The RF Line

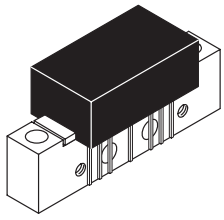
Low Distortion Wideband Amplifier

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 Ensure Good Low Frequency Gain Stability versus Temperature

MHW1224

22.0 dB
5.0–200 MHz
CATV HIGH–SPLIT
REVERSE AMPLIFIER



CASE 714Y–03, 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	MHW1224	Units
Power Gain @ 10 MHz	G_P	22.0 ± 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}	–67 Typ	dB
22–Channel FLAT (5.0–175 MHz) (2) (3)	XM_{22}	–62 Max	dB
26–Channel FLAT (5.0–200 MHz)	XM_{26}	–62 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.

NOT RECOMMENDED FOR NEW DESIGN

ELECTRICAL CHARACTERISTICS — continued (V_{CC} = 24 Vdc, T_C = +30°C, 75 Ω system)

Characteristic	Symbol	MHW1224	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}	 –69 Max –68.5 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	 –88 Typ –85 Typ	 dB dB
Second Order Distortion @ +50 dBmV per ch. High–Split (5.0–175 MHz) CH2, CHA @ 176.5 MHz	IMD	–72 Max	dB
Noise Figure High–Split (5.0–175 MHz) Note 2	NF	5.5 Max	dB
DC Current	I_{DC}	210 Typ/240 Max	mAdc

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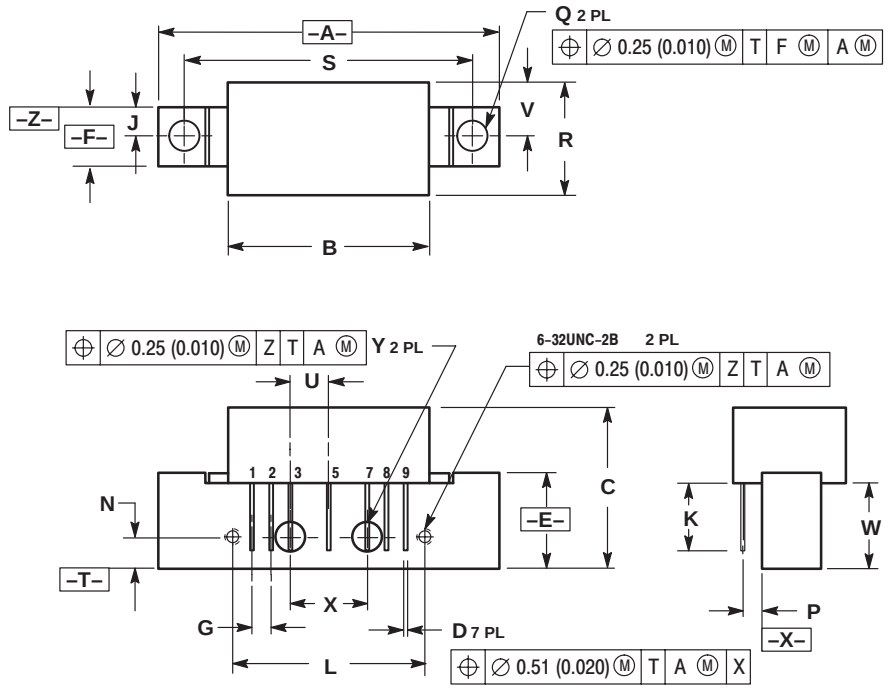
NOTES

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		4.19 BSC	
P	0.100 BSC		2.54 BSC	
Q	0.148	0.168	3.76	4.27
R	----	0.600	----	15.24
S	1.500 BSC		38.10 BSC	
U	0.200 BSC		5.08 BSC	
V	---	0.250	---	6.35
W	0.435	0.450	11.05	11.43
X	0.400 BSC		10.16 BSC	
Y	0.152	0.163	3.85	4.15

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

CASE 714Y–03
ISSUE D

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