

# The RF Line

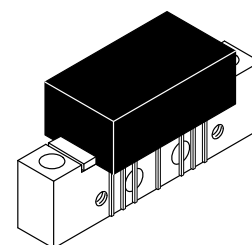
## High Output Power Doubler

### 860 MHz CATV Amplifier

**MHW8185**

- Specified for 77, 110 and 128-Channel Performance
- Broadband Power Gain — @ f = 40–860 MHz  
G<sub>p</sub> = 19.4 dB (Typ)
- Broadband Noise Figure  
NF = 7 dB (Typ) @ 860 MHz
- Superior Gain, Return Loss and DC Current Stability with Temperature
- All Gold Metallization
- 7 GHz f<sub>T</sub> Ion-Implanted Transistors

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



**CASE 714Y-03, STYLE 1**

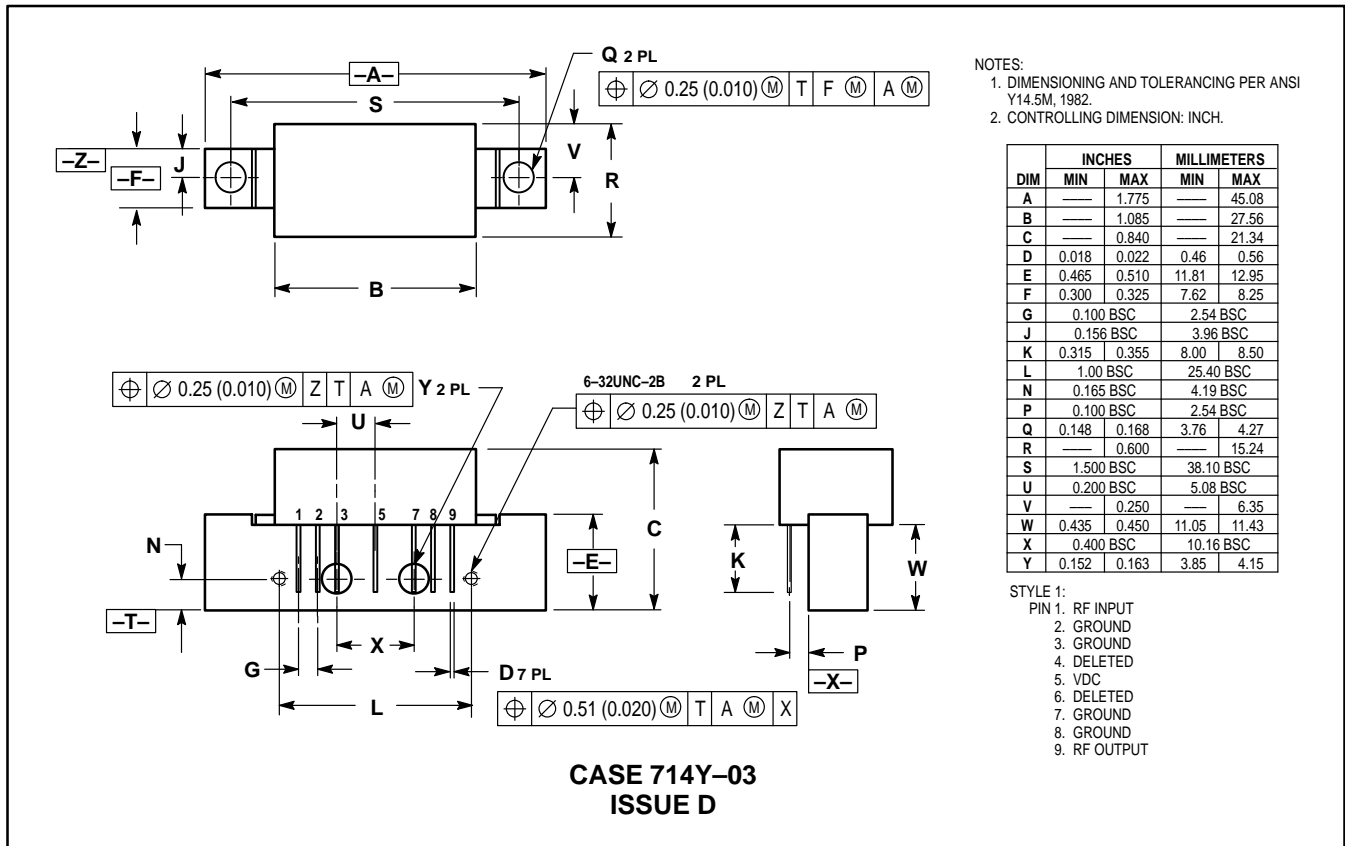
#### MAXIMUM RATINGS

| Rating                           | Symbol           | Value       | Unit |
|----------------------------------|------------------|-------------|------|
| RF Voltage Input (Single Tone)   | V <sub>in</sub>  | +70         | dBmV |
| DC Supply Voltage                | V <sub>CC</sub>  | +28         | Vdc  |
| Operating Case Temperature Range | T <sub>C</sub>   | -20 to +100 | °C   |
| Storage Temperature Range        | T <sub>stg</sub> | -40 to +100 | °C   |

#### ELECTRICAL CHARACTERISTICS (V<sub>CC</sub> = 24 Vdc, T<sub>C</sub> = +30°C, 75 Ω system unless otherwise noted)

| Characteristic   | Symbol  | Min   | Typ  | Max  | Unit |       |
|--|---|---|------|------|------|-------|
| Frequency Range  | BW  | 40  | —    | 860  | MHz  |       |
| Power Gain   | G <sub>p</sub>  | 50 MHz  | 18.3 | 19.3 | dB   |       |
|  |   | 860 MHz   | 19   | 20.5 |      |       |
| Slope  | S   | 0   | .5   | 1.5  | dB   |       |
| Gain Flatness (40–860 MHz, Peak to Valley)                 | —   | —   | 0.3  | 1.0  | dB   |       |
| Return Loss — Input/Output (Z <sub>0</sub> = 75 Ohms)      | IRL/ORL   | @ 40 MHz  | 19   | —    | dB   |       |
