

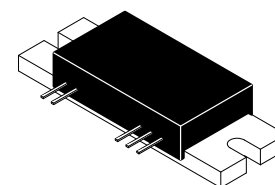
The RF Line UHF Silicon FET Power Amplifier

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_S	28	Vdc
DC Bias Voltage	V_B	16	Vdc
RF Input Power	P_{in}	19	dBm
RF Output Power	P_{out}	25	W
Operating Case Temperature Range	T_C	– 5.0 to +85	$^{\circ}C$
Storage Temperature Range	T_{stg}	– 30 to +100	$^{\circ}C$
Standby Current (Pin Removed, $I_{stdby} = I_{S1} + I_{S2}$)	I_{stdby}	400	mA

ELECTRICAL CHARACTERISTICS ($T_C = 25^{\circ}C$, $V_{S1} = V_{S2} = 26$ Vdc, $V_{bias} = 15$ Vdc, 50 ohm system)

Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range	BW	925	—	960	MHz
Quiescent Current ($P_{in} = 0$ mW)	$I_{dq1} + I_{dq2}$	—	400	—	mA
Power Gain ($P_{out} = 16$ W) (1)	G_p	26.5	30	32.5	dB
Output Power at 1.0 dB Compression	P_{1dB}	16	—	—	W
Efficiency (1.0 dB Compression Power)	η_1	37	44	—	%
Efficiency ($P_{out} = 16$ W) (1)	η_2	33	39	—	%
Input VSWR ($P_{out} = 16$ W) (1)	$VSWR_{in}$	—	—	2:1	—
Harmonic 2 f_o ($P_{out} = 16$ W) (1)	H_2	—	–40	–35	dBc
Harmonic 3 f_o ($P_{out} = 16$ W) (1)	H_3	—	–60	–45	dBc
Ripple ($P_{out} = 16$ W) (1)	R_p	—	1.0	—	dB
Load Mismatch Stress ($P_{out} = 16$ W) Load VSWR = 5:1, All Phase Angles	Ψ	No Degradation in Output Power			
Stability ($P_{out} = 10$ mW to 16 W) Load VSWR = 3:1, All Phase Angles (Except Harmonics)	—	All Spurious Outputs More Than 60 dB Below Desired Signal			
Stability ($P_{out} = -5.0$ 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_{in} for Specified P_{out} .

