MOTOROLA
SEMICONDUCTOR
TECHNICAL DATA

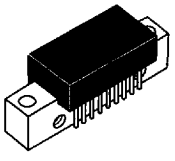
CA4800C,CS
CA4812C,CS
CA4815C,CS

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, 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, STYLES 2, 3
CA4800C, CA4812C, CA4815C

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

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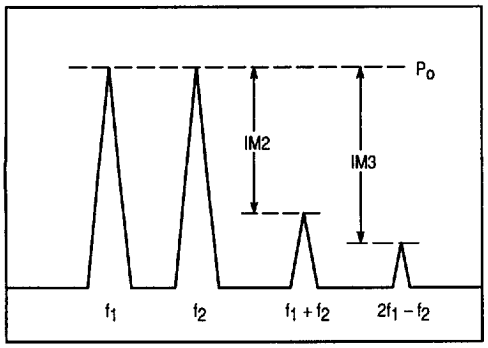
MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

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

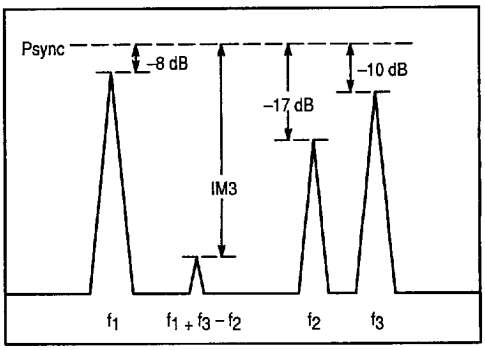
ELECTRICAL CHARACTERISTICS (T_C = 25°C, V_{CC} = 24 V, 50 Ohm System)

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



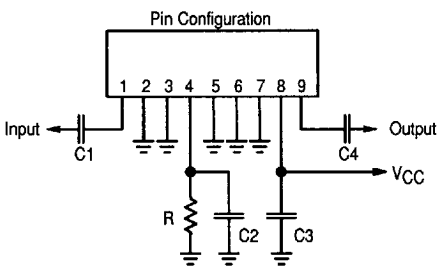
ITO = P_O + IM3 / 2 @ IM3 > 60 dB

Figure 1. 2-Tone Intermodulation Test A



f_1 = Video
f_2 = Sideband
f_3 = Sound

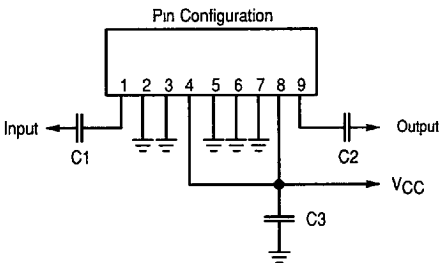
Figure 2. 3-Tone TV Intermodulation Test



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

CA4800C (Case 714P-02, Style 2)
CA4800CS (Case 714T-02, Style 1)

Figure 3. External Connections



C1,2,3 ≥ 0.01 µF (chip)

CA4812C, CA4815C (Case 714P-02, Style 3)
CA4812CS, CA4815CS (Case 714T-02, Style 2)

Figure 4. External Connections

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