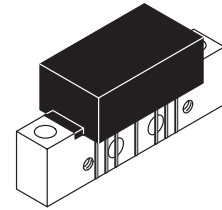


The RF Line
Gallium Arsenide
870 MHz CATV Amplifier
High Output Power Doubler

- Designed for Maximum Output Capability Under Tilted Output Levels
- Specified for 79-, 112- and 132-Channel Performance
- Broadband Power Gain
- Broadband Noise Figure
NF = 4.0 dB (Typ)
- Specified at High Output Levels (48 dBmV/ch) Under Flat Output Levels
- Superior DC Current Stability with Temperature

MHW9187

870 MHz
20 dB GAIN
132-CHANNEL
GaAs CATV AMPLIFIER



CASE 1302-01, STYLE 1

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

ESD MAXIMUM RATINGS

Rating	Input Value	Output Value	Unit
Surge Voltage per IEC 1000-4-5	200	200	V
Human Body Model per Mil. Std. 1686	0.7	2	kV

ELECTRICAL CHARACTERISTICS ($V_{CC} = 24$ Vdc, $T_C = +45^\circ\text{C}$, 75 Ω system unless otherwise noted)

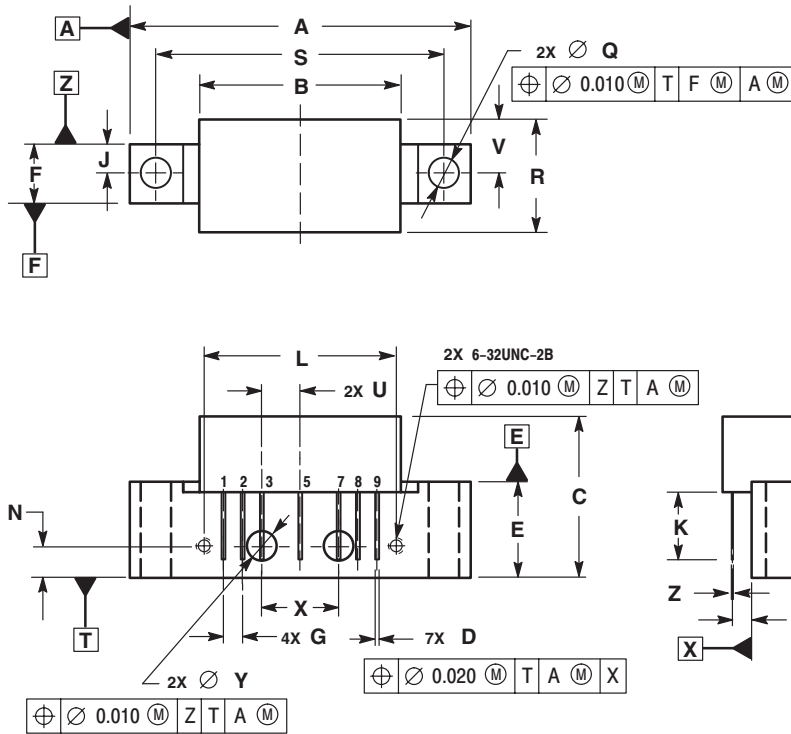
Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range	BW	40	—	870	MHz
Power Gain 870 MHz	G_p	19.4	20	20.6	dB
Slope 40-870 MHz	S	0	0.5	1.0	dB
Gain Flatness (40-870 MHz, Peak-to-Valley)	—	—	—	0.5	dB
Return Loss — Input ($Z_o = 75$ Ohms)	IRL	20	—	—	dB
		18	—	—	
		16	—	—	
Return Loss — Output ($Z_o = 75$ Ohms)	ORL	20	—	—	dB
		18	—	—	
		—	—	—	

ELECTRICAL CHARACTERISTICS – continued ($V_{CC} = 24 \text{ Vdc}$, $T_C = +45^\circ\text{C}$, 75Ω system unless otherwise noted)

