

The RF Line

CATV Amplifier Module

MHW1244

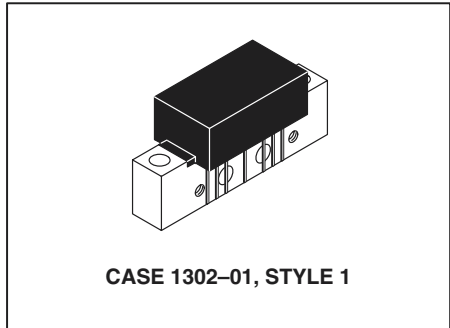
Features

- 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

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

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

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, $T_C = +30^\circ\text{C}$, 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)	XMD_{12}	-66 Typ	dBc
22-Channel FLAT (5.0-175 MHz) (2) (3)	XMD_{22}	-61 Max	dBc
26-Channel FLAT (5.0-200 MHz)	XMD_{26}	-61 Typ	dBc

NOTES:

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

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ELECTRICAL CHARACTERISTICS — continued ($V_{CC} = 24$ Vdc, $T_C = +30^\circ\text{C}$, 75Ω 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

NOTES:

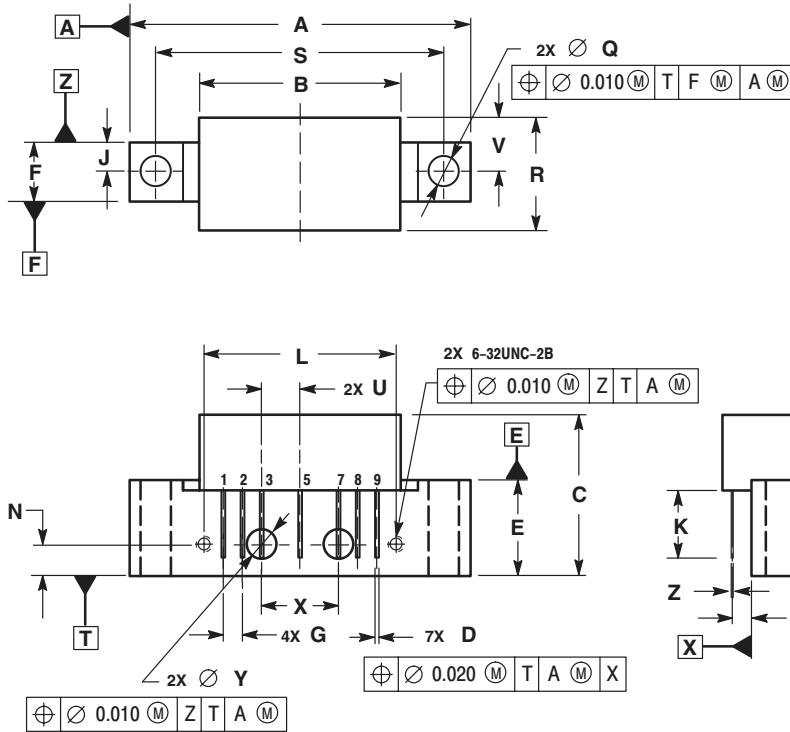
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- Motorola 100% distortion and noise figure testing is performed over the 5.0–175 MHz frequency range. Cross modulation and composite triple beat testing are with 22-channel loading; Video carriers used are:

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NOTES

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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 B

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How to reach us:

USA/EUROPE/Locations Not Listed: Motorola Literature Distribution; P.O. Box 5405, Denver, Colorado 80217. 1-303-675-2140 or 1-800-441-2447

JAPAN: Motorola Japan Ltd.; SPS, Technical Information Center, 3-20-1, Minami-Azabu. Minato-ku, Tokyo 106-8573 Japan. 81-3-3440-3569

ASIA/PACIFIC: Motorola Semiconductors H.K. Ltd.; Silicon Harbour Centre, 2 Dai King Street, Tai Po Industrial Estate, Tai Po, N.T. Hong Kong. 852-26668334

Technical Information Center: 1-800-521-6274

HOME PAGE: <http://www.motorola.com/semiconductors/>



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