

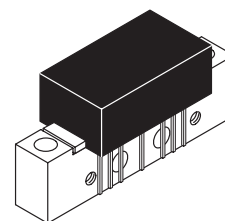
## The RF Line

# 152-Channel (1000 MHz) CATV Line Extender Amplifier

- Specified for 152-Channel Performance
- Broadband Power Gain — @  $f = 40\text{--}1000\text{ MHz}$   
 $G_p = 24\text{ dB}$
- Broadband Noise Figure  
 $NF = 8\text{ dB (Max)}$  @  $1000\text{ MHz}$
- Superior Gain, Return Loss and DC Current Stability with Temperature
- All Gold Metallization
- $7\text{ GHz } f_T$  Ion-Implanted Transistors

**MHW9242A**

**1000 MHz  
24 dB GAIN  
152-CHANNEL  
CATV AMPLIFIER**



**CASE 714Y-03, 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 ( $V_{CC} = 24\text{ Vdc}$ , $T_C = +30^\circ\text{C}$ , $75\ \Omega$ system unless otherwise noted)

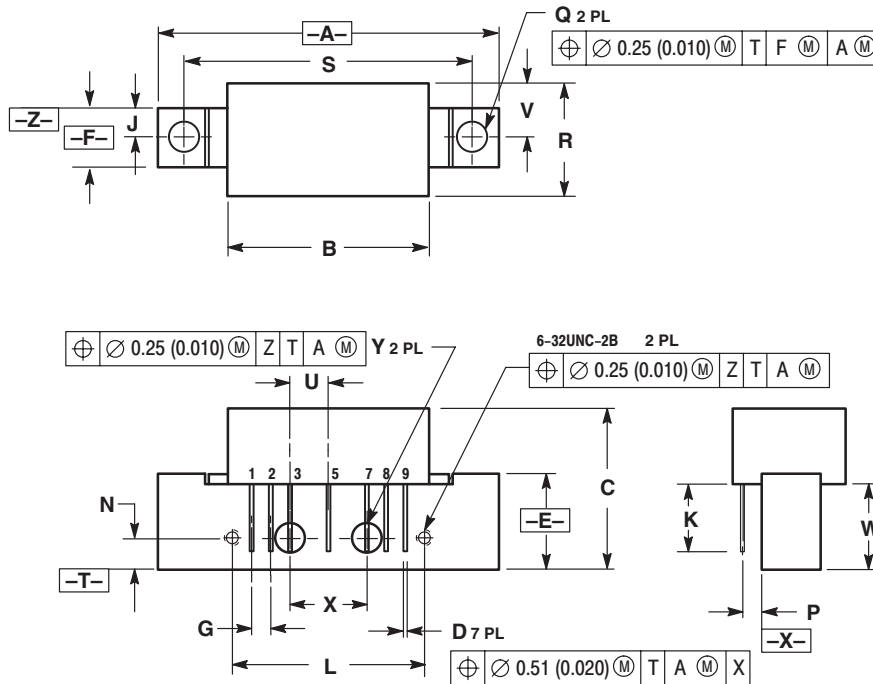
| Characteristic                                                                      |                    | Symbol           | Min                | Typ    | Max        | Unit         |
|-------------------------------------------------------------------------------------|--------------------|------------------|--------------------|--------|------------|--------------|
| Frequency Range                                                                     |                    | BW               | 40                 | —      | 1000       | MHz          |
| Power Gain                                                                          | 50 MHz<br>1000 MHz | G <sub>p</sub>   | 23.2<br>24         | —<br>— | 24.8<br>26 | dB           |
| Slope                                                                               | 40–1000 MHz        | S                | 0                  | —      | 2.5        | dB           |
| Gain Flatness (40–1000 MHz, Peak-to–Valley)                                         |                    | —                | —                  | —      | 1.0        | dB           |
| Return Loss — Input/Output (Z <sub>o</sub> = 75 Ohms)<br>@ f > 40 MHz (Derate)      | @ 40 MHz           | IRL/ORL          | 20<br>—            | —<br>— | —<br>0.01  | dB<br>dB/MHz |
| Composite Second Order<br>(V <sub>out</sub> = +38 dBmV/ch; Worst Case)              |                    | 152–Channel FLAT | CSO <sub>152</sub> | —      | –66        | dBc          |
| (V <sub>out</sub> = +38 dBmV/ch; Worst Case)                                        |                    | 128–Channel FLAT | CSO <sub>128</sub> | —      | –69        |              |
| (V <sub>out</sub> = +40 dBmV/ch; Worst Case )                                       |                    | 110–Channel FLAT | CSO <sub>110</sub> | —      | –69        |              |
| (V <sub>out</sub> = +44 dBmV/ch; Worst Case)                                        |                    | 77–Channel FLAT  | CSO <sub>77</sub>  | —      | –78        |              |
| Cross Modulation Distortion @ Ch 2<br>(V <sub>out</sub> = +38 dBmV/ch., FM= 55 MHz) |                    | 152–Channel FLAT | XMD <sub>152</sub> | —      | –62        | dBc          |
| (V <sub>out</sub> = +38 dBmV/ch, FM = 55.25 MHz)                                    |                    | 128–Channel FLAT | XMD <sub>128</sub> | —      | –65        |              |
| (V <sub>out</sub> = +40 dBmV/ch, FM = 55.25 MHz)                                    |                    | 110–Channel FLAT | XMD <sub>110</sub> | —      | –63        |              |
| (V <sub>out</sub> = +44 dBmV/ch, FM = 55.25 MHz)                                    |                    | 77–Channel FLAT  | XMD <sub>77</sub>  | —      | –58        |              |

