

The RF Line
**Gallium Arsenide
 CATV Amplifier Module**

MHW9276

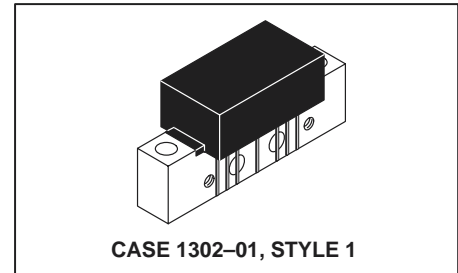
Features

- 79-, 112- and 132-Channel Loading
- Excellent Distortion Performance
- Integrated ESD Protection Diodes
- GaAs FET Transistor Technology
- Unconditionally Stable Under All Load Conditions

**870 MHz
 27.9 dB GAIN
 132-CHANNEL
 GaAs CATV AMPLIFIER MODULE**

Applications

- CATV Systems Operating in the 40 to 870 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



Description

- 24 Vdc Supply, 40 to 870 MHz, CATV GaAs Forward Amplifier Module

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
RF Voltage Input (Single Tone)	V_{in}	+65	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, $T_C = +30^\circ\text{C}$, 75 Ω system unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range	BW	40	—	870	MHz
Power Gain	G_p	27	27.9	28.5	dB
Slope	S	0.4	0.95	1.4	dB
Gain Flatness (40-870 MHz, Peak-to-Valley)	G_F	—	—	0.8	dB

Freescale Semiconductor, Inc.

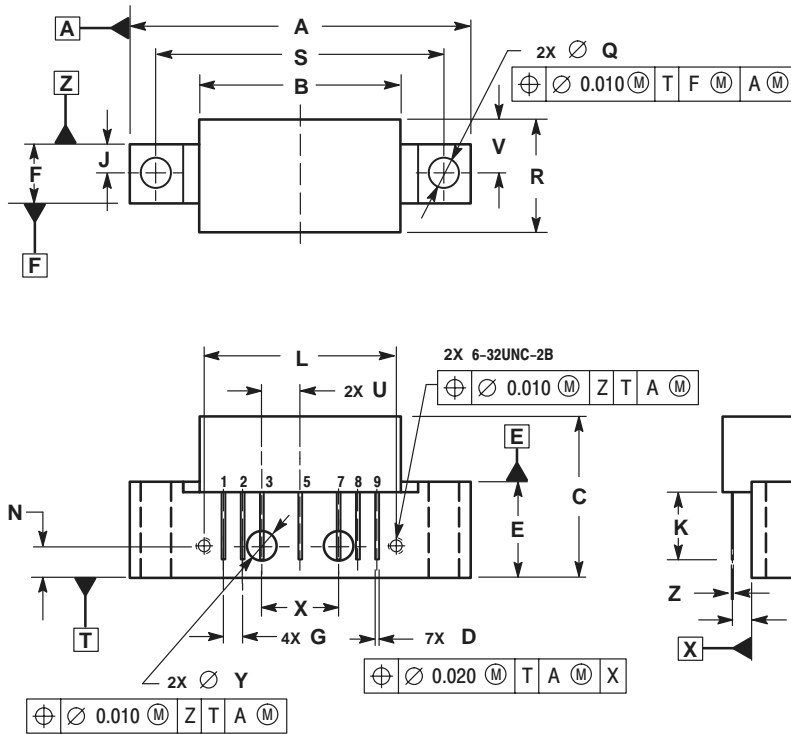
ELECTRICAL CHARACTERISTICS – continued ($V_{CC} = 24 \text{ Vdc}$, $T_C = +30^\circ\text{C}$, 75Ω system unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit	
Input Return Loss ($Z_o = 75 \text{ Ohms}$) 40–200 MHz 201–600 MHz 601–870 MHz	IRL	20 19 18	— — —	— — —	dB	
Output Return Loss ($Z_o = 75 \text{ Ohms}$) 40–200 MHz 201–600 MHz 601–870 MHz	ORL	20 18 18	— — —	— — —	dB	
Composite Second Order ($V_{out} = +44 \text{ dBmV/ch.}$, Worst Case) ($V_{out} = +44 \text{ dBmV/ch.}$, Worst Case) ($V_{out} = +44 \text{ dBmV/ch.}$, Worst Case)	79–Channel FLAT 112–Channel FLAT 132–Channel FLAT	CSO ₇₉ CSO ₁₁₂ CSO ₁₃₂	— — —	–70 –66 –66	–64 –62 –60	dBc
Cross Modulation Distortion @ Ch 2 ($V_{out} = +44 \text{ dBmV/ch.}$, FM = 55.25 MHz) ($V_{out} = +44 \text{ dBmV/ch.}$, FM = 55.25 MHz) ($V_{out} = +44 \text{ dBmV/ch.}$, FM = 55.25 MHz)	79–Channel FLAT 112–Channel FLAT 132–Channel FLAT	XMD ₇₉ XMD ₁₁₂ XMD ₁₃₂	— — —	–60 –60 –60	–53 –53 –53	dBc
Composite Triple Beat ($V_{out} = +44 \text{ dBmV/ch.}$, Worst Case) ($V_{out} = +44 \text{ dBmV/ch.}$, Worst Case) ($V_{out} = +44 \text{ dBmV/ch.}$, Worst Case)	79–Channel FLAT 112–Channel FLAT 132–Channel FLAT	CTB ₇₉ CTB ₁₁₂ CTB ₁₃₂	— — —	–71 –68 –66	–65 –61 –60	dBc
Noise Figure 50 MHz 550 MHz 750 MHz 870 MHz	NF	— — — —	5.0 5.0 5.0 5.0	5.5 — — 6.5	dB	
DC Current ($V_{DC} = 24 \text{ V}$, $T_C = 45^\circ\text{C}$)	I_{DC}	235	250	265	mA	

NOTES

Freescale Semiconductor, Inc.

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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