

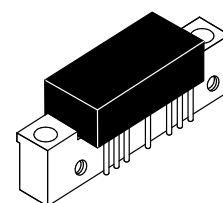
The RF Line Wideband Linear Amplifier

... 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 $V_{CC} = 28\text{ V}$, $T_C = 25^\circ\text{C}$:
 - Frequency Range — 1 to 200 MHz
 - Output Power — 1580 mW Typ @ 1 dB Compression, $f = 200\text{ MHz}$
 - Power Gain — 35.5 dB Typ @ $f = 100\text{ MHz}$
 - PEP — 900 mW Typ @ -32 dB IMD
 - Noise Figure — 5 dB Typ @ $f = 200\text{ MHz}$
 - ITO — 47 dBm @ $f = 200\text{ MHz}$
- All Gold Metallization for Improved Reliability
- Unconditional Stability Under All Load Conditions

CA2832C

**35.5 dB
1–200 MHz
1.6 WATT
WIDEBAND
LINEAR AMPLIFIER**



**CASE 714F-03, STYLE 1
[CA (POS. SUPPLY)]**

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
DC Supply Voltage	V_{CC}	30	Vdc
RF Power Input	P_{in}	+5	dBm
Operating Case Temperature Range	T_C	-20 to +90	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-40 to +100	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$, $V_{CC} = 28\text{ V}$, 50 Ω system unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range	BW	1	—	200	MHz
Gain Flatness ($f = 1\text{--}200\text{ MHz}$)	—	—	± 0.5	± 1	dB
Power Gain ($f = 100\text{ MHz}$)	P_G	34	35.5	37	dB
Noise Figure, Broadband ($f = 200\text{ MHz}$)	NF	—	5	6	dB
Power Output — 1 dB Compression ($f = 1\text{--}200\text{ MHz}$)	$P_O\text{ 1dB}$	1260	1580	—	mW
Power Output — 1 dB Compression ($f = 150\text{ MHz}$)	$P_O\text{ 1dB}$	—	2000	—	mW
Third Order Intercept (See Figure 10, $f_1 = 200\text{ MHz}$)	ITO	45	47	—	dBm
Input/Output VSWR ($f = 1\text{--}200\text{ MHz}$)	VSWR	—	1.5:1	2:1	—
Second Harmonic Distortion ($P_O = 100\text{ mW}$, $f_{2H} = 150\text{ MHz}$)	d_{so}	—	-70	-60	dB
Peak Envelope Power (Two Tone Distortion Test — See Figure 10) ($f = 1\text{--}200\text{ MHz}$ @ -32 dB IMD)	PEP	—	900	—	mW
Supply Current	I_{CC}	400	435	470	mA

