✓RoHS

# CATV Amplifier Module

## 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 860 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 860 MHz, CATV Forward Amplifier Module
- Replaced MHW8222B. There are no form, fit or function changes with this part replacement.
- RoHS Compliant

**MHW8222BN**

**860 MHz
22.7 dB GAIN
128-CHANNEL
CATV AMPLIFIER MODULE**



**CASE 1302-01, STYLE 1**
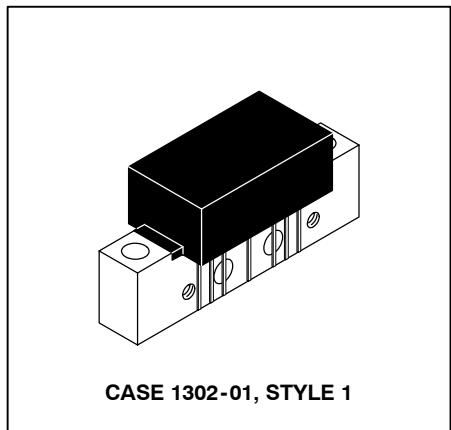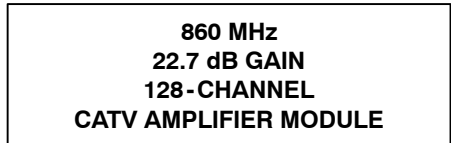
## Table 1. Maximum Ratings

| 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 |

## Table 2. 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 | — | 860 | MHz |
| Power Gain | f = 50 MHz | $G_p$ | 21.4 | 21.9 | 22.4 | dB |
| | f = 860 MHz | | 21.8 | 22.7 | 24 | |
| Slope (f = 40 - 860 MHz) | | S | 0.1 | 0.8 | 1.5 | — |
| Gain Flatness (Peak To Valley) | (f = 40 - 860 MHz) | $G_F$ | — | 0.4 | 0.6 | — |
| Input/Output Return Loss @ f = 40 MHz | | IRL/ORL | 20 | 24 | — | dB |
| Derate Return Loss @ f > 40 MHz | | RLD | — | — | 0.009 | dB/MHz |
| Composite Second Order ($V_{out}$ = +38 dBmV/ch; 128 Channels) | | $CSO_{128}$ | — | -68 | -60 | dBc |
| ($V_{out}$ = +40 dBmV/ch; 110 Channels) | | $CSO_{110}$ | — | -64 | -61 | |
| ($V_{out}$ = +44 dBmV/ch; 77 Channels) | | $CSO_{77}$ | — | -65 | -62 | |

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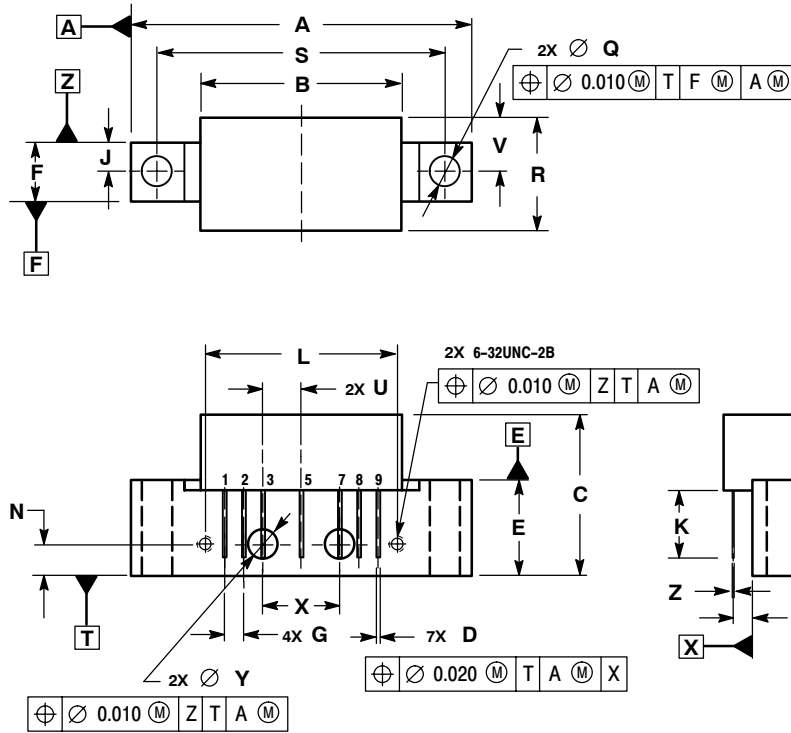**Table 2. Electrical Characteristics** ($V_{CC}$ = 24 Vdc, $T_C$ = +30°C, 75 Ω system unless otherwise noted) **(continued)**

| Characteristic | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|
| Cross Modulation Distortion<br>($V_{out}$ = +38 dBmV/ch, 128-Channel @ Fm = 55.25 MHz)<br>($V_{out}$ = +40 dBmV/ch, 110-Channel @ Fm = 55.25 MHz)<br>($V_{out}$ = +44 dBmV/ch, 77-Channel @ Fm = 55.25 MHz) | $XMD_{128}$<br>$XMD_{110}$<br>$XMD_{77}$ | —<br>—<br>— | - 65<br>- 63<br>- 59 | - 63<br>- 60<br>- 56 | dBc |
| Composite Triple Beat<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) | $CTB_{128}$<br>$CTB_{110}$<br>$CTB_{77}$ | —<br>—<br>— | - 66<br>- 64<br>- 65 | - 64<br>- 61<br>- 62 | dBc |
| Noise Figure          f = 50 MHz<br>f = 750 MHz<br>f = 860 MHz | NF | —<br>—<br>— | 3.7<br>5<br>5.6 | 4.5<br>6.5<br>7 | dB |
| DC Current | $I_{DC}$ | 180 | 220 | 240 | mA |

**MHW8222BN**

RF Device Data
Freescale Semiconductor

## 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 E**

**MHW8222BN**

**NXP**

**ARCHIVE INFORMATION**

### How to Reach Us:

**Home Page:**
www.freescale.com

**E-mail:**
support@freescale.com

**USA/Europe or Locations Not Listed:**
Freescale Semiconductor
Technical Information Center, CH370
1300 N. Alma School Road
Chandler, Arizona 85224
+1-800-521-6274 or +1-480-768-2130
support@freescale.com

**Europe, Middle East, and Africa:**
Freescale Halbleiter Deutschland GmbH
Technical Information Center
Schatzbogen 7
81829 Muenchen, Germany
+44 1296 380 456 (English)
+46 8 52200080 (English)
+49 89 92103 559 (German)
+33 1 69 35 48 48 (French)
support@freescale.com

**Japan:**
Freescale Semiconductor Japan Ltd.
Headquarters
ARCO Tower 15F
1-8-1, Shimo-Meguro, Meguro-ku,
Tokyo 153-0064
Japan
0120 191014 or +81 3 5437 9125
support.japan@freescale.com

**Asia/Pacific:**
Freescale Semiconductor Hong Kong Ltd.
Technical Information Center
2 Dai King Street
Tai Po Industrial Estate
Tai Po, N.T., Hong Kong
+800 2666 8080
support.asia@freescale.com

*For Literature Requests Only:*
Freescale Semiconductor Literature Distribution Center
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