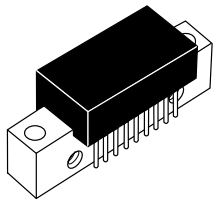
The RF Line
Wideband Linear Amplifiers

CA4800C,CS
CA4812C,CS
CA4815C,CS

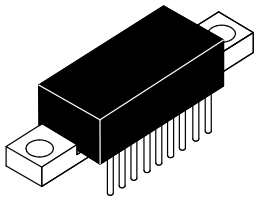
. . . designed for amplifier applications in 50 ohm systems requiring wide bandwidth, low noise and low–distortion. This hybrid provides excellent gain stability with temperature and linear amplification as a result of the push–pull circuit design.

- Specified Characteristics at V_{CC} = 24 V for CA4800C; 12 V for CA4812C; 15 V for CA4815C, T_C = 25°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

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°C unless otherwise noted)

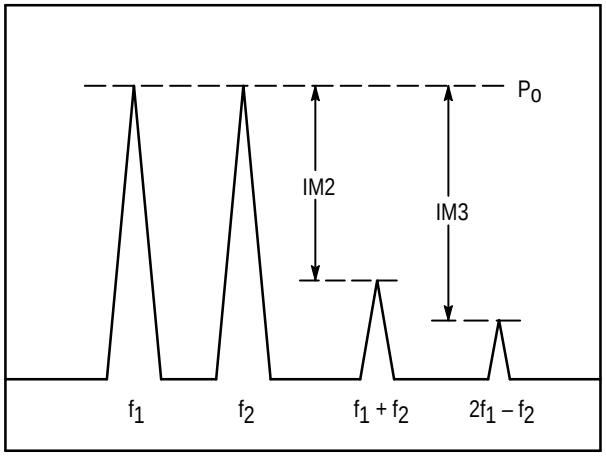
Rating		Symbol	Value	Unit
Supply Voltage	CA4800C,CS CA4815C,CS CA4812C,CS	V_{CC}	28 18 14	V
RF Input Power		P_{in}	+14	dBm
Storage Temperature		T_{stg}	–40 to +100	°C
Operating Case Temperature Range		T_C	–20 to +100	°C

ELECTRICAL CHARACTERISTICS (T_C = 25°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	CA4800C,CS CA4812C,CS; CA4815C,CS	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

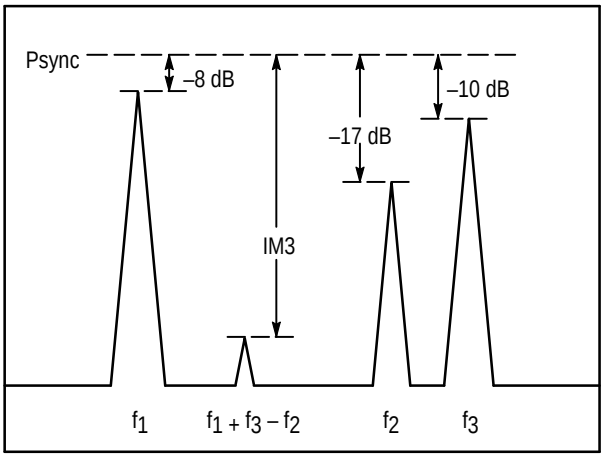
REV 1

MOTOROLA



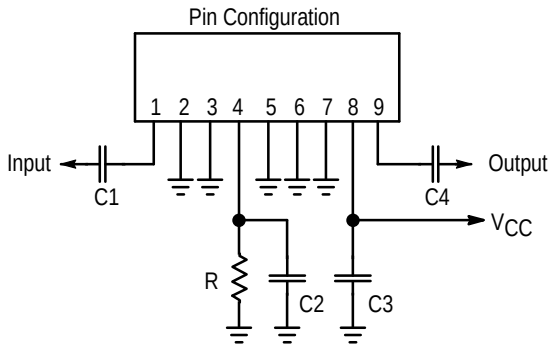
ITO = P_O + IM3 / 2 @ IM3 > 60 dB

Figure 1. 2–Tone Intermodulation Test A



f_1 = Video
f_2 = Sideband
f_3 = Sound

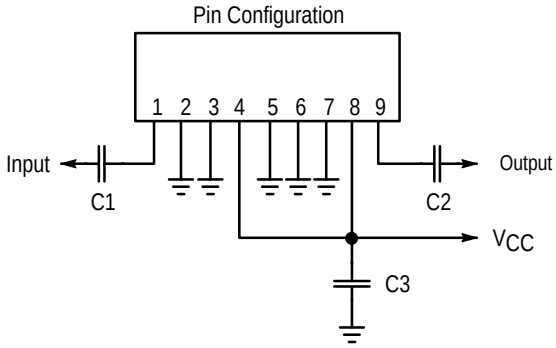
Figure 2. 3–Tone TV Intermodulation Test



