



Thin-Film Cascadable Amplifier 50 to 500 MHz

Technical Data

UTO/UTC 572 Series

Features

- **Frequency Range: 50 to 500 MHz**
- **High Reverse Isolation: 50 dB**
- **Low VSWR**
- **Temperature Compensated**

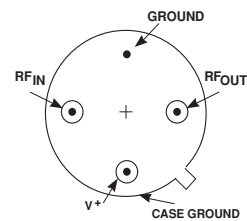
Applications

- **IF/RF Amplification**
- **Pre-Mixer RF Stage**
- **Post LO Amplifier Stage**

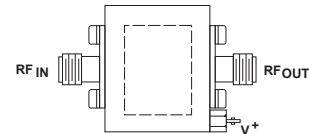
Description

The 572 Series is a medium-gain bipolar RF amplifier that uses resistive feedback and active bias for temperature compensation and increased immunity to bias voltage variations. Built on a thin-film substrate, this cascade amplifier is specially designed for high isolation applications. The 572 Series amplifiers are available in either the TO-8 hermetic case or connected TC-1A package.

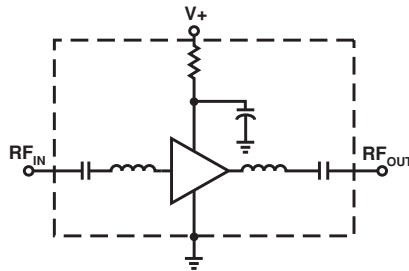
Pin Configuration UTO—TO-8T



UTC—TC-1A



Schematic



Maximum Ratings

Parameter	Maximum
DC Voltage	+17 Volts
Continuous RF Input Power	+13 dBm
Operating Case Temperature	-55 to +125°C
Storage Temperature	-62 to +150°C
"R" Series Burn-In Temperature	+125°C

Thermal Characteristics¹

θ_{JC}	105/105°C/W
Active Transistor Power Dissipation	150/180 mW
Junction Temperature Above Case Temperature	16/19°C
MTBF (MIL-HDBK-217E, A_{UF} @ 90°C)	539,400 Hrs.

Weight: (typical) UTO—2.1 grams; UTC—21.5 grams

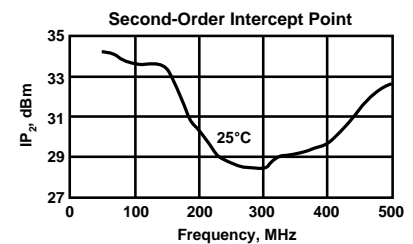
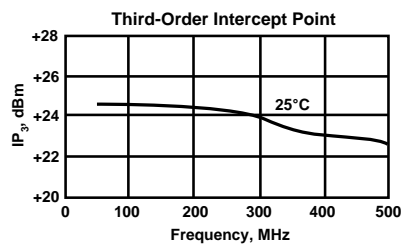
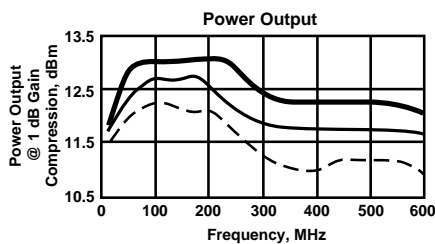
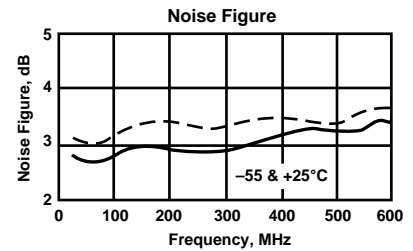
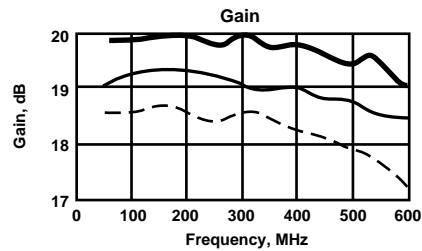
Electrical Specifications

(Measured in 50 Ω system @ +15 VDC nominal unless otherwise noted)

Symbol	Characteristic	Typical $T_C = 25^\circ\text{C}$	Guaranteed Specifications		Unit
			$T_C = 0 \text{ to } 50^\circ\text{C}$	$T_C = -55 \text{ to } +85^\circ\text{C}$	
BW	Frequency Range	50-500	50-500	50-500	MHz
GP	Small Signal Gain (Min.)	18.5	18.0	17.0	dB
—	Gain Flatness (Max.)	± 0.3	± 0.5	± 1.0	dB
NF	Noise Figure (Max.)	3.0	3.5	3.7	dB
—	Reverse Isolation (Min.)	50	45	45	dB
P_{1dB}	Power Output @ +1 dB Comp. (Min.)	+12.0	+11.0	+10.0	dBm
—	Input VSWR (Max.)	<1.5:1	2.0:1	2.0:1	—
—	Output VSWR (Max.)	<1.5:1	2.0:1	2.0:1	—
IP_3	Two Tone 3rd Order Intercept Point	+24.0	—	—	dBm
IP_2	Two Tone 2nd Order Intercept Point	+34.0	—	—	dBm
HP_2	One Tone 2nd Harmonic Intercept Point	+42.0	—	—	dBm
I_D	DC Current	32	—	—	mA