TYPICAL CHARACTERISTICS

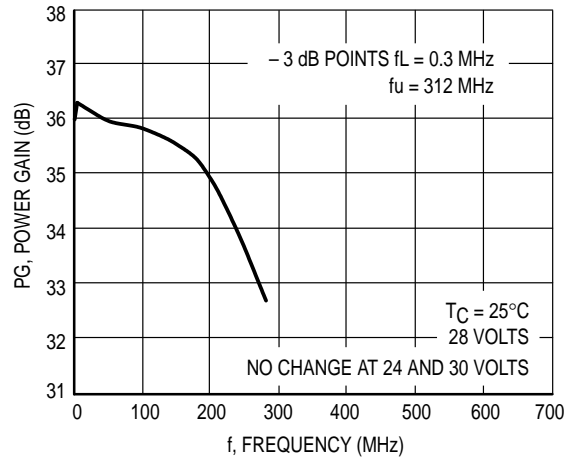


Figure 1. Power Gain versus Voltage

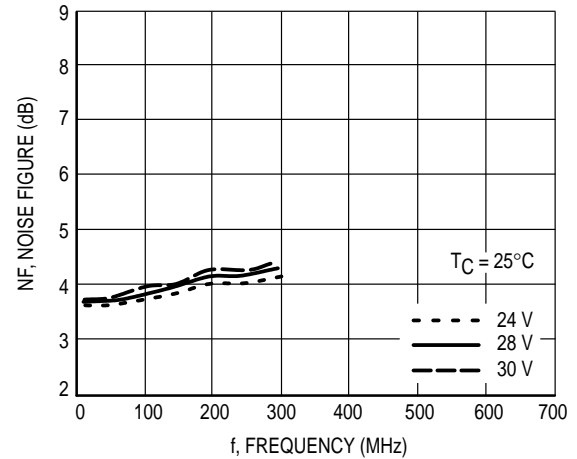


Figure 4. Noise Figure versus Voltage

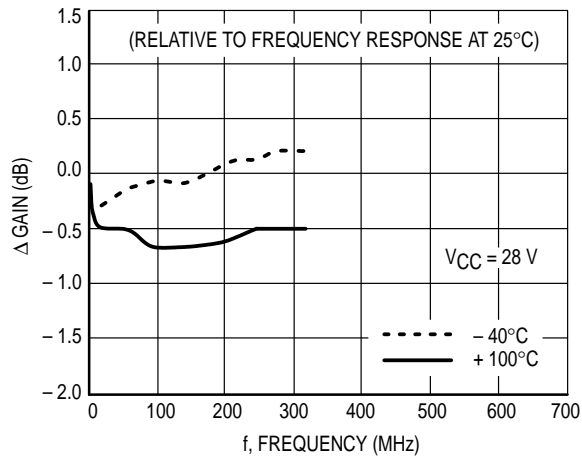


Figure 2. Relative Power Gain versus Temperature

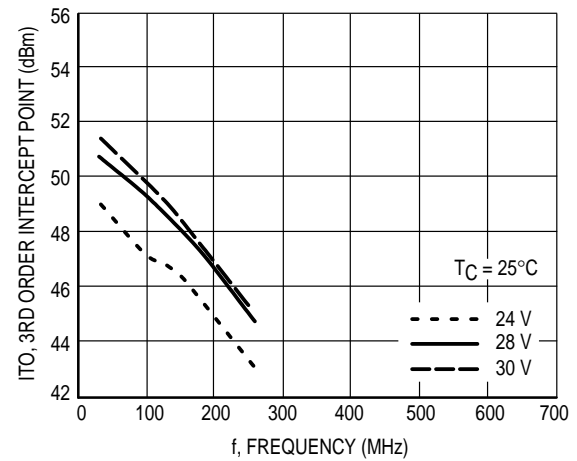


Figure 5. Third Order Intercept versus Voltage

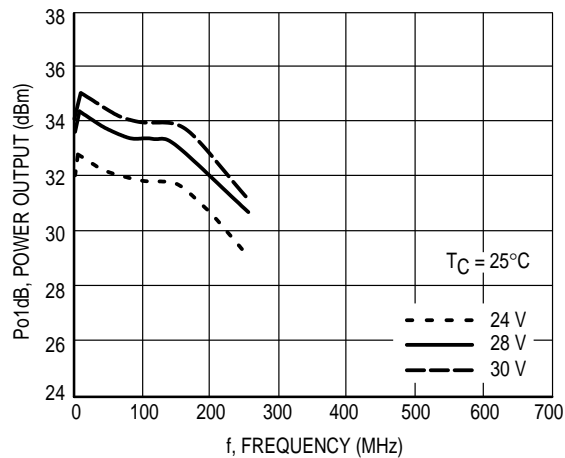


Figure 3. 1 dB Compression versus Voltage

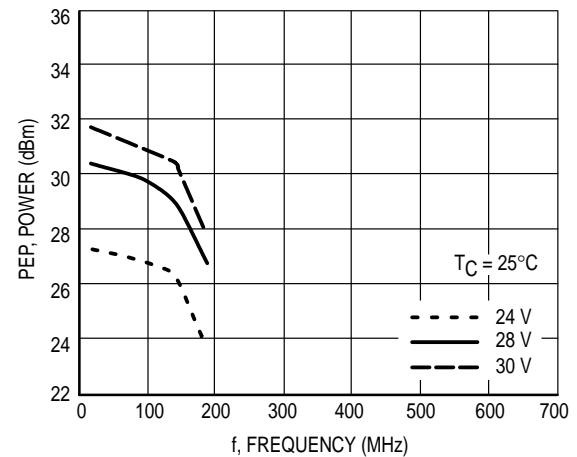


Figure 6. Peak Envelope Power versus Voltage

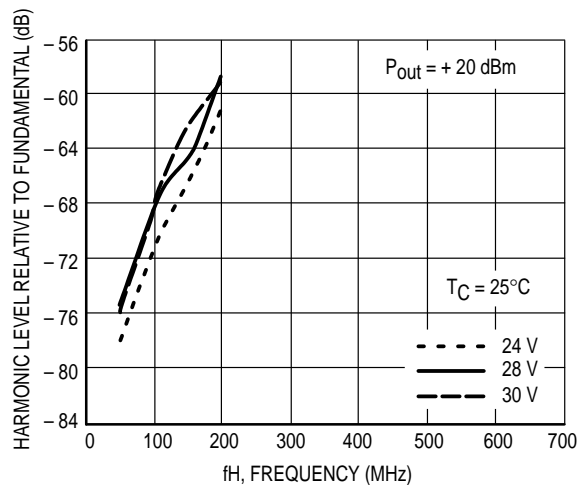


Figure 7. Second Harmonic Distortion versus Voltage

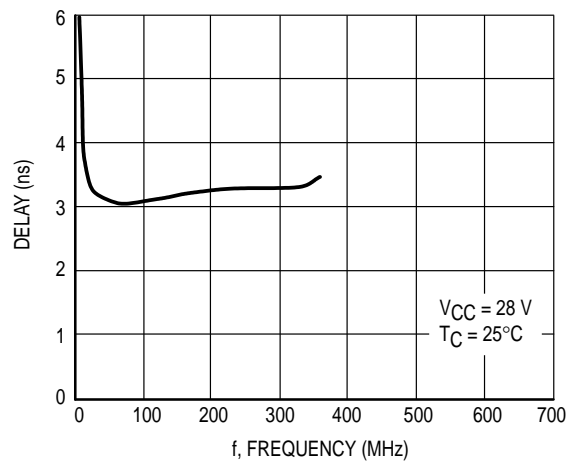


Figure 8. Group Delay versus Frequency

Biased at 28 Volts

$T_C = 25^\circ\text{C}$ $Z_o = 50\Omega$

Frequency (MHz)	S11		S21		S12		S22	
