

# The RF Line

## High Output Mirror Power Doubler

### 750 MHz CATV Amplifier

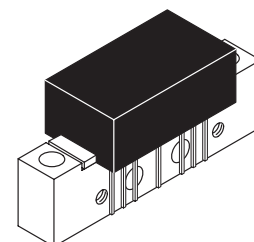
**MHW7205CR**

- Specified for 77 and 110-Channel Performance
- Broadband Power Gain — @  $f = 40-750$  MHz  
 $G_p = 20.2$  dB (Typ)
- Broadband Noise Figure  
NF = 6.2 dB (Typ) @ 750 MHz
- All Gold Metallization
- 7 GHz  $f_T$  Ion-Implanted Transistors
- Composite Triple Beat — @ 110-Channel Loading  
CTB = -63 dB (Typ)

**20.2 dB GAIN**  
**750 MHz**  
**110-CHANNEL**  
**CATV AMPLIFIER**

#### 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   |



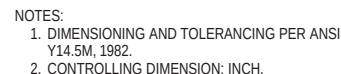
**CASE 714Y-03, STYLE 2**

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

| Characteristic                                                                                                        | Symbol                                  | Min         | Typ               | Max             | Unit         |
|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-------------|-------------------|-----------------|--------------|
| Frequency Range                                                                                                       | BW                                      | 40          | —                 | 750             | MHz          |
| Power Gain<br>50 MHz<br>750 MHz                                                                                       | $G_p$                                   | 19.3<br>20  | 19.8<br>20.2      | 20.3<br>21      | dB           |
| Slope<br>40-750 MHz                                                                                                   | S                                       | 0           | 0.4               | 1.0             | dB           |
| Gain Flatness (40-750 MHz, Peak to Valley)                                                                            | —                                       | —           | 0.3               | 0.6             | dB           |
| Return Loss — Input/Output ( $Z_0 = 75$ Ohms)<br>@ 40 MHz<br>@ $f > 40$ MHz (Derate)                                  | IRL/ORL                                 | 19<br>—     | —<br>—            | —<br>0.006      | dB<br>dB/MHz |
| Composite Second Order<br>( $V_{out} = +44$ dBmV/ch., Worst Case)<br>110-Channel FLAT<br>77-Channel FLAT              | CSO <sub>110</sub><br>CSO <sub>77</sub> | —<br>—      | -70<br>-80        | -63<br>-68      | dBc          |
| Cross Modulation Distortion @ Ch 2<br>( $V_{out} = +44$ dBmV/ch., FM = 55 MHz)<br>110-Channel FLAT<br>77-Channel FLAT | XMD <sub>110</sub><br>XMD <sub>77</sub> | —<br>—      | -67<br>-70        | -62<br>-68      | dBc          |
| Composite Triple Beat<br>( $V_{out} = +44$ dBmV/ch., Worst Case)<br>110-Channel FLAT<br>77-Channel FLAT               | CTB <sub>110</sub><br>CTB <sub>77</sub> | —<br>—      | -63<br>-71        | -61<br>-69      | dBc          |
| Noise Figure<br>50 MHz<br>550 MHz<br>750 MHz                                                                          | NF                                      | —<br>—<br>— | 5.0<br>5.8<br>6.2 | 6.0<br>—<br>7.5 | dB           |
| DC Current ( $V_{DC} = 24$ V, $T_C = 30^\circ\text{C}$ )                                                              | $I_{DC}$                                | 365         | 400               | 435             | mA           |



# ARCHIVE INFORMATION



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

**CASE 714Y-03**  
**ISSUE D**

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MHW7205CR/D

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