

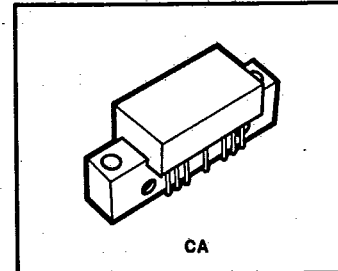
RF Devices Division
TRW Electronic Components Group



CA2800

CA2800 Wide Bandwidth Linear Hybrid Amplifier

- Power Output, 800mW
- 17dB Gain
- 400mW PEP @ -32dB IMD
- Instantaneous Bandwidth, 10-400MHz
- Low Noise Figure, 5dB



The CA2800 is a high-reliability thin-film hybrid amplifier utilizing an all gold metalization system. Units are designed for wide bandwidth

linear operation in 50 to 100 ohm systems. This hybrid provides excellent gain stability with temperature and very low distortion due to

push-pull amplifier circuitry. This module is recommended for wide bandwidth, low noise and linear applications.

Absolute Maximum Ratings

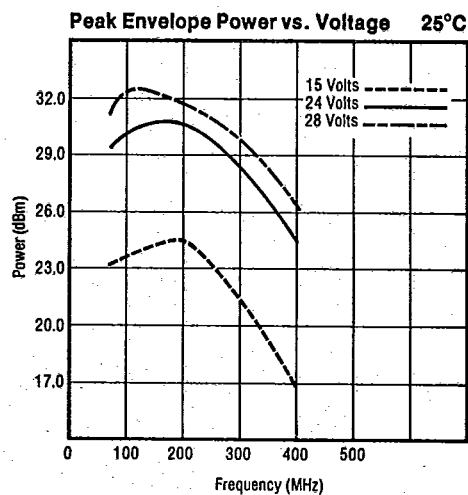
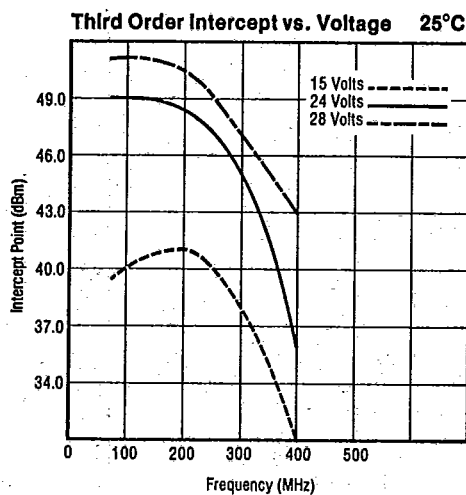
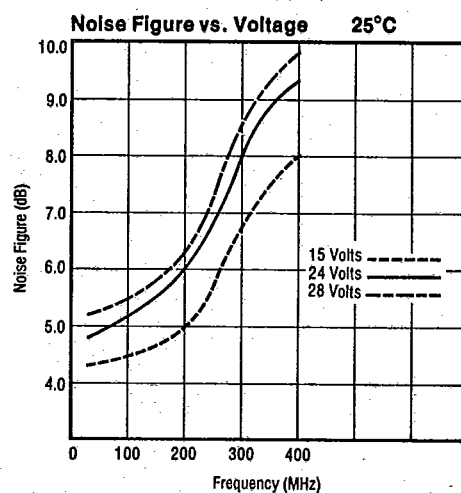
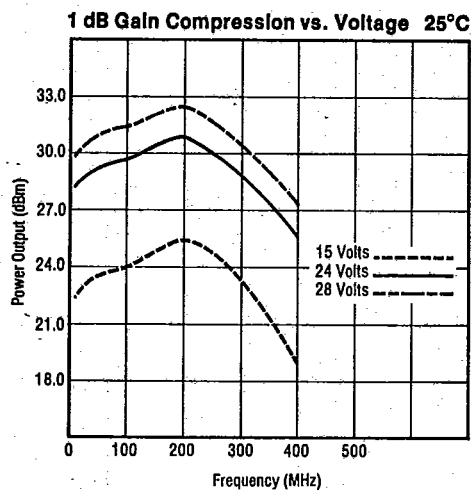
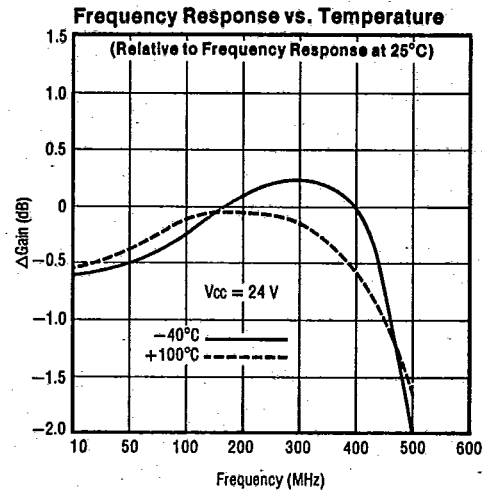
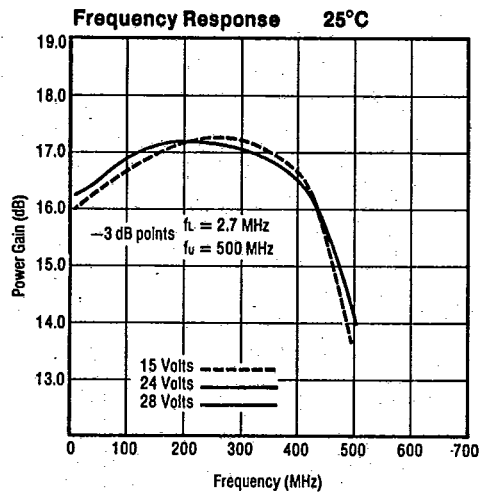
Vcc	RF Power Input	Storage Temperature	Operating Temperature
28 Volts	+16dBm	-40°C to +100°C	-20°C to +90°C

