

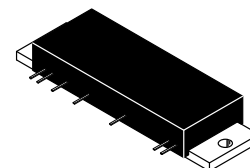
# The RF Line

## Microwave Bipolar Power Amplifier

- Specified 26 Volt Characteristics:
  - RF Output Power: 15 Watts
  - RF Power Gain: 32 dB Typ
  - Efficiency: 25% Min
- 50 Ohm Input/Output System

**MHW1815**

**15 W**  
**1805–1880 MHz**  
**RF POWER AMPLIFIER**



CASE 301AK-01, STYLE 1

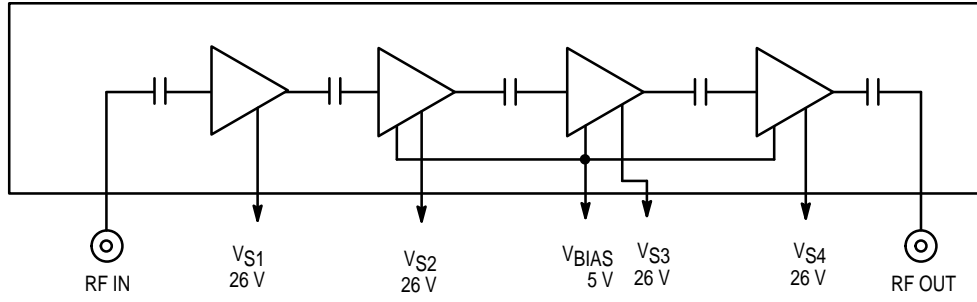
### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
DC Supply Voltage	$V_S$	28	Vdc
DC Bias Voltage	$V_B$	5.5	Vdc
RF Input Power	$P_{in}$	17	dBm
RF Output Power	$P_{out}$	23	W
Operating Case Temperature Range	$T_C$	-30 to +85	°C
Storage Temperature Range	$T_{stg}$	-30 to +100	°C

### ELECTRICAL CHARACTERISTICS ( $T_C = 25^\circ\text{C}$ ; $V_S = 26$ Vdc; $V_{BIAS} = 5$ Vdc; 50 $\Omega$ system)

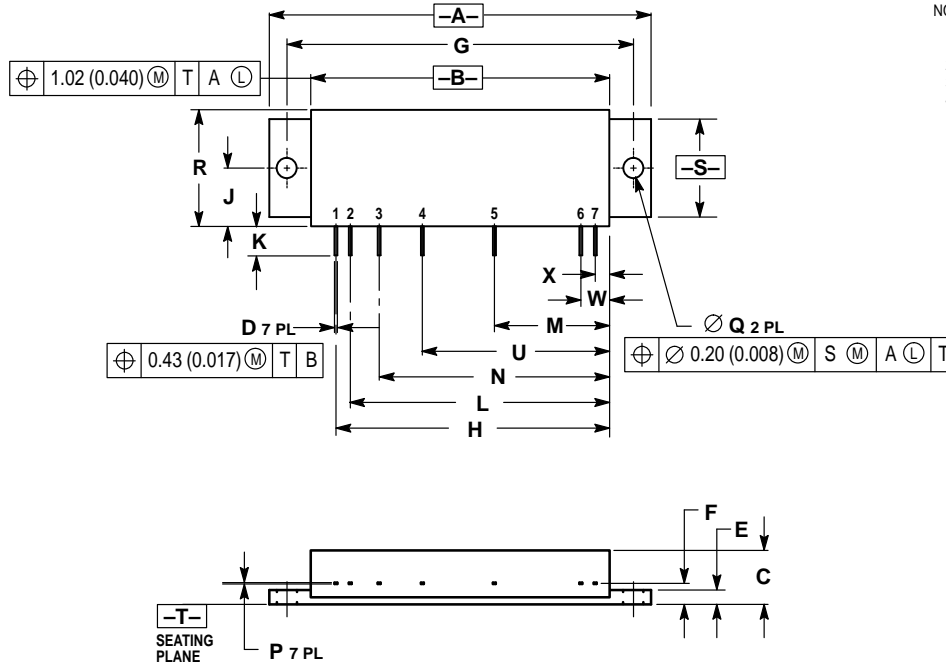
Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range	BW	1805	—	1880	MHz
Total Quiescent Current ( $P_{in} = 0$ mW)	$I_q$	—	300	—	mA
Power Gain ( $P_{out} = 15$ W) (1)	$G_p$	30	32	—	dB
Output Power at 1 dB Compression	$P_{1dB}$	15	—	—	Watts
Efficiency (1 dB Compression Power)	$\eta$	25	—	—	%
Input VSWR ( $P_{out} = 15$ W)	$VSWR_{IN}$	—	—	2:1	—
Ripple ( $P_{out} = 15$ W)	$R_p$	—	1	—	dB
Load Mismatch Stress ( $P_{out} = 15$ W; Load VSWR = 3:1; at All Phase Angles)	$\psi$	No Degradation in Output Power			
Stability ( $P_{out} = 1$ mW – 15 W; Load VSWR = 2:1; at All Phase Angles except Harmonics)	—	All Spurious Outputs More than 60 dB Below Desired Signal			
Stability ( $P_{out} = 1$ mW – 15 W; Load VSWR = 2:1; $f = 1805 - 1880$ MHz; at All Phase Angles)	—	All Spurious Typically Lower than -36 dBm			

