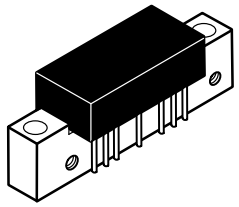
The RF Line
Low Distortion Wideband Amplifiers

. . . 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 = 5.0–200 MHz
- Guaranteed Broadband Noise Figure @ f = 5.0–175 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°C, 75 Ω 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:
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 Vdc, T_C = +30°C, 75 Ω system)

Characteristic	Symbol	MHW1134	MHW1184	MHW1224	MHW1244	Units
Composite Triple Beat Distortion @ +50 dBmV per ch. 22–Channel FLAT (5.0–175 MHz) 26–Channel FLAT (5.0–200 MHz) Notes 2 and 3	 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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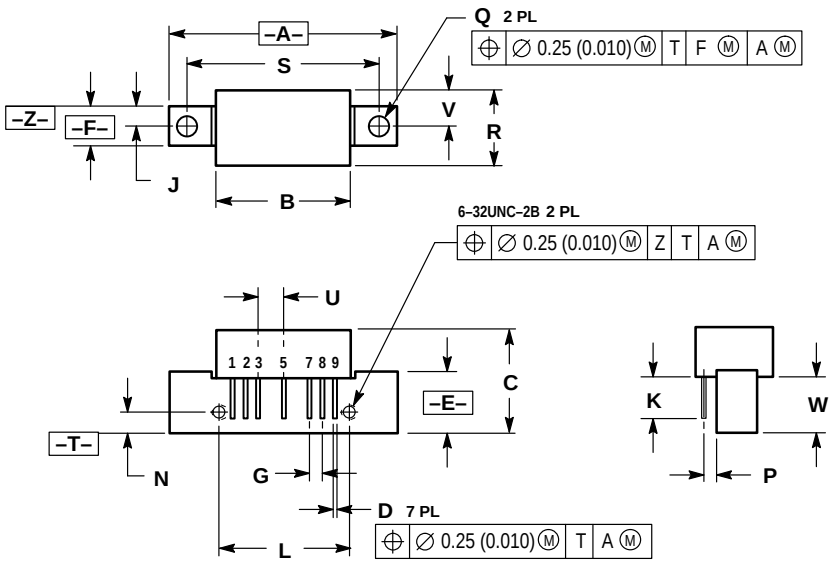
PACKAGE DIMENSIONS



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

	INCHES		MILLIMETERS	
DIM	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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