

# MOTOROLA

## SEMICONDUCTOR TECHNICAL DATA

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### The RF Line

## VHF/UHF CATV Amplifiers

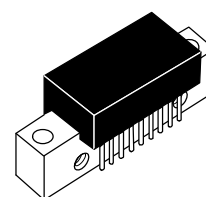
... designed for broadband applications requiring low-distortion and high output capability. Specifically intended for CATV/MATV market requirements. These amplifiers feature ion-implanted arsenic emitter transistors and an all gold metal system.

- Specified Characteristics at  $T_C = 25^\circ\text{C}$ ;  $V_{CC} = 28\text{ V}$ 
  - Frequency Range — 40 to 860 MHz
  - Power Gain — 17 dB Typ @  $f = 40\text{ MHz}$
  - Noise Figure — 7.0 dB Typ @  $f = 500\text{ MHz}$
  - 123 dB $\mu\text{V}$  DIN45004B @ 860 MHz
- All Gold Metallization for Improved Reliability
- Superior Gain, Return Loss and DC Current Stability with Temperature

# CA902

# CA902A

17 dB  
40–860 MHz  
VHF/UHF  
CATV/MATV  
AMPLIFIERS



CASE 714P-03, STYLES 2, 3  
(CA)

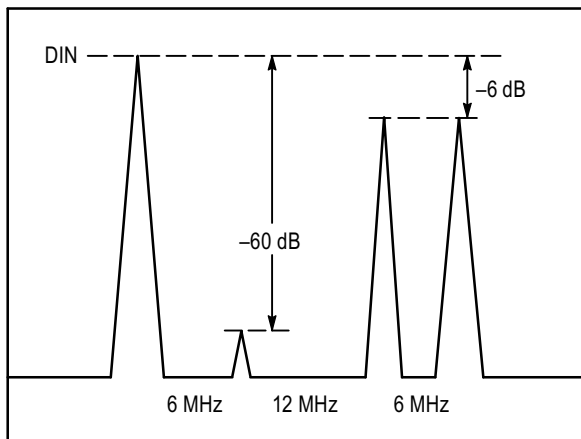
#### MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Rating	Symbol	Value	Unit
Supply Voltage	$V_{CC}$	30	V
RF Input Power Per Tone	$P_{in}$	+17	dBm
Storage Temperature	$T_{stg}$	– 40 to +125	$^\circ\text{C}$
Operating Case Temperature Range	$T_C$	– 20 to +100	$^\circ\text{C}$

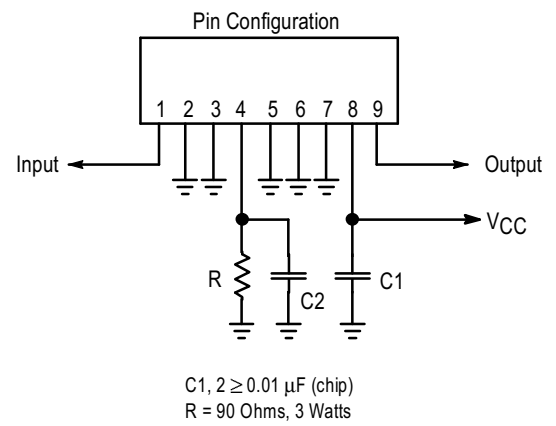
#### ELECTRICAL CHARACTERISTICS ( $T_C = 25^\circ\text{C}$ , $V_{CC} = 28\text{ V}$ , 75 Ohm System)

Characteristic	Symbol	Min	Typ	Max	Unit
Supply Current	$I_{DC}$	—	400	450	mA
Power Gain ( $f = 40\text{ MHz}$ )	PG	16.5	17	17.5	dB
Bandwidth	BW	40	—	860	MHz
Slope (40–860 MHz)	S	0.2	0.8	1.4	dB
Gain Flatness	FL	—	—	$\pm 0.5$	dB
Input/Output Return Loss $f = 40 - 100\text{ MHz}$ $f = 100 - 800\text{ MHz}$ $f = 800 - 860\text{ MHz}$	IRL/ORL	20 15 10	— 17 12	— — —	dB
Second Order Intermodulation Distortion ( $V_O = + 50\text{ dBmV/ch.}$ ) CA902 CA902A	IMD <sub>2</sub>	— —	— —	–63 –67	dB
DIN45004B (See Figure 1) $f = 40 - 400\text{ MHz}$ $f = 400 - 860\text{ MHz}$	DIN	124 123	— —	— —	dB $\mu\text{V}$
Noise Figure $f = 500\text{ MHz}$ $f = 860\text{ MHz}$	NF	— —	7.0 8.0	8.5 9.5	dB



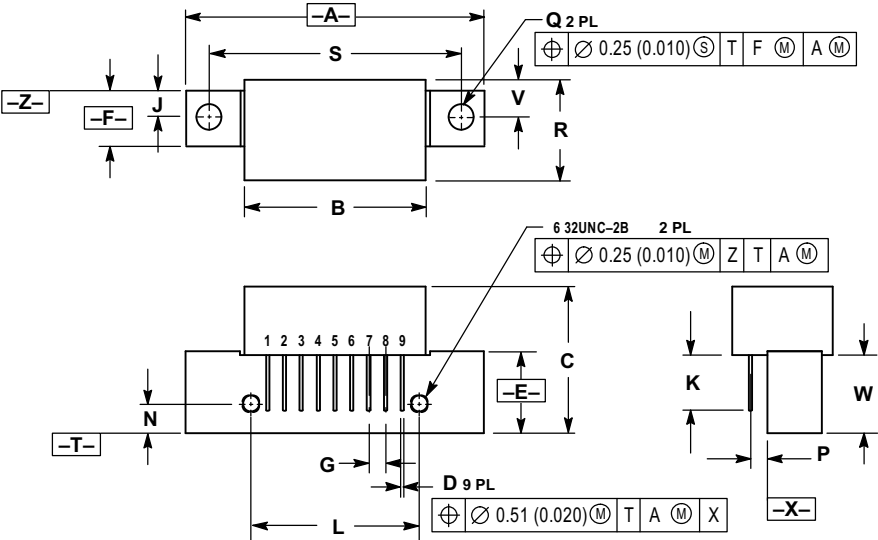


**Figure 1. DIN45004B Test**



**Figure 2. External Connections  
Case 714P-03, Style 2**

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	—	0.870	—	22.10
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	0.330	0.370	8.38	9.40
L	1.000 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	—	0.595	—	15.11
S	1.500 BSC		38.10 BSC	
V	0.209	0.239	5.31	6.07
W	0.425	—	10.80	—

- STYLE 2:
- PIN 1. RF INPUT
  - 2. GROUND
  - 3. GROUND
  - 4. RESISTOR-GROUND
  - 5. GROUND
  - 6. GROUND
  - 7. GROUND
  - 8. V<sub>CC</sub> 1
  - 9. RF OUTPUT
- STYLE 3:
- PIN 1. RF INPUT
  - 2. GROUND
  - 3. GROUND
  - 4. V<sub>CC</sub> 1
  - 5. GROUND
  - 6. GROUND
  - 7. GROUND
  - 8. V<sub>CC</sub> 2
  - 9. RF OUTPUT

CASE 714P-03  
ISSUE B

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