

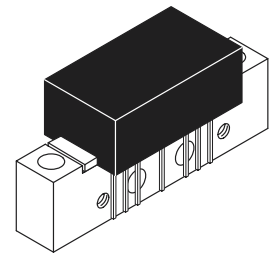
## The RF Line 450 MHz CATV Amplifier

... designed for broadband applications requiring low distortion characteristics. Specifically intended for CATV market requirements. Features ion-implanted arsenic emitter transistors with 7.0 GHz  $f_T$ , and an all gold metallization system.

- Broadband Power Gain — @  $f = 40\text{--}450$  MHz  
 $G_p = 22$  dB (Typ)
- Broadband Noise Figure — @  $f = 40\text{--}450$  MHz  
NF = 4.5 dB (Typ)
- Superior Gain, Return Loss and DC Current Stability with Temperature
- All Gold Metallization
- 7.0 GHz Ion-Implanted Transistors

**MHW5222A**

**22 dB GAIN  
450 MHz  
60-CHANNEL  
CATV TRUNK AMPLIFIER**



**CASE 714Y-03, STYLE 1**

### ABSOLUTE 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, $T_C = +30^\circ\text{C}$ , 75 $\Omega$ system unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range	BW	40	—	450	MHz
Power Gain — 50 MHz	$G_p$	21.4	22	22.6	dB
Power Gain — 450 MHz	$G_p$	22.0	22.9	23.5	dB
Slope	S	0.2	0.5	1.5	dB
Gain Flatness (Peak To Valley)	—	—	0.2	0.4	dB
Return Loss — Input/Output ( $Z_o = 75$ Ohms)	40–450 MHz IRL/ORL	18	—	—	dB
Second Order Intermodulation Distortion ( $V_{out} = +46$ dBmV, Ch 2, M6, M15) ( $V_{out} = +44$ dBmV, Ch 2, M13, M22)	IMD	— —	-80 -78	— -72	dB
Cross Modulation Distortion ( $V_{out} = +46$ dBmV)	53-Channel FLAT 60-Channel FLAT XMD <sub>53</sub> XMD <sub>60</sub>	—	-60 -60	— -59	dB
Composite Triple Beat ( $V_{out} = +46$ dBmV)	53-Channel FLAT 60-Channel FLAT CTB <sub>53</sub> CTB <sub>60</sub>	—	-63 -61	— -60	dB
DIN (European Applications Only) 300 MHz — (CH V + Q - P @ W) 400 MHz — (CH M8 + M15 - M9 @ M14) 450 MHz — (CH M20 + M23 - M22 @ M21)	DIN1 DIN2 DIN3	— — —	125.5 125 124	— — —	dB $\mu$ V
Noise Figure ( $f = 450$ MHz)	NF	—	4.5	5.0	dB
DC Current	$I_{DC}$	—	210	240	mA

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**\*DIN (European Applications Only)**

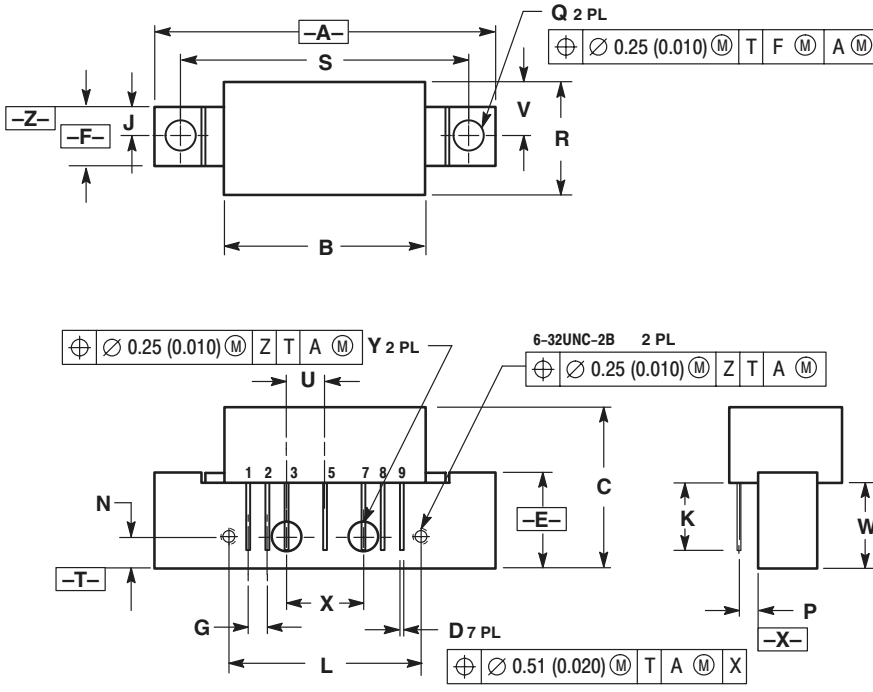
NCTA Channel Designation	Frequency (MHz)	DIN Output Level (dBmV)**(Typ)	DIN Beat Level dB Relative to Ref. Ch.
P	253.25	+59.5	≤ -60
Q	259.25	+59.5	
V	289.25	+65.5	
W (Ref.)	295.25	+65.5	
M8	361.25	+59	≤ -60
M9	367.25	+59	
M14 (Ref.)	397.25	+65	
M15	403.25	+65	
M20	433.25	+64	≤ -60
M21 (Ref.)	439.25	+64	
M22	445.25	+58	
M23	451.25	+58	

\*\*DIN (dBμV) = Reference Channel Level (dBmV) +60 dB

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# 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

**CASE 714Y-03  
 ISSUE D**

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**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:** Nippon Motorola Ltd.: SPD, Strategic Planning Office, 141,  
4-32-1 Nishi-Gotanda, Shagawa-ku, Tokyo, Japan. 03-5487-8488

**Customer Focus Center: 1-800-521-6274**

**Mfax™:** RMFAX0@email.sps.mot.com – TOUCHTONE 1-602-244-6609  
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**ASIA/PACIFIC:** Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park,  
51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852-26629298

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**MHW5222A/D**