The RF Line
CATV Amplifier Module

MHW1244

5–200 MHz, 24.0 dB
26–CHANNEL
CATV HIGH–SPLIT
REVERSE AMPLIFIER

Features

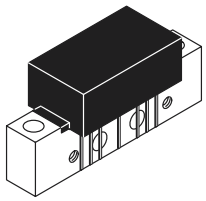
- Specified for 12–, 22– and 26–Channel Loading
- Excellent Distortion Performance
- Superior Gain, Return Loss and DC Current Stability over Temperature
- Capable of Handling Multiple Channels in the Return Path with Good Distortion Performance
- Silicon Bipolar Transistor Technology
- Unconditionally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



CASE 1302–01, STYLE 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

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

Characteristic	Symbol	MHW1244	Units
Power Gain @ 10 MHz	G_p	24.0 ±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	±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) 22–Channel FLAT (5.0–175 MHz) (2) (3) 26–Channel FLAT (5.0–200 MHz)	 XMD_{12} XMD_{22} XMD_{26}	 –66 Typ –61 Max –61 Typ	 dBc dBc dBc

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	MHW1244	Units
Composite Triple Beat Distortion @ +50 dBmV per ch. 22–Channel FLAT (5.0–175 MHz) (2) 26–Channel FLAT (5.0–200 MHz) (3)	 CTB_{22} CTB_{26}	 –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_3 TB_3	 –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) (2)	NF	5.0 Max	dB
DC Current	I_{DC}	210 Typ/240 Max	mAdc

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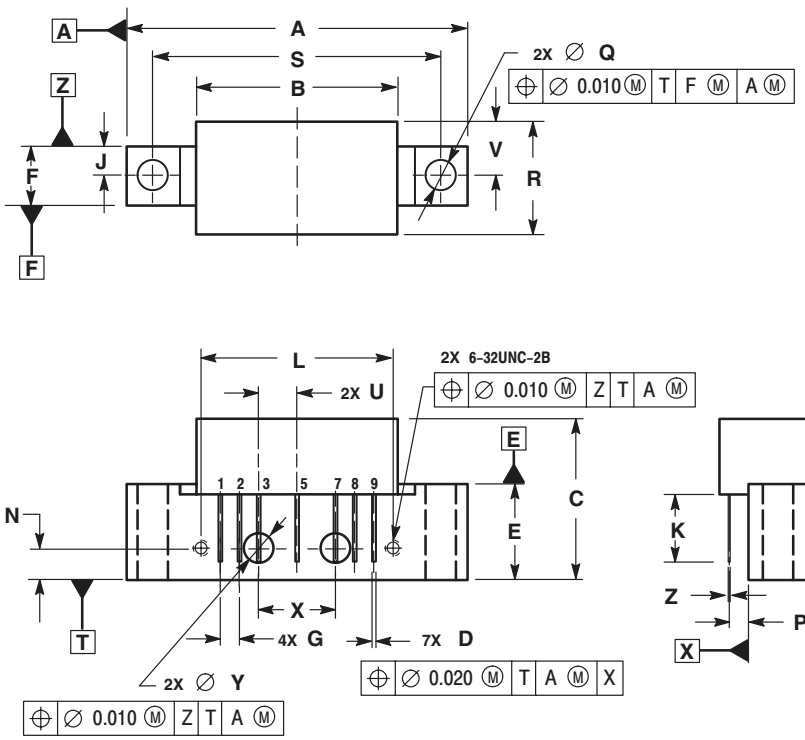
NOTES

PACKAGE DIMENSIONS



DIM	INCHES MIN	INCHES MAX	MILLIMETERS MIN	MILLIMETERS 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 B

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