Characteristic		Symbol	Min	Typ	Max	Unit
Composite Second Order						dBc
($V_{out} = +48 \text{ dBmV/ch.}$, Worst Case)	132–Channel FLAT	CSO_{132}	—	–64	–62	
($V_{out} = +48 \text{ dBmV/ch.}$, Worst Case)	112–Channel FLAT	CSO_{112}	—	–66	–64	
($V_{out} = +48 \text{ dBmV/ch.}$, Worst Case)	79–Channel FLAT	CSO_{79}	—	–70	–68	
($V_{out} = +56 \text{ dBmV @ 870 Mhz Equiv}$)	112–Channel, 12db Tilt	CSO_{112}	—	–65	–63	
($V_{out} = +56 \text{ dBmV @ 870 Mhz Equiv}$)	112–Channel, 13.5db Tilt	CSO_{112}	—	–64	–62	
($V_{out} = +56 \text{ dBmV @ 870 Mhz Equiv}$)	112–Channel, 17db Tilt	CSO_{112}	—	–63	–61	
($V_{out} = +58 \text{ dBmV @ 870 Mhz Equiv}$)	79–Channel, 12db Tilt	CSO_{79}	—	–69	–67	
($V_{out} = +58 \text{ dBmV @ 870 Mhz Equiv}$)	79–Channel, 13.5db Tilt	CSO_{79}	—	–74	–72	
($V_{out} = +58 \text{ dBmV @ 870 Mhz Equiv}$)	79–Channel, 17db Tilt	CSO_{79}	—	–73	–71	
Cross Modulation Distortion @ Ch 2						dBc
($V_{out} = +48 \text{ dBmV/ch.}$, FM = 55 MHz)	132–Channel FLAT	XMD_{132}	—	–57	–55	
($V_{out} = +48 \text{ dBmV/ch.}$, FM = 55 MHz)	112–Channel FLAT	XMD_{112}	—	–59	–57	
($V_{out} = +48 \text{ dBmV/ch.}$, FM = 55 MHz)	79–Channel FLAT	XMD_{79}	—	–62	–60	
($V_{out} = +56 \text{ dBmV @ 870 Mhz Equiv}$)	112–Channel, 12db Tilt	XMD_{112}	—	–53	–51	
($V_{out} = +56 \text{ dBmV @ 870 Mhz Equiv}$)	112–Channel, 13.5db Tilt	XMD_{112}	—	–55	–53	
($V_{out} = +56 \text{ dBmV @ 870 Mhz Equiv}$)	112–Channel, 17db Tilt	XMD_{112}	—	–58	–56	
($V_{out} = +58 \text{ dBmV @ 870 Mhz Equiv}$)	79–Channel, 12db Tilt	XMD_{79}	—	–60	–47	
($V_{out} = +58 \text{ dBmV @ 870 Mhz Equiv}$)	79–Channel, 13.5db Tilt	XMD_{79}	—	–62	–60	
($V_{out} = +58 \text{ dBmV @ 870 Mhz Equiv}$)	79–Channel, 17db Tilt	XMD_{79}	—	–67	–65	
Composite Triple Beat						dBc
($V_{out} = +48 \text{ dBmV/ch.}$, Worst Case)	132–Channel FLAT	CTB_{132}	—	–60	–56	
($V_{out} = +48 \text{ dBmV/ch.}$, Worst Case)	112–Channel FLAT	CTB_{112}	—	–64	–60	
($V_{out} = +48 \text{ dBmV/ch.}$, Worst Case)	79–Channel FLAT	CTB_{79}	—	–68	–66	
($V_{out} = +56 \text{ dBmV @ 870 Mhz Equiv}$)	112–Channel, 12db Tilt	CTB_{112}	—	–60	–58	
($V_{out} = +56 \text{ dBmV @ 870 Mhz Equiv}$)	112–Channel, 13.5db Tilt	CTB_{112}	—	–61	–59	
($V_{out} = +56 \text{ dBmV @ 870 Mhz Equiv}$)	112–Channel, 17db Tilt	CTB_{112}	—	–64	–62	
($V_{out} = +58 \text{ dBmV @ 870 Mhz Equiv}$)	79–Channel, 12db Tilt	CTB_{79}	—	–66	–64	
($V_{out} = +58 \text{ dBmV @ 870 Mhz Equiv}$)	79–Channel, 13.5db Tilt	CTB_{79}	—	–71	–69	
($V_{out} = +58 \text{ dBmV @ 870 Mhz Equiv}$)	79–Channel, 17db Tilt	CTB_{79}	—	–74	–72	
Noise Figure	50 MHz	NF	—	4.0	4.5	dB
	550 MHz		—	3.5	4.5	
	750 MHz		—	3.5	4.5	
	870 MHz		—	4.0	4.5	
DC Current ($V_{DC} = 24 \text{ V}$, $T_C = 45^\circ\text{C}$)		I_{DC}	410	425	440	mA

NOTES

PACKAGE DIMENSIONS




NOTES:
 1. DIMENSIONS ARE IN INCHES.
 2. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M, 1994.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	---	1.775	---	45.085
B	---	1.085	---	27.559
C	---	0.840	---	21.336
D	0.015	0.021	0.381	0.533
E	0.465	0.510	11.811	12.954
F	0.300	0.325	7.62	8.255
G	0.100 BSC		2.540 BSC	
J	0.156 BSC		3.962 BSC	
K	0.315	0.355	8.001	9.017
L	1.000 BSC		25.400 BSC	
N	0.165 BSC		4.191 BSC	
P	0.100 BSC		2.540 BSC	
Q	0.148	0.168	3.759	4.267
R	---	0.600	---	15.24
S	1.500 BSC		38.100 BSC	
U	0.200 BSC		5.080 BSC	
V	---	0.250	---	6.350
W	0.435	---	11.049	---
X	0.400 BSC		10.160 BSC	
Y	0.152	0.163	3.861	4.140
Z	0.009	0.011	0.229	0.279

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

CASE 1302-01 ISSUE B

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