



Thin-Film Cascadable Amplifier 10 to 500 MHz

Technical Data

UTO/UTC 573 Series

Features

- **Frequency Range: 10 to 500 MHz**
- **High Reverse Isolation: 50 dB (Typ)**
- **Low VSWR**
- **Temperature Stabilized**

Applications

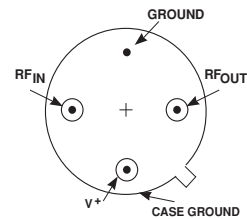
- **IF/RF Amplification**
- **Pre/Post Mixer Amp**
- **Communications Intelligence**
- **Signal Intelligence**

Description

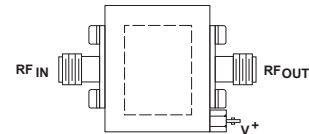
The 573 Series is a medium-gain bipolar RF amplifier that uses feedback and active bias for temperature stabilization and increased immunity to bias voltage variations. Built on a thin-film substrate, this amplifier is specially designed for high reverse isolation applications. The 573 Series amplifiers are available in either the TO-8 hermetic case or connected TC-1A package.

Pin Configuration

UTO—TO-8U



UTC—TC-1A



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°C/W
Active Transistor Power Dissipation	150 mW
Junction Temperature Above Case Temperature	16°C

