

The RF Line
CATV Amplifier Module

MHW1254L

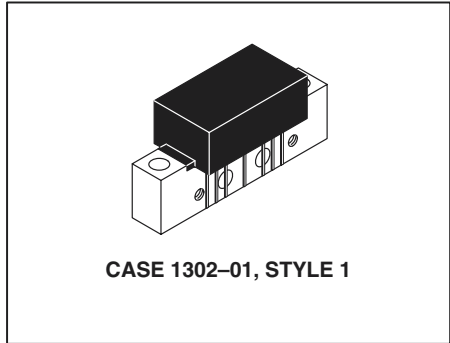
Features

- Specified for 4-Channel Loading
- 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

**50 MHz, 25 dB
 4-CHANNEL
 CATV LOW CURRENT AMPLIFIER**

Applications

- CATV Systems Operating in the 5 to 50 MHz Frequency Range
- Specified for Use as a Return Path Amplifier for Low-Split 2-Way Cable TV Systems



Description

- 24 Vdc Supply, 5 to 50 MHz, CATV Reverse Amplifier

MAXIMUM RATINGS

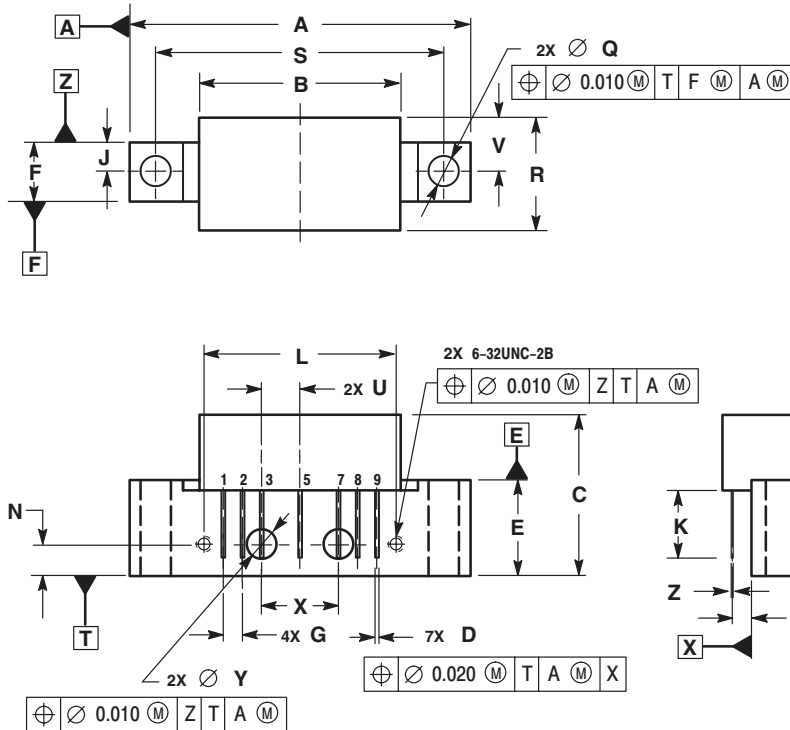
| Parameter | Symbol | Value | Unit |
|----------------------------------|-----------|--------------|------|
| DC Supply Voltage | V_{CC} | +28 | Vdc |
| RF Input Voltage (Single Tone) | V_{IN} | +70 | dBmV |
| Operating Case Temperature Range | T_C | - 20 to +100 | °C |
| Storage Temperature Range | T_{stg} | - 40 to +100 | °C |

ELECTRICAL CHARACTERISTICS ($V_{CC} = 24$ Vdc, $T_C = 30^\circ\text{C}$, 75 ohm system, unless otherwise noted)

| Characteristic | Symbol | Min | Max | Unit |
|--|---------|------|------|------|
| Bandwidth | BW | 5.0 | 50 | MHz |
| Power Gain (f = 5.0 MHz) | G_p | 24.3 | 25.8 | dB |
| Return Loss (@ f = 5.0-50 MHz) | RL | 20 | — | dB |
| Second Order Distortion ($V_{out} = +50$ dBmV/ch) | IMD | — | -70 | dBc |
| Cross Modulation ($V_{out} = +50$ dBmV/ch) | XMD_4 | — | -62 | dBc |
| Triple Beat Distortion ($V_{out} = +50$ dBmV/ch) | TB_3 | — | -70 | dBc |
| Noise Figure (f = 50 MHz) | NF | — | 4.5 | dB |
| DC Current | IDC | 100 | 135 | mA |

Freescale Semiconductor, Inc.

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

Motorola reserves the right to make changes without further notice to any products herein. Motorola makes no warranty, representation, or guarantee regarding the suitability of its products for any particular purpose, nor does Motorola assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals", must be validated for each customer application by customer's technical experts. Motorola does not convey any license under its patent rights nor the rights of others. Motorola products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Motorola product could create a situation where personal injury or death may occur. Should Buyer purchase or use Motorola products for any such unintended or unauthorized application, Buyer shall indemnify and hold Motorola and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Motorola was negligent regarding the design or manufacture of the part. Motorola and the Stylized M Logo are registered in the US Patent & Trademark Office. All other product or service names are the property of their respective owners. Motorola, Inc. is an Equal Opportunity/Affirmative Action Employer.

© Motorola, Inc. 2002.

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/>



MOTOROLA

For More Information On This Product,
 Go to: www.freescale.com

MHW1254L/D