

The RF Line CATV Amplifier Module

Features

- Specified for 77-, 110- and 128-Channel Loading
- Excellent Distortion Performance
- Superior Gain, Return Loss and DC Current Stability over Temperature
- Silicon Bipolar Transistor Technology
- Unconditionally Stable Under All Load Conditions

Applications

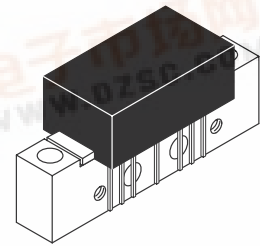
- CATV Systems Operating in the 40 to 860 MHz Frequency Range
- Input Stage Amplifier in Optical Nodes, Line Extenders and Trunk Distribution Amplifiers for CATV Systems
- Driver Amplifier in Linear General Purpose Applications
- Output Stage Amplifier on Applications Requiring Low Power Dissipation

Description

- 24 Vdc Supply, 40 to 860 MHz, CATV Forward Amplifier

MHW8182B

**860 MHz
 19.1 dB GAIN
 128-CHANNEL
 CATV AMPLIFIER**



CASE 714Y-04, STYLE 1

MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|----------------------------------|-----------|-------------|------|
| RF Voltage Input (Single Tone) | V_{in} | +70 | 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 |

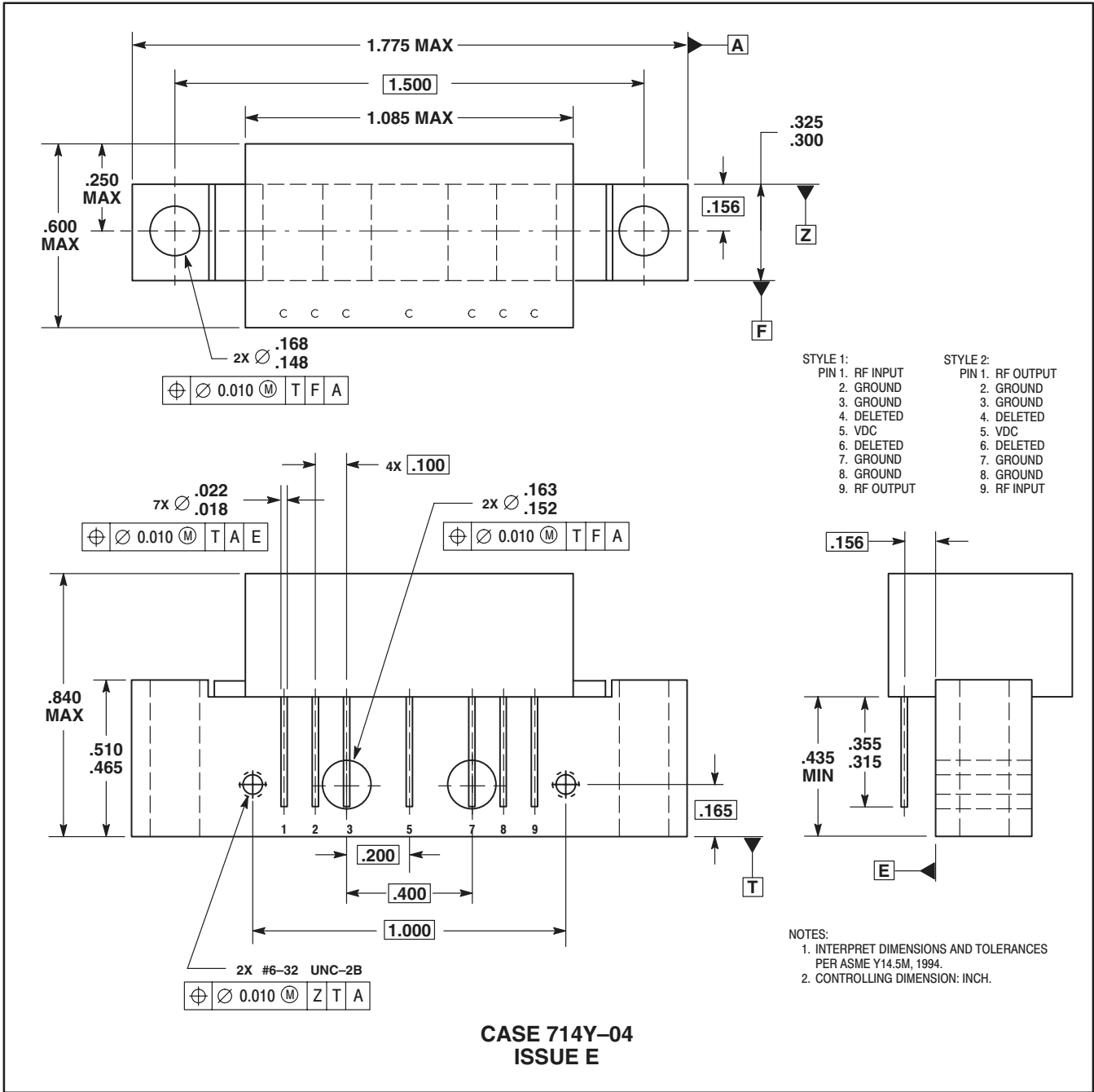
ELECTRICAL CHARACTERISTICS ($V_{CC} = 24$ Vdc, $T_C = +30^\circ\text{C}$, 75 Ω system unless otherwise noted)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|--|-------------|------|------|-------|--------|
| Frequency Range | BW | 40 | — | 860 | MHz |
| Power Gain | G_p | 18 | 18.5 | 19 | dB |
| | | 18.2 | 19.1 | 20.5 | |
| Slope | S | 0 | 0.7 | 2.5 | dB |
| Gain Flatness (40–860 MHz, Peak to Valley) | G_F | — | 0.3 | 0.6 | dB |
| Return Loss — Input/Output ($Z_0 = 75$ Ohms) | IRL/ORL | | | | |
| @ 40 MHz | | 20 | — | — | dB |
| @ $f > 40$ MHz (Derate) | | — | — | 0.005 | dB/MHz |
| Composite Second Order | | | | | dBc |
| ($V_{out} = +38$ dBmV/ch., Worst Case) 128-Channel FLAT | CSO_{128} | — | -71 | -64 | |
| ($V_{out} = +40$ dBmV/ch., Worst Case) 110-Channel FLAT | CSO_{110} | — | -70 | -63 | |
| ($V_{out} = +44$ dBmV/ch., Worst Case) 77-Channel FLAT | CSO_{77} | — | -70 | -64 | |

