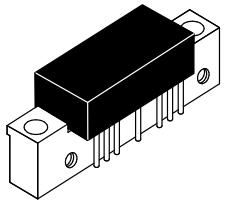
The RF Line
Wideband Linear Amplifiers

. . . 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} = 24 V, T_C = 25°C:
  Frequency Range — 5 to 200 MHz
  Output Power — 800 mW Typ @ 1 dB Compression, f = 200 MHz
  Power Gain — 34.5 dB Typ @ f = 100 MHz
  PEP — 800 mW Typ @ –32 dB IMD
  Noise Figure — 4.7 dB Typ @ f = 200 MHz
  ITO — 46 dBm @ f = 200 MHz
- All Gold Metallization for Improved Reliability
- Unconditional Stability Under All Load Conditions

CA2830C

34.5 dB
5–200 MHz
800 mWATT
WIDEBAND
LINEAR AMPLIFIERS



CASE 714F–03, STYLE 1
(CA)

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
DC Supply Voltage	V_{CC}	28	Vdc
RF Power Input	P_{in}	+5	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} = 24 V, 50 Ω system unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range	BW	5	—	200	MHz
Gain Flatness (f = 5–200 MHz)	—	—	±0.5	±1	dB
Power Gain (f = 100 MHz)	P_G	33.5	34.5	35.5	dB
Noise Figure, Broadband (f = 200 MHz)	NF	—	4.7	5.5	dB
Power Output — 1 dB Compression (f = 5–200 MHz)	$P_{o\ 1dB}$	630	800	—	mW
Power Output — 1 dB Compression (f = 5–200 MHz, V_{CC} = 28 V)	$P_{o\ 1dB}$	1000	1260	—	mW
Third Order Intercept (See Figure 10, f_1 = 200 MHz)	ITO	44	46	—	dBm
Input/Output VSWR (f = 5–200 MHz)	VSWR	—	1.5:1	2:1	—
Second Harmonic Distortion (Tone at 100 mW, f_{2H} = 150 MHz)	d_{so}	—	–60	–50	dB
Peak Envelope Power (Two Tone Distortion Test — See Figure 10) (f = 5–200 MHz @ –32 dB IMD)	PEP	600	800	—	mW
Supply Current	I_{CC}	270	300	330	mA

