

## The RF Line CATV Amplifier Module

### Features

- Specified for 110-Channel Loading
- Excellent Distortion Performance
- Silicon Bipolar Transistor Technology
- Unconditionally Stable Under All Load Conditions

### Applications

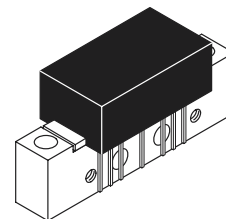
- CATV Systems Operating in the 40 to 770 MHz Frequency Range
- Input Stage Amplifier in Optical Nodes, Line Extenders and Trunk Distribution Amplifiers for CATV Systems
- Driver Amplifier in Linear General Purpose Applications
- Output Stage Amplifier on Applications Requiring Low Power Dissipation

### Description

- 24 Vdc Supply, 40 to 770 MHz, CATV Forward Amplifier

**MHW7292A**

**770 MHz, 29.8 dB GAIN  
110-CHANNEL  
CATV AMPLIFIER**



**CASE 1302-01, STYLE 1**

### MAXIMUM RATINGS

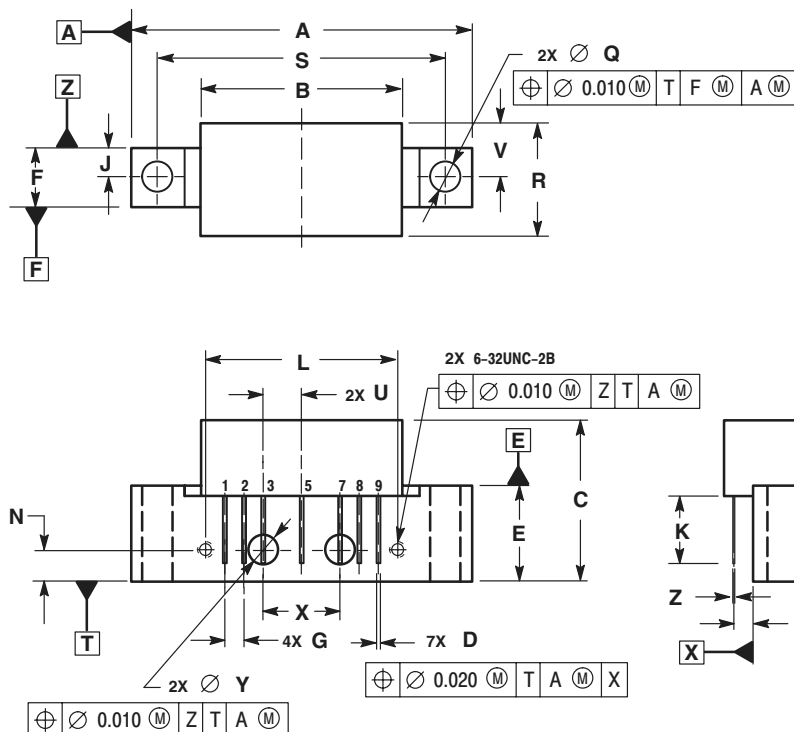
| Rating                           | Symbol    | Value       | Unit |
|----------------------------------|-----------|-------------|------|
| RF Voltage Input (Single Tone)   | $V_{in}$  | +55         | dBmV |
| DC Supply Voltage                | $V_{CC}$  | +28         | Vdc  |
| Operating Case Temperature 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 $\Omega$ system unless otherwise noted)

| Characteristic                                                                                     | Symbol      | Min        | Typ        | Max        | Unit         |
|----------------------------------------------------------------------------------------------------|-------------|------------|------------|------------|--------------|
| Frequency Range                                                                                    | BW          | 40         | —          | 770        | MHz          |
| Power Gain<br>50 MHz<br>770 MHz                                                                    | $G_p$       | 28.2<br>29 | 29<br>29.8 | 29.8<br>31 | dB           |
| Slope<br>40-770 MHz                                                                                | S           | 0          | 0.7        | 2          | dB           |
| Gain Flatness (40-750 MHz, Peak to Valley)                                                         | $G_F$       | —          | 0.4        | 0.8        | dB           |
| Return Loss — Input/Output ( $Z_o = 75$ Ohms)<br>@ 40 MHz<br>@ $f > 40$ MHz (Derate)               | IRL/ORL     | 20<br>—    | —<br>—     | —<br>0.007 | dB<br>dB/MHz |
| Composite Second Order<br>( $V_{out} = +40$ dBmV/ch., Worst Case)<br>110-Channel FLAT              | $CSO_{110}$ | —          | -70        | -60        | dBc          |
| Cross Modulation Distortion @ Ch 2<br>( $V_{out} = +40$ dBmV/ch., FM = 55 MHz)<br>110-Channel FLAT | $XMD_{110}$ | —          | -62        | -60        | dBc          |
| Composite Triple Beat<br>( $V_{out} = +40$ dBmV/ch., Worst Case)<br>110-Channel FLAT               | $CTB_{110}$ | —          | -62        | -60        | dBc          |
| Noise Figure<br>50 MHz<br>770 MHz                                                                  | NF          | —<br>—     | —<br>5.5   | 5.5<br>6.5 | dB           |
| DC Current ( $V_{DC} = 24$ V, $T_C = 30^\circ\text{C}$ )                                           | $I_{DC}$    | 280        | 310        | 350        | mA           |

# Freescale Semiconductor, Inc.

## PACKAGE DIMENSIONS



NOTES:  
1. DIMENSIONS ARE IN INCHES.  
2. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M, 1994.

| 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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**MHW7292A/D**