Typical Performance Over Temperature (@ +15 VDC unless otherwise noted)

Key: +25°C ———
+85°C - - - -
-55°C ———



Automatic Network Analyzer Measurements (Typical production unit @ +25°C ambient)

Numerical Readings

Bias = 15.00 Volts

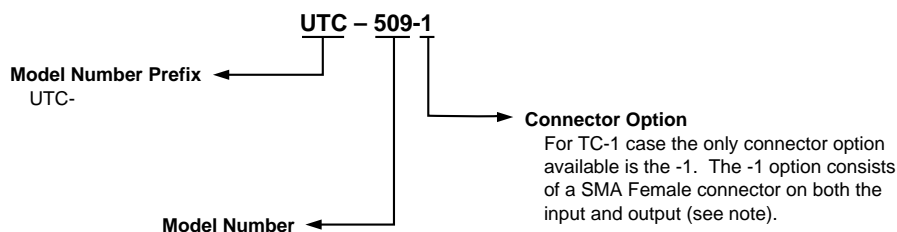
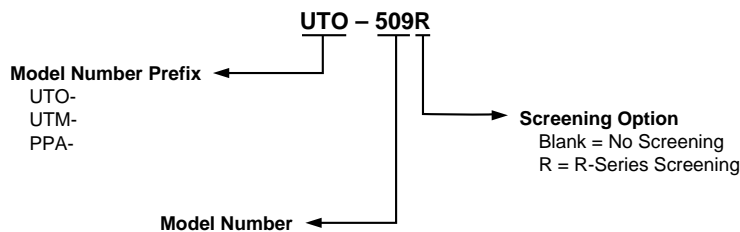
FREQUENCY MHz	VSWR IN	GAIN dB	PHASE DEGREES	PHASE DEV	GROUP DELAY ns	VSWR OUT	ISOLATION dB
100.0	1.15	19.1	132.7	-.30	—	1.10	58.6
150.0	1.18	19.1	105.8	-.45	1.48	1.06	55.5
200.0	1.21	19.1	79.6	.10	1.47	1.08	53.0
250.0	1.23	19.0	52.9	.14	1.48	1.12	52.3
300.0	1.25	18.9	26.2	.19	1.47	1.17	51.3
350.0	1.25	18.8	-.1	.64	1.47	1.22	50.4
400.0	1.24	18.8	-26.7	.68	1.50	1.29	50.2
450.0	1.24	18.7	-54.0	.23	1.54	1.37	50.0
500.0	1.29	18.6	-82.2	-1.22	1.57	1.45	49.6

S-Parameters

Bias = 15.00 Volts

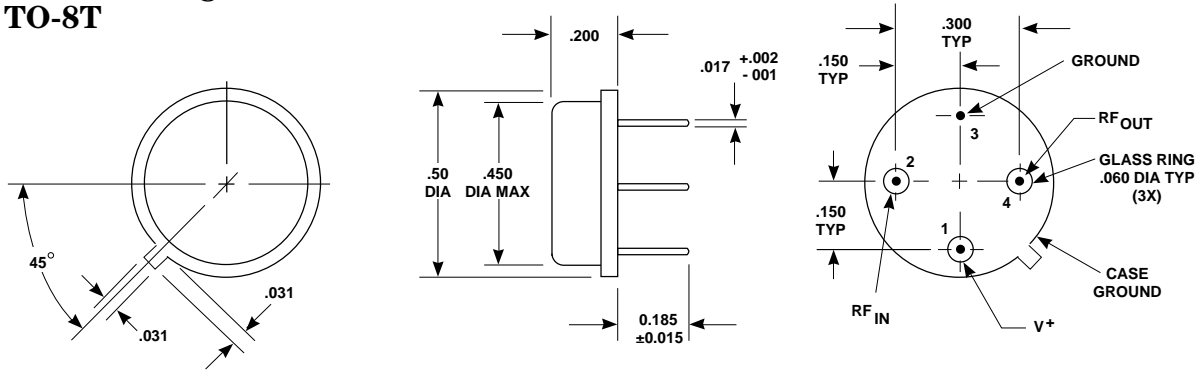
FREQUENCY MHz	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	Mag	Ang	dB	Ang	dB	Ang	Mag	Ang
100.00	.077	-62.6	19.4	141.9	-58.3	51.3	.044	31.3
200.00	.101	-109.4	19.3	95.6	-53.9	35.7	.047	-99.7
300.00	.112	-150.2	19.0	49.5	-51.0	12.0	.089	-159.3
400.00	.100	-157.4	18.9	3.0	-49.7	-11.8	.136	155.1
500.00	.109	72.9	18.8	-46.4	-49.4	-40.1	.191	113.4
600.00	.235	-4.9	18.3	-100.8	-49.6	-75.8	.254	70.4
700.00	.455	-58.6	16.6	-158.6	-48.7	-73.8	.282	25.3
800.00	.662	-103.2	13.5	148.1	-47.2	-23.9	.263	-10.4
900.00	.811	-140.0	10.2	98.4	-46.3	-67.4	.269	-33.3
1000.00	.870	-171.7	6.2	58.8	-46.4	-96.6	.309	-56.7
1100.00	.892	162.7	2.3	13.2	-47.0	-113.2	.351	-82.3
1200.00	.891	140.4	-1.2	-23.4	-48.4	-123.8	.389	-108.5
1300.00	.893	120.8	-4.9	-56.9	-50.5	-135.8	.423	-133.6
1400.00	.883	102.3	-8.4	-89.3	-53.9	-147.4	.450	-158.3
1500.00	.883	84.5	-11.6	-119.7	-57.1	-160.2	.479	178.7

