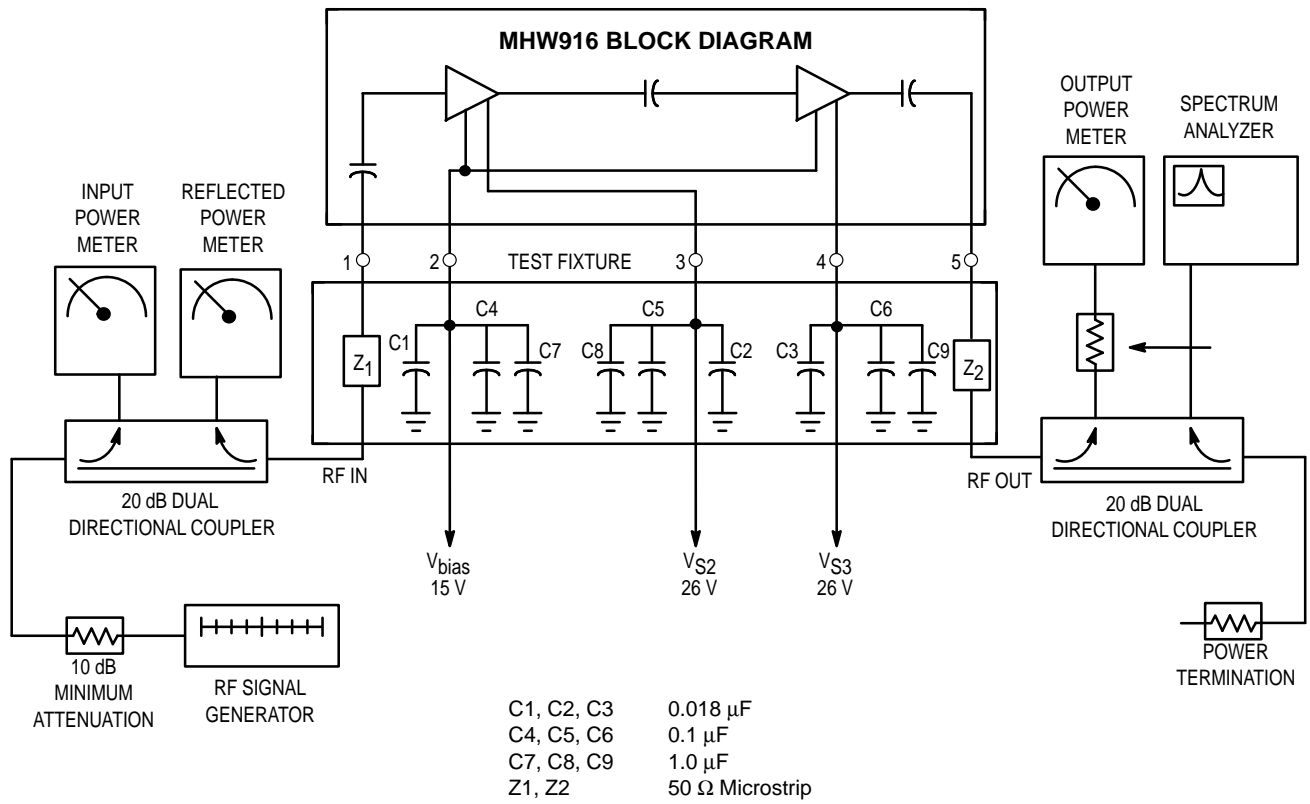
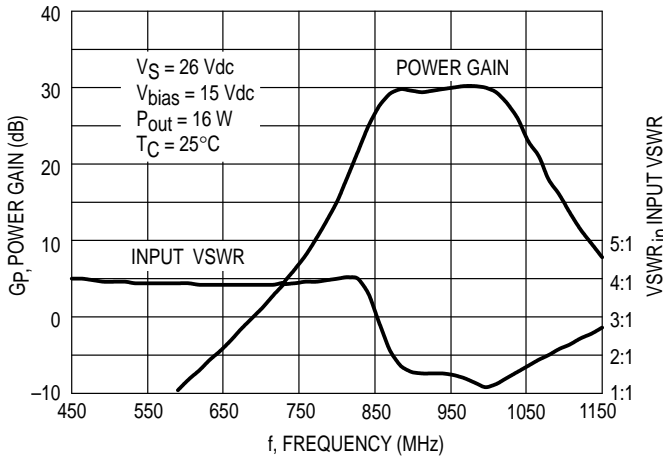
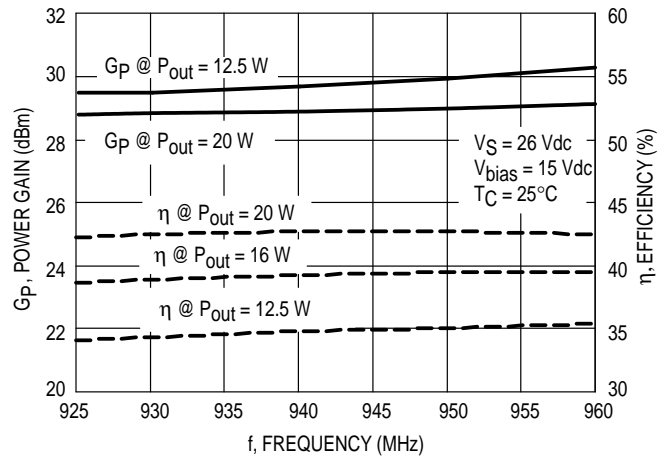