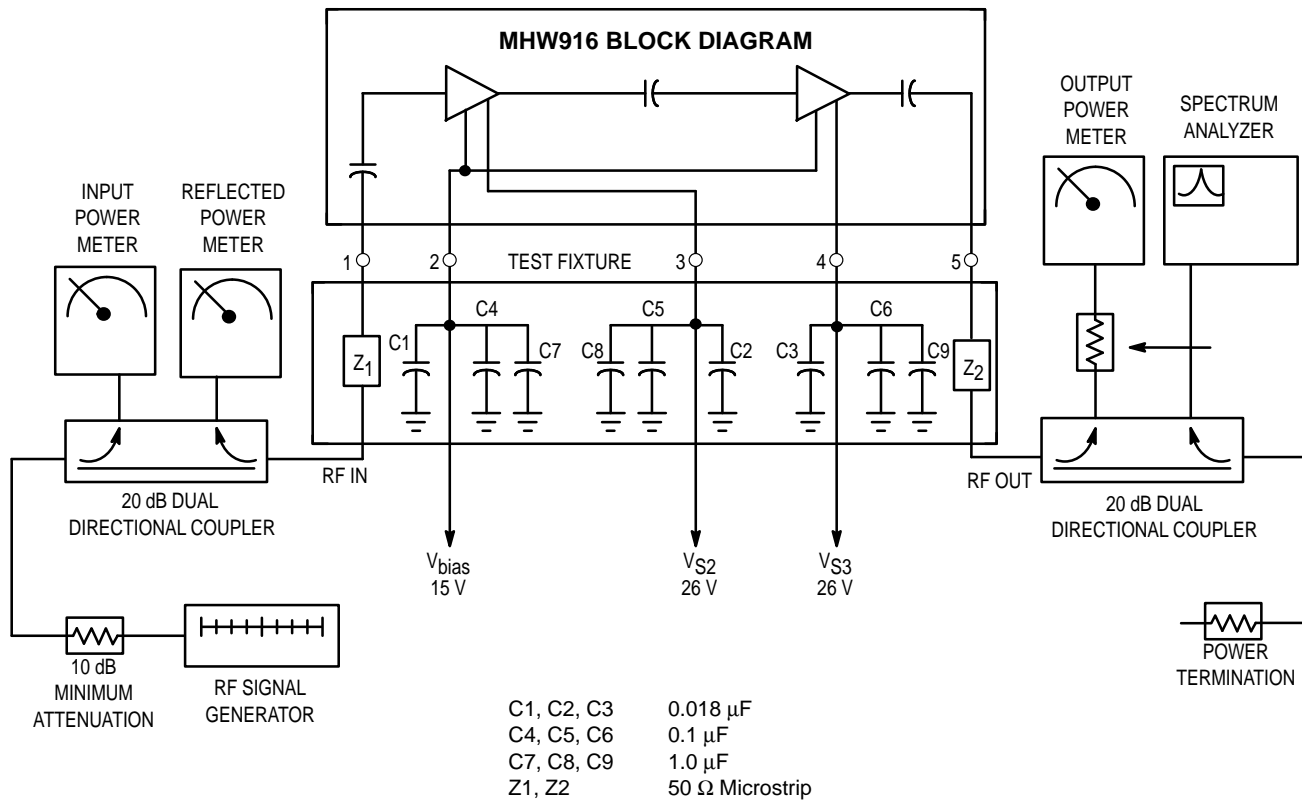


Figure 1. MHW916 Test Circuit Diagram

TYPICAL CHARACTERISTICS

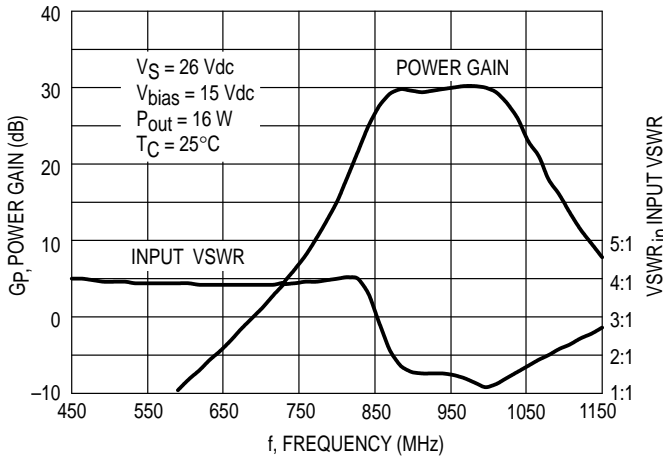


Figure 2. Power Gain and Input VSWR versus Frequency

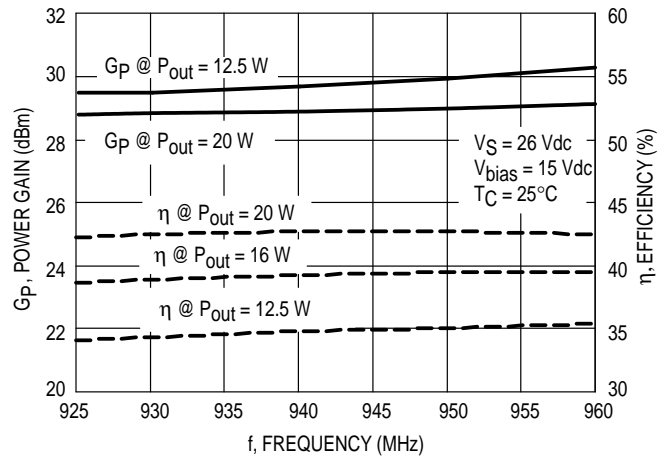