TYPICAL CHARACTERISTICS

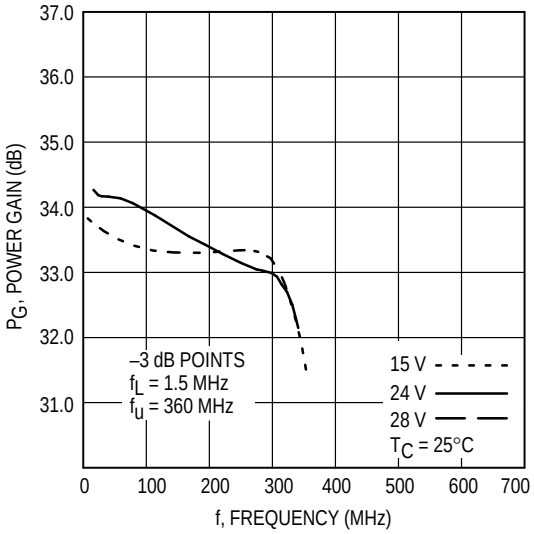


Figure 1. Power Gain versus Frequency

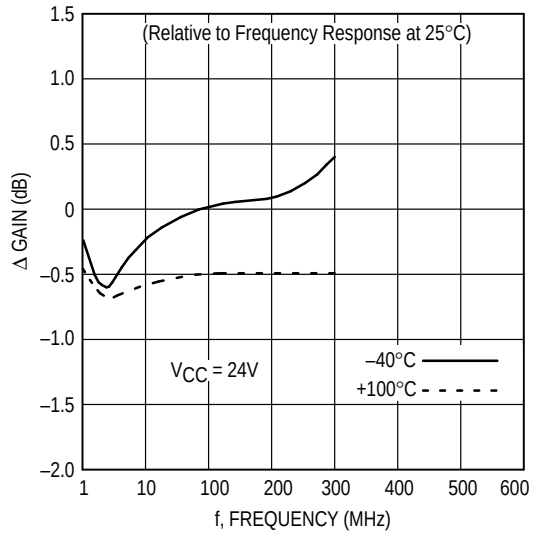


Figure 2. Relative Power Gain versus Temperature

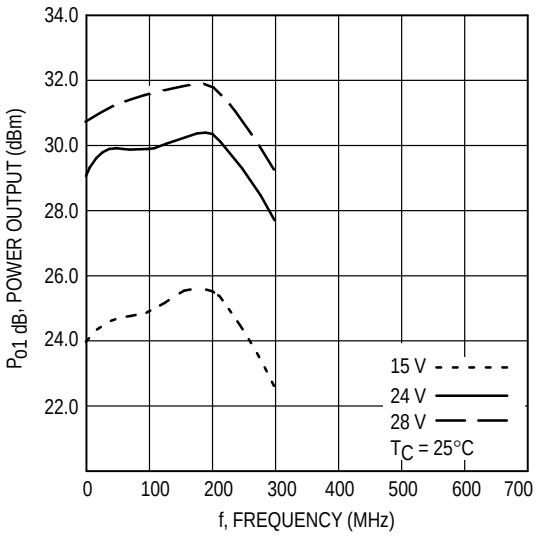


Figure 3. 1 dB Gain Compression versus Voltage

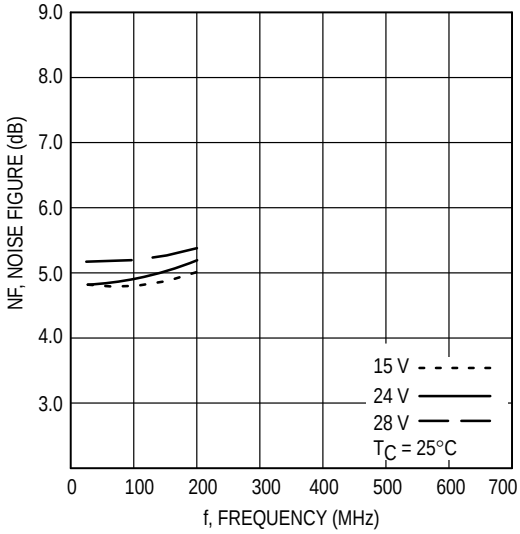


Figure 4. Noise Figure versus Voltage

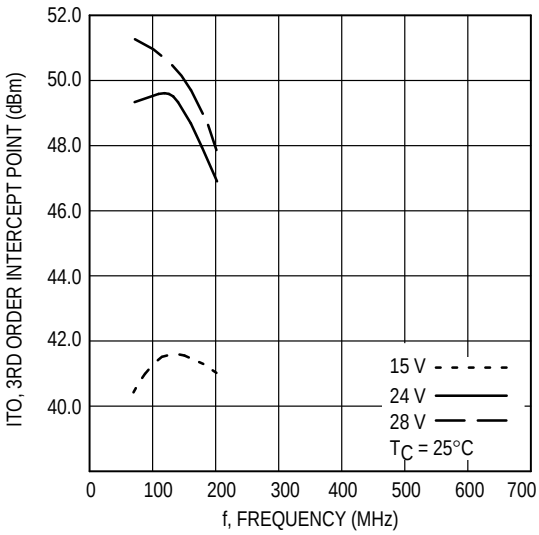


Figure 5. Third Order Intercept versus Voltage

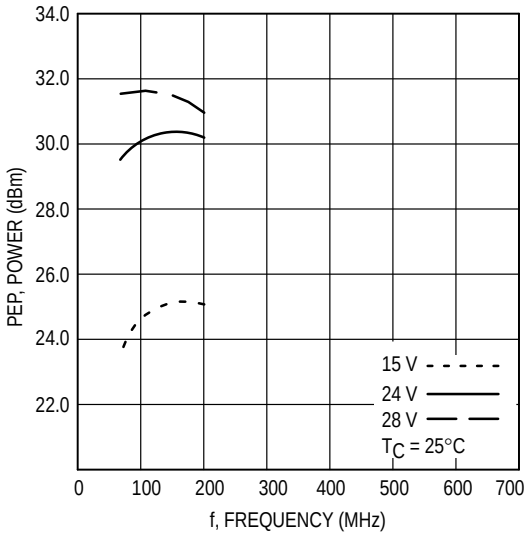


Figure 6. Peak Envelope Power versus Voltage

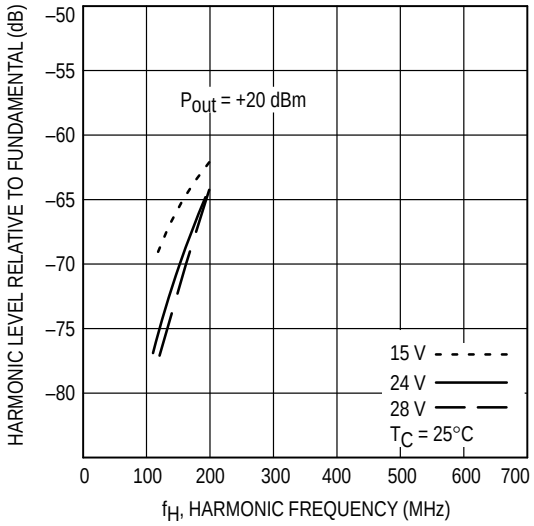


Figure 7. Second Harmonic Distortion versus Voltage

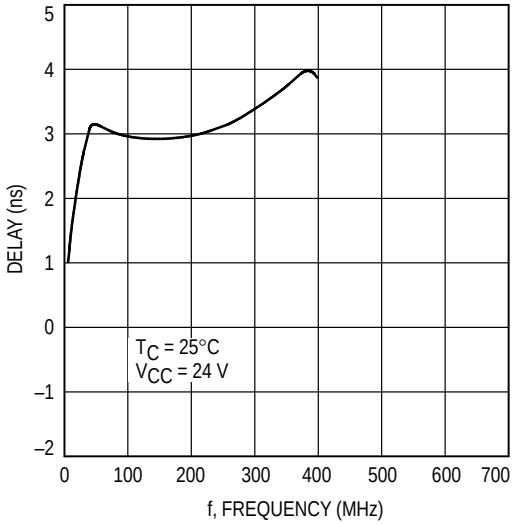


Figure 8. Group Delay versus Frequency

Biased at 24 Volts **T = 25°C Zo = 50Ω**

Frequency (MHz)	S11		S21		S12		S22	