Figure 1. MHW916 Test Circuit Diagram

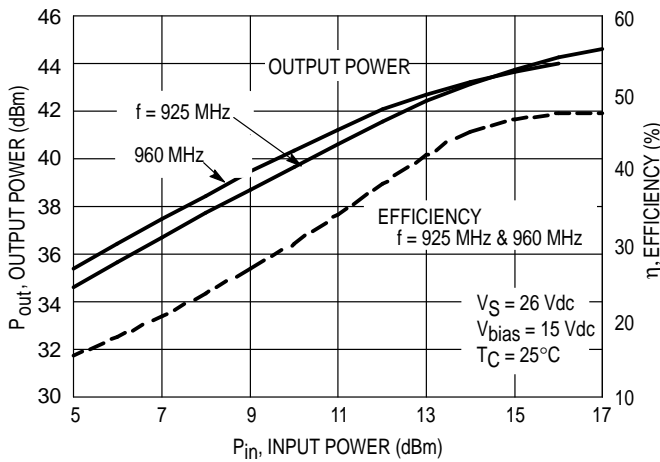
## TYPICAL CHARACTERISTICS



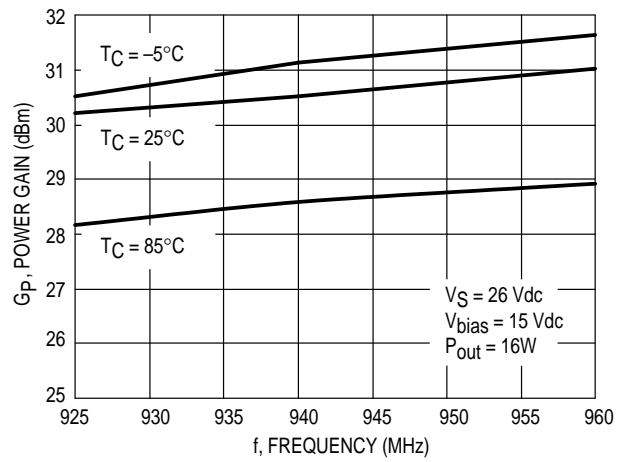
**Figure 2. Power Gain and Input VSWR versus Frequency**



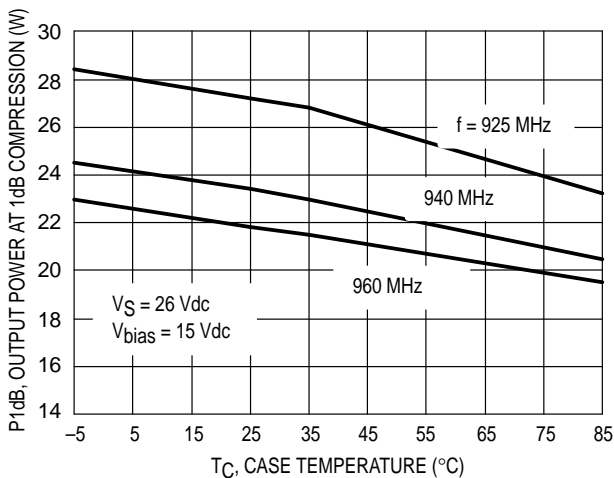
**Figure 3. Power Gain and Efficiency versus Frequency**



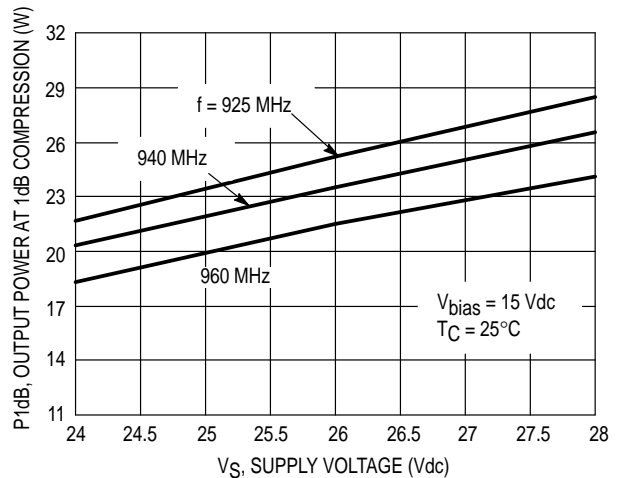
**Figure 4. Output Power and Efficiency versus Input Power**



