

Advance Information

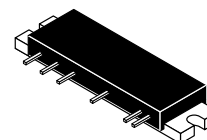
The RF Line UHF Power Amplifier

... designed specifically for the Pan European digital 5.0 watt, GSM handheld radio. The MHW909 is capable of wide power range control, operates from a 7.2 volt supply and requires 100 mW of RF input power.

- Specified 7.2 Volt Characteristics:
 - RF Input Power — 100 mW (20 dBm)
 - RF Output Power — 9.0 W
 - Minimum Gain — 19.5 dB
 - Harmonics — -35 dBc Max @ 2.0 f_0
- New Biasing and Control Techniques Providing Dynamic Range and Control Circuit Bandwidth Ideal for GSM
- 50 Ohm Input/Output Impedances
- Guaranteed Stability and Ruggedness
- Test fixture circuit board photomaster available upon request by contacting RF Tactical Marketing in Phoenix, AZ.

MHW909

**9.0 W
890 to 915 MHz
RF POWER
AMPLIFIER**



CASE 301T-02, STYLE 1

MAXIMUM RATINGS (Flange Temperature = 25°C)

Rating	Symbol	Value	Unit
DC Supply Voltage	V_S	9.0	Vdc
DC Bias Voltage	V_B	4.75	Vdc
RF Input Power	P_{in}	400	mW
RF Output Power ($V_S = 9.0$ Vdc)	P_{out}	10	W
Operating Case Temperature Range	T_C	-30 to +100	°C
Storage Temperature Range	T_{stg}	-30 to +100	°C

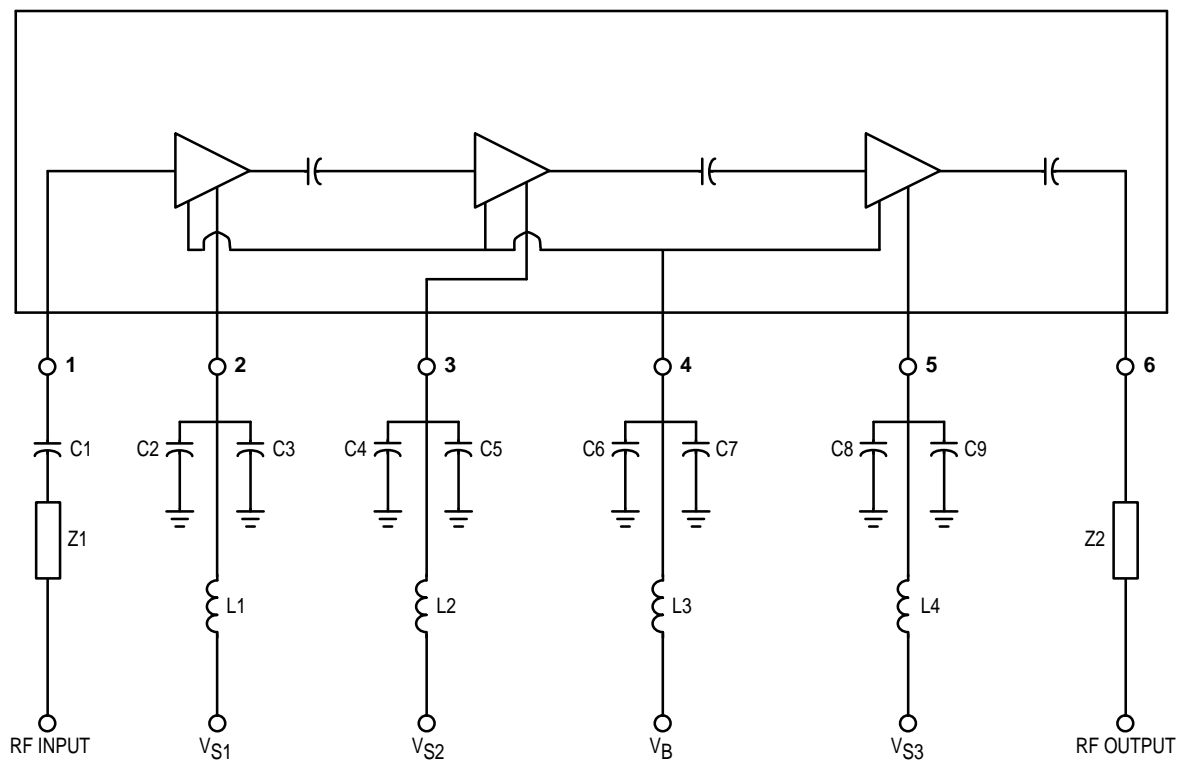
ELECTRICAL CHARACTERISTICS ($V_{S1} = V_{S2} = V_{S3} = 7.2$ Vdc; $V_B = 4.5$ Vdc, $T_C = +25^\circ\text{C}$, 50 ohm system, unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
Frequency Range	BW	890	915	MHz
Power Gain ($P_{out} = 9.0$ W) (1)	G_p	19.5	—	dB
Leakage Current ($P_{in} = 0$ mW, $V_B = 0$ Vdc, $V_{S1} = V_{S2} = V_{S3} = 9.0$ Vdc)	I_L	—	5.0	mA
Efficiency ($P_{out} = 9.0$ W) (1)	η	30	—	%
Input VSWR ($P_{out} = 9.0$ W) (1)	VSWR _{in}	—	2.0:1	—
Harmonics ($P_{out} = 9.0$ W) (1)				
2.0 f_0		—	-35	dBc
3.0 f_0 to 5.0 f_0			-40	
Noise Power (In 30 kHz Bandwidth, 935 to 960 MHz frequency range; ($P_{out} = 0.03$ to 9.0 W; $V_{S1} = V_{S2} = V_{S3} = 6.25$ to 9.0 Vdc) (1)		—	-75	dBm
Linearity — %AM in Output ($P_{out} = 0.2$ to 9.0 W; 135 kHz 1% AM in Input) (1)	—	—	6.0	%
Output Power, Low Voltage ($P_{in} = 100$ mW; $V_{S1} = V_{S2} = V_{S3} = 6.25$ Vdc)	P_{out2}	6.8	—	W
Load Mismatch Stress ($V_{S1} = V_{S2} = V_{S3} = 9.0$ Vdc; $V_B = 4.75$ Vdc; $P_{out} = 10$ W; Load VSWR = 10:1, All Phase Angles at Frequency of Test) (1)	ψ	No Degradation In Output Power Before/After Test		
Stability ($V_{S1} = V_{S2} = V_{S3} = 6.0$ to 9.0 Vdc; $P_{out} = 0.03$ to 9.0 W; Load VSWR = 6:1, Source VSWR = 3:1, All Phase Angles at Frequency of Test) (1)	—	All Spurious Outputs More Than 60 dB Below Desired Signal		

