

The RF Line

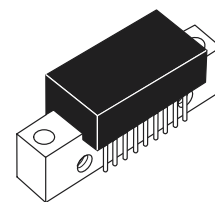
Wideband Linear Amplifiers

... 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.

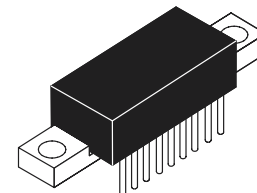
- Specified Characteristics at $V_{CC} = 24$ V for CA4800C; 12 V for CA4812C; 15 V for CA4815C, $T_C = 25^\circ\text{C}$:
 - Frequency Range — 10 to 1000 MHz
 - Output Power — 400 mW Typ @ 1 dB Compression, $f = 900$ MHz
 - Power Gain — 17.5 dB Typ @ 1000 MHz
 - Noise Figure — 6.5 dB Typ @ $f = 500$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



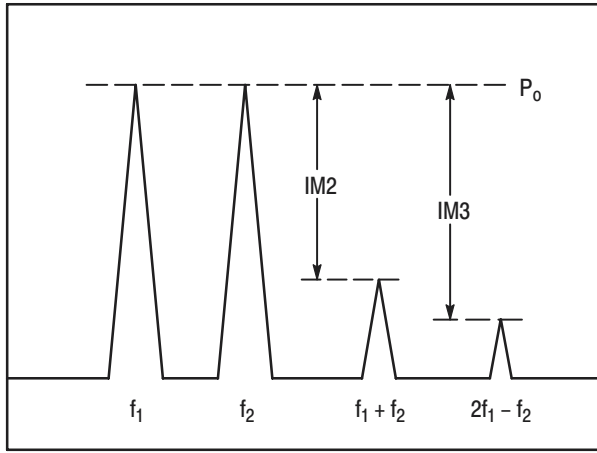
CASE 714T-03, STYLES 1, 2
 CA4800CS, CA4812CS,
 CA4815CS

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	$^\circ\text{C}$

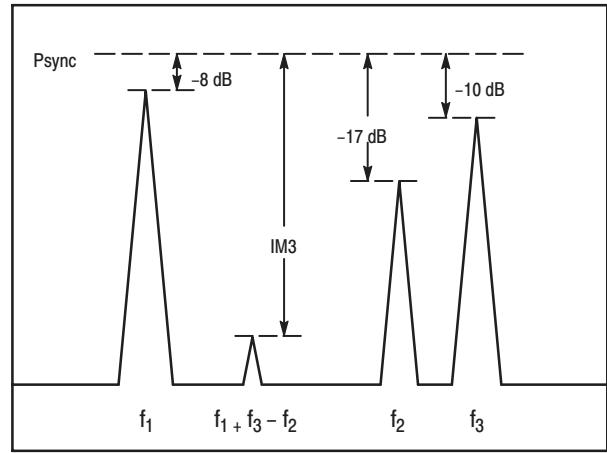
ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$, $V_{CC} = 24$ V for CA4800C; 12 V for CA4812C; 15 V for CA4815C, 50 Ohm System)

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



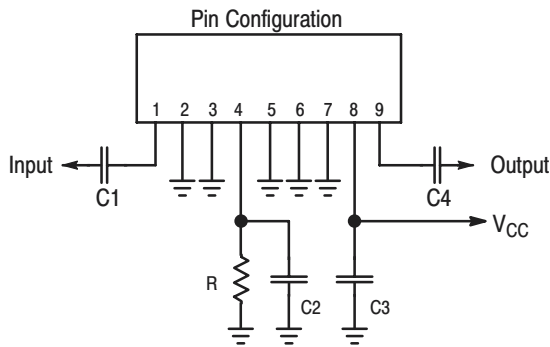
$$ITO = P_0 + IM3 / 2 @ IM3 > 60 \text{ dB}$$

Figure 1. 2-Tone Intermodulation Test A



f_1 = Video
 f_2 = Sideband
 f_3 = Sound

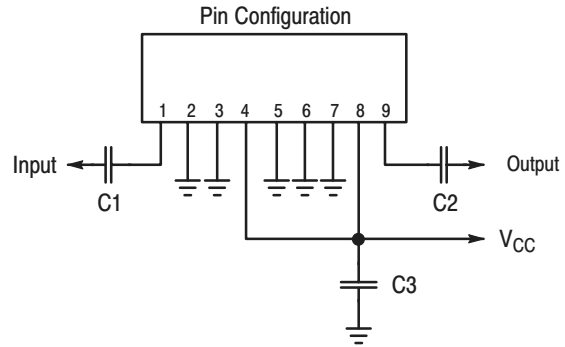
Figure 2. 3-Tone TV Intermodulation Test



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

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

Figure 3. External Connections



$C_{1,2,3} \geq 0.01 \mu\text{F}$ (chip)

