

# The RF Line

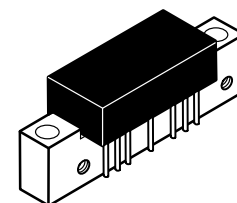
## 110-Channel (750 MHz), 128-Channel (860 MHz) & 152-Channel (1000 MHz) CATV Amplifiers

**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  
 $G_p = 18.2 \text{ dB Min @ 750, 860 \& 1000 MHz}$
- Broadband Noise Figure  
 $NF = 5.5 \text{ dB Typ — MHW7182}$   
 $6.0 \text{ dB Typ — MHW8182}$   
 $6.5 \text{ dB Typ — MHW9182}$
- 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	$V_{CC}$	+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 ( $V_{CC} = 24 \text{ Vdc}$ ; $T_C = +30^\circ\text{C}$ , 75 ohm system, unless otherwise noted)

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

(continued)

**ELECTRICAL CHARACTERISTICS — continued** (V<sub>CC</sub> = 24 Vdc; T<sub>C</sub> = +30°C, 75 ohm system, unless otherwise noted)

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

**PACKAGE DIMENSIONS**

**Q 2 PL**  
⊕ ⌀ 0.25 (0.010) Ⓜ T F Ⓜ A Ⓜ

**6-32UNC-2B 2 PL**  
⊕ ⌀ 0.25 (0.010) Ⓜ Z T A Ⓜ

**D 7 PL**  
⊕ ⌀ 0.25 (0.010) Ⓜ T A Ⓜ

**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