|  |   | @ f > 40 MHz (Derate)   | —    | —    |      | 0.006 |
| Composite Second Order                                     | CSO <sub>128</sub><br>CSO <sub>110</sub><br>CSO <sub>77</sub> | (V <sub>out</sub> = +40 dBmV/ch., Worst Case) 128-Channel FLAT  | —    | -70  | -62  | dBc   |
|  |   | (V <sub>out</sub> = +44 dBmV/ch., Worst Case) 110-Channel FLAT  | —    | -72  | —    |       |
|  |   | 77-Channel FLAT   | —    | -80  | —    |       |
| Cross Modulation Distortion @ Ch 2                         | XMD <sub>128</sub><br>XMD <sub>110</sub><br>XMD <sub>77</sub> | (V <sub>out</sub> = +40 dBmV/ch., FM = 55 MHz) 128-Channel FLAT | —    | -72  | -64  | dBc   |
|  |   | (V <sub>out</sub> = +44 dBmV/ch., FM = 55 MHz) 110-Channel FLAT | —    | -66  | —    |       |
|  |   | 77-Channel FLAT   | —    | -69  | —    |       |
| Composite Triple Beat                                      | CTB <sub>128</sub><br>CTB <sub>110</sub><br>CTB <sub>77</sub> | (V <sub>out</sub> = +40 dBmV/ch., Worst Case) 128-Channel FLAT  | —    | -67  | -64  | dBc   |
|  |   | (V <sub>out</sub> = +44 dBmV/ch., Worst Case) 110-Channel FLAT  | —    | -64  | —    |       |
|  |   | 77-Channel FLAT   | —    | -70  | —    |       |
| Noise Figure   | NF  | 50 MHz  | —    | 5.0  | 6.0  | dB    |
|  |   | 550 MHz   | —    | 5.8  | —    |       |
|  |   | 750 MHz   | —    | 6.2  | —    |       |
|  |   | 860 MHz   | —    | 7.0  | 8.0  |       |
| DC Current (V <sub>DC</sub> = 24 V, T <sub>C</sub> = 30°C) | I <sub>DC</sub>   | 365   | 400  | 435  | mA   |       |

## 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

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