

## The RF Line CATV Amplifier Module

### Features

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

### Applications

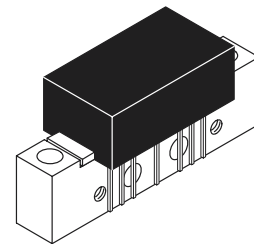
- CATV Systems Operating in the 40 to 870 MHz Frequency Range
- Output Stage Amplifier in Optical Nodes, Line Extenders and Trunk Distribution Amplifiers for CATV Systems
- Driver Amplifier in Linear General Purpose Applications
- Amplifiers Requiring Lower Power Dissipation While Maintaining Excellent Output Performance

### Description

- 24 Vdc Supply, 40 to 870 MHz, CATV Forward Power Doubler Amplifier

**MHW8205L**

**870 MHz  
20.4 dB GAIN  
128-CHANNEL  
CATV AMPLIFIER**



**CASE 714Y-03, 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

### ELECTRICAL CHARACTERISTICS ( $V_{CC} = 24$ Vdc, $T_C = +30$ °C, 75 $\Omega$ system unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit	
Frequency Range	BW	40	—	870	MHz	
Power Gain	$G_p$	19	19.5	20	dB	
		870 MHz	19.8	20.4	21.3	
Slope	S	0.2	0.8	1.7	dB	
Gain Flatness (40–870 MHz, Peak to Valley)	$G_F$	—	0.5	1.0	dB	
Return Loss — Input/Output ( $Z_o = 75$ Ohms)	IRL/ORL					
		20	—	—	dB	
		@ 40 MHz	—	—		
		@ $f > 40$ MHz (Derate)	—	0.007	dB/MHz	
Composite Second Order					dBc	
( $V_{out} = +40$ dBmV/ch., Worst Case)	$CSO_{128}$	—	-69	-60		
( $V_{out} = +44$ dBmV/ch., Worst Case)	$CSO_{110}$	—	-70	-63		
	$CSO_{77}$	—	-80	-67		

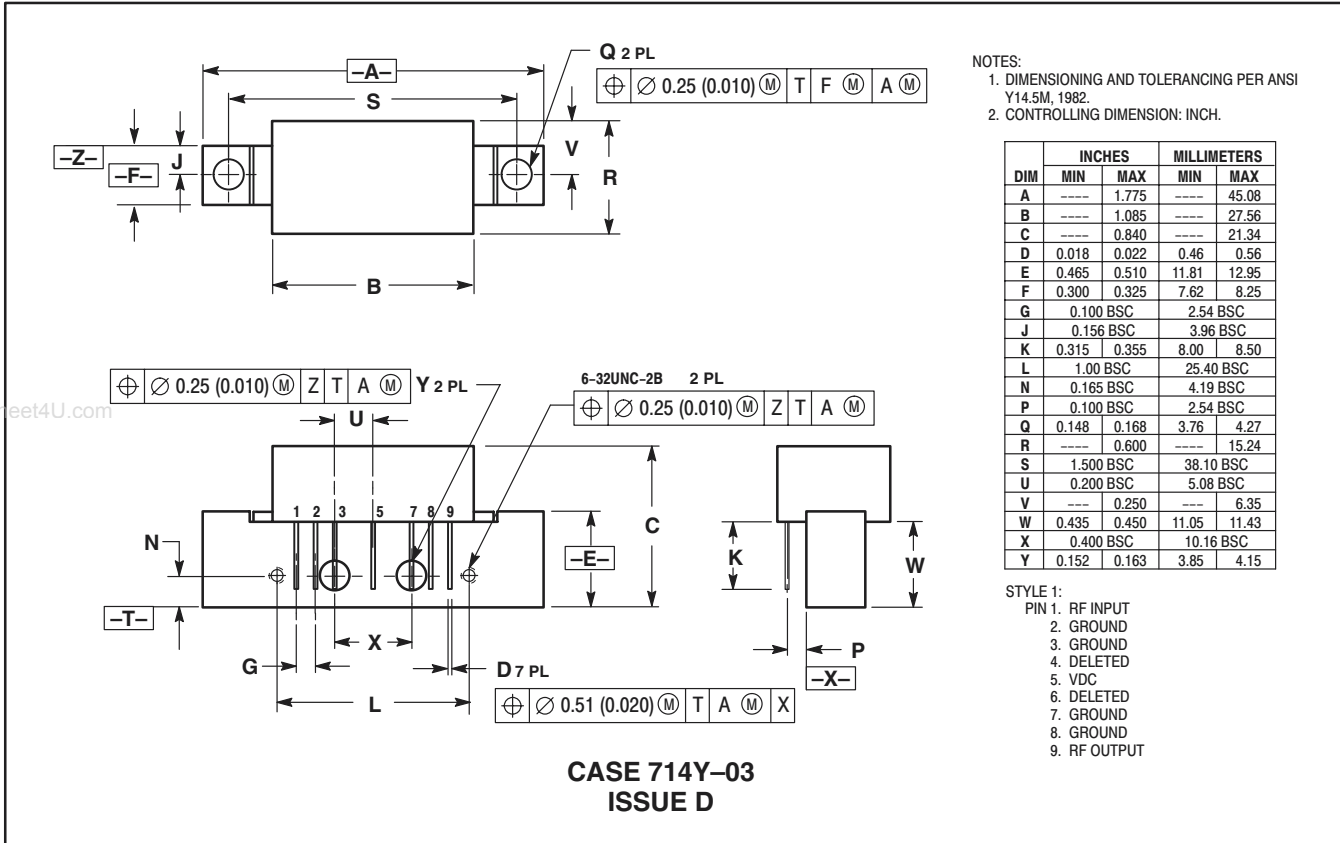
**ELECTRICAL CHARACTERISTICS — continued** ( $V_{CC} = 24 \text{ Vdc}$ ,  $T_C = +30^\circ\text{C}$ ,  $75 \Omega$  system unless otherwise noted)

