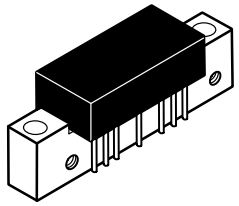
The RF Line
450 MHz CATV Amplifier

. . . designed for broadband applications requiring low distortion characteristics. Specified for use as a CATV trunk–line amplifier. Features ion–implanted arsenic emitter transistors with 7.0 GHz f_T, and an all gold metallization system.

- Specified for 53– and 60–Channel Performance
- Broadband Power Gain — @ f = 40–450 MHz
  G_p = 12.5 dB (Typ)
- Broadband Power Gain — @ f = 40–450 MHz
  G_p = 12.5 dB (Typ)
- Broadband Noise Figure — @ f = 450 MHz
  NF = 7.0 dB (Typ)
- Superior Gain, Return Loss and DC Current Stability with Temperature

MHW5122A

12.5 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°C, 75 Ω system unless otherwise noted)

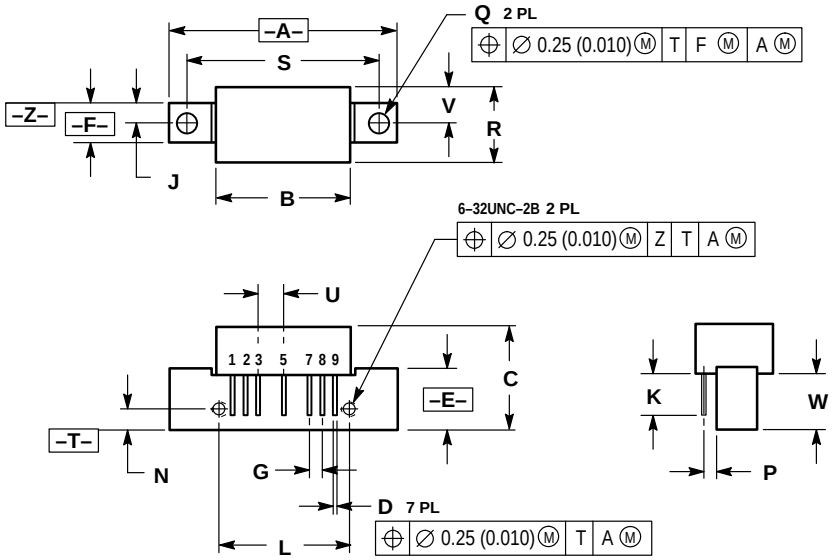
Characteristic		Symbol	Min	Typ	Max	Unit
Frequency Range		BW	40	—	450	MHz
Power Gain — 50 MHz		G_p	12	12.5	13	dB
Slope		S	+0.2	+0.7	+1.5	dB
Gain Flatness (Peak To Valley)		—	—	0.2	0.4	dB
Return Loss — Input/Output (Z_o = 75 Ohms)	40–450 MHz	IRL/ORL	18	—	—	dB
Second Order Intermodulation Distortion		IMD				dB
(V_{out} = +46 dBmV per ch., Ch 2, M6, M15)			—	–78	—	
(V_{out} = +46 dBmV per ch., Ch 2, M13, M22)			—	—	–72	
Cross Modulation Distortion	53–Channel FLAT	XMD_{53}	—	–63	—	dB
(V_{out} = +46 dBmV per ch.)	60–Channel FLAT	XMD_{60}	—	–63	–61	
Composite Triple Beat	53–Channel FLAT	CTB_{53}	—	–63	—	dB
(V_{out} = +46 dBmV per ch.)	60–Channel FLAT	CTB_{60}	—	–61	–58	
DIN (European Applications Only)*						dBμV**
300 MHz — (CH V + Q – P @ W)		DIN1	—	125	—	
400 MHz — (CH M8 + M15 – M9 @ M14)		DIN2	—	124	—	
450 MHz — (CH M20 + M23 – M22 @ M21)		DIN3	—	123	—	
Noise Figure (f = 450 MHz)		NF	—	7.0	8.0	dB
DC Current		I_{DC}	—	200	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	≤ –60
Q	259.25	+59	
V	289.25	+65	
W (Ref.)	295.25	+65	
M8	361.25	+58	≤ –60
M9	367.25	+58	
M14 (Ref.)	397.25	+64	
M15	403.25	+64	
M20	433.25	+63	≤ –60
M21 (Ref.)	439.25	+63	
M22	445.25	+57	
M23	451.25	+57	

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

PACKAGE DIMENSIONS



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

	INCHES		MILLIMETERS	
DIM	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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