

# The RF Line

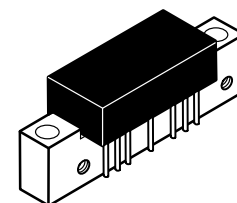
## 110-Channel (750 MHz), 128-Channel (860 MHz) & 152-Channel (1000 MHz) CATV Amplifiers

**MHW7182**  
**MHW8182**  
**MHW9182**

The MHW7182, MHW8182, and MHW9182 are designed specifically for up to 1000 MHz CATV systems as output amplifiers in trunk and line extender applications. These amplifiers feature ion-implanted, arsenic emitter transistors and an all gold metallization system.

- Specified for 110/128/152-Channel Performance
- Broadband Power Gain — @ f = 40–1000 MHz  
G<sub>p</sub> = 18.2 dB Min @ 750, 860 & 1000 MHz
- Broadband Noise Figure  
NF = 5.5 dB Typ — MHW7182  
6.0 dB Typ — MHW8182  
6.5 dB Typ — MHW9182
- Superior Gain, Return Loss and DC Current Stability with Temperature
- All Gold Metallization

**18 dB GAIN**  
**750/860/1000 MHz**  
**110/128/152 CHANNEL**  
**CATV AMPLIFIERS**



CASE 714-06, STYLE 1

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
DC Supply Voltage	V <sub>CC</sub>	+28	Vdc
RF Input Voltage (Single Tone)	V <sub>in</sub>	+70	dBmV
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 ohm system, unless otherwise noted)

Characteristic		Symbol	Min	Typ	Max	Unit
Frequency Range	MHW7182	BW	40	—	750	MHz
	MHW8182		40	—	860	
	MHW9182		40	—	1000	
Power Gain	50 MHz All	G <sub>p</sub>	17.6	18.2	18.8	dB
	750 MHz MHW7182		18.2	18.9	20.5	
	860 MHz MHW8182		18.2	19.0	20.5	
	1000 MHz MHW9182		18.2	19.2	20.7	
Slope	MHW7182, MHW8182, MHW9182	S	0	1.0	2.5	—
Gain Flatness (Peak To Valley)	MHW7182, MHW8182, MHW9182	G <sub>f</sub>	—	0.4	0.6	—
			—	0.4	0.8	
Input/Output Return Loss @ f = 40 MHz	MHW7182, MHW8182, MHW9182	IRL/ORL	20	24	—	dB
Derate Return Loss @ f > 40 MHz (Ref = 20 dB @ 40 MHz)	MHW7182	RLD	—	—	0.007	dB/MHz
	MHW8182		—	—	0.008	
	MHW9182		—	—	0.009	
Composite Second Order (V <sub>out</sub> = +40 dBmV/ch; 110 Channels) (V <sub>out</sub> = +38 dBmV/ch; 128 Channels) (V <sub>out</sub> = +38 dBmV/ch; 152 Channels)	MHW7182	CSO <sub>110</sub>	—	-67	-62	dB
	MHW8182	CSO <sub>128</sub>	—	-67	-60	
	MHW9182	CSO <sub>152</sub>	—	-67	-59	

(continued)

**ELECTRICAL CHARACTERISTICS — continued** ( $V_{CC} = 24 \text{ Vdc}$ ;  $T_C = +30^\circ\text{C}$ , 75 ohm system, unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit	
Cross Modulation Distortion ( $V_{out} = +40 \text{ dBmV/ch}$ , 110-Channel @ $F_m = 55.25 \text{ MHz}$ ) ( $V_{out} = +38 \text{ dBmV/ch}$ , 128-Channel @ $F_m = 55.25 \text{ MHz}$ ) ( $V_{out} = +38 \text{ dBmV/ch}$ , 152-Channel @ $F_m = 55.25 \text{ MHz}$ )	MHW7182 MHW8182 MHW9182	XMD <sub>110</sub> XMD <sub>128</sub> XMD <sub>152</sub>	— — —	-68 -68 -68	-64 -60 -59	dBc
Composite Triple Beat ( $V_{out} = +40 \text{ dBmV/ch}$ , 110-Channels, Worst Case) ( $V_{out} = +38 \text{ dBmV/ch}$ , 128-Channels, Worst Case) ( $V_{out} = +38 \text{ dBmV/ch}$ , 152-Channels, Worst Case)	MHW7182 MHW8182 MHW9182	CTB <sub>110</sub> CTB <sub>128</sub> CTB <sub>152</sub>	— — —	-64 -62 -61	-62 -60 -59	dBc
Noise Figure $f = 50 \text{ MHz}$ $f = 750 \text{ MHz}$ $f = 860 \text{ MHz}$ $f = 1000 \text{ MHz}$	MHW7182 MHW8182 MHW9182	NF	— — — —	3.6 5.5 6.0 6.5	5.0 6.5 7.0 8.0	dB
DC Current		$I_{DC}$	180	210	240	mA

**PACKAGE DIMENSIONS**

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

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

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

**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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MHW7182/D

