

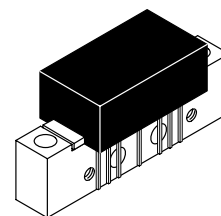
Low Distortion Wideband Amplifiers

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

MHW1224

**22.0 dB
24.0 dB
5.0 - 200 MHz
CATV HIGH-SPLIT
REVERSE AMPLIFIERS**



CASE 714Y-03, STYLE 1

Table 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

Table 2. Electrical Characteristics ($V_{CC} = 24$ Vdc, $T_C = +30$ °C, 75 Ω system)

Characteristic	Symbol	MHW1224	MHW1244	Units	
Power Gain @ 10 MHz	G_p	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}	-67 Typ	-66 Typ	dB
	22-Channel FLAT (5.0 - 175 MHz) (2) (3)	XM_{22}	-62 Max	-61 Max	dB
	26-Channel FLAT (5.0 - 200 MHz)	XM_{26}	-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. Freescale 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.

Table 2. Electrical Characteristics ($V_{CC} = 24$ Vdc, $T_C = +30^\circ\text{C}$, 75 Ω system) (continued)

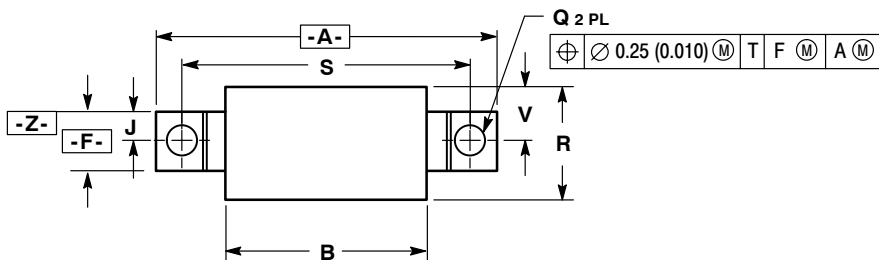
Characteristic	Symbol	MHW1224	MHW1244	Units
Composite Triple Beat Distortion @ +50 dBmV per ch. 22-Channel FLAT (5.0 - 175 MHz) 26-Channel FLAT (5.0 - 200 MHz) Notes 2 and 3	CTB ₂₂ CTB ₂₆	- 69 Max - 68.5 Typ	- 68 Max - 67.5 Typ	dB dB
Individual Triple Beat Distortion @ +50 dBmV per ch. Mid-Split (5.0 - 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	- 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	dB
Noise Figure High-Split (5.0 - 175 MHz) Note 2	NF	5.5 Max	5.0 Max	dB
DC Current	I _{DC}	210 Typ/240 Max		mAdc

Notes:

- Response and return loss characteristics are tested and guaranteed for the full 5.0 - 200 MHz frequency range.
- Freescale 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:

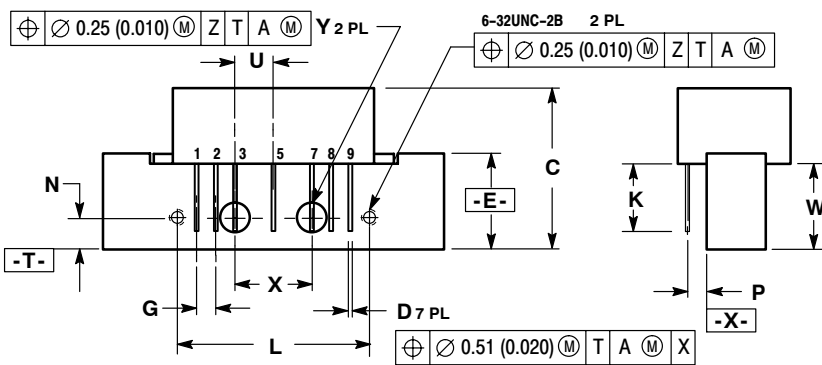
T7 - T13	7.0 - 43.0 MHz	7-Channels
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- Video carriers used for 12-Channel typical performances are T7 - 6; For 26-Channel typical performance, Channels 8, 9, 10 and 11 are added to the 22-Channel carriers listed above.

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		4.19 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



CASE 714Y-03
 ISSUE D

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

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How to Reach Us:

Home Page:
www.freescale.com

E-mail:
support@freescale.com

USA/Europe or Locations Not Listed:
Freescale Semiconductor
Technical Information Center, CH370
1300 N. Alma School Road
Chandler, Arizona 85224
+1-800-521-6274 or +1-480-768-2130
support@freescale.com

Europe, Middle East, and Africa:
Freescale Halbleiter Deutschland GmbH
Technical Information Center
Schatzbogen 7
81829 Muenchen, Germany
+44 1296 380 456 (English)
+46 8 52200080 (English)
+49 89 92103 559 (German)
+33 1 69 35 48 48 (French)
support@freescale.com

Japan:
Freescale Semiconductor Japan Ltd.
Headquarters
ARCO Tower 15F
1-8-1, Shimo-Meguro, Meguro-ku,
Tokyo 153-0064
Japan
0120 191014 or +81 3 5437 9125
support.japan@freescale.com

Asia/Pacific:
Freescale Semiconductor Hong Kong Ltd.
Technical Information Center
2 Dai King Street
Tai Po Industrial Estate
Tai Po, N.T., Hong Kong
+800 2666 8080
support.asia@freescale.com

For Literature Requests Only:
Freescale Semiconductor Literature Distribution Center
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