Electrical Characteristics for 50Ω Systems (T_{CASE} = 25°C and 24V)

Symbol	Characteristic	Conditions	Value
P _G	Power Gain	f = 50MHz	17 ± 0.75dB
NF	Noise Figure, Broadband	f = 60MHz f = 300MHz	5.0dB Typ 8.5dB Typ
I _{TO}	Third Order Intercept, See Figure 1	f ₁ = 300MHz	+44dBm Typ
VSWR	Input/Output VSWR for 50Ω Systems	f = 10-400MHz	2:1 Typ
I _{CC}	Supply Current	24V	220mA Max
P _O	Power Output — 1dB Compression	f = 200MHz	800mW
P _{RI}	Reverse Isolation	f = 10-400MHz	25dB Typ
F _R	Frequency Response	f = 30-300MHz f = 10-400MHz	± 0.5dB Max ± 1dB Max
d _{SO}	Second Harmonic Distortion	Tone at 10mW f _{2H} = 10-300MHz	-66dB Typ
PEP	Peak Envelope Power for Two Tone Distortion Test, See Figure 1	f = 10-300MHz at -32dB	400mW Typ

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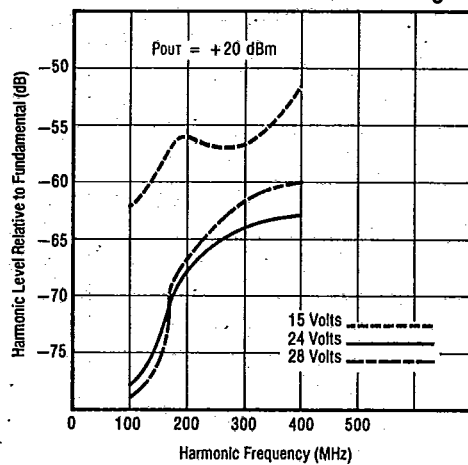
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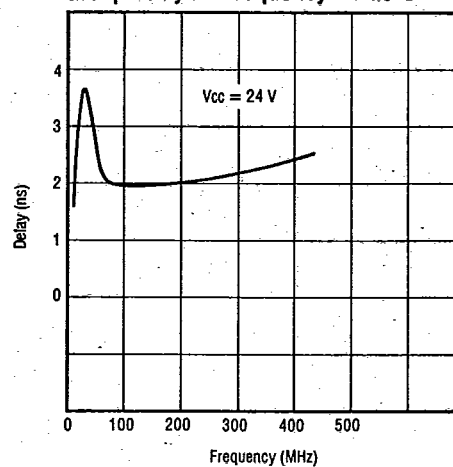
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Second Harmonic Distortion vs. Voltage 25°C