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

| Characteristic | | Symbol | Min | Typ | Max | Unit |
|---|------------------|-------------|-----|-----|-----|------|
| Cross Modulation Distortion @ Ch 2 | | | | | | dBc |
| ($V_{out} = +38 \text{ dBmV/ch.}$, FM = 55 MHz) | 128-Channel FLAT | XMD_{128} | — | -68 | -65 | |
| ($V_{out} = +40 \text{ dBmV/ch.}$, FM = 55 MHz) | 110-Channel FLAT | XMD_{110} | — | -66 | -64 | |
| ($V_{out} = +44 \text{ dBmV/ch.}$, FM = 55 MHz) | 77-Channel FLAT | XMD_{77} | — | -61 | -59 | |
| Composite Triple Beat | | | | | | dBc |
| ($V_{out} = +38 \text{ dBmV/ch.}$, Worst Case) | 128-Channel FLAT | CTB_{128} | — | -69 | -66 | |
| ($V_{out} = +40 \text{ dBmV/ch.}$, Worst Case) | 110-Channel FLAT | CTB_{110} | — | -68 | -66 | |
| ($V_{out} = +44 \text{ dBmV/ch.}$, Worst Case) | 77-Channel FLAT | CTB_{77} | — | -66 | -64 | |
| Noise Figure | 50 MHz | NF | — | 4.0 | 5.0 | dB |
| | 550 MHz | | — | 4.5 | — | |
| | 750 MHz | | — | 5.0 | 6.5 | |
| | 860 MHz | | — | 5.5 | 7.5 | |
| DC Current ($V_{DC} = 24 \text{ V}$, $T_C = 30^\circ\text{C}$) | | I_{DC} | 180 | 220 | 240 | mA |

PACKAGE DIMENSIONS



**CASE 714Y-04
ISSUE E**

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 trademarks of Motorola, Inc. Motorola, Inc. is an Equal Opportunity/Affirmative Action Employer.

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. 2003.

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>