Product Options



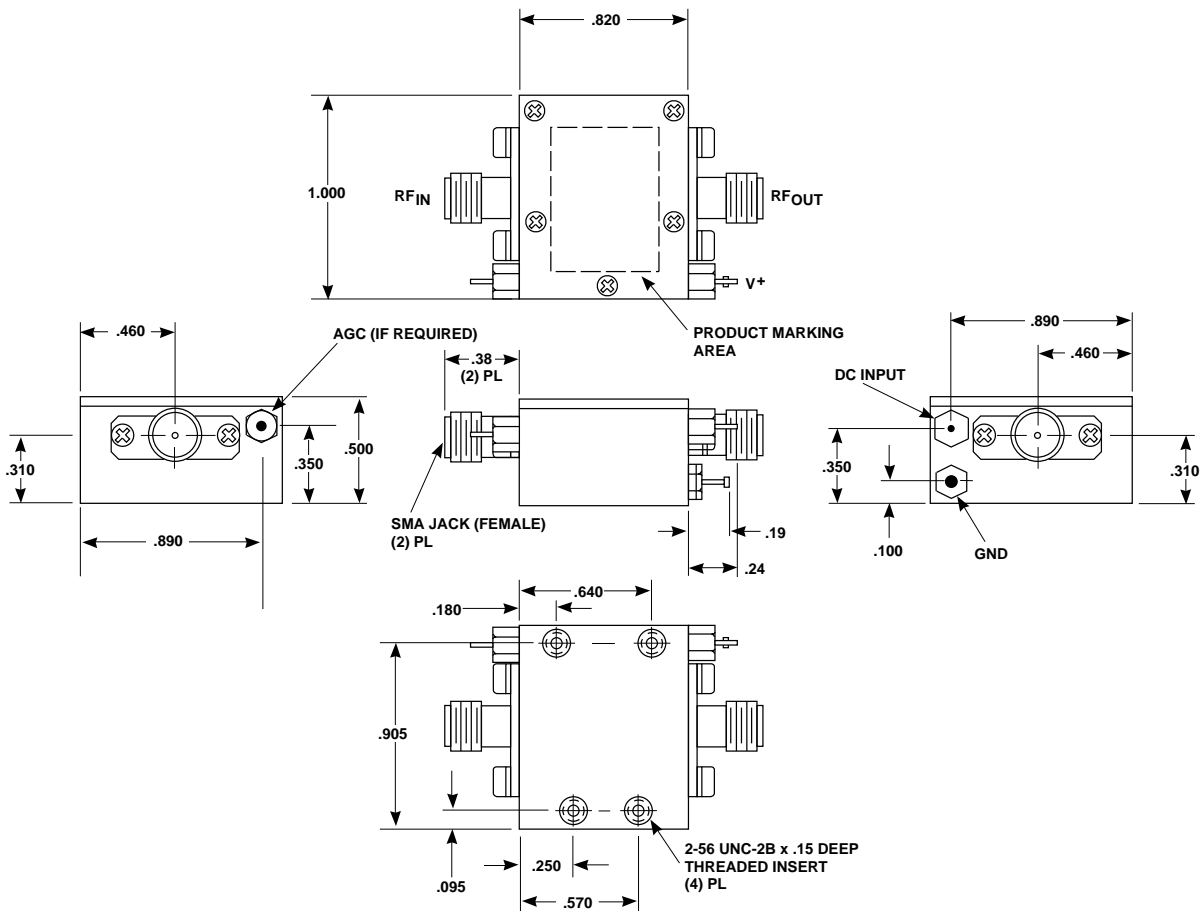
Note: R-Series screening is not available in the TC-1 case as the case is non-hermetic.

Case Drawings TO-8T



APPROXIMATE WEIGHT 2.1 GRAMS

TC-1



TYPICAL WEIGHT WITH CONNECTORS = 21.5 GRAMS

NOTES: 1. THE TC-1 CASE IS A NON-HERMETIC CASE.
2. THE ONLY CONNECTOR OPTION AVAILABLE FOR THE TC-1 CASE IS THE -1, SMA FEMALE CONNECTORS AT BOTH INPUT AND OUTPUT PORTS.

NOTES (UNLESS OTHERWISE SPECIFIED):
1. DIMENSIONS ARE SPECIFIED IN INCHES
2. TOLERANCES: xx ± .02
xxx ± .010

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