Group Delay vs. Frequency 25°C



S-Parameters

Biased at 24 Volts

T = 25°C Zo = 50Ω

Frequency (MHz)	S11		S21		S12		S22	
	Mag	Ang	Mag	Ang	Mag	Ang	Mag	Ang
10	-8.3	19.3	16.3	14.5	-24.2	-165	-9.7	36.5
100	-12.2	-21.0	16.8	-64.5	-23.8	135	-13.1	-29.3
200	-22.1	28.8	17.2	-136	-23.6	83	-22.0	30.0
300	-12.4	39.4	17.0	145	-24.6	27	-12.1	41.7
400	-11.0	17.6	16.2	63.1	-27.0	-34	-8.3	7.5

Magnitude in dB, Phase Angle in degrees.

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CA Package Outline

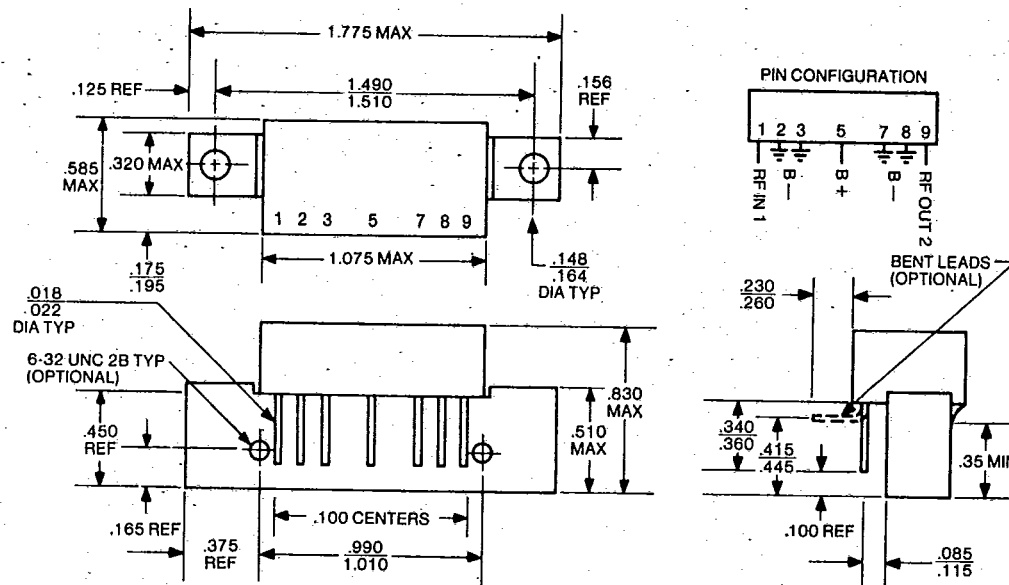
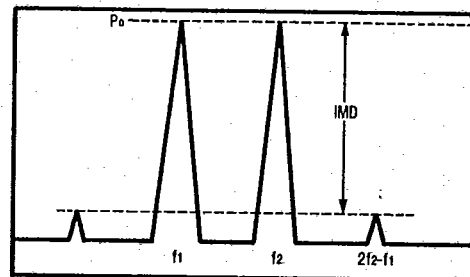
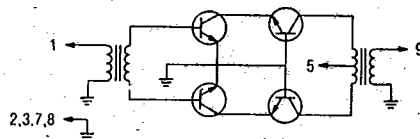


Figure 1. Intermodulation Test



$$I_{TO} = P_0 + \frac{IMD}{2} @ IMD > 60dB$$

$$PEP = 4X P_0 @ IMD = -32dB$$