HEWLETT® PACKARD

Avantek Products

High Efficiency, Class A, 1 Watt Amplifier 10 to 1000 MHz

Technical Data

CTO-1065

Features

- **1 Watt Output Power**
- **Low Current: 470 mA**
- **Gain: 14.5 dB Typ**
- **18 Volt Bias**
- **Unconditionally Stable**
- **Guaranteed Performance @ 25°C**
- **TO-3 Case**

Applications

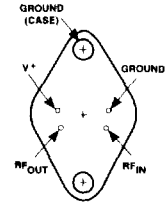
- **UHF/VHF Transmitters**
- **Communication Circuits**
- **Instrumentation**
- **Mobile Radio**
- **CATV**

Description

The CTO-1065 is a high gain, high efficiency , Class A 1 Watt amplifier designed to provide broadband power for a wide variety of applications. This two stage hybrid amplifier uses silicon bipolar and incorporates input/output blocking capacitors, bias network, and is matched to 50 Ω for easy integration with other components (no external components required for operation). Available packaging for this unit is the industry standard TO-3 case.

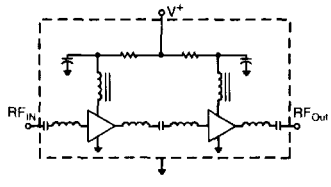
Pin Configuration

TO-3



(See Section 5 for detailed case drawings.)

Schematic



Maximum Ratings

Parameter	Maximum
DC Voltage	20 volts
Continuous RF Power (CW or Pulse)	+20 dBm
Operating Case Temperature Range	-55 to +85°C
Storage Temperature	-62 to +150°C

Thermal Characteristics[1]

θ_{jc}	45°C/W, 45°C/W[2]
Active Transistor Power Dissipation	1.1 W, 1.45 W[2]
Junction Temperature Above Case Temperature	50°C, 65°C[2]

Notes:

1. For further information, see Reliability Screening, Section 6.
2. Values refer to first and second stages, respectively.

Weight: (typical) CTO — 14.5 grams

Electrical Specifications

T_C = 25°C (Measured in 50 Ω system, V_{CC} = 18 V unless otherwise noted)

Symbol	Characteristic	Unit	Min.	Typ.	Max.
BW	Frequency Range	MHz	10	—	1000
GP	Small Signal Gain (Min.)	dB	13	14.5	—
—	Gain Flatness (Max.)	dB	—	±.5	±1.0
NF	Noise Figure (Max.)	dB	—	9	10
P_{1dB}	Power Output @ +1 dB Compression (Min.)	dBm	28.5	+30.0	—
VSWR	Input VSWR (Max.)	—	—	1.8:1	2.2:1
VSWR	Output VSWR (Max.)	—	—	1.8:1	2.2:1
IP_3	Two Tone 3rd Order Intercept Point	dBm	—	+40	—
IP_2	Two Tone 2nd Order Intercept Point	dBm	—	+58	—
HP_2	One Tone 2nd Harmonic Intercept Point	dBm	—	+52	—
I_D	DC Current	mA	—	470	—
—	3 Tone Intermodulation Distortion. (F_1=500 MHz,+15 dBm; F_2=504 MHz,+6 dBm; F_3=505 MHz,+13 dBm)	dBc	—	-57	—
—	Phase Noise @ 500 MHz; 1 kHz Offset	dBc/Hz	—	-165	—

Typical Performance Over Temperature (@ +18 VDC unless otherwise noted)

Key: +25°C ——— +85°C — — -55°C ———