(1) Adjust  $P_{in}$  for specified  $P_{out}$ .



**Figure 1. Internal Diagram**

# PACKAGE DIMENSIONS



**NOTES:**


1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
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	2.638	2.662	67.01	67.61
B	2.075 REF		52.71 REF	
C	—	0.375	—	9.53
D	0.017	0.023	0.43	0.58
E	0.098	0.114	2.49	2.90
F	0.134	0.156	3.40	3.96
G	2.405 BSC REF		61.09 BSC REF	
H	1.900 BSC		48.26 BSC	
J	0.390	0.430	9.91	10.92
K	0.175	0.217	4.45	5.51
L	1.800 BSC		45.72 BSC	
M	0.800 BSC		20.32 BSC	
N	1.600 BSC		40.64 BSC	
P	0.010 REF		0.25 REF	
Q	0.133	0.147	3.38	3.73
R	0.800	0.820	20.32	20.83
S	0.668	0.692	16.97	17.58
U	1.300 BSC		33.02 BSC	
W	0.200 BSC		5.08 BSC	
X	0.100 BSC		2.54 BSC	

**STYLE 1:**

- PIN 1. RF INPUT
2. DC TERMINAL, Vs1
3. DC TERMINAL, Vs2
4. DC TERMINAL, Vb
5. DC TERMINAL, Vs3
6. DC TERMINAL, Vs4
7. RF OUTPUT

**CASE 301AK-01  
ISSUE C**

Motorola reserves the right to make changes without further notice to any products herein. Motorola makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Motorola assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters which may be provided in Motorola data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. Motorola does not convey any license under its patent rights nor the rights of others. Motorola products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Motorola product could create a situation where personal injury or death may occur. Should Buyer purchase or use Motorola products for any such unintended or unauthorized application, Buyer shall indemnify and hold Motorola and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Motorola was negligent regarding the design or manufacture of the part. Motorola and  are registered trademarks of Motorola, Inc. Motorola, Inc. is an Equal Opportunity/Affirmative Action Employer.

Mfax is a trademark of Motorola, Inc.

**How to reach us:**

**USA/EUROPE/Locations Not Listed:** Motorola Literature Distribution;  
P.O. Box 5405, Denver, Colorado 80217. 1-303-675-2140 or 1-800-441-2447

**JAPAN:** Nippon Motorola Ltd.: SPD, Strategic Planning Office, 141,  
4-32-1 Nishi-Gotanda, Shagawa-ku, Tokyo, Japan. 03-5487-8488

**Customer Focus Center: 1-800-521-6274**

**Mfax™:** RMFAX0@email.sps.mot.com – TOUCHTONE 1-602-244-6609  
Motorola Fax Back System – US & Canada ONLY 1-800-774-1848  
– http://sps.motorola.com/mfax/

**ASIA/PACIFIC:** Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park,  
51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852-26629298

**HOME PAGE:** <http://motorola.com/sps/>

