

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

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

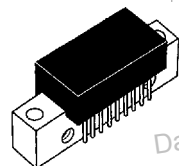
Rating	Symbol	Value	Unit
Supply Voltage	V_{CC}	28 18 14	V
RF Input Power	P_{in}	+14	dBm
Storage Temperature	T_{stg}	-40 to +100	$^\circ\text{C}$
Operating Case Temperature Range	T_C	-20 to +100	$^\circ\text{C}$

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)

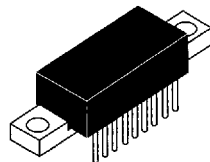
Characteristic	Symbol	Min	Typ	Max	Unit
Supply Current	I_{DC}	—	220 380	240 400	mA
Power Gain ($f = 1000$ MHz)	PG	16.5	17.5	18.5	dB
Bandwidth (3 dB Down at 10 MHz)	BW	10	—	1000	MHz
Gain Flatness ($f = 40$ –1000 MHz)	FL	—	1	2	dB
Power Output — 1 dB Compression ($f = 900$ MHz)	$P_{O\ 1dB}$	300	400	—	mW
Input/Output VSWR $f = 40$ –900 MHz	VSWR	—	—	2:1	—
$f = 900$ –1000 MHz		—	—	2.6:1	—
Noise Figure, Broadband $f = 500$ MHz	NF	—	6.5	8	dB
$f = 1000$ MHz		—	7.5	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

CA4800C,CS
CA4812C,CS
CA4815C,CS

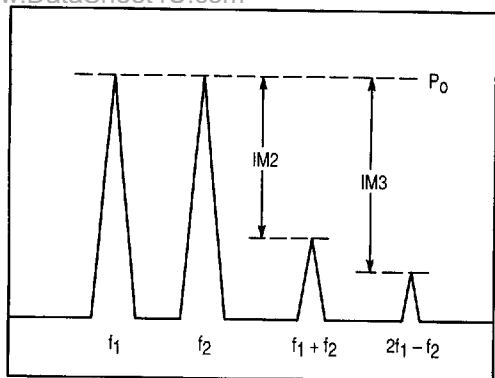
17 dB
 10–1000 MHz
 400 mW
 WIDEBAND
 LINEAR AMPLIFIERS



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

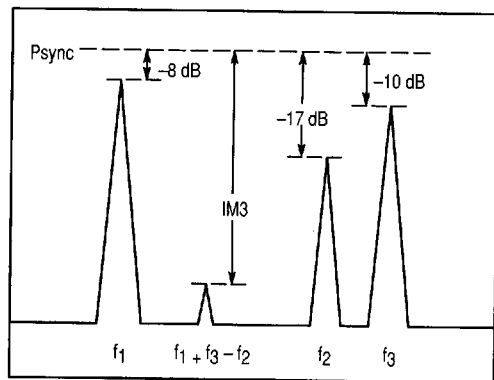


CASE 714T-03, STYLES 1, 2
 CA4800CS, CA4812CS,
 CA4815CS



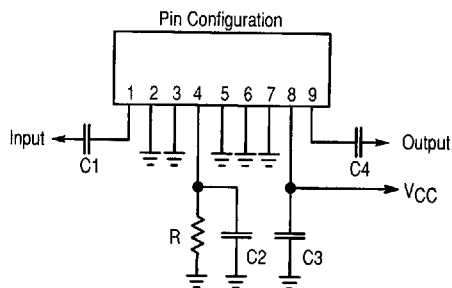
$$ITO = P_0 + IM3 / 2 @ IM3 > 60 \text{ dB}$$

Figure 1. 2-Tone Intermodulation Test A



f₁ = Video
f₂ = Sideband
f₃ = Sound

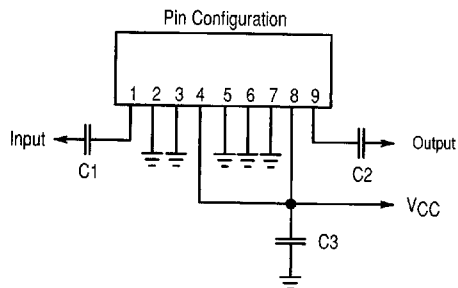
Figure 2. 3-Tone TV Intermodulation Test



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