

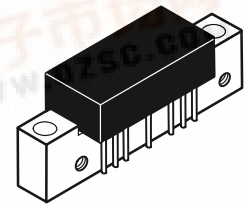
## The RF Line 450 MHz CATV AMPLIFIER

... designed specifically for 450 MHz CATV applications. Features ion-implanted arsenic emitter transistors with 7.0 GHz  $f_T$  and an all gold metallization system.

- Specified for 53- and 60-Channel Performance
- Broadband Power Gain — @  $f = 40-450$  MHz  
 $G_p = 38$  dB (Typ)
- Broadband Noise Figure  
 $NF = 4.0$  dB (Typ)
- Superior Gain, Return Loss and DC Current Stability with Temperature
- All Gold Metallization
- 7.0 GHz Ion-Implanted Transistors

**MHW5382A**

**38 dB GAIN  
 450 MHz  
 60-CHANNEL  
 CATV LINE EXTENDER  
 AMPLIFIER**



**CASE 714-06, STYLE 1**

### ABSOLUTE MAXIMUM RATINGS

Rating	Symbol	Value	Unit
RF Voltage Input (Single Tone)	$V_{in}$	+55	dBmV
DC Supply Voltage	$V_{CC}$	+28	Vdc
Operating Case Temperature Range	$T_C$	-20 to +100	°C
Storage Temperature Range	$T_{stg}$	-40 to +100	°C

### ELECTRICAL CHARACTERISTICS ( $V_{CC} = 24$ Vdc, $T_C = +30^\circ\text{C}$ , 75 $\Omega$ system unless otherwise noted)

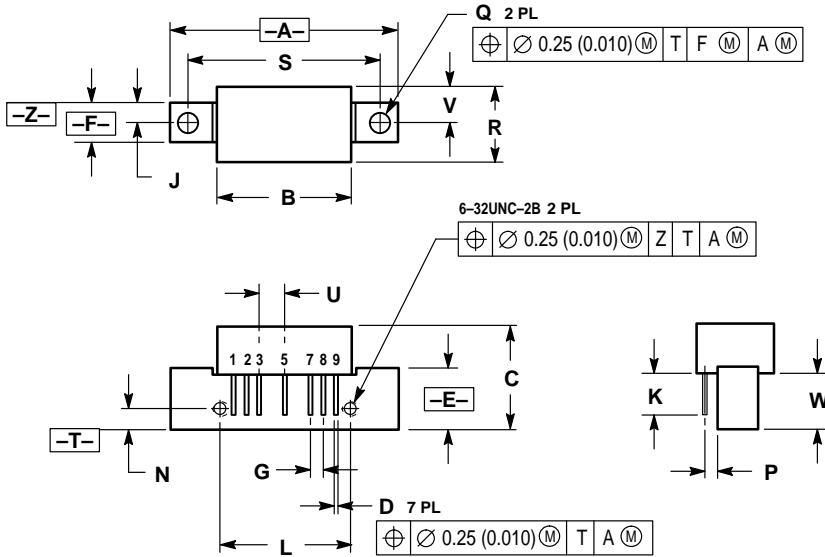
Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range	BW	40	—	450	MHz
Power Gain — 50 MHz	$G_p$	37	38	39.5	dB
Power Gain — 450 MHz	$G_p$	38	39	40	dB
Slope	S	0	+1.0	+2.5	dB
Gain Flatness (Peak To Valley)	—	—	0.3	0.6	dB
Return Loss — Input/Output ( $Z_0 = 75$ Ohms)	40-450 MHz IRL/ORL	18	—	—	dB
Second Order Intermodulation Distortion ( $V_{out} = +46$ dBmV per ch., Ch 2, M6, M15) ( $V_{out} = +46$ dBmV per ch., Ch 2, M13, M22)	IMD	—	-78 -72	— -64	dB
Cross Modulation Distortion ( $V_{out} = +46$ dBmV)	53-Channel FLAT 60-Channel FLAT XMD <sub>53</sub> XMD <sub>60</sub>	—	-63 -61	— -59	dB
Composite Triple Beat ( $V_{out} = +46$ dBmV)	53-Channel FLAT 60-Channel FLAT CTB <sub>53</sub> CTB <sub>60</sub>	—	-63 -60	— -59	dB
DIN (European Applications Only) 300 MHz — (CH V + Q - P @ W) 400 MHz — (CH M8 + M15 - M9 @ M14) 450 MHz — (CH M20 + M23 - M22 @ M21)	DIN1 DIN2 DIN3	—	125 124 123	—	dB $\mu$ V
Noise Figure ( $f = 450$ MHz)	NF	—	4.0	5.0	dB
DC Current	$I_{DC}$	—	310	340	mA

**\*DIN (European Applications Only)**

NCTA Channel Designation	Frequency (MHz)	DIN Output Level (dBmV)**(Typ)	DIN Beat Level dB Relative to Ref. Ch.
P Q V W (Ref.)	253.25 259.25 289.25 295.25	+59 +59 +65 +65	≤ -60
M8 M9 M14 (Ref.) M15	361.25 367.25 397.25 403.25	+58 +58 +64 +64	≤ -60
M20 M21 (Ref.) M22 M23	433.25 439.25 445.25 451.25	+57 +57 +63 +63	≤ -60

\*\*DIN (dB $\mu$ V) = Reference Channel Level (dBmV) +60 dB

## PACKAGE DIMENSIONS



- NOTES:  
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
 2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	—	1.775	—	45.08
B	—	1.085	—	27.56
C	—	0.840	—	21.34
D	0.018	0.022	0.46	0.56
E	0.465	0.510	11.81	12.95
F	0.300	0.325	7.62	8.25
G	0.100 BSC	—	2.54 BSC	—
J	0.156 BSC	—	3.96 BSC	—
K	0.315	0.355	8.00	8.50
L	1.00 BSC	—	25.40 BSC	—
N	0.165 BSC	—	4.10 BSC	—
P	0.100 BSC	—	2.54 BSC	—
Q	0.148	0.168	3.76	4.27
R	—	0.595	—	15.11
S	1.500 BSC	—	38.10 BSC	—
U	0.200 BSC	—	5.08 BSC	—
V	0.280 BSC	—	7.11 BSC	—
W	0.435	0.450	11.05	11.43

- STYLE 1:  
 PIN 1. RF INPUT  
 2. GROUND  
 3. GROUND  
 4. DELETED  
 5. VDC  
 6. DELETED  
 7. GROUND  
 8. GROUND  
 9. RF OUTPUT

### CASE 714-06 ISSUE K

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 can and do vary in different applications. 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.

**Literature Distribution Centers:**

USA: Motorola Literature Distribution; P.O. Box 20912; Phoenix, Arizona 85036.

EUROPE: Motorola Ltd.; European Literature Centre; 88 Tanners Drive, Blakelands, Milton Keynes, MK14 5BP, England.

JAPAN: Nippon Motorola Ltd.; 4-32-1, Nishi-Gotanda, Shinagawa-ku, Tokyo 141, Japan.

ASIA PACIFIC: Motorola Semiconductors H.K. Ltd.; Silicon Harbour Center, No. 2 Dai King Street, Tai Po Industrial Estate, Tai Po, N.T., Hong Kong.



**MOTOROLA**

ML145001A