TELEDYNE
MICROWAVE SOLUTIONS
Everywhereyoulook™

High Efficiency, Class A, 1 Watt Amplifier 10 to 500 MHz

Technical Data

CTO-565

Features

- **1 Watt Output Power**
- **Low Current: 450 mA**
- **High Gain: 19.5 dB Typ**
- **18 Volt Bias**
- **Unconditionally Stable**
- **Guaranteed Performance @ 25°C**
- **TO-3**

Applications

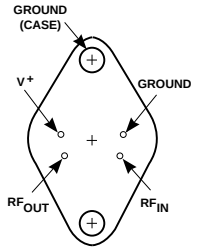
- **UHF/VHF Transmitters**
- **Communication Circuits**
- **Instrumentation**
- **Mobile Radio**
- **CATV**

Description

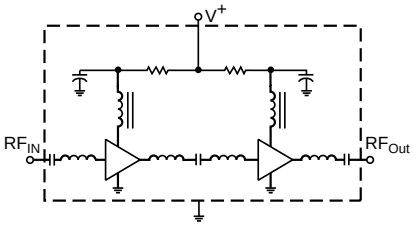
The CTO-565 is a high gain, high efficiency , Class A 1 Watt amplifier designed to provide broadband power for a wide variety of applications. This two stage hybrid amplifier uses silicon bipolar transistors and incorporates input/output blocking capacitors, bias circuitry, and is matched to 50 Ω for 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

CTO—TO-3



Schematic



Maximum Ratings

Parameter	Maximum
DC Voltage	+20 Volts
Continuous RF Input Power	+17 dBm
Operating Case Temperature	–55 to +85°C
Storage Temperature	–62 to +150°C

Thermal Characteristics

θ_{JC}	45°C/W, 45°C/W[1]
Active Transistor Power Dissipation	1.1 W, 1.3 W[1]
Junction Temperature Above Case Temperature	50°C, 59°C[1]

Note:
1. Values refer to first and second stages, respectively.