**ELECTRICAL CHARACTERISTICS — continued**

| Characteristic                                                                                                                                                                                 |                  | Symbol      | Min | Typ | Max | Unit |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------|-----|-----|-----|------|
| Composite Triple Beat<br>( $V_{out} = +38$ dBmV/ch., Worst Case)<br>( $V_{out} = +38$ dBmV/ch, Worst Case)<br>( $V_{out} = +40$ dBmV/ch, Worst Case)<br>( $V_{out} = +44$ dBmV/ch, Worst Case) | 152–Channel FLAT | $CTB_{152}$ | —   | –64 | –58 | dBc  |
|                                                                                                                                                                                                | 128–Channel FLAT | $CTB_{128}$ | —   | –68 | —   |      |
|                                                                                                                                                                                                | 110–Channel FLAT | $CTB_{110}$ | —   | –67 | —   |      |
|                                                                                                                                                                                                | 77–Channel FLAT  | $CTB_{77}$  | —   | –64 | —   |      |
| Noise Figure                                                                                                                                                                                   | f = 50 MHz       | NF          | —   | 4.8 | 5.5 | dB   |
|                                                                                                                                                                                                | f = 750 MHz      |             | —   | 5.5 | 7.0 |      |
|                                                                                                                                                                                                | f = 860 MHz      |             | —   | 5.8 | 7.5 |      |
|                                                                                                                                                                                                | f = 1000 MHz     |             | —   | —   | 8.0 |      |
| DC Current                                                                                                                                                                                     |                  | $I_{DC}$    | 280 | 318 | 350 | mA   |

# NOTES

## PACKAGE DIMENSIONS



NOTES:  
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
 2. CONTROLLING DIMENSION: INCH.

| DIM | INCHES    |       | MILLIMETERS |       |
|-----|-----------|-------|-------------|-------|
|     | MIN       | MAX   | MIN         | MAX   |
| A   | ----      | 1.775 | ----        | 45.08 |
| B   | ----      | 1.085 | ----        | 27.56 |
| C   | ----      | 0.840 | ----        | 21.34 |
| D   | 0.018     | 0.022 | 0.46        | 0.56  |
| E   | 0.465     | 0.510 | 11.81       | 12.95 |
| F   | 0.300     | 0.325 | 7.62        | 8.25  |
| G   | 0.100 BSC |       | 2.54 BSC    |       |
| J   | 0.156 BSC |       | 3.96 BSC    |       |
| K   | 0.315     | 0.355 | 8.00        | 8.50  |
| L   | 1.00 BSC  |       | 25.40 BSC   |       |
| N   | 0.165 BSC |       | 4.19 BSC    |       |
| P   | 0.100 BSC |       | 2.54 BSC    |       |
| Q   | 0.148     | 0.168 | 3.76        | 4.27  |
| R   | ----      | 0.600 | ----        | 15.24 |
| S   | 1.500 BSC |       | 38.10 BSC   |       |
| U   | 0.200 BSC |       | 5.08 BSC    |       |
| V   | ----      | 0.250 | ----        | 6.35  |
| W   | 0.435     | 0.450 | 11.05       | 11.43 |
| X   | 0.400 BSC |       | 10.16 BSC   |       |
| Y   | 0.152     | 0.163 | 3.85        | 4.15  |

STYLE 1:  
 PIN 1: RF INPUT  
 2: GROUND  
 3: GROUND  
 4: DELETED  
 5: VDC  
 6: DELETED  
 7: GROUND  
 8: GROUND  
 9: RF OUTPUT

**CASE 714Y-03  
 ISSUE D**

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