

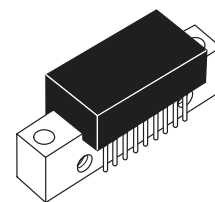
## The RF Line Wideband Linear Amplifiers

... designed for amplifier applications in 50 ohm systems requiring wide bandwidth, low noise and low-distortion. This hybrid provides excellent gain stability with temperature and linear amplification as a result of the push-pull circuit design.

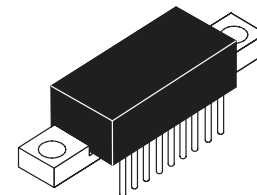
- Specified Characteristics at  $V_{CC} = 24$  V for CA4800C; 12 V for CA4812C; 15 V for CA4815C,  $T_C = 25^\circ\text{C}$ :
  - Frequency Range — 10 to 1000 MHz
  - Output Power — 400 mW Typ @ 1 dB Compression,  $f = 900$  MHz
  - Power Gain — 17.5 dB Typ @ 1000 MHz
  - Noise Figure — 6.5 dB Typ @  $f = 500$  MHz
  - ITO — 38 dBm Typ @ 1000 MHz
- All Gold Metallization for Improved Reliability
- CA4812C is Optimized for 12 V Operation
- CA4815C is Optimized for 15 V Operation

**CA4800C,CS**  
**CA4812C,CS**  
**CA4815C,CS**

17 dB  
10–1000 MHz  
400 mW  
WIDEBAND  
LINEAR AMPLIFIERS



CASE 714P-03, STYLES 2, 3  
CA4800C, CA4812C, CA4815C



CASE 714T-03, STYLES 1, 2  
CA4800CS, CA4812CS,  
CA4815CS

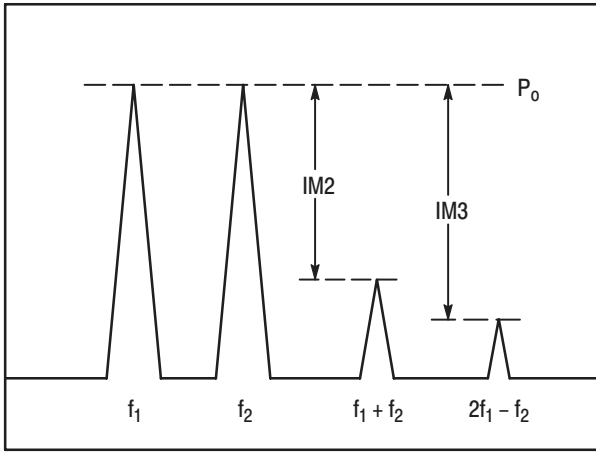
### MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Rating	Symbol	Value	Unit
Supply Voltage	$V_{CC}$	28 18 14	V
RF Input Power	$P_{in}$	+14	dBm
Storage Temperature	$T_{stg}$	-40 to +100	$^\circ\text{C}$
Operating Case Temperature Range	$T_C$	-20 to +100	$^\circ\text{C}$

### ELECTRICAL CHARACTERISTICS ( $T_C = 25^\circ\text{C}$ , $V_{CC} = 24$ V for CA4800C; 12 V for CA4812C; 15 V for CA4815C, 50 Ohm System)

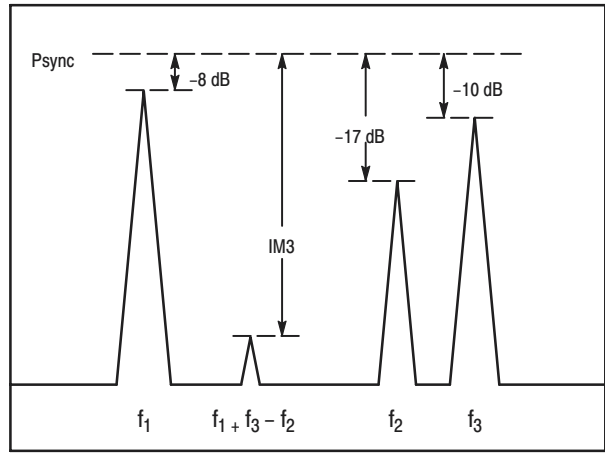
Characteristic	Symbol	Min	Typ	Max	Unit
Supply Current	$I_{DC}$	—	220 380	240 400	mA
Power Gain ( $f = 1000$ MHz)	PG	16.5	17.5	18.5	dB
Bandwidth (3 dB Down at 10 MHz)	BW	10	—	1000	MHz
Gain Flatness ( $f = 40$ –1000 MHz)	FL	—	1	2	dB
Power Output — 1 dB Compression ( $f = 900$ MHz)	$P_{o\ 1dB}$	300	400	—	mW
Input/Output VSWR $f = 40$ –900 MHz $f = 900$ –1000 MHz	VSWR	—	—	2:1 2.6:1	—
Noise Figure, Broadband $f = 500$ MHz $f = 1000$ MHz	NF	—	6.5 7.5	8 9	dB
Third Order Intercept ( $f_1 = 10$ –1000 MHz, See Figure 1)	ITO	37	38	—	dBm
Second Harmonic Distortion ( $P_o = 100$ mW, $f_{2H} = 1000$ MHz)	dso	—	-50	-40	dB
Second Order Intermodulation Distortion ( $P_o = 2.75$ dBm, $f_1 = 373$ MHz, $f_2 = 450$ MHz, See Figure 1)	IM2	—	—	-60	dB
Intermodulation Distortion, 3 Tone ( $f = 860$ MHz, $P_{sync} = 200$ mW, See Figure 2)	IM3	—	-60	—	dB





