

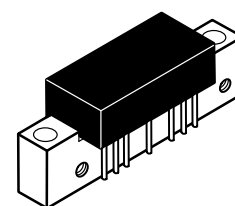
## The RF Line Low Distortion Wideband Amplifiers

... designed specifically for broadband applications requiring low distortion characteristics. Specified for use as return amplifiers for mid-split and high-split 2-way cable TV systems. Features all gold metallization system.

- Guaranteed Broadband Power Gain @  $f = 5.0\text{--}200$  MHz
- Guaranteed Broadband Noise Figure @  $f = 5.0\text{--}175$  MHz
- Superior Gain, Return Loss and DC Current Stability with Temperature
- All Gold Metallization
- All Ion-Implanted Arsenic Emitter Transistor Chips with 6.0 GHz  $f_T$ 's
- Circuit Design Optimized for Good RF Stability Under High VSWR Load Conditions
- Transformers Designed to Insure Good Low Frequency Gain Stability versus Temperature

**MHW1134**  
**MHW1184**  
**MHW1224**  
**MHW1244**

13.0 dB  
18.0 dB  
22.0 dB  
24.0 dB  
5.0–200 MHz  
CATV HIGH-SPLIT  
REVERSE AMPLIFIERS



CASE 714-06, STYLE 1

### ABSOLUTE MAXIMUM RATINGS

Rating	Symbol	Value	Unit
RF Voltage Input (Single Tone)	$V_{in}$	+65	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)

Characteristic	Symbol	MHW1134	MHW1184	MHW1224	MHW1244	Units
Power Gain @ 10 MHz	$G_p$	13.0 $\pm$ 0.5	18.5 $\pm$ 0.5	22.0 $\pm$ 0.5	24.0 $\pm$ 0.5	dB
Frequency Range (Response/Return Loss) Note 1	BW	5.0–200				MHz
Cable Slope Equivalent (5.0–200 MHz)	S	-0.2 Min/+0.8 Max				dB
Gain Flatness (5.0–200 MHz)	F	$\pm$ 0.2 Max				dB
Input/Output Return Loss (5.0–200 MHz) Note 1	IRL/ORL	18.0 Min				dB
Cross Modulation Distortion @ +50 dBmV per ch.						
12-Channel FLAT (5.0–120 MHz)	$XM_{12}$	-70 Typ	-68 Typ	-67 Typ	-66 Typ	dB
22-Channel FLAT (5.0–175 MHz) (2) (3)	$XM_{22}$	-65 Max	-64 Max	-62 Max	-61 Max	dB
26-Channel FLAT (5.0–200 MHz)	$XM_{26}$	-65 Typ	-64 Typ	-62 Typ	-61 Typ	dB

#### NOTES:

1. Response and return loss characteristics are tested and guaranteed for the full 5.0–200 MHz frequency range.
2. Motorola 100% distortion and noise figure testing is performed over the 5.0–175 MHz frequency range. Cross modulation and composite triple beat testing are with 22-channel loading; Video carriers used are:

T7–T13	7.0–43.0 MHz	7-Channels
2–6	55.25–83.25 MHz	5-Channels
A–7	121.25–175.25 MHz	10-Channels
3. Video carriers used for 12-Channel typical performances are T7–6; For 26-Channel typical performance, Channels 8, 9, 10 and 11 are added to the 22-Channel carriers listed above.

**ELECTRICAL CHARACTERISTICS — continued** ( $V_{CC} = 24 \text{ Vdc}$ ,  $T_C = +30^\circ\text{C}$ ,  $75 \Omega$  system)

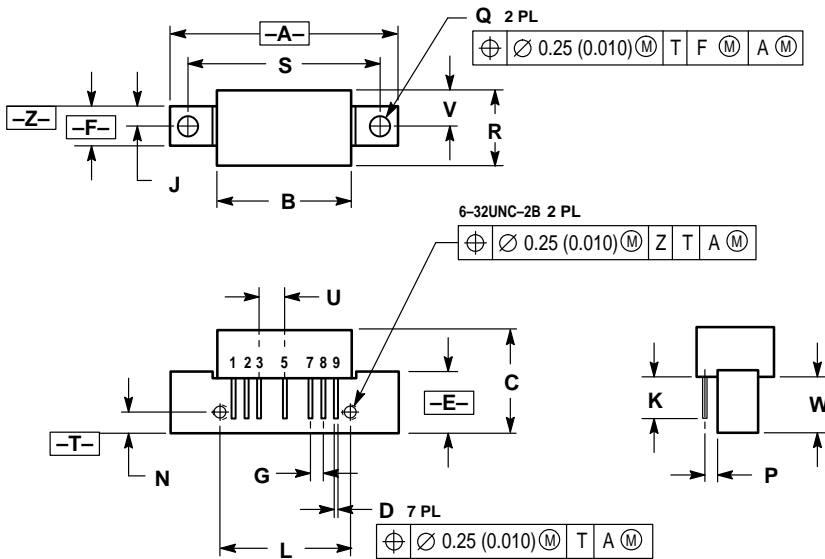
Characteristic	Symbol	MHW1134	MHW1184	MHW1224	MHW1244	Units
Composite Triple Beat Distortion @ +50 dBmV per ch. 22-Channel FLAT (5.0–175 MHz) Notes 2 and 3 26-Channel FLAT (5.0–200 MHz)	CTB <sub>22</sub> CTB <sub>26</sub>	–73 Max –71 Typ	–72 Max –70 Typ	–69 Max –68.5 Typ	–68 Max –67.5 Typ	dB dB
Individual Triple Beat Distortion @ +50 dBmV per ch. Mid-Split (5.0–120 MHz) T11, T12 and CH2 @ 123.25 MHz High-Split (5.0–175 MHz) T13, CH2 and CH5 @ 175.5 MHz	TB <sub>3</sub> TB <sub>3</sub>	–90 Typ –87 Typ	–88 Typ –85 Typ	–88 Typ –85 Typ	–87 Typ –84 Typ	dB dB
Second Order Distortion @ +50 dBmV per ch. High-Split (5.0–175 MHz) CH2, CHA @ 176.5 MHz	IMD	–72 Max	–72 Max	–72 Max	–72 Max	dB
Noise Figure High-Split (5.0–175 MHz) Note 2	NF	7.0 Max	5.5 Max	5.5 Max	5.0 Max	dB
DC Current	I <sub>DC</sub>	210 Typ/240 Max				mAdc

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## 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**

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MHW1134/D