Figure 3. Power Gain and Efficiency versus Frequency

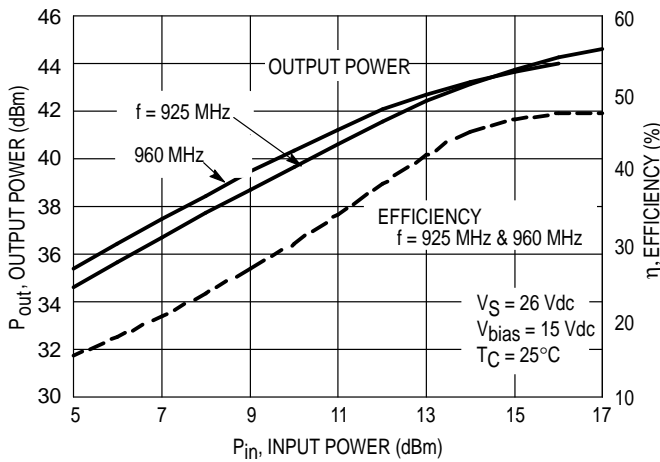


Figure 4. Output Power and Efficiency versus Input Power

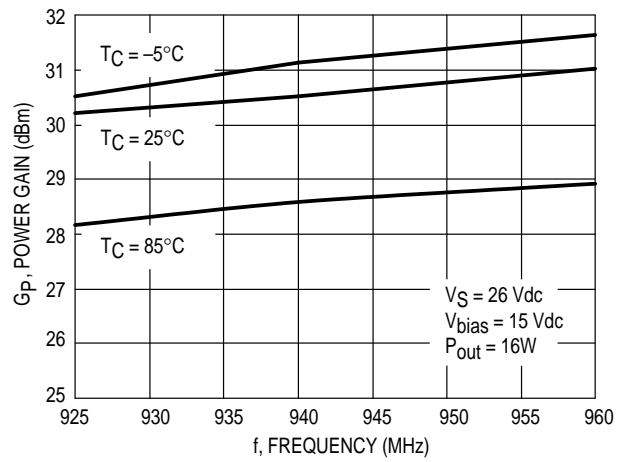


Figure 5. Power Gain versus Frequency

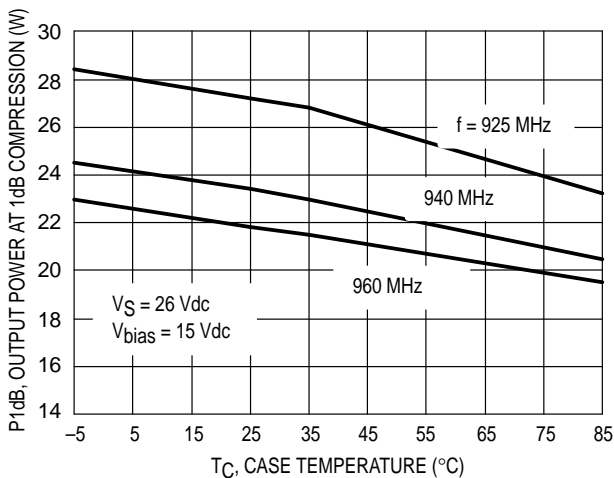