**Figure 5. Power Gain versus Frequency**

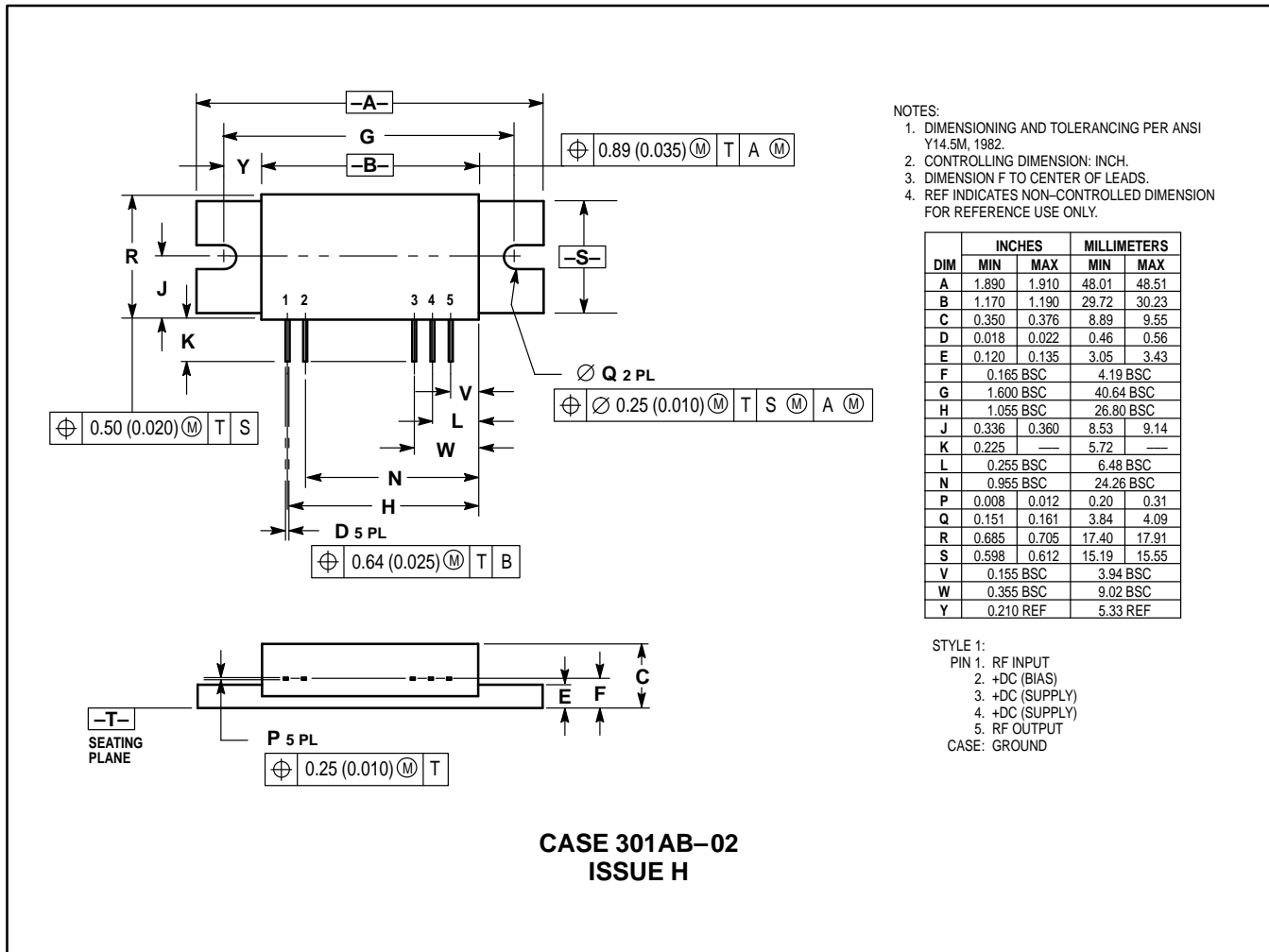


**Figure 6. Output Power at 1 dB Compression versus Temperature**



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

# PACKAGE DIMENSIONS



## CASE 301AB-02 ISSUE H

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