



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

Technical Data

CTO-1065

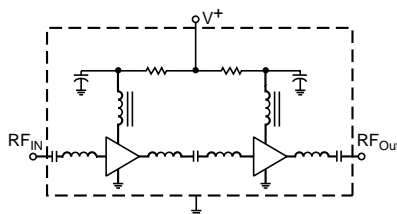
Features

- 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

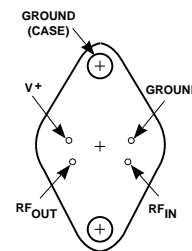
Schematic



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



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 Characteristics¹

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. Values refer to first and second stages, respectively.

Weight: (typical) CTO — 14.5 grams

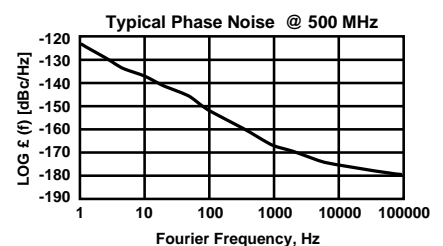
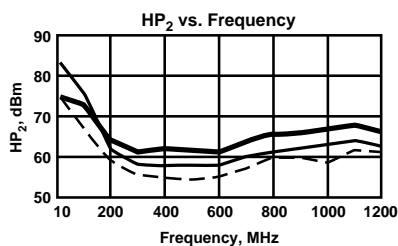
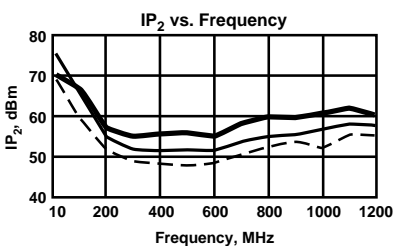
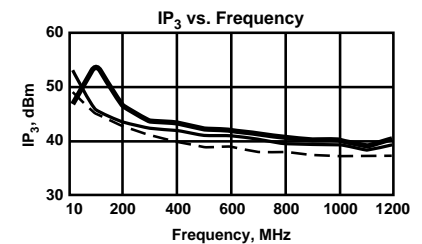
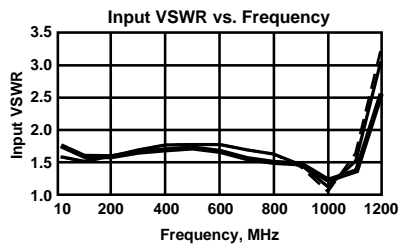
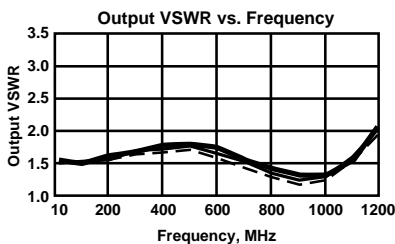
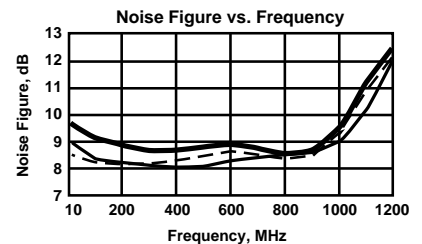
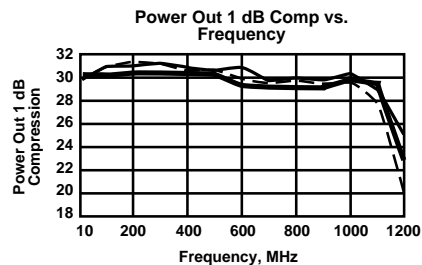
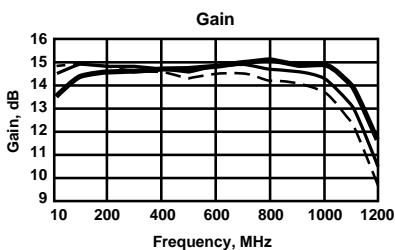
Electrical Specifications

$T_C = 25^\circ\text{C}$ (Measured in $50\ \Omega$ system, $V_{CC} = 18\ \text{V}$ unless otherwise noted)