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

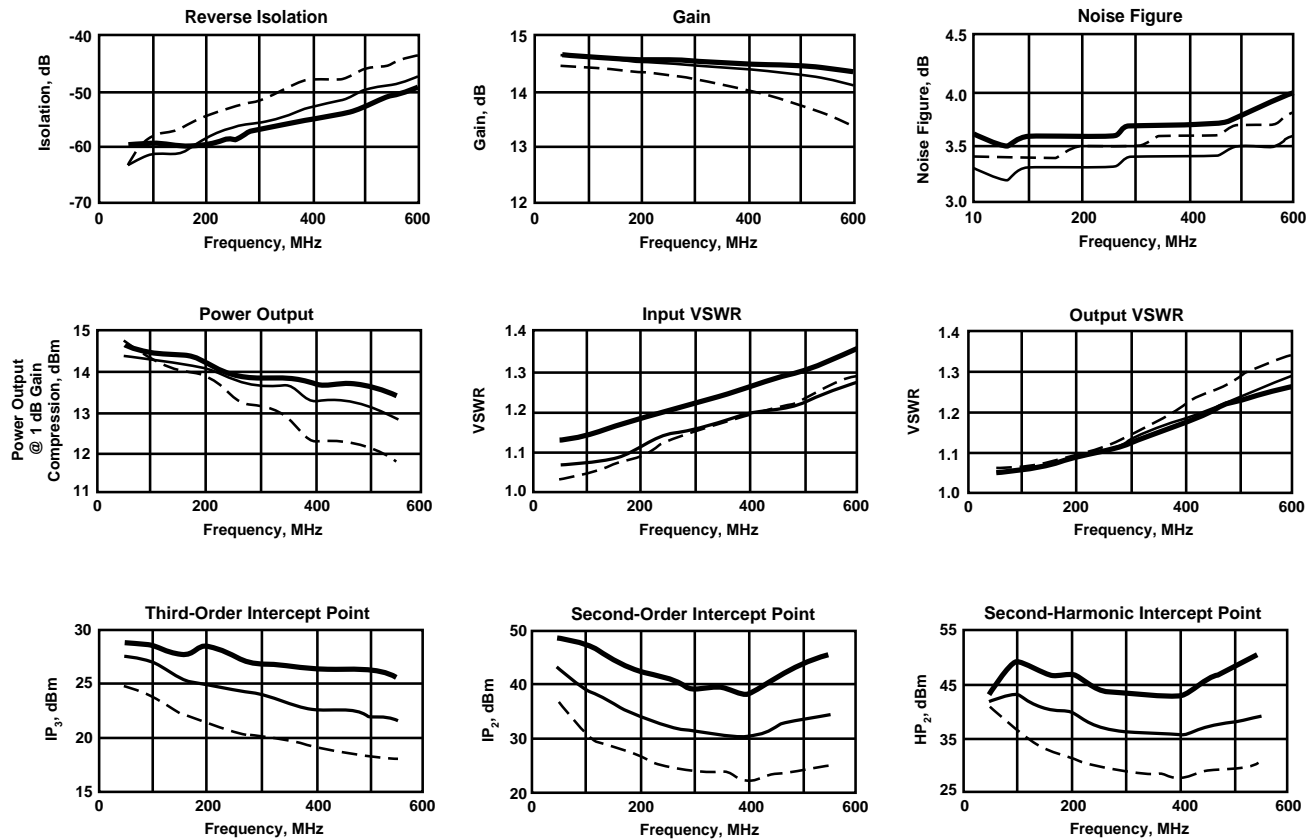
Electrical Specifications

(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	10-500	10-500	10-500	MHz
GP	Small Signal Gain (Min.)	14.5	13.0	12.5	dB
—	Gain Flatness (Max.)	± 0.2	± 0.5	± 0.7	dB
NF	Noise Figure (Max.)	3.4	4.3	4.5	dB
—	Reverse Isolation (Min.)				
	10-200 MHz	60	52	50	dB
	200-500 MHz	50	45	42	dB
P _{1dB}	Power Output @ +1 dB Comp. (Min.)	+13.0	+11.0	+10.0	dBm
—	Input VSWR (Max.)	<1.2:1	1.5:1	1.7:1	—
—	Output VSWR (Max.)	<1.2:1	1.5:1	1.7:1	—
IP ₃	Two Tone 3rd Order Intercept Point	+23.0	—	—	dBm
IP ₂	Two Tone 2nd Order Intercept Point	+32.0	—	—	dBm
HP ₂	One Tone 2nd Harmonic Intercept Point	+38.0	—	—	dBm
I _D	DC Current	33	—	—	mA

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

Key: +25°C —
+85°C - - -
-55°C = = =



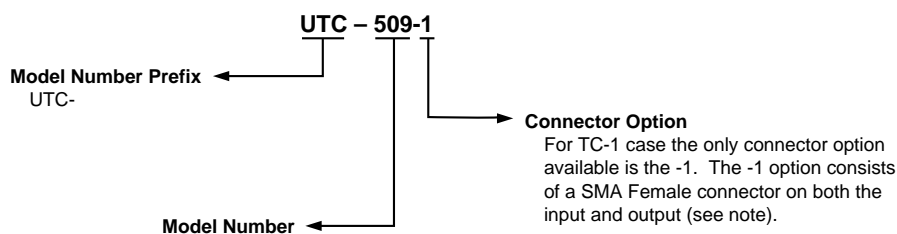
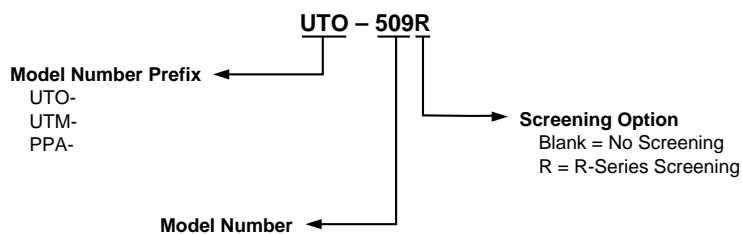
Automatic Network Analyzer Measurements (Typical production unit @ +25°C ambient)