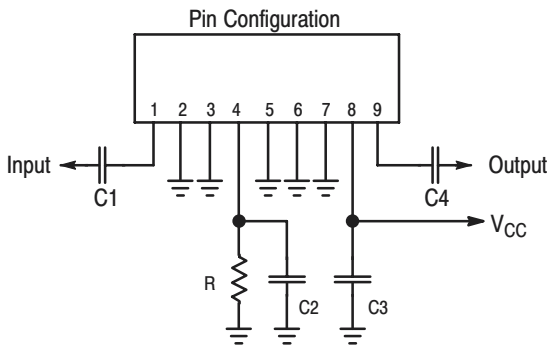
$$ITO = P_0 + IM3 / 2 \text{ @ } IM3 > 60 \text{ dB}$$

Figure 1. 2-Tone Intermodulation Test A



$f_1$  = Video  
 $f_2$  = Sideband  
 $f_3$  = Sound

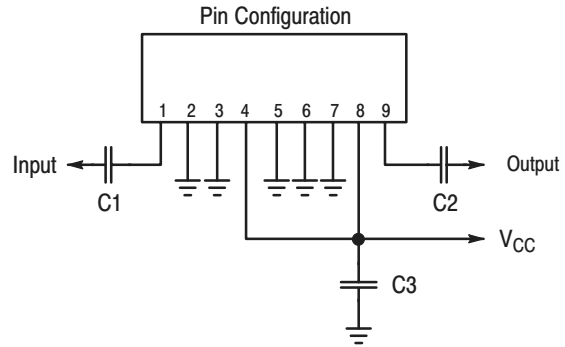
Figure 2. 3-Tone TV Intermodulation Test



$C1,2,3,4 \geq 0.01 \mu\text{F}$  (chip)  
 $R = 200 \text{ Ohms}, 1 \text{ Watt}$

CA4800C (Case 714P-03, Style 2)  
 CA4800CS (Case 714T-03, Style 1)

