

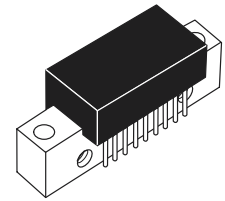
## The RF Line Wideband Linear Amplifiers

... 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.

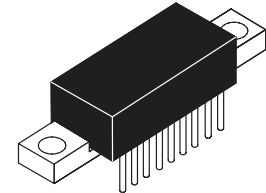
- Specified Characteristics at  $V_{CC} = 24$  V for CA4800C; 12 V for CA4812C; 15 V for CA4815C,  $T_C = 25^\circ\text{C}$ :
  - Frequency Range — 10 to 1000 MHz
  - Output Power — 400 mW Typ @ 1 dB Compression,  $f = 900$  MHz
  - Power Gain — 17.5 dB Typ @ 1000 MHz
  - Noise Figure — 6.5 dB Typ @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

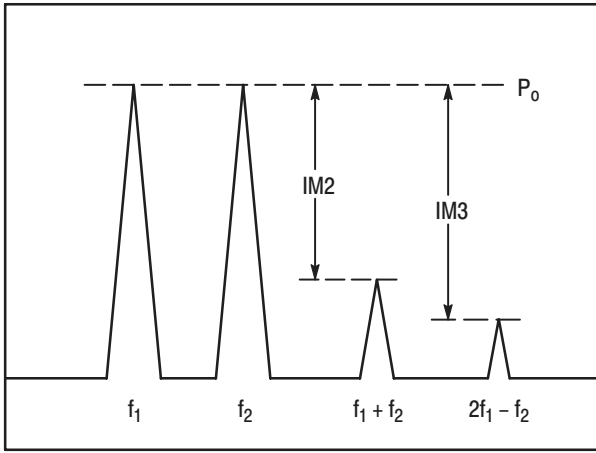
### ELECTRICAL CHARACTERISTICS ( $T_C = 25^\circ\text{C}$ , $V_{CC} = 24$ V for CA4800C; 12 V for CA4812C; 15 V for CA4815C, 50 Ohm System)

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



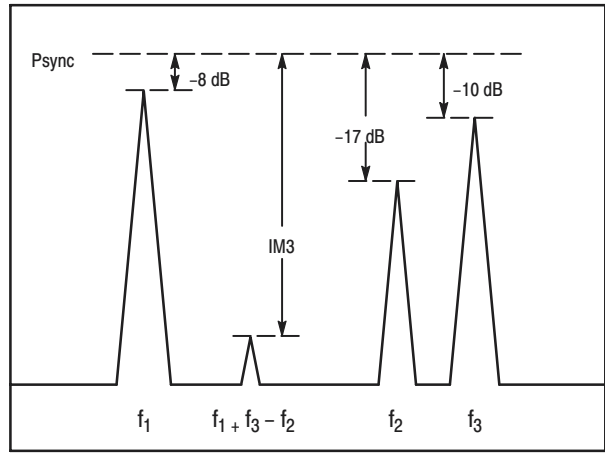
ARCHIVE INFORMATION

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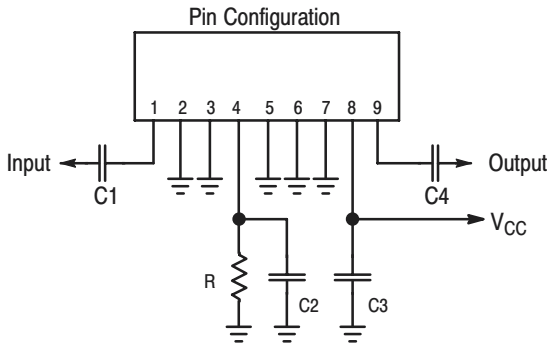
$$ITO = P_0 + IM3 / 2 @ IM3 > 60 \text{ dB}$$

Figure 1. 2-Tone Intermodulation Test A



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

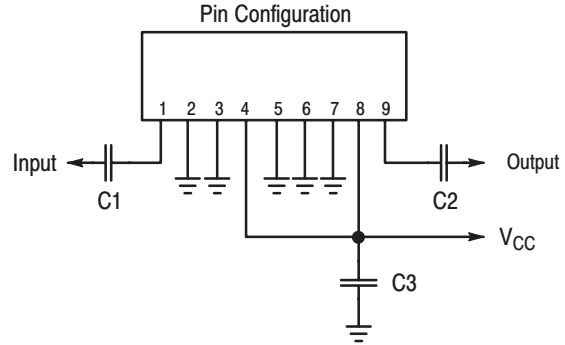
Figure 2. 3-Tone TV Intermodulation Test



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

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

Figure 3. External Connections

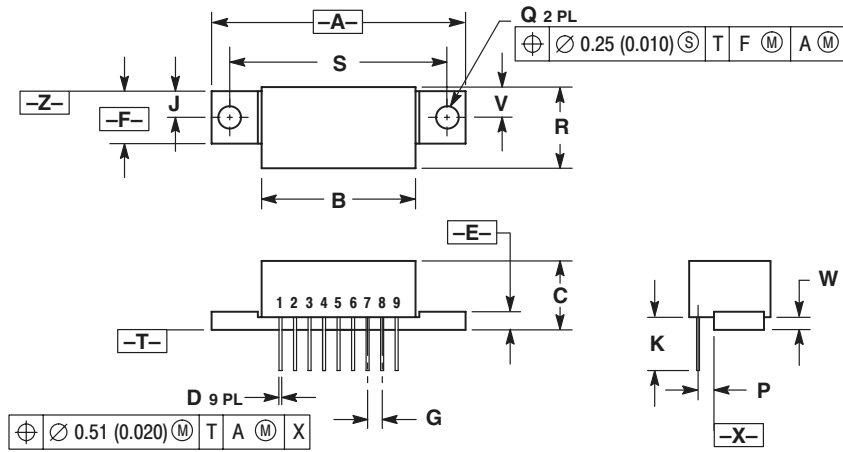


$C1,2,3 \geq 0.01 \mu\text{F}$  (chip)

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

Figure 4. External Connections





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**

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**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