NOTE:

- Adjust P_{in} for Specified P_{out} ; Duty Cycle = 12.5%, Period = 4.6 msec

This document contains information on a new product. Specifications and information herein are subject to change without notice.



Pin Designations:

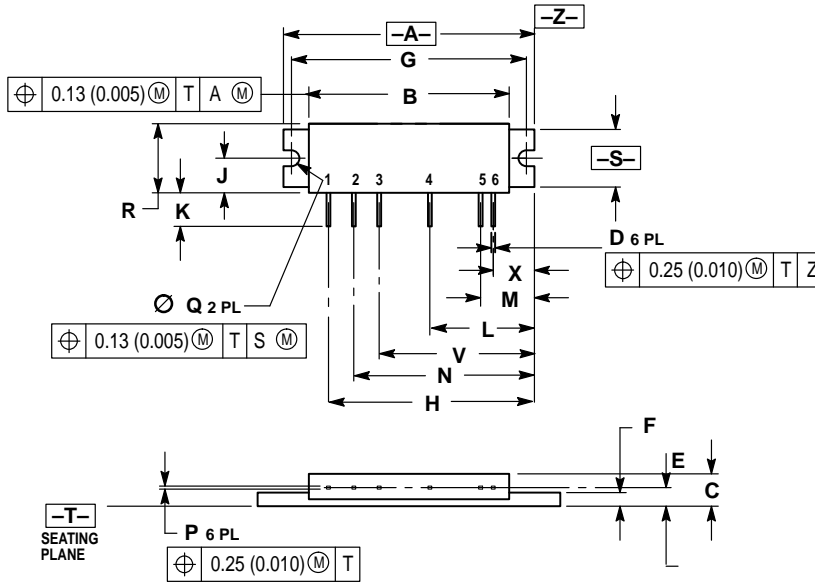
Pin 1 — RF Input Power @ 20 dBm Max Adjust
for Output Power
Pin 2 — First Stage Collector Voltage @ 7.2 Vdc
Pin 3 — Second Stage Collector Voltage @ 7.2 Vdc
Pin 4 — Trickle Bias Voltage @ 4.5 Vdc
Pin 5 — Third Stage Collector Supply @ 7.2 Vdc
Pin 7 — RF Output Power @ 9.0 W Nominal

Element Values:

C1 = C2 = C4 = C6 = C8 = 0.018 μ F
C3 = C5 = C7 = C9 = 2.2 μ F
L1 – L3 = 0.29 μ H
L4 = 0.2 μ H
Z1, Z2 = 50 Ohm Microstrip

Figure 1. Test Circuit Diagram

PACKAGE DIMENSIONS




- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. DIMENSION F TO CENTER OF LEADS.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	1.970	1.990	50.04	50.55
B	1.570	1.590	39.88	40.39
C	0.245	0.265	6.23	6.73
D	0.018	0.022	0.46	0.56
E	0.100	0.115	2.54	2.92
F	0.147 BSC		3.73 BSC	
G	1.860 BSC		47.24 BSC	
H	1.626 BSC		41.28 BSC	
J	0.267	0.278	6.78	7.06
K	0.177	0.217	4.50	5.51
L	0.825 BSC		20.96 BSC	
M	0.425 BSC		10.80 BSC	
N	1.425 BSC		36.20 BSC	
P	0.008	0.012	0.20	0.30
Q	0.120	0.130	3.05	3.30
R	0.535	0.555	13.59	14.10
S	0.445	0.465	11.30	11.81
V	1.225 BSC		31.12 BSC	
X	0.325 BSC		8.26 BSC	

- STYLE 1:
1. RF INPUT
 2. DC TERMINAL, Vs1
 3. DC TERMINAL, Vs2
 4. DC TERMINAL, Vs3
 5. DC TERMINAL, Vs3
 6. RF OUTPUT

**CASE 301T-02
ISSUE B**

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MOTOROLA



MHW909/D