	Mag	Ang	Mag	Ang	Mag	Ang	Mag	Ang
5	–18.3	66.2	34.6	15.2	–47.0	17.7	–9.8	87.4
10	–19.3	45.5	34.6	–0.6	–47.0	2.3	–14.5	76.8
50	–15.6	35.0	34.2	–56.7	–47.5	–30.3	–12.6	45.0
100	–13.2	34.4	33.9	–114	–47.9	–62.9	–10.8	10.7
200	–11.1	30.1	33.5	134	–48.3	–128	–14.9	–42.6

Magnitude in dB, Phase Angle in degrees.

Table 1. S–Parameters

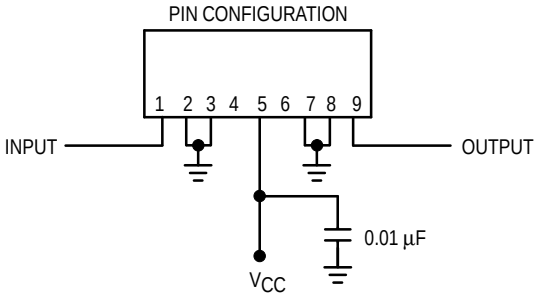


Figure 9. External Connections

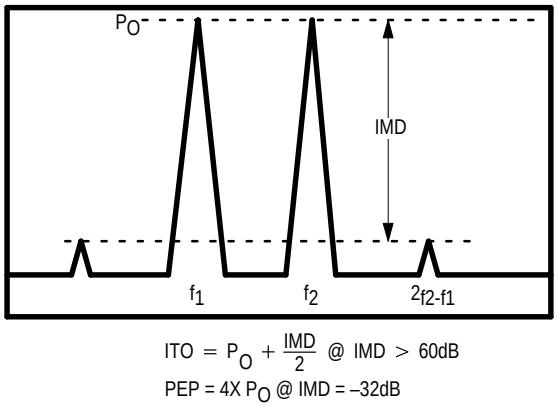
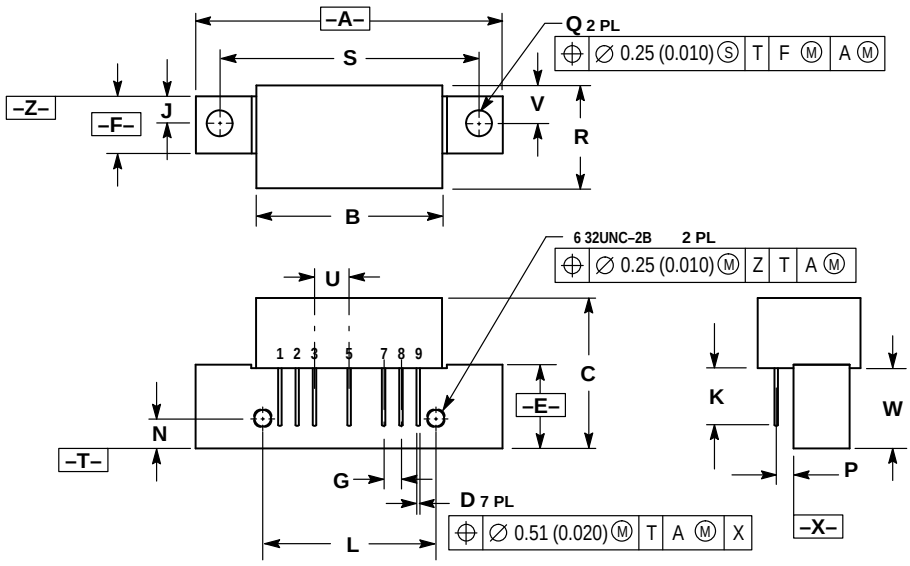


Figure 10. Intermodulation Test

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	
U	0.200 BSC		5.08 BSC	
V	0.209	0.239	5.31	6.07
W	0.425	—	10.80	—

STYLE 1:
PIN 1. RF INPUT
2. GROUND
3. GROUND
5. $+V_{CC}$
7. GROUND
8. GROUND
9. RF OUTPUT

CASE 714F–03
ISSUE C
CA2830C

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