

Freescale Semiconductor
Technical Data

MHW1253LA
Rev. 2, 10/2002

CATV Amplifier Module

Features

- Specified for 6- and 10-Channel Loading
- Excellent Distortion Performance
- Low Power Consumption
- Capable of Handling Multiple Channels in the Return Path with Good Distortion Performance
- Silicon Bipolar Transistor Technology
- Unconditionally Stable Under All Load Conditions

Applications

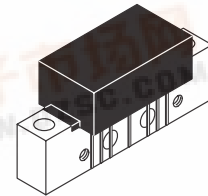
- CATV Systems Operating in the 5 to 200 MHz Frequency Range
- Specified for Use as a Return Path Amplifier for Low-, Mid- and High-Split 2-Way Cable TV Systems

Description

- 24 Vdc Supply, 5 to 200 MHz, CATV Reverse Amplifier Module

MHW1253LA

**5-200 MHz, 25.5 dB, 10-CHANNEL
CATV LOW CURRENT
AMPLIFIER MODULE**



CASE 1302-01, STYLE 1

Table 1. Maximum Ratings

| Parameter | Symbol | Value | Unit |
|----------------------------------|------------------|--------------|------|
| DC Supply Voltage | V _{CC} | +28 | Vdc |
| RF Input Voltage (Single Tone) | V _{in} | +60 | dBmV |
| Operating Case Temperature Range | T _C | - 20 to +100 | °C |
| Storage Temperature Range | T _{stg} | - 40 to +100 | °C |

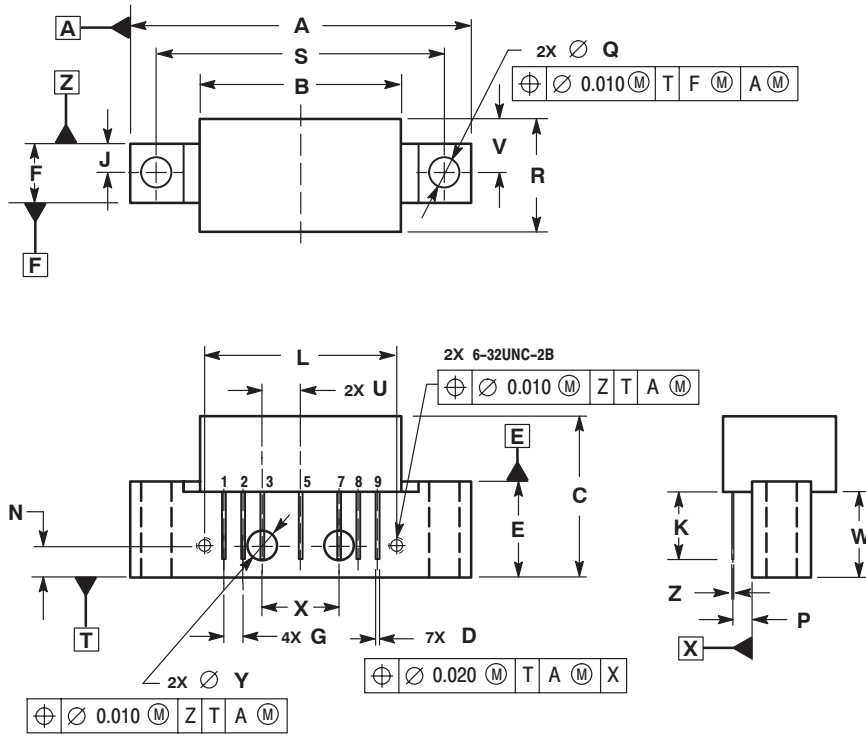
Table 2. Electrical Characteristics (V_{CC} = 24 Vdc, T_C = 30°C, 75 Ω system, unless otherwise noted)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|--|---------------------------------------|----------|--------------|--------------|------|
| Bandwidth All | BW | 5 | — | 200 | MHz |
| Power Gain (f = 5 MHz) | G _p | 25 | 25.5 | 26 | dB |
| Slope (5-200 MHz) | S | - 0.2 | — | 0.7 | dB |
| Gain Flatness (Peak To Valley) (5-200 MHz) | G _F | — | — | 0.4 | dB |
| Return Loss — Input/Output (@ f = 5-150 MHz) (@ f = 150-200 MHz) | IRL/ORL | 20 18 | — — | — — | dB |
| Composite Second Order (V _{out} = +50 dBmV per Ch., Worst Case) 6-Channel FLAT 10-Channel FLAT | CSO ₆ CSO ₁₀ | — — | - 73 - 71 | - 68 - 66 | dBc |

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

| Characteristic | Symbol | Min | Typ | Max | Unit |
|--|-----------------|-----|-----|-----|------|
| Cross Modulation Distortion ($V_{out} = +50 \text{ dBmV}$ per Ch., Worst Case) | 6-Channel FLAT | — | -69 | -65 | dBc |
| | 10-Channel FLAT | — | -64 | -61 | |
| Composite Triple Beat ($V_{out} = +50 \text{ dBmV}$ per Ch., Worst Case) | 6-Channel FLAT | — | -78 | -75 | dBc |
| | 10-Channel FLAT | — | -69 | -66 | |
| Noise Figure ($f = 5\text{--}200 \text{ MHz}$) | NF | — | 5.8 | 6.5 | dB |
| DC Current | I_{DC} | 85 | 95 | 110 | mA |

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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