

The RF Line CATV Amplifier Module

MHW9242A

Features

- Specified for 77-, 110-, 128- and 152-Channel Loading
- Excellent Distortion Performance
- Superior Gain, Return Loss and DC Current Stability over Temperature
- Silicon Bipolar Transistor Technology
- Unconditionally Stable Under All Load Conditions

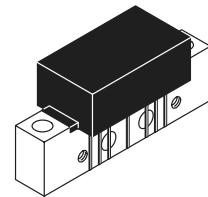
Applications

- CATV Systems Operating in the 40 to 1000 MHz Frequency Range
- Input Stage Amplifier in Optical Nodes, Line Extenders and Trunk Distribution Amplifiers for CATV Systems
- Driver Amplifier in Linear General Purpose Applications
- Output Stage Amplifier on Applications Requiring Low Power Dissipation

Description

- 24 Vdc Supply, 40 to 1000 MHz, CATV Forward Amplifier

**1000 MHz
 24 dB GAIN
 152-CHANNEL
 CATV AMPLIFIER**



CASE 1302-01, STYLE 1

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
RF Voltage Input (Single Tone)	V_{in}	+55	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	—	1000	MHz
Power Gain	G_p	23.2 24	—	24.8 26	dB
Slope	S	0	—	2.5	dB
Gain Flatness (40–1000 MHz, Peak-to-Valley)	G_F	—	—	1.0	dB
Return Loss — Input/Output ($Z_0 = 75$ Ohms)	IRL/ORL	20 —	— —	— 0.01	dB dB/MHz
Composite Second Order					dBc
($V_{out} = +38$ dBmV/ch; Worst Case)	CSO_{152}	—	-66	-61	
($V_{out} = +38$ dBmV/ch; Worst Case)	CSO_{128}	—	-69	—	
($V_{out} = +40$ dBmV/ch; Worst Case)	CSO_{110}	—	-69	—	
($V_{out} = +44$ dBmV/ch; Worst Case)	CSO_{77}	—	-78	—	
Cross Modulation Distortion @ Ch 2					dBc
($V_{out} = +38$ dBmV/ch., FM= 55 MHz)	XMD_{152}	—	-62	-59	
($V_{out} = +38$ dBmV/ch, FM = 55.25 MHz)	XMD_{128}	—	-65	—	
($V_{out} = +40$ dBmV/ch, FM = 55.25 MHz)	XMD_{110}	—	-63	—	
($V_{out} = +44$ dBmV/ch, FM = 55.25 MHz)	XMD_{77}	—	-58	—	

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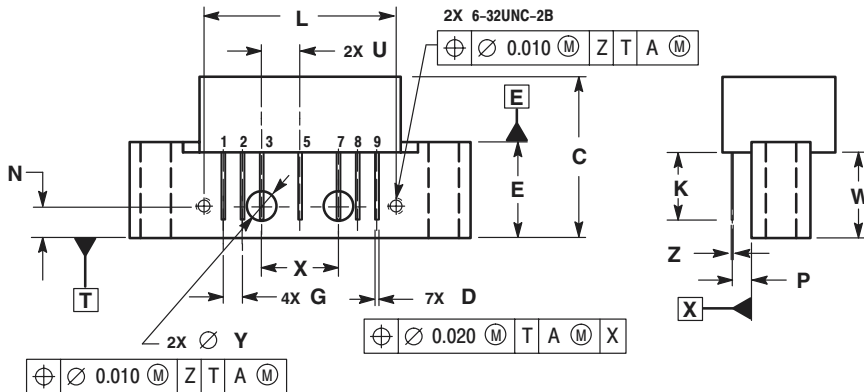
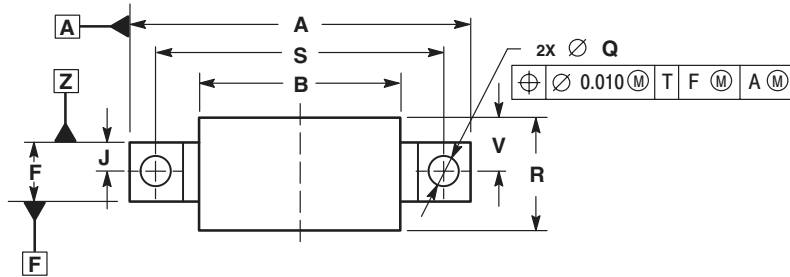
ELECTRICAL CHARACTERISTICS – continued ($V_{CC} = 24$ Vdc, $T_C = +30^\circ\text{C}$, 75 Ω system unless otherwise noted)

Characteristic		Symbol	Min	Typ	Max	Unit
Composite Triple Beat						dBc
($V_{out} = +38$ dBmV/ch., Worst Case)	152-Channel FLAT	CTB ₁₅₂	—	-64	-58	
($V_{out} = +38$ dBmV/ch, Worst Case)	128-Channel FLAT	CTB ₁₂₈	—	-68	—	
($V_{out} = +40$ dBmV/ch, Worst Case)	110-Channel FLAT	CTB ₁₁₀	—	-67	—	
($V_{out} = +44$ dBmV/ch, Worst Case)	77-Channel FLAT	CTB ₇₇	—	-64	—	
Noise Figure	f = 50 MHz	NF	—	4.8	5.5	dB
	f = 750 MHz		—	5.5	7.0	
	f = 860 MHz		—	5.8	7.5	
	f = 1000 MHz		—	—	8.0	
DC Current		I _{DC}	280	318	350	mA

NOTES

Freescale Semiconductor, Inc.

PACKAGE DIMENSIONS



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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