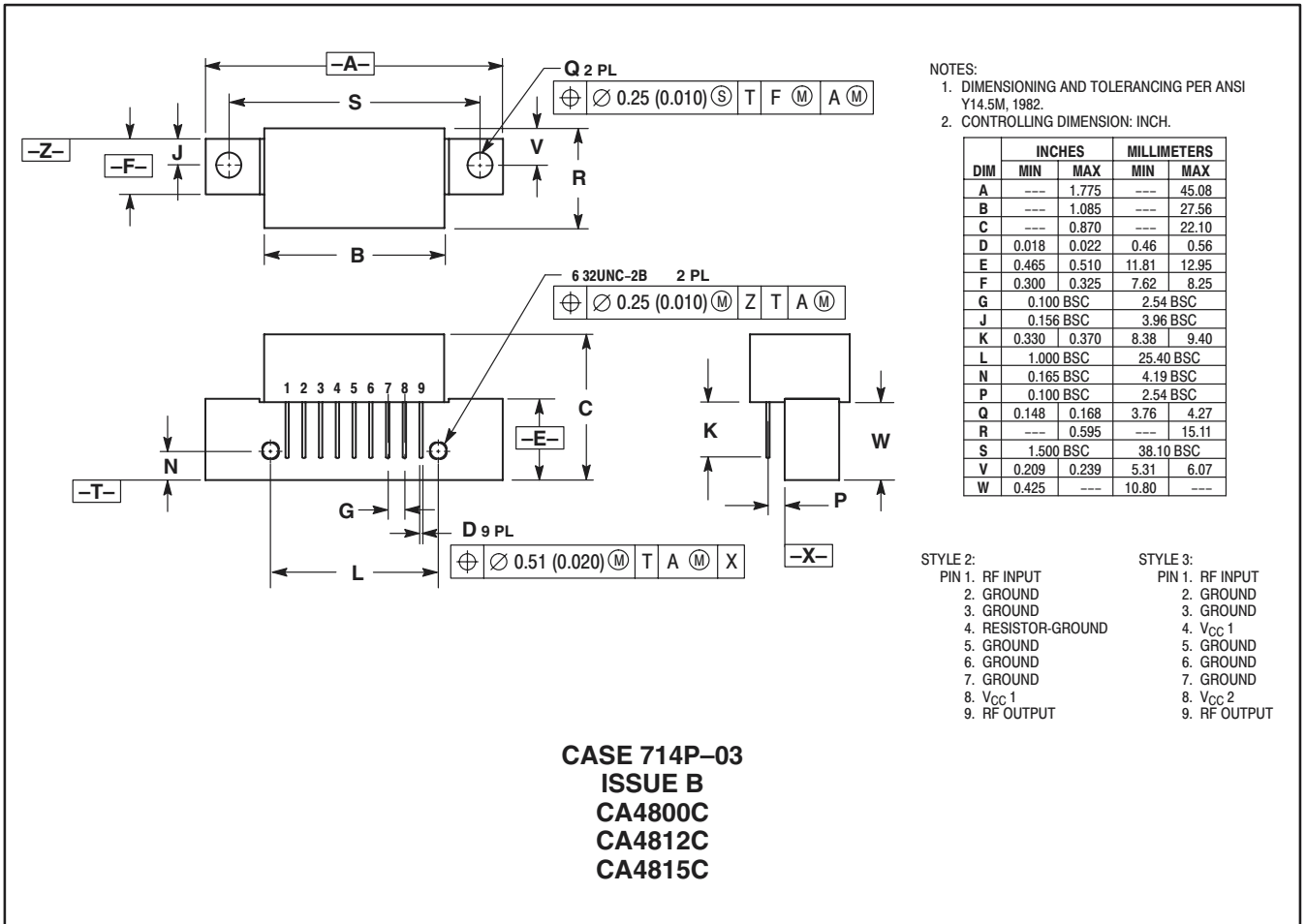
CA4812C, CA4815C (Case 714P-03, Style 3)
 CA4812CS, CA4815CS (Case 714T-03, Style 2)

Figure 4. External Connections

Freescale Semiconductor, Inc. ARCHIVE INFORMATION

ARCHIVE INFORMATION

PACKAGE DIMENSIONS



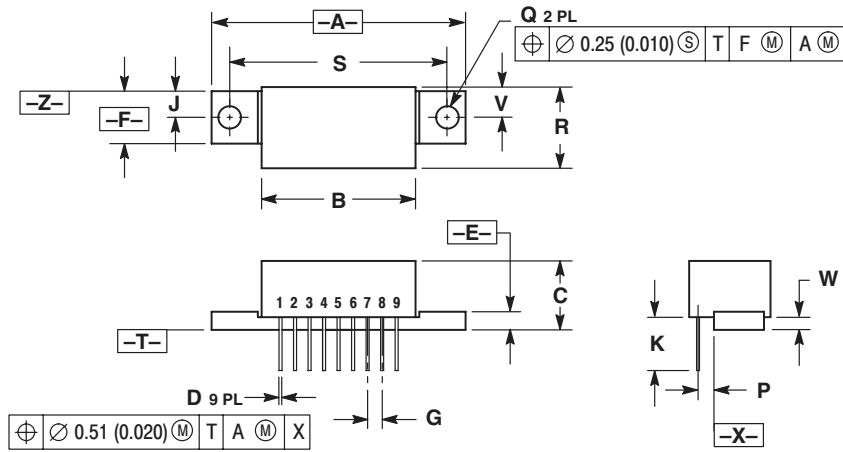
NOTES:
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.

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_{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.

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_{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

Freescale Semiconductor Information

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CA4800C/D