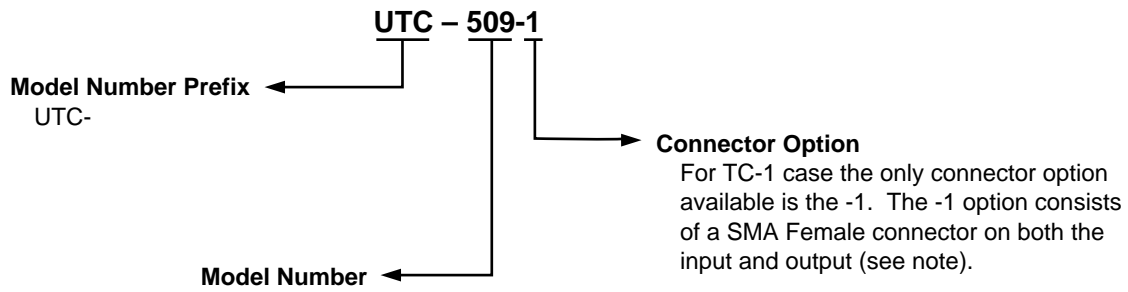
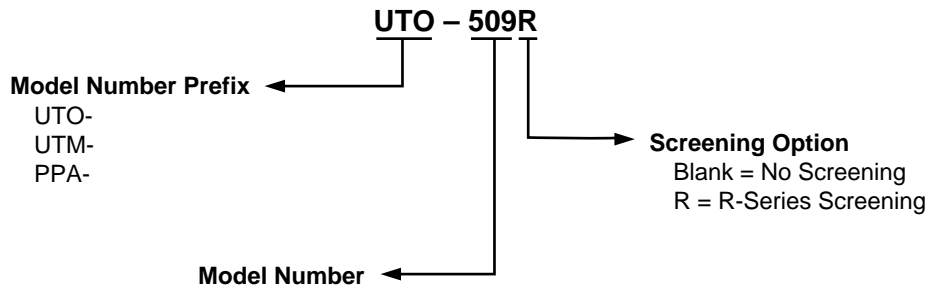
Symbol	Characteristic	Unit	Min.	Typ.	Max.
BW	Frequency Range	MHz	10	—	1000
GP	Small Signal Gain (Min.)	dB	12.5	14.5	—
—	Gain Flatness (Max.)	dB	—	± 0.5	± 1.0
NF	Noise Figure (Max.)	dB	—	9	11
$P_{1\text{dB}}$	Power Output @ +1 dB Compression (Min.)	dBm	28.5	+30.0	—
VSWR	Input VSWR (Max.)	—	—	1.8:1	2.2:1
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. ($F_1=500\ \text{MHz}, +15\ \text{dBm}$; $F_2=504\ \text{MHz}, +6\ \text{dBm}$; $F_3=505\ \text{MHz}, +13\ \text{dBm}$)	dBc	—	-57	—
—	Phase Noise @ 500 MHz; 1 kHz Offset	dBc/Hz	—	-165	—

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

Key: $+25^\circ\text{C}$ ———
 $+85^\circ\text{C}$ - - -
 -55°C ———

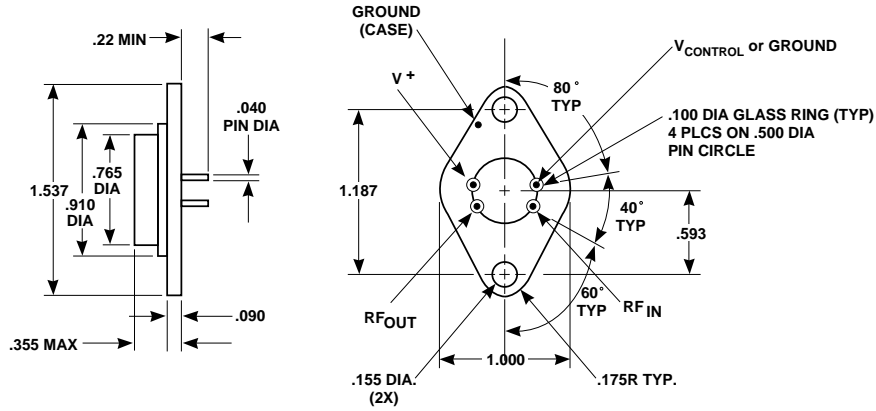


Product Options



Note: R-Series screening is not available in the TC-1 case as the case is non-hermetic.

Case Drawings TO-3



APPROXIMATE WEIGHT 14.5 GRAMS

NOTES (UNLESS OTHERWISE SPECIFIED):

1. DIMENSIONS ARE SPECIFIED IN INCHES
2. TOLERANCES: $xx \pm .02$
 $xxx \pm .010$

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