

The RF Line

Gallium Arsenide

CATV Amplifier Module

MHW8227

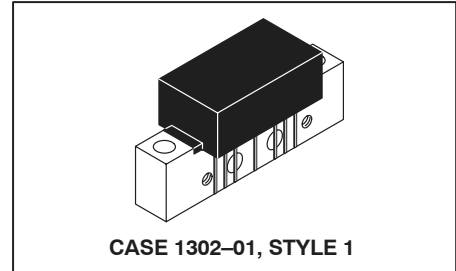
Features

- Specified for 79- and 112-Channel Loading
- Excellent Distortion Performance
- Higher Output Capability
- Built-in Input Diode Protection
- GaAs FET Transistor Technology
- Unconditionally Stable Under All Load Conditions

870 MHz
22.1 dB GAIN
112-CHANNEL
GaAs CATV AMPLIFIER MODULE

Applications

- CATV Systems Operating in the 47 to 870 MHz Frequency Range
- Output Stage Amplifier in Optical Nodes, Line Extenders and Trunk Distribution Amplifiers for CATV Systems
- Driver Amplifier in Linear General Purpose Applications



Description

- 24 Vdc Supply, 47 to 870 MHz, CATV GaAs Forward Power Doubler Amplifier Module

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
RF Voltage Input (Single Tone)	V_{in}	+70	dBmV
DC Supply Voltage	V_{CC}	+26	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	2	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	47	—	870	MHz
Power Gain 870 MHz	G_p	21.5	22.1	22.7	dB
Slope 47-870 MHz	S	0	0.5	1.0	dB
Gain Flatness (47-870 MHz, Peak-to-Valley)	—	—	—	0.7	dB
Return Loss — Input ($Z_o = 75$ Ohms)	IRL	20	—	—	dB
		18	—	—	
		16	—	—	
Return Loss — Output ($Z_o = 75$ Ohms)	ORL	20	—	—	dB
		18	—	—	
		16	—	—	

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 ($V_{out} = +48 \text{ dBmV/ch.}$, Worst Case)	112-Channel FLAT CSO_{112}	—	-66	-64	dBc	
($V_{out} = +48 \text{ dBmV/ch.}$, Worst Case)	79-Channel FLAT CSO_{79}	—	-70	-68		
($V_{out} = +56 \text{ dBmV @ 870 MHz Equiv}$)	112-Channel, 12 dB Tilt CSO_{112}	—	-63	-61		
($V_{out} = +58 \text{ dBmV @ 870 MHz Equiv}$)	79-Channel, 12 dB Tilt CSO_{79}	—	-69	-67		
Cross Modulation Distortion @ Ch 2 ($V_{out} = +48 \text{ dBmV/ch.}$, FM = 55.25 MHz)	112-Channel FLAT XMD_{112}	—	-58	-56	dBc	
($V_{out} = +48 \text{ dBmV/ch.}$, FM = 55.25 MHz)	79-Channel FLAT XMD_{79}	—	-61	-59		
($V_{out} = +56 \text{ dBmV @ 870 MHz Equiv}$)	112-Channel, 12 dB Tilt XMD_{112}	—	-53	-51		
($V_{out} = +58 \text{ dBmV @ 870 MHz Equiv}$)	79-Channel, 12 dB Tilt XMD_{79}	—	-60	-47		
Composite Triple Beat ($V_{out} = +48 \text{ dBmV/ch.}$, Worst Case)	112-Channel FLAT CTB_{112}	—	-60	-58	dBc	
($V_{out} = +48 \text{ dBmV/ch.}$, Worst Case)	79-Channel FLAT CTB_{79}	—	-66	-64		
($V_{out} = +56 \text{ dBmV @ 870 MHz Equiv}$)	112-Channel, 12 dB Tilt CTB_{112}	—	-57	-55		
($V_{out} = +58 \text{ dBmV @ 870 MHz Equiv}$)	79-Channel, 12 dB Tilt CTB_{79}	—	-63	-61		
Noise Figure	50 MHz 550 MHz 750 MHz 870 MHz	— — — —	4.5 4.5 4.5 4.5	— — — —	dB	
DC Current ($V_{DC} = 24 \text{ V}$, $T_C = 45^\circ\text{C}$)	I_{DC}	410	425	440		mA

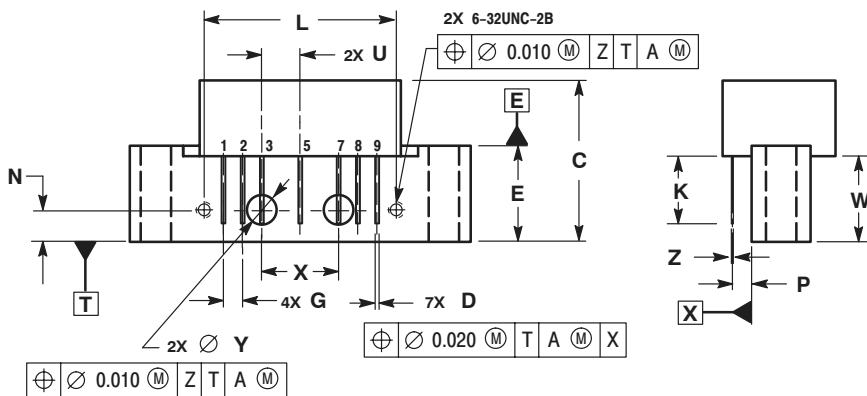
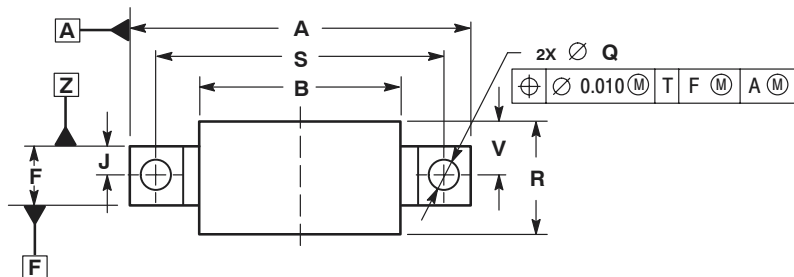


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NOTES

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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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