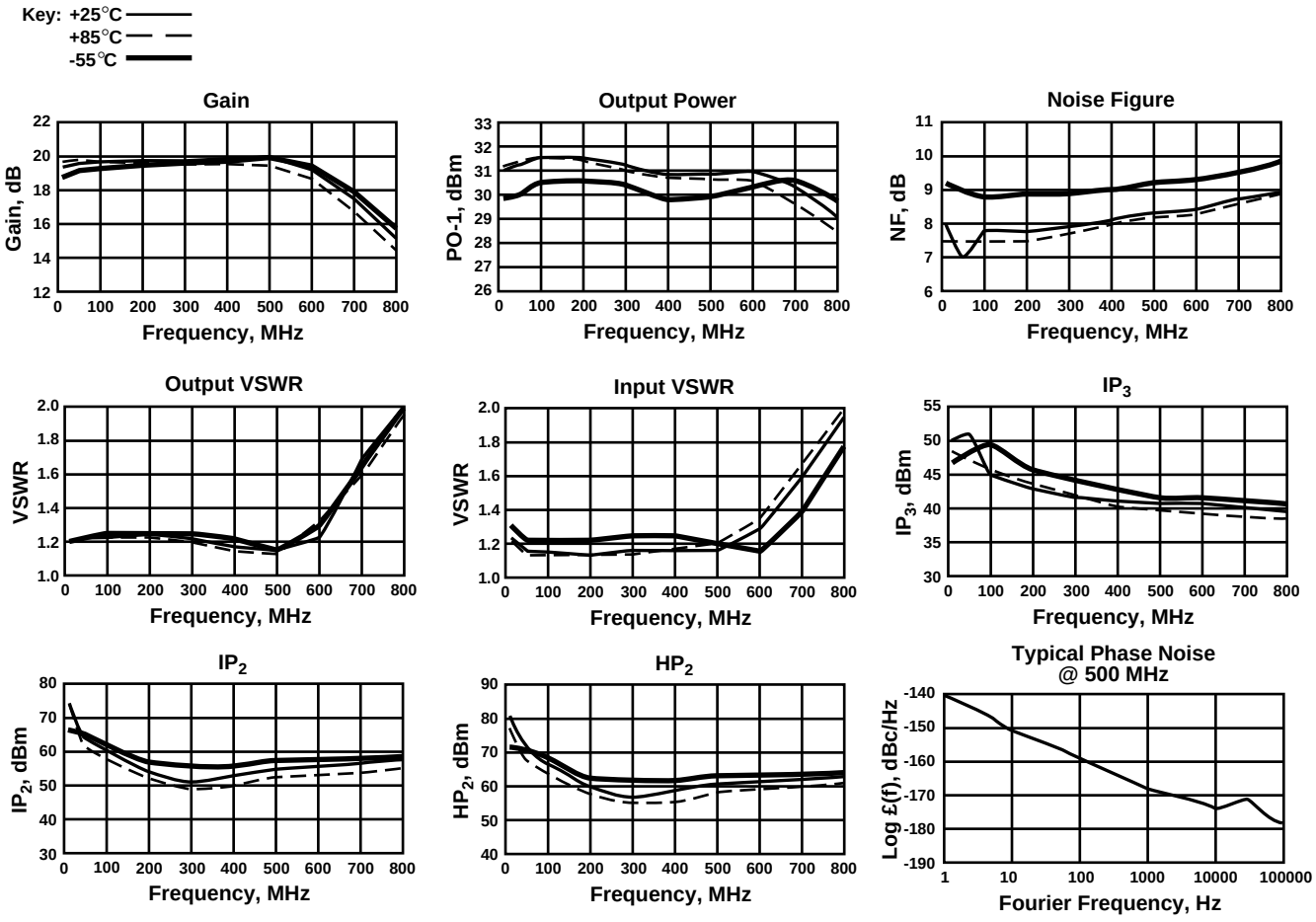
Weight: (typical) CTO—14.5 grams

Electrical Specifications

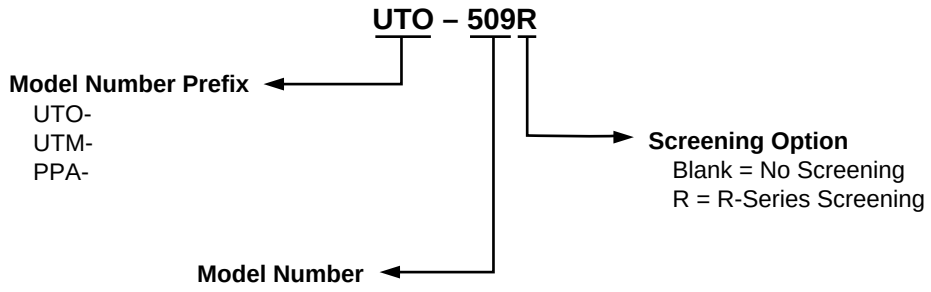
T_C=25°C (Measured in 50 Ω system V_{CC} = +18V unless otherwise noted)

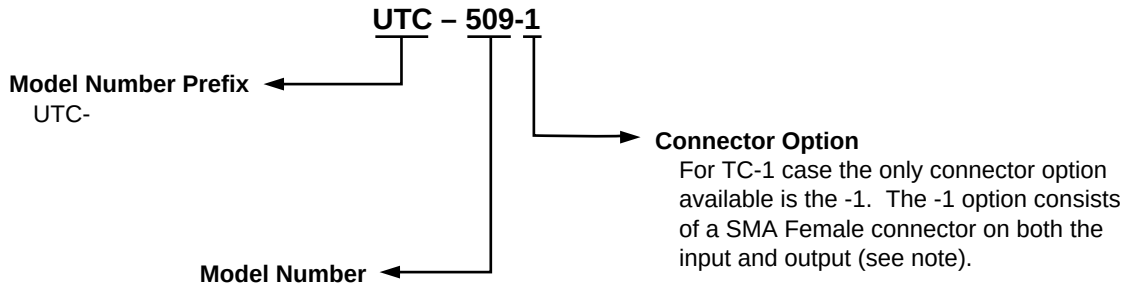
Symbol	Characteristic	Min.	Typ.	Max.	Unit
BW	Frequency Range	10	—	500	MHz
GP	Small Signal Gain (Min.)	17.5	19.5	—	dB
—	Gain Flatness (Max.)	—	±0.3	±0.7	dB
NF	Noise Figure (Max.)	—	8	10	dB
P_{1dB}	Power Output @ +1 dB Comp. (Min.)	+28	+30.5	—	dBm
—	Input VSWR (Max.)	—	1.3:1	2.0:1	—
—	Output VSWR (Max.)	—	1.3:1	2.0:1	—
IP_3	Two Tone 3rd Order Intercept Point	—	+41	—	dBm
IP_2	Two Tone 2nd Order Intercept Point	—	+51	—	dBm
HP_2	One Tone 2nd Harmonic Intercept Point	—	+57	—	dBm
I_D	DC Current	—	450	—	mA
—	3 Tone Intermodulation Distortion (F_1=250 MHz,+15 dBm; F_2=254 MHz, +6 dBm; F_3=255 MHz,+13 dBm)	—	-61	—	dBc
—	Phase Noise @ 500 MHz; 1 kHz Offset	—	-165	—	dBc/Hz

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



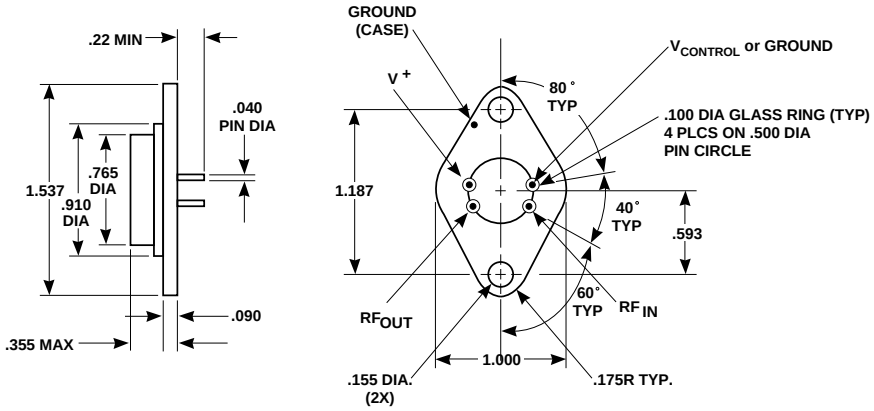
Product Options





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 ± .02**
   xxx ± .010

Contact Teledyne Microwave Solutions:
650-691-9800
650-962-6845 fax

Check for updates:
www.teledynemicrowave.com