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by CA5800C/D

The RF Line

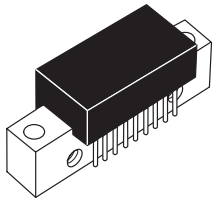
Wideband Linear Amplifiers

CA5800C
CA5800CS

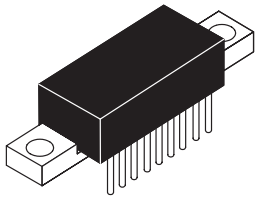
. . . designed for amplifier applications in 50 to 100 ohm systems requiring wide bandwidth, low noise and low distortion. This hybrid provides excellent gain stability with temperature and linear amplification as a result of the push–pull circuit design.

- Specified Characteristics at V_{CC} = 28 V, T_C = 25°C:
  - Frequency Range — 10 to 1000 MHz
  - Output Power — 1 W Typ @ 1 dB Compression, f = 900 MHz
  - Power Gain — 15.5 Typ @ f = 1000 MHz
  - Noise Figure — 7.5 dB Typ @ f = 500 MHz
  - ITO — 40.5 dBm @ f = 1000 MHz
- All Gold Metallization for Improved Reliability
- Optimized for 28 V Operation

15 dB
10–1000 MHz
1 WATT
WIDEBAND
LINEAR AMPLIFIERS



CASE 714P–03, STYLE 2
(CA)
CA5800C



CASE 714T–03, STYLE 1
CA5800CS

ARCHIVE INFORMATION

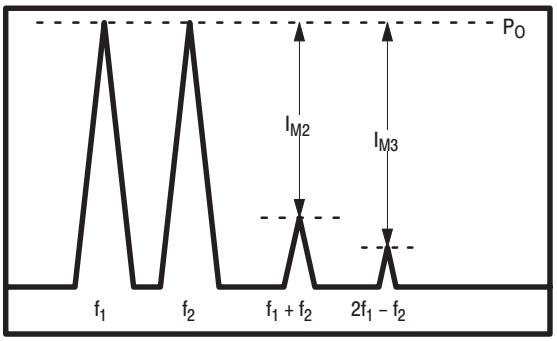
MAXIMUM RATINGS

Rating	Symbol	Value	Unit
DC Supply Voltage	V_{CC}	32	Vdc
RF Power Input	P_{in}	+18	dBm
Operating Case Temperature Range	T_C	–20 to +100	°C
Storage Temperature Range	T_{stg}	–40 to +100	°C

ELECTRICAL CHARACTERISTICS (T_C = 25°C, V_{CC} = 28 V, 50 Ω system unless otherwise noted)

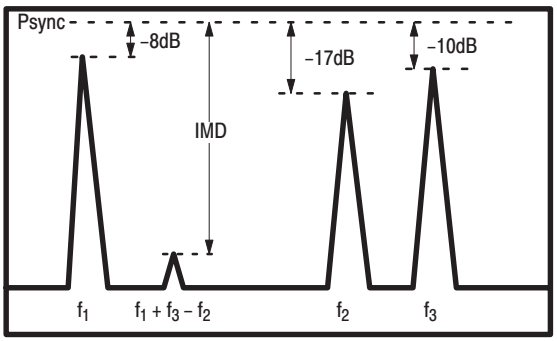
Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range (3 dB Down at 10 MHz)	BW	10	—	1000	MHz
Gain Flatness (f = 40–1000 MHz)	—	—	1	2	dB
Power Gain (f = 1000 MHz)	P_G	14.5	15.5	—	dB
Noise Figure, Broadband f = 500 MHz f = 1000 MHz	NF	— —	7.5 8.5	8.5 9.5	dB
Power Output — 1 dB Compression (f = 900 MHz)	$P_{o\ 1dB}$	800	1000	—	mW
Third Order Intercept (See Figure 1, f_1 = 10–1000 MHz)	ITO	—	40.5	—	dBm
Input/Output VSWR f = 40–900 MHz f = 900–1000 MHz	VSWR	— —	— —	2:1 2.6:1	—
Second Harmonic Distortion (P_o = 100 mW, f_{2H} = 1000 MHz)	d_{so}	—	–55	–45	dB
Supply Current	I_{CC}	360	400	440	mA
Intermodulation Distortion, 3 Tone (Vision Carrier = –8 dB, Sound Carrier = –10 dB, Sideband Signal = –17 dB. See Figure 2. f = 860 MHz, P_{sync} = 200 mW)	IMD	—	–58	—	dB
Second Order IMD (P_t = 2.75 dBm, f_1 = 373 MHz, f_2 = 450 MHz, See Figure 1)	IM2		–65	–60	dB