Figure 3. External Connections

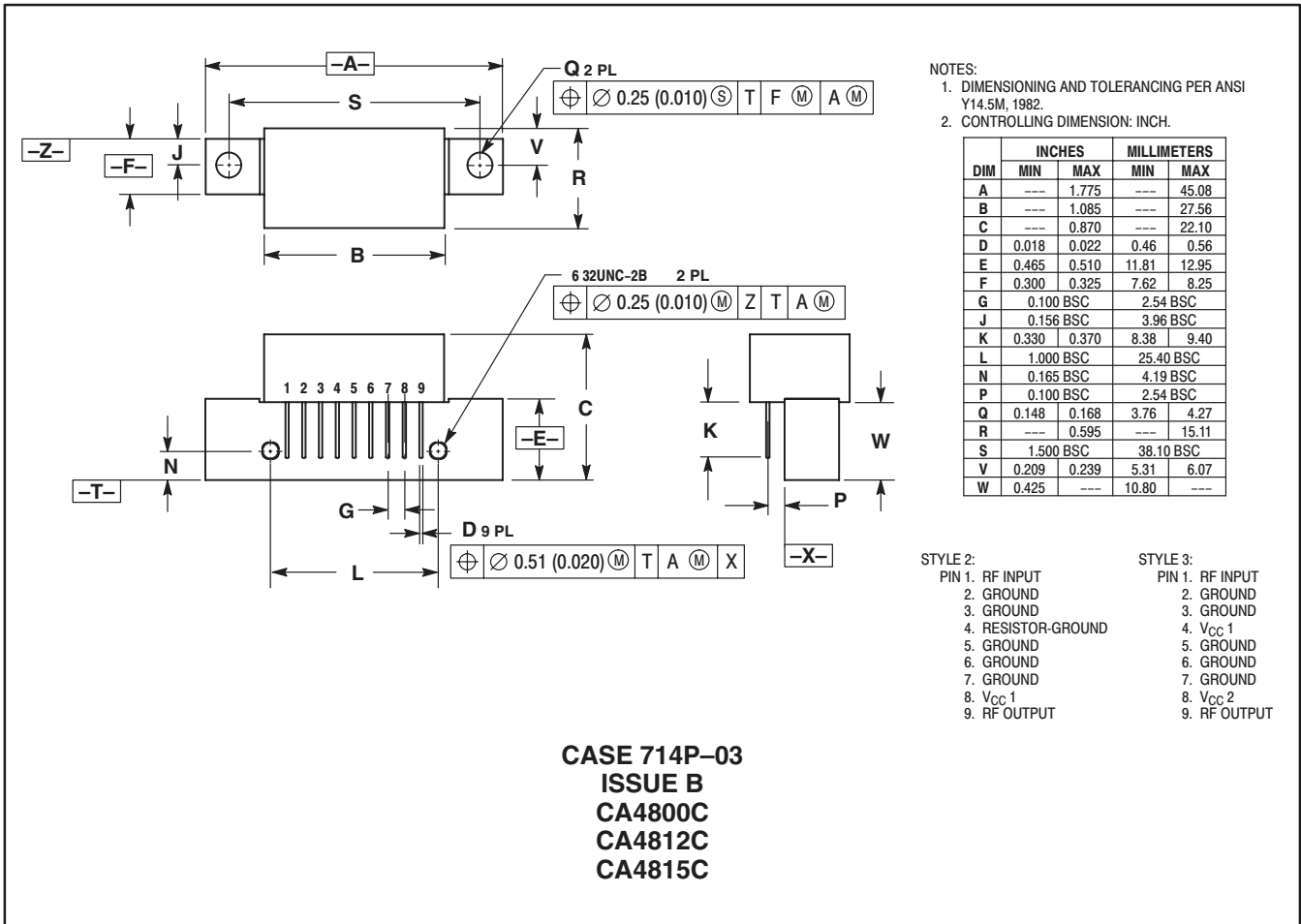


$C1,2,3 \geq 0.01 \mu\text{F}$  (chip)

CA4812C, CA4815C (Case 714P-03, Style 3)  
 CA4812CS, CA4815CS (Case 714T-03, Style 2)

Figure 4. External Connections

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	---

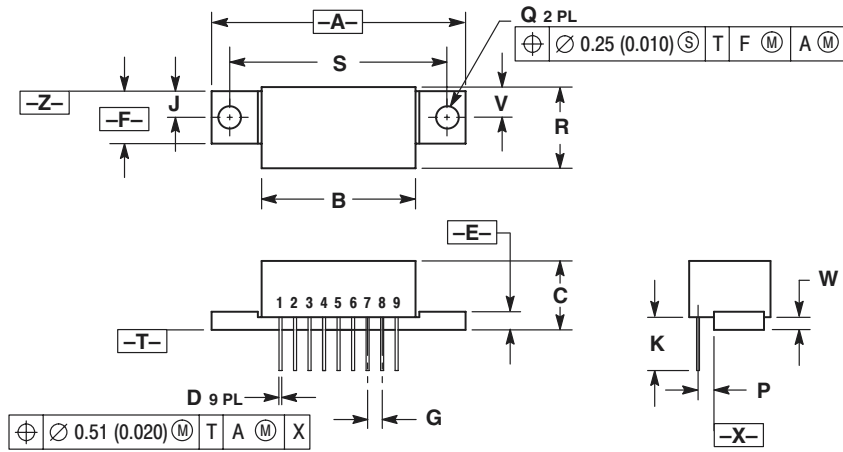
STYLE 2:  
 PIN 1. RF INPUT  
 2. GROUND  
 3. GROUND  
 4. RESISTOR-GROUND  
 5. GROUND  
 6. GROUND  
 7. GROUND  
 8. V<sub>CC</sub> 1  
 9. RF OUTPUT

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  
 CA4800C  
 CA4812C  
 CA4815C

ARCHIVE INFORMATION

ARCHIVE INFORMATION



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	---	0.495	---	12.57
D	0.018	0.022	0.46	0.56
E	0.120	0.130	3.05	3.30
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
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	0.050	---	1.27	---

- STYLE 1:  
 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 2:  
 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 714T-03  
 ISSUE B  
 CA4800CS  
 CA4812CS  
 CA4815CS**

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. 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 are registered trademarks of Motorola, Inc. Motorola, Inc. is an Equal Opportunity/Affirmative Action Employer.

**How to reach us:**

**USA/EUROPE:** Motorola Literature Distribution;  
 P.O. Box 20912; Phoenix, Arizona 85036. 1-800-441-2447

**JAPAN:** Nippon Motorola Ltd.; Tatsumi-SPD-JLDC, Toshikatsu Otsuki,  
 6F Seibu-Butsuryu-Center, 3-14-2 Tatsumi Koto-Ku, Tokyo 135, Japan. 03-3521-8315

**MFAX:** RMFAX0@email.sps.mot.com - TOUCHTONE (602) 244-6609  
**INTERNET:** http://Design-NET.com

**HONG KONG:** Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park,  
 51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852-26629298

