

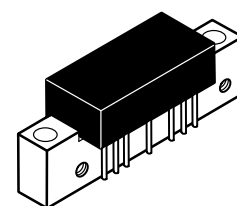
The RF Line Low Distortion Wideband Amplifiers

... 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 @ $f = 5.0\text{--}200\text{ MHz}$
- Guaranteed Broadband Noise Figure @ $f = 5.0\text{--}175\text{ MHz}$
- Superior Gain, Return Loss and DC Current Stability with Temperature
- All Gold Metallization
- All Ion-Implanted Arsenic Emitter Transistor Chips with $6.0\text{ GHz } f_T$'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 ($V_{CC} = 24\text{ Vdc}$, $T_C = +30^\circ\text{C}$, $75\ \Omega$ system)

Characteristic	Symbol	MHW1134	MHW1184	MHW1224	MHW1244	Units
Power Gain @ 10 MHz	G_p	13.0 ± 0.5	18.5 ± 0.5	22.0 ± 0.5	24.0 ± 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	± 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:

- Response and return loss characteristics are tested and guaranteed for the full 5.0–200 MHz frequency range.
- 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
- 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 ($V_{CC} = 24 \text{ Vdc}$, $T_C = +30^\circ\text{C}$, 75Ω system)

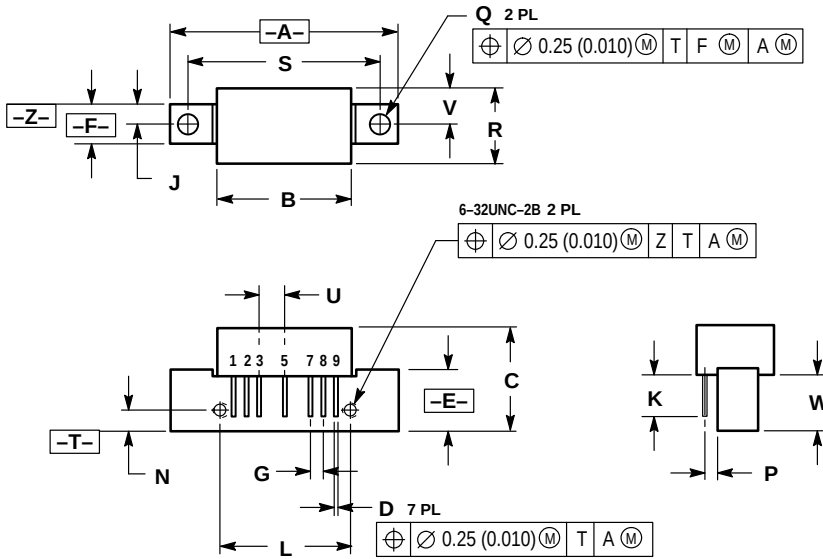
Characteristic	Symbol	MHW1134	MHW1184	MHW1224	MHW1244	Units
Composite Triple Beat Distortion @ +50 dBmV per ch. 22-Channel FLAT (5.0–175 MHz) Notes 2 and 3 26-Channel FLAT (5.0–200 MHz)	CTB ₂₂ CTB ₂₆	–73 Max –71 Typ	–72 Max –70 Typ	–69 Max –68.5 Typ	–68 Max –67.5 Typ	dB dB
Individual Triple Beat Distortion @ +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 ₃ TB ₃	–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 _{DC}	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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MOTOROLA



MHW1134/D