	Mag	Ang	Mag	Ang	Mag	Ang	Mag	Ang
1	-16.7	64	36.0	23.3	-42	-5.2	-12.9	73
10	-21.5	21	36.2	-8.4	-47	-1.4	-21.9	28
50	-18.5	6.8	35.9	-56	-44	2.8	-17.9	-10
100	-16.9	-1.8	35.7	-103	-46	-68	-15.7	-48
200	-12.9	-18	34.7	145	-49	-98	-14.9	115

Magnitude in dB, Phase Angle in degrees.

Table 1. S-Parameters

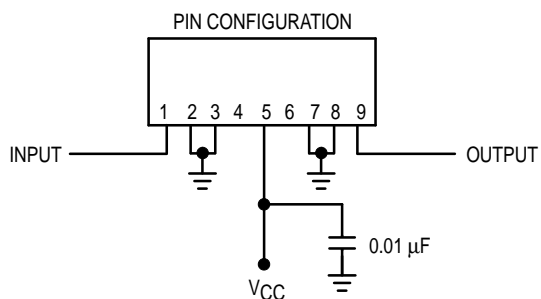


Figure 9. External Connections

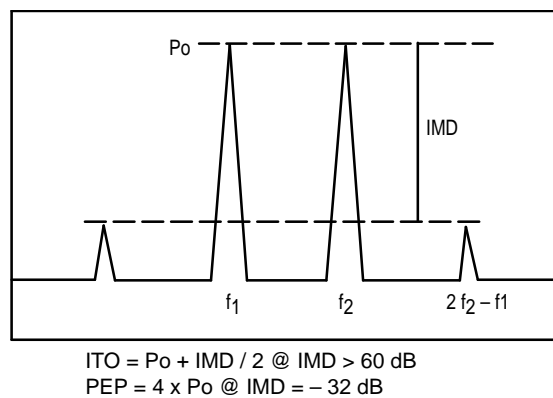
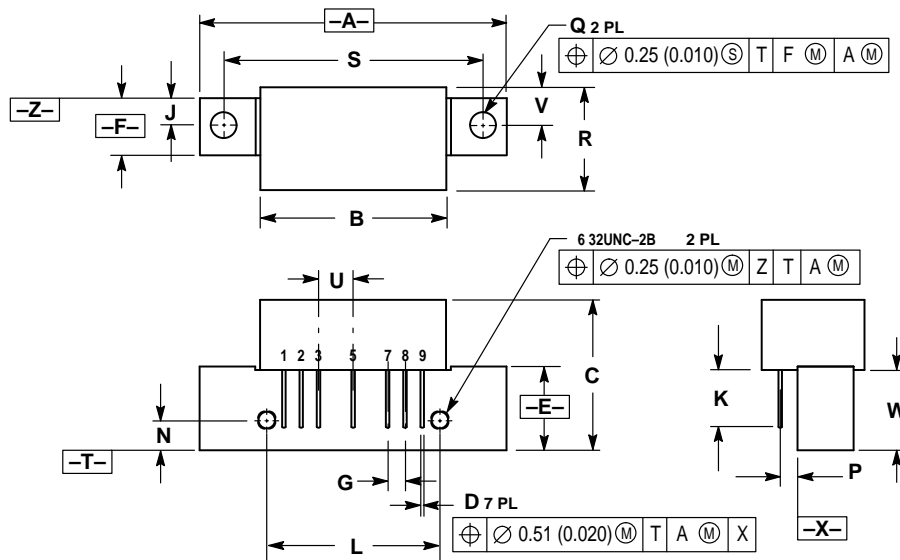


Figure 10. Intermodulation Test

PACKAGE DIMENSIONS




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

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

- STYLE 1:
1. RF INPUT
 2. GROUND
 3. GROUND
 4. +V_{CC}
 5. +V_{CC}
 6. GROUND
 7. GROUND
 8. GROUND
 9. RF OUTPUT

CASE 714F-03 ISSUE C

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