

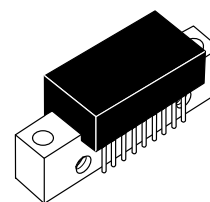
The RF Line Wideband Linear Amplifiers

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.

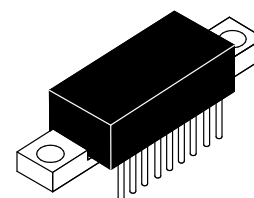
- Specified Characteristics at $V_{CC} = 28\text{ V}$, $T_C = 25^\circ\text{C}$
 - Frequency Range — 50 to 1000 MHz
 - Output Power — 1 W Typ @ 1 dB Compression, $f = 900\text{ MHz}$
 - Power Gain — 17.5 dB Typ @ $f = 1000\text{ MHz}$
 - Noise Figure — 7.5 dB Typ @ $f = 500\text{ MHz}$
 - ITO — 41.5 dBm Typ @ 1000 MHz
- All Gold Metalization for Improved Reliability
- Optimized for 28 V Operation

CA5801
CA5801S

1 W, 17 dB
50–1000 MHz
WIDEBAND
LINEAR AMPLIFIERS



CASE 714P-03, STYLE 2
CA5801



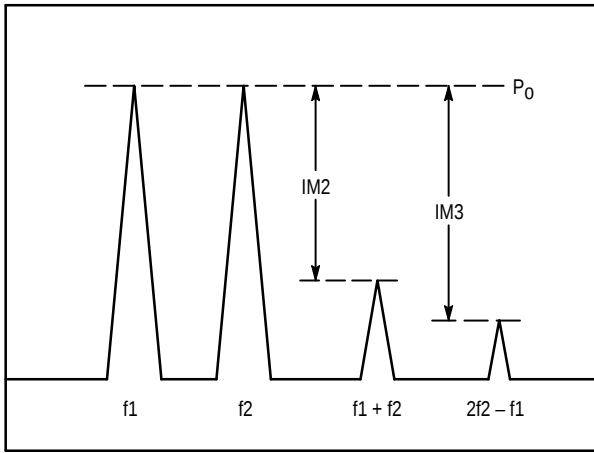
CASE 714T-03, STYLE 1
CA5801S

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Supply Voltage	V_{CC}	32	V
RF Input Power	P_{in}	+20	dBm
Storage Temperature	T_{stg}	– 40 to +100	$^\circ\text{C}$
Operating Case Temperature Range	T_C	– 20 to +100	$^\circ\text{C}$

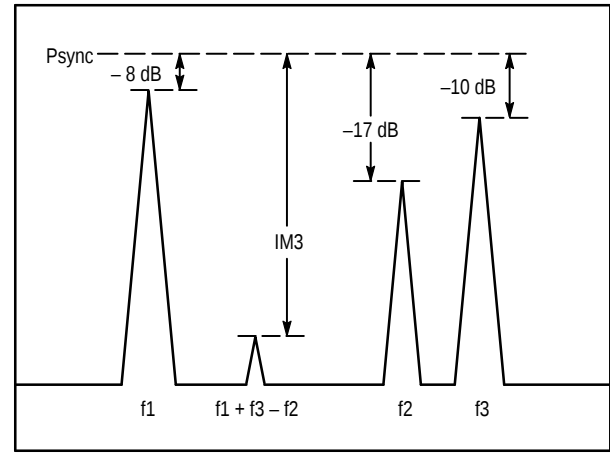
ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$, $V_{CC} = 28\text{ V}$, 50 Ohm System)

Characteristic	Symbol	Min	Typ	Max	Unit
Supply Current	I_{dc}	—	400	440	mA
Power Gain $f = 1000\text{ MHz}$	PG	16.5	17.5	—	dB
Bandwidth	BW	50	—	1000	MHz
Gain Flatness ($f = 50\text{--}1000\text{ MHz}$)	FL	—	1	2	dB
Power Output – 1 dB Compression ($f = 900\text{ MHz}$)	P_O 1 dB	800	1000	—	mW
Input/Output VSWR ($f = 50\text{--}900\text{ MHz}$) ($f = 900\text{--}1000\text{ MHz}$)	VSWR	— —	— —	2:1 2.6:1	—
Noise Figure, Broadband $f = 500\text{ MHz}$ $f = 1000\text{ MHz}$	NF	— —	7.5 8.5	8.5 9.5	dB
Third Order Intercept ($f_1 = 10\text{--}1000\text{ MHz}$, See Figure 1)	ITO	—	41.5	—	dBm
Second Harmonic Distortion ($P_O = 100\text{ mW}$, $f_{2H} = 1000\text{ MHz}$)	dso	—	– 55	– 45	dB
Second Order Intermodulation Distortion ($P_O = 2.75\text{ dBm}$, $f_1 = 373\text{ MHz}$, $f_2 = 450\text{ MHz}$, See Figure 1)	IM2	—	– 65	– 60	dB
Intermodulation Distortion, 3 Tone ($f = 860\text{ MHz}$, $P_{sync} = 200\text{ mW}$, See Figure 2)	IM3	—	– 60	—	dB



