## The RF Line
# CATV Amplifier Module

# MHW8202B

**870 MHz**
**20.9 dB GAIN**
**128-CHANNEL**
**CATV AMPLIFIER**

### Features

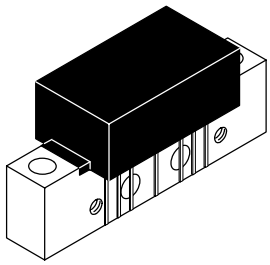
- Specified for 77-, 110- and 128-Channel Loading
- Excellent Distortion Performance
- Silicon Bipolar Transistor Technology
- Unconditionally Stable Under All Load Conditions

### Applications

- CATV Systems Operating in the 40 to 870 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 870 MHz, CATV Forward Amplifier



**CASE 1302-01, STYLE 1**



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**MAXIMUM RATINGS**

| Rating | 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°C, 75 Ω system unless otherwise noted)

| Characteristic | | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Frequency Range | | BW | 40 | — | 870 | MHz |
| Power Gain | f = 50 MHz<br>f = 870 MHz | $G_p$ | 19.8<br>20.3 | 20.4<br>20.9 | 20.8<br>21.8 | dB |
| Slope (f = 40 - 870 MHz) | | S | — | 0.5 | 1.2 | dB |
| Gain Flatness (Peak To Valley) | (f = 40 - 870 MHz) | $G_F$ | — | 0.4 | 0.6 | dB |
| Input/Output Return Loss @ f = 40 MHz | | IRL/ORL | 20 | 21 | — | dB |
| Derate Return Loss @ f > 40 MHz | | RLD | — | — | 0.005 | dB/MHz |
| Composite Second Order<br>($V_{out}$ = +38 dBmV/ch; 128-Channels, Worst Case)<br>($V_{out}$ = +40 dBmV/ch; 110-Channels, Worst Case)<br>($V_{out}$ = +44 dBmV/ch; 77-Channels, Worst Case) | | <br>$CSO_{128}$<br>$CSO_{110}$<br>$CSO_{77}$ | <br>—<br>—<br>— | <br>-71<br>-70<br>-75 | <br>-66<br>-65<br>-70 | dBc |

**ELECTRICAL CHARACTERISTICS — continued** ($V_{CC}$ = 24 Vdc, $T_C$ = +30°C, 75 Ω system unless otherwise noted)

| Characteristic | | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Cross Modulation Distortion | | | | | | dBc |
| ($V_{out}$ = +38 dBmV/ch, 128-Channels, Worst Case) | | $XMD_{128}$ | — | -67 | -62 | |
| ($V_{out}$ = +40 dBmV/ch, 110-Channels, Worst Case) | | $XMD_{110}$ | — | -65 | -61 | |
| ($V_{out}$ = +44 dBmV/ch, 77-Channels, Worst Case) | | $XMD_{77}$ | — | -58 | -57 | |
| Composite Triple Beat | | | | | | dBc |
| ($V_{out}$ = +38 dBmV/ch, 128-Channels, Worst Case) | | $CTB_{128}$ | — | -67 | -63 | |
| ($V_{out}$ = +40 dBmV/ch, 110-Channels, Worst Case) | | $CTB_{110}$ | — | -66 | -63 | |
| ($V_{out}$ = +44 dBmV/ch, 77-Channels, Worst Case) | | $CTB_{77}$ | — | -65 | -63 | |
| Noise Figure | f = 50 MHz | NF | — | 3.8 | 5.0 | dB |
| | f = 750 MHz | | — | 5.0 | 6.5 | |
| | f = 870 MHz | | — | 5.6 | 7.0 | |
| DC Current | | $I_{DC}$ | 180 | 220 | 240 | mA |


ARCHIVE INFORMATION

# NOTES



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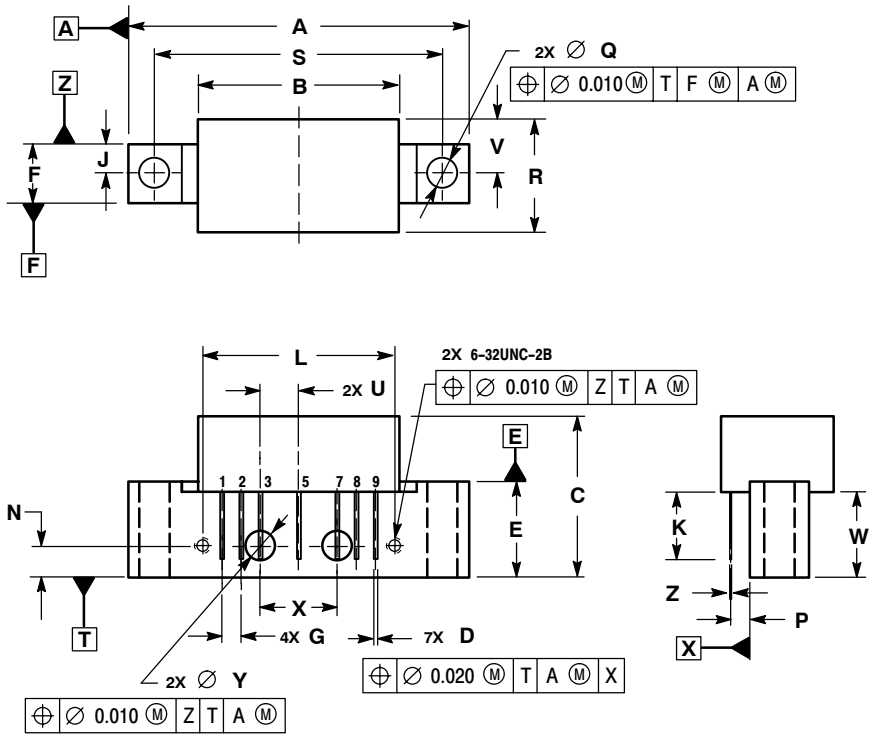
## PACKAGE DIMENSIONS




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

| | INCHES | | MILLIMETERS | |
|---|---|---|---|---|
| DIM | 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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