

# The RF Line

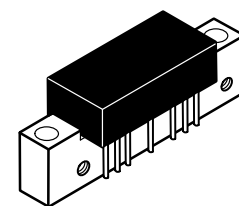
## 110-Channel (750 MHz) and 128-Channel (860 MHz) CATV Amplifiers

**MHW7222**  
**MHW8222**

**22 dB GAIN**  
**750/860 MHz**  
**110/128 CHANNEL**  
**CATV AMPLIFIERS**

The MHW7222 and MHW8222 are designed specifically for up to 860 MHz CATV systems as amplifiers in trunk and line extender applications. These amplifiers feature ion-implanted, arsenic emitter transistors and an all gold metallization system.

- Specified for 110/128-Channel Performance
- Broadband Power Gain — @  $f = 40\text{--}860$  MHz  
 $G_p = 22$  dB Typ @ 750 and 860 MHz
- Broadband Noise Figure  
NF = 5.5 dB Typ — MHW7222  
6.4 dB Typ — MHW8222
- Superior Gain, Return Loss and DC Current Stability with Temperature
- All Gold Metallization



CASE 714-06, STYLE 1

### ABSOLUTE MAXIMUM RATINGS

Rating	Symbol	Value	Unit
DC Supply Voltage	$V_{CC}$	+28	Vdc
RF Input Voltage (Single Tone)	$V_{in}$	+70	dBmV
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 $\Omega$ system unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range	MHW7222 MHW8222	40 40	— —	750 860	MHz
Power Gain	$f = 50$ MHz All $f = 750$ MHz MHW7222 $f = 860$ MHz MHW8222	20.8 22 21.8	21.5 22.3 22.3	22.2 24 24	dB
Slope ( $f = 40\text{--}750$ MHz)	MHW7222, MHW8222	0	1	2	—
Gain Flatness (Peak To Valley) ( $f = 40\text{--}750$ MHz)	MHW7222 MHW8222	— —	0.4 0.4	0.6 0.8	—
Input/Output Return Loss @ $f = 40$ MHz	MHW7222, MHW8222	20	24	—	dB
Derate Return Loss @ $f > 40$ MHz	MHW7222 MHW8222	— —	— —	0.008 0.009	dB/MHz
Composite Second Order ( $V_{out} = +40$ dBmV/ch; 110 Channels) ( $V_{out} = +38$ dBmV/ch; 128 Channels)	MHW7222 MHW8222	— —	-63 -63	-55 -56	dB

(continued)

**ELECTRICAL CHARACTERISTICS — continued**

Characteristic	Symbol	Min	Typ	Max	Unit
Cross Modulation Distortion ( $V_{out} = +40$ dBmV/ch, 110-Channel @ $F_m = 55.25$ MHz) ( $V_{out} = +38$ dBmV/ch, 128-Channel @ $F_m = 55.25$ MHz)	MHW7222 MHW8222 XMD <sub>110</sub> XMD <sub>128</sub>	—	-64 -68	-60 -60	dBc
Composite Triple Beat ( $V_{out} = +40$ dBmV/ch, 110-Channels, Worst Case) ( $V_{out} = +38$ dBmV/ch, 128-Channels, Worst Case)	MHW7222 MHW8222 CTB <sub>110</sub> CTB <sub>128</sub>	—	-62 -62	-60 -60	dBc
Noise Figure	$f = 50$ MHz All $f = 750$ MHz MHW7222 $f = 860$ MHz MHW8222	—	3.6 5.5 6.4	5 7 7.5	dB
DC Current	$I_{DC}$	180	220	240	mA

**PACKAGE DIMENSIONS**

**Q 2 PL**  
 $\text{⌀ } 0.25 (0.010) \text{ (M) T F (M) A (M)}$

**6-32UNC-2B 2 PL**  
 $\text{⌀ } 0.25 (0.010) \text{ (M) Z T A (M)}$

**D 7 PL**  
 $\text{⌀ } 0.25 (0.010) \text{ (M) T A (M)}$

**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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MHW7222/D