Figure 6. Output Power at 1 dB Compression versus Temperature

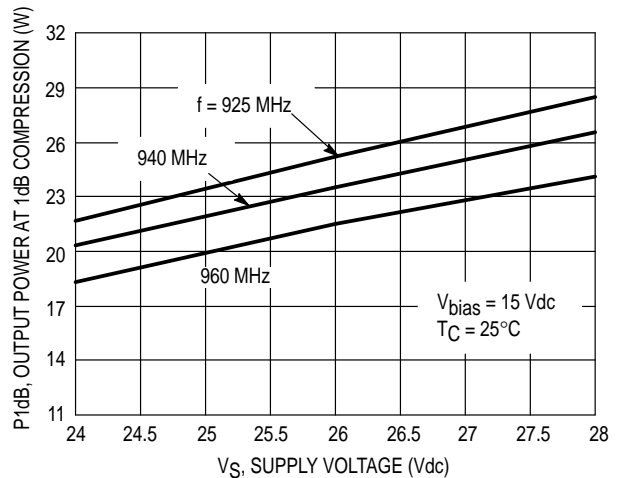
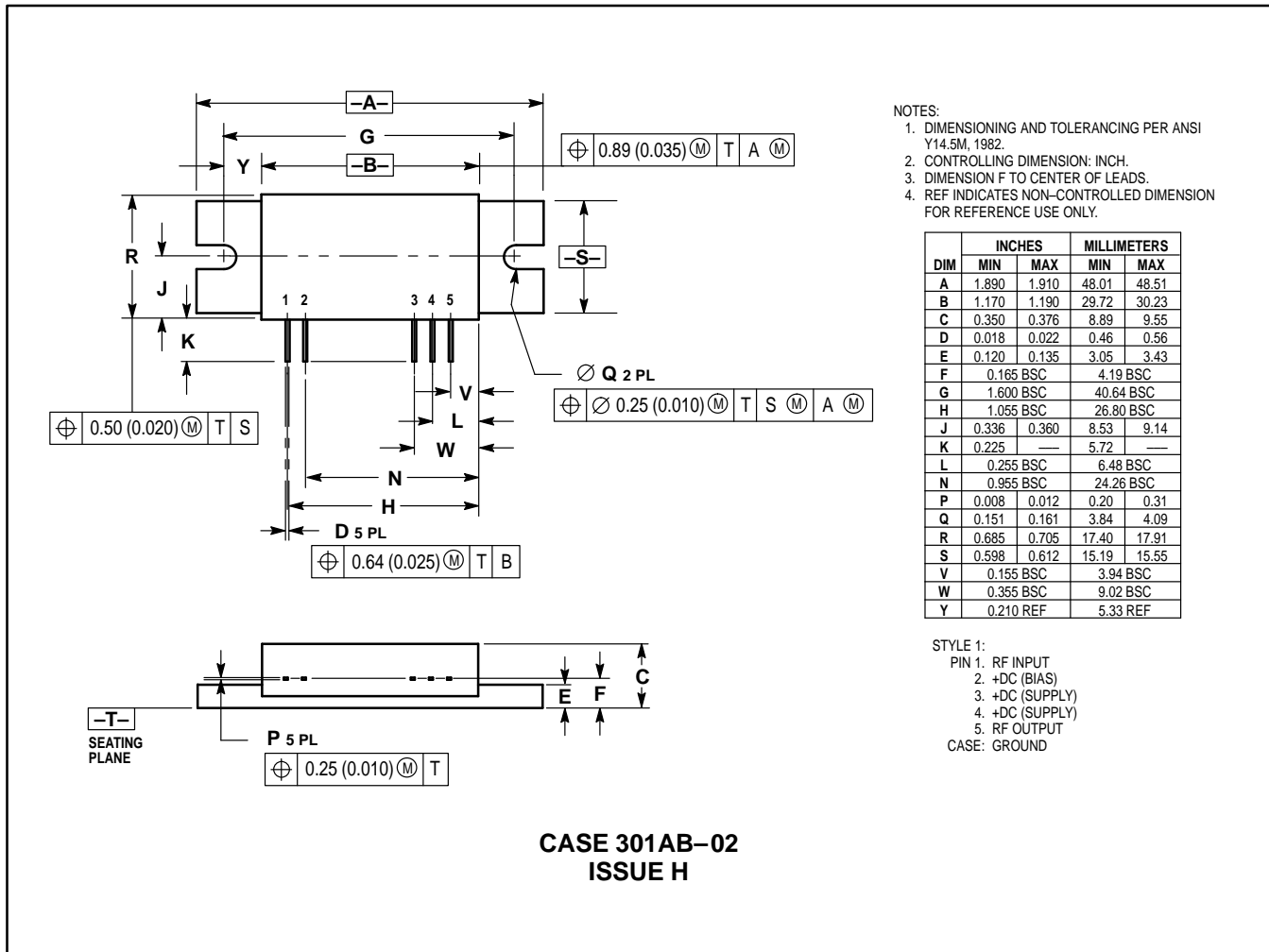


Figure 7. Output Power at 1dB Compression versus Supply Voltage

PACKAGE DIMENSIONS



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