Characteristic		Symbol	Min	Typ	Max	Unit
Cross Modulation Distortion @ Ch 2 ( $V_{out} = +40 \text{ dBmV/ch.}$ , FM = 55 MHz)	128-Channel FLAT	$XMD_{128}$	—	-72	-64	dBc
	110-Channel FLAT	$XMD_{110}$	—	-65	-62	
	77-Channel FLAT	$XMD_{77}$	—	-69	-66	
Composite Triple Beat ( $V_{out} = +40 \text{ dBmV/ch.}$ , Worst Case)	128-Channel FLAT	$CTB_{128}$	—	-66	-63	dBc
	110-Channel FLAT	$CTB_{110}$	—	-63	-61	
	77-Channel FLAT	$CTB_{77}$	—	-70	-68	
Noise Figure	50 MHz	NF	—	5.0	6.2	dB
	550 MHz		—	5.8	—	
	750 MHz		—	6.2	—	
	870 MHz		—	7.7	8.5	
DC Current ( $V_{DC} = 24 \text{ V}$ , $T_C = -20^\circ\text{C}$ to $+100^\circ\text{C}$ )		$I_{DC}$	345	365	385	mA

www.DataSheet4U.com

# NOTES

## PACKAGE DIMENSIONS



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

DIM	INCHES		MILLIMETERS	
	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		4.19 BSC	
P	0.100 BSC		2.54 BSC	
Q	0.148	0.168	3.76	4.27
R	----	0.600	----	15.24
S	1.500 BSC		38.10 BSC	
U	0.200 BSC		5.08 BSC	
V	----	0.250	----	6.35
W	0.435	0.450	11.05	11.43
X	0.400 BSC		10.16 BSC	
Y	0.152	0.163	3.85	4.15

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

Motorola reserves the right to make changes without further notice to any products herein. Motorola makes no warranty, representation, or guarantee regarding the suitability of its products for any particular purpose, nor does Motorola assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals", must be validated for each customer application by customer's technical experts. Motorola does not convey any license under its patent rights nor the rights of others. Motorola products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Motorola product could create a situation where personal injury or death may occur. Should Buyer purchase or use Motorola products for any such unintended or unauthorized application, Buyer shall indemnify and hold Motorola and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Motorola was negligent regarding the design or manufacture of the part. Motorola and the Stylized M Logo are registered in the US Patent & Trademark Office. All other product or service names are the property of their respective owners. Motorola, Inc. is an Equal Opportunity/Affirmative Action Employer.

© Motorola, Inc. 2002.

**How to reach us:**

**USA/EUROPE/Locations Not Listed:** Motorola Literature Distribution; P.O. Box 5405, Denver, Colorado 80217. 1-303-675-2140 or 1-800-441-2447

**JAPAN:** Motorola Japan Ltd.; SPS, Technical Information Center, 3-20-1, Minami-Azabu, Minato-ku, Tokyo 106-8573 Japan. 81-3-3440-3569

**ASIA/PACIFIC:** Motorola Semiconductors H.K. Ltd.; Silicon Harbour Centre, 2 Dai King Street, Tai Po Industrial Estate, Tai Po, N.T. Hong Kong. 852-2668334

**Technical Information Center: 1-800-521-6274**

**HOME PAGE:** <http://www.motorola.com/semiconductors/>

