

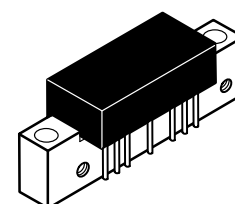
The RF Line 450 MHz CATV Amplifier

... designed for broadband applications requiring low distortion characteristics. Specifically intended for CATV market requirements. Features ion-implanted arsenic emitter transistors with 7.0 GHz f_T , and an all gold metallization system.

- Broadband Power Gain — @ $f = 40\text{--}450$ MHz
 $G_p = 22$ dB (Typ)
- Broadband Noise Figure — @ $f = 40\text{--}450$ MHz
 $NF = 4.5$ dB (Typ)
- Superior Gain, Return Loss and DC Current Stability with Temperature
- All Gold Metallization
- 7.0 GHz Ion-Implanted Transistors

MHW5222A

**22 dB GAIN
450 MHz
60-CHANNEL
CATV TRUNK AMPLIFIER**



CASE 714-06, STYLE 1

ABSOLUTE 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)

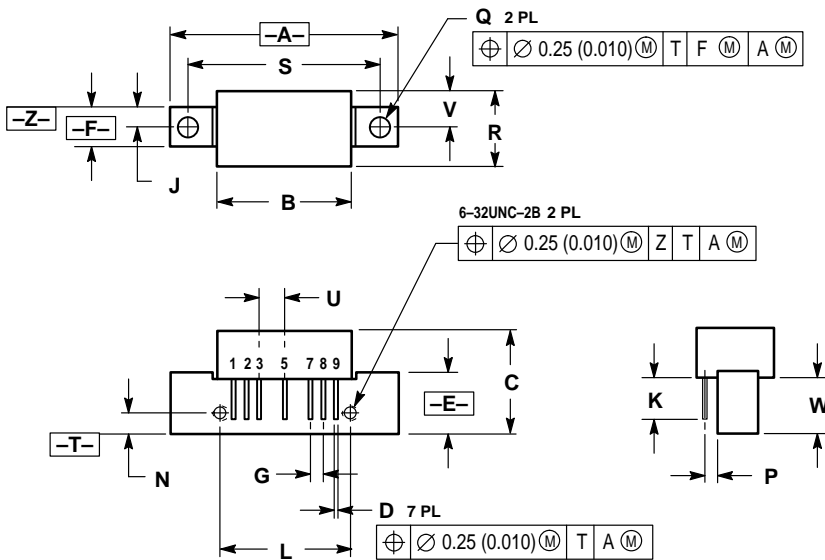
| Characteristic | Symbol | Min | Typ | Max | Unit |
|--|--|------|---------------------|------|------------|
| Frequency Range | BW | 40 | — | 450 | MHz |
| Power Gain — 50 MHz | G_p | 21.4 | 22 | 22.6 | dB |
| Power Gain — 450 MHz | G_p | 22.0 | 22.9 | 23.5 | dB |
| Slope | S | 0.2 | 0.5 | 1.5 | dB |
| Gain Flatness (Peak To Valley) | — | — | 0.2 | 0.4 | dB |
| Return Loss — Input/Output ($Z_o = 75$ Ohms) | 40–450 MHz IRL/ORL | 18 | — | — | dB |
| Second Order Intermodulation Distortion ($V_{out} = +46$ dBmV, Ch 2, M6, M15) ($V_{out} = +44$ dBmV, Ch 2, M13, M22) | IMD | — | -80 -78 | — | dB |
| Cross Modulation Distortion ($V_{out} = +46$ dBmV) | 53-Channel FLAT 60-Channel FLAT XMD ₅₃ XMD ₆₀ | — | -60 -60 | — | dB |
| Composite Triple Beat ($V_{out} = +46$ dBmV) | 53-Channel FLAT 60-Channel FLAT CTB ₅₃ CTB ₆₀ | — | -63 -61 | — | dB |
| DIN (European Applications Only) 300 MHz — (CH V + Q - P @ W) 400 MHz — (CH M8 + M15 - M9 @ M14) 450 MHz — (CH M20 + M23 - M22 @ M21) | DIN1 DIN2 DIN3 | — | 125.5 125 124 | — | dB μ V |
| Noise Figure ($f = 450$ MHz) | NF | — | 4.5 | 5.0 | dB |
| DC Current | I_{DC} | — | 210 | 240 | mA |

***DIN (European Applications Only)**

| NCTA Channel Designation | Frequency (MHz) | DIN Output Level (dBmV)**(Typ) | DIN Beat Level dB Relative to Ref. Ch. |
|--------------------------|-----------------|--------------------------------|--|
| P | 253.25 | +59.5 | ≤ -60 |
| Q | 259.25 | +59.5 | |
| V | 289.25 | +65.5 | |
| W (Ref.) | 295.25 | +65.5 | |
| M8 | 361.25 | +59 | ≤ -60 |
| M9 | 367.25 | +59 | |
| M14 (Ref.) | 397.25 | +65 | |
| M15 | 403.25 | +65 | |
| M20 | 433.25 | +64 | ≤ -60 |
| M21 (Ref.) | 439.25 | +64 | |
| M22 | 445.25 | +58 | |
| M23 | 451.25 | +58 | |

**DIN (dBμV) = Reference Channel Level (dBmV) + 60 dB

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 | 4.10 BSC | | |
| P | 0.100 BSC | 2.54 BSC | | |
| Q | 0.148 | 0.168 | 3.76 | 4.27 |
| R | — | 0.595 | — | 15.11 |
| S | 1.500 BSC | 38.10 BSC | | |
| U | 0.200 BSC | 5.08 BSC | | |
| V | 0.280 BSC | 7.11 BSC | | |
| W | 0.435 | 0.450 | 11.05 | 11.43 |

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

**CASE 714-06
 ISSUE K**

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