C1,2,3,4 ≥ 0.01 μF (chip)
R = 200 Ohms, 1 Watt

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

Figure 3. External Connections

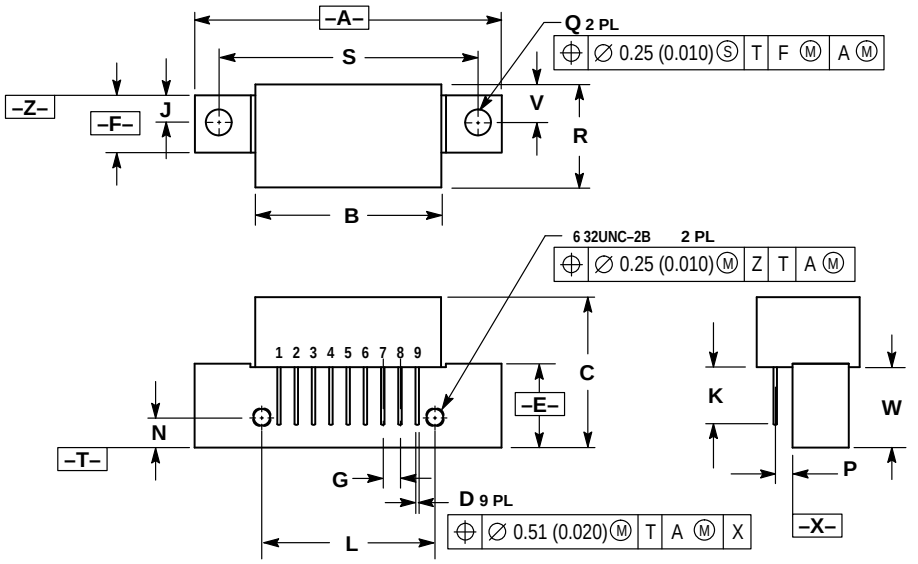


C1,2,3 ≥ 0.01 μF (chip)

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

Figure 4. External Connections

PACKAGE DIMENSIONS



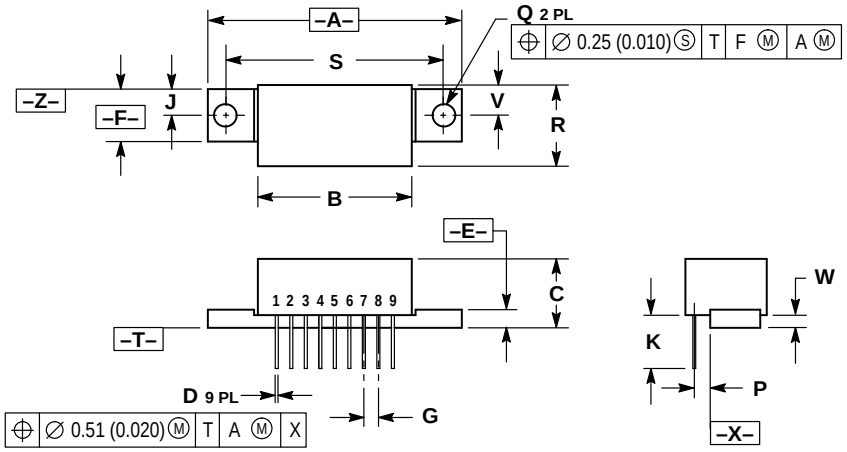
NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

	INCHES		MILLIMETERS	
DIM	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_{CC} 1
9. RF OUTPUT

STYLE 3:
PIN 1. RF INPUT
2. GROUND
3. GROUND
4. V_{CC} 1
5. GROUND
6. GROUND
7. GROUND
8. V_{CC} 2
9. RF OUTPUT

CASE 714P–03
ISSUE B
CA4800C
CA4812C
CA4815C



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

	INCHES		MILLIMETERS	
DIM	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_{CC} 1
9. RF OUTPUT

STYLE 2:
PIN 1. RF INPUT
2. GROUND
3. GROUND
4. V_{CC} 1
5. GROUND
6. GROUND
7. GROUND
8. V_{CC} 2
9. RF OUTPUT

CASE 714T–03
ISSUE B
CA4800CS
CA4812CS
CA4815CS

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