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

Figure 1. 2-Tone Intermodulation Test



f_1 = Video
 f_2 = Sideband
 f_3 = Sound

Figure 2. 3-Tone TV Intermodulation Test

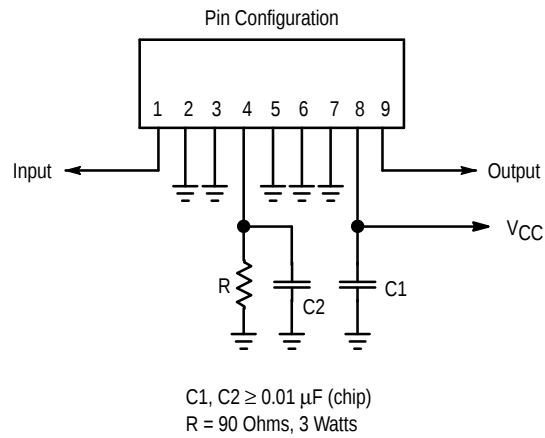
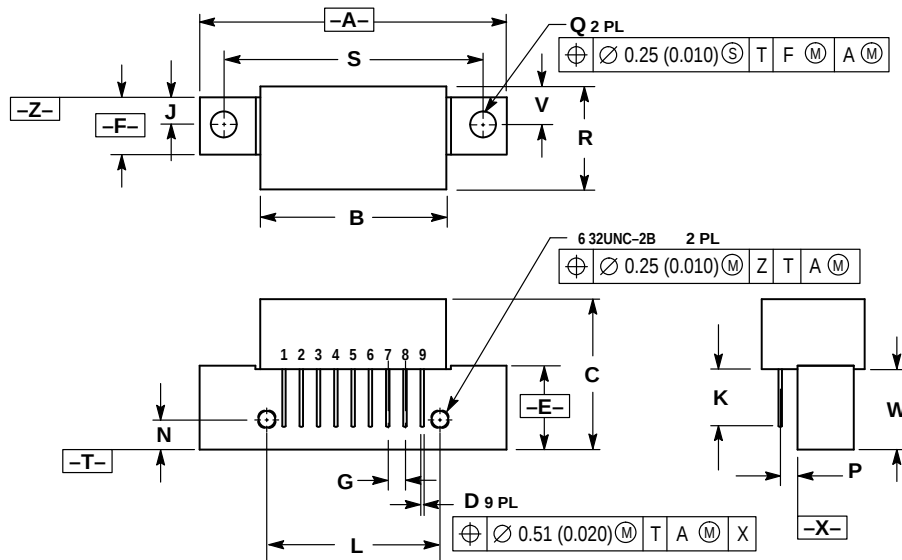


Figure 3. External Connections

PACKAGE DIMENSIONS

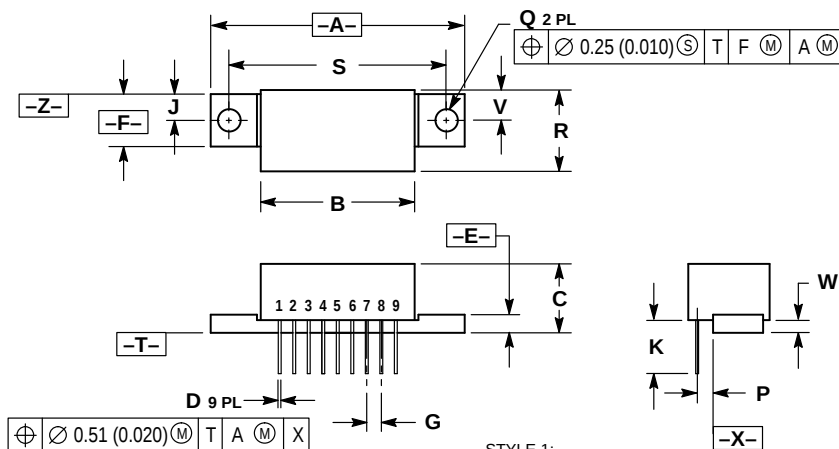


- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.

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}
 - 9. RF OUTPUT

**CASE 714P-03
ISSUE B
CA5801**



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
 CA5801S**

- 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	—

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