

# CATV Amplifier Module

## Features

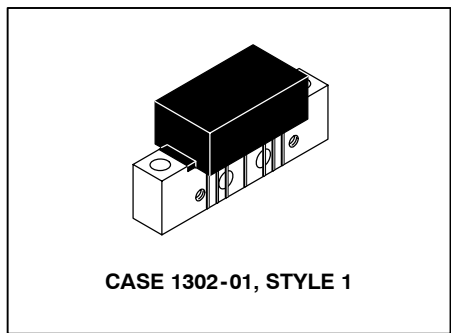
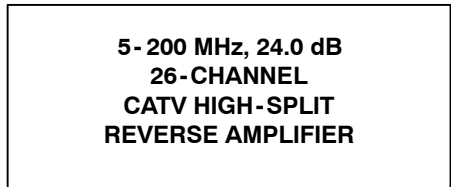
- Specified for 12-, 22- and 26-Channel Loading
- Excellent Distortion Performance
- Superior Gain, Return Loss and DC Current Stability over Temperature
- Capable of Handling Multiple Channels in the Return Path with Good Distortion Performance
- Silicon Bipolar Transistor Technology
- Unconditionally Stable Under All Load Conditions

## Applications

- CATV Systems Operating in the 5 to 200 MHz Frequency Range
- Designed for Broadband Applications Requiring Low Distortion Characteristics
- Specified for Use as a Return Path Amplifier for Low-, Mid- and High-Split 2-Way Cable TV Systems

## Description

- 24 Vdc Supply, 5 to 200 MHz, CATV Reverse Amplifier
- Replaced MHW1244. There are no form, fit or function changes with this part replacement.
- RoHS Compliant



**Table 1. 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,  $T_C = +30^\circ\text{C}$ , 75  $\Omega$  system)

Characteristic	Symbol	MHW1244	Units
Power Gain @ 10 MHz	$G_p$	24.0 $\pm$ 0.5	dB
Frequency Range (Response/Return Loss) (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)	$G_F$	$\pm$ 0.2 Max	dB
Input/Output Return Loss (5.0 - 200 MHz) (1)	IRL/ORL	18.0 Min	dB
Cross Modulation Distortion @ +50 dBmV per ch.			
12-Channel FLAT (5.0 - 120 MHz)	XMD <sub>12</sub>	- 66 Typ	dBc
22-Channel FLAT (5.0 - 175 MHz) (2) (3)	XMD <sub>22</sub>	- 61 Max	dBc
26-Channel FLAT (5.0 - 200 MHz)	XMD <sub>26</sub>	- 61 Typ	dBc

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.

ARCHIVE INFORMATION

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

Characteristic	Symbol	MHW1244	Units
Composite Triple Beat Distortion @ +50 dBmV per ch. 22-Channel FLAT (5.0 - 175 MHz) <sup>(2)</sup> 26-Channel FLAT (5.0 - 200 MHz) <sup>(3)</sup>	CTB <sub>22</sub> CTB <sub>26</sub>	- 68 Max - 67.5 Typ	dBc dBc
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>	- 87 Typ - 84 Typ	dBc dBc
Second Order Distortion @ +50 dBmV per ch. High-Split (5.0 - 175 MHz) CH2, CHA @ 176.5 MHz	IMD	- 72 Max	dBc
Noise Figure High-Split (5.0 - 175 MHz) <sup>(2)</sup>	NF	5.0 Max	dB
DC Current	I <sub>DC</sub>	210 Typ/240 Max	mAdc

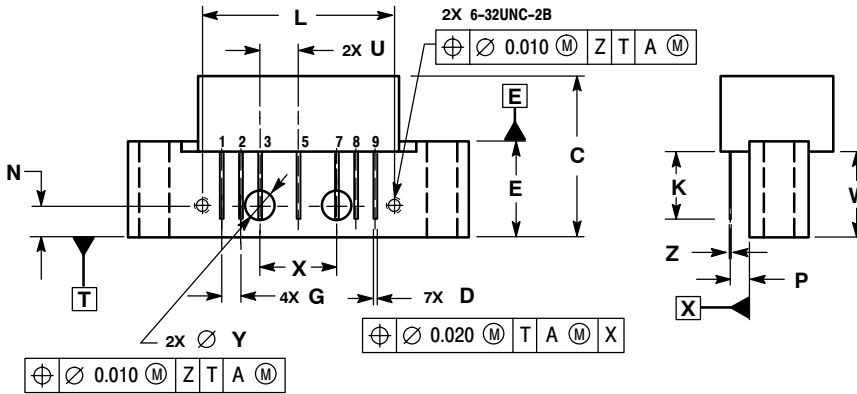
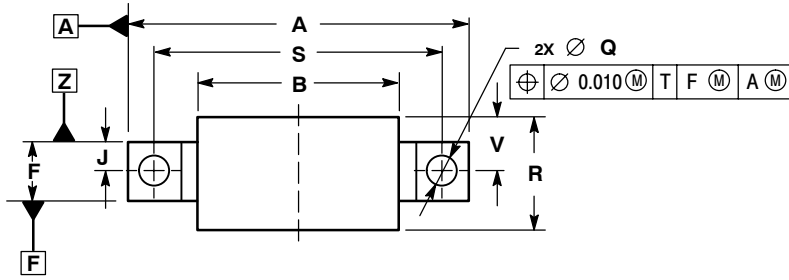
- Response and return loss characteristics are tested and guaranteed for the full 5.0 - 200 MHz frequency range.
- Freescale 100% distortion and noise figure testing is performed over the 5.0 - 175 MHz frequency range. Cross modulation and composite triple beat testing are with 22-channel loading; Video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

ARCHIVE INFORMATION

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### PACKAGE DIMENSIONS



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	---	1.775	---	45.085
B	---	1.085	---	27.559
C	---	0.840	---	21.336
D	0.015	0.021	0.381	0.533
E	0.465	0.510	11.811	12.954
F	0.300	0.325	7.62	8.255
G	0.100 BSC		2.540 BSC	
J	0.156 BSC		3.962 BSC	
K	0.315	0.355	8.001	9.017
L	1.000 BSC		25.400 BSC	
N	0.165 BSC		4.191 BSC	
P	0.100 BSC		2.540 BSC	
Q	0.148	0.168	3.759	4.267
R	---	0.600	---	15.24
S	1.500 BSC		38.100 BSC	
U	0.200 BSC		5.080 BSC	
V	---	0.250	---	6.350
W	0.435	---	11.049	---
X	0.400 BSC		10.160 BSC	
Y	0.152	0.163	3.861	4.140
Z	0.009	0.011	0.229	0.279

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

CASE 1302-01  
 ISSUE E

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