MOTOROLA



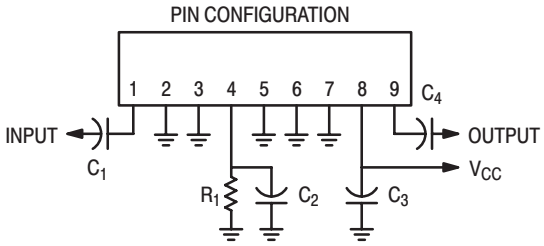
$$ITO = P_O + \frac{IM3}{2} \text{ @ } IM3 > 60 \text{ dB}$$

Figure 1. 2–Tone Intermodulation, Test B



f1: video
f2: sideband
f3: sound

Figure 2. 3–Tone TV Intermodulation Test

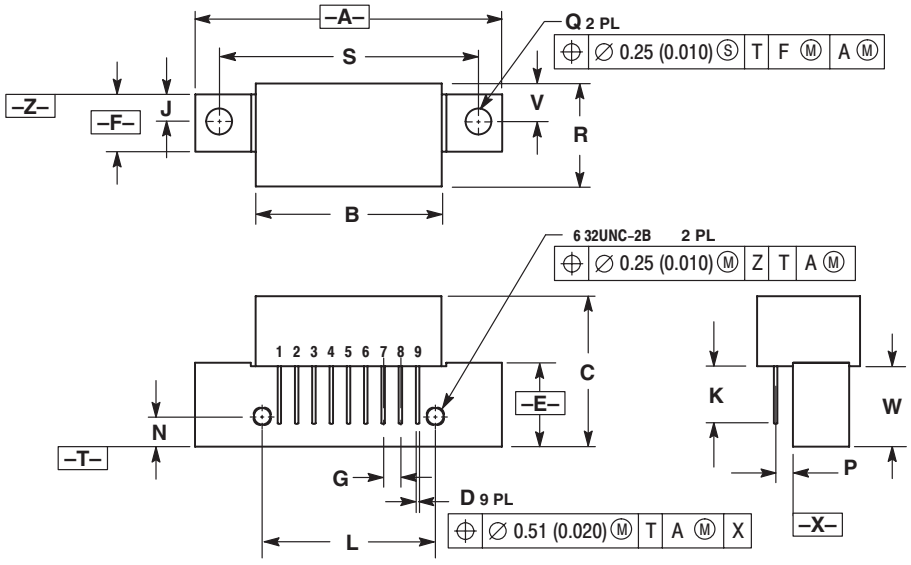


$C_{1, 2, 3, 4} \geq 0.01$ µF (Chip)
R1 = 90 OHMS, 3 WATTS

CA5800C (Case 714P–03, Style 2)
CA5800CS (Case 714T–03, Style 1)

Figure 3. External Connections

PACKAGE DIMENSIONS

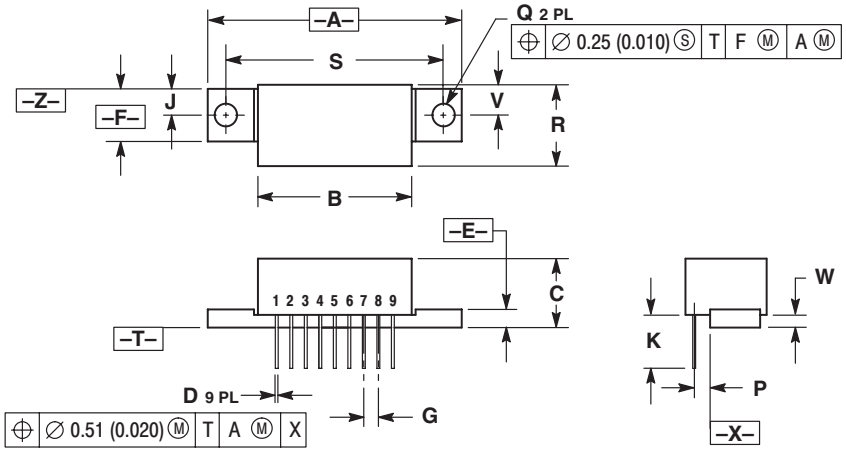


NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

	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

CASE 714P–03
ISSUE B
CA5800C



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

CASE 714T–03
ISSUE B
CA5800CS

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