S-Parameters

Bias = 15.00 Volts

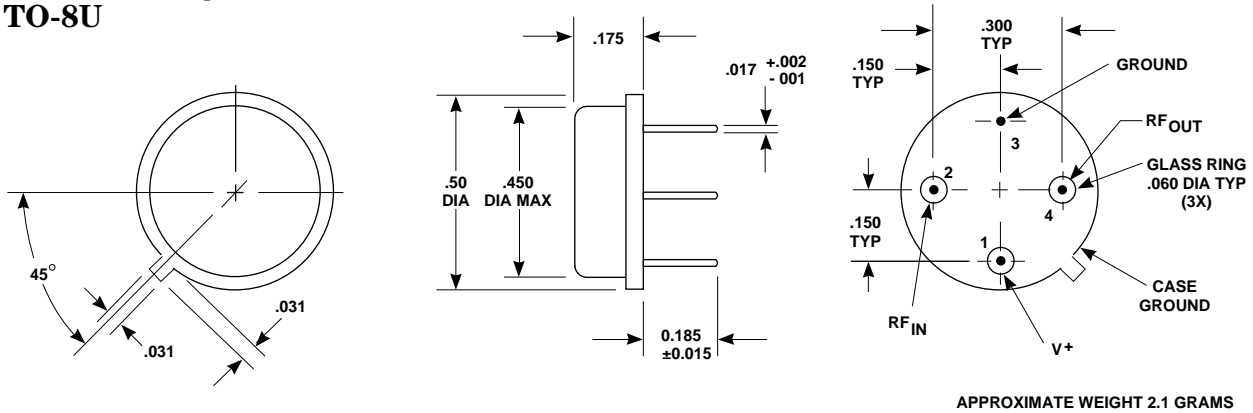
FREQ GHz	S ₁₁		S ₂₁		S ₁₂		S ₂₂		K	GPDEL ns	PHASE DEG
	Mag	Ang	dB	Ang	dB	Ang	Mag	Ang			
.005	.07	-115.9	14.6	-171.2	-65.1	15.6	.07	-65.76	165.64	3.23	
.010	.04	-135.7	14.7	-177.0	-64.3	10.6	.04	-51.47	151.16	3.23	2.72
.015	.04	-146.8	14.7	-179.6	-63.2	8.6	.03	-39.18	133.10	1.45	1.11
.020	.04	-153.4	14.7	178.7	-63.1	7.7	.03	-29.58	130.68	.98	.38
.025	.04	-157.5	14.7	177.2	-63.3	11.9	.03	-21.94	133.33	.81	-.07
.030	.03	-160.8	14.7	175.9	-63.5	8.3	.03	-15.81	136.78	.72	-.36
.035	.03	-162.7	14.7	174.7	-63.3	14.2	.02	-10.89	133.81	.65	-.55
.040	.03	-164.4	14.7	173.6	-63.5	14.2	.02	-6.77	136.45	.64	-.70
.045	.03	-165.8	14.7	172.5	-62.7	14.4	.02	-3.26	125.01	.61	-.80
.050	.03	-167.0	14.7	171.4	-62.8	17.6	.02	-.10	126.51	.60	-.86
.100	.04	-174.0	14.7	161.4	-61.3	31.5	.03	19.18	106.28	.56	-.92
.150	.04	-177.9	14.7	151.7	-59.6	41.1	.03	29.85	87.94	.54	-.66
.200	.05	177.5	14.7	142.0	-58.5	46.2	.04	37.55	77.58	.54	-.30
.250	.06	170.9	14.6	132.4	-56.9	48.6	.04	44.00	64.50	.54	.04
.300	.07	164.5	14.6	122.6	-55.3	51.6	.05	48.35	53.51	.54	.27
.350	.08	157.7	14.6	112.8	-53.6	52.4	.06	50.85	44.09	.55	.39
.400	.09	149.8	14.5	102.8	-52.1	50.8	.07	52.23	37.48	.56	.38
.450	.10	142.4	14.5	92.6	-50.8	50.1	.08	52.20	32.08	.57	.16
.500	.11	134.8	14.4	82.2	-49.4	47.5	.09	50.34	27.41	.59	-.23
.600	.12	119.4	14.2	60.6	-46.5	41.5	.11	44.36	19.92	.60	
.700	.12	105.1	13.9	37.8	-43.7	30.7	.14	34.09	14.98	.63	
.800	.10	97.4	13.2	13.6	-41.1	17.0	.17	20.41	11.94	.67	
.900	.07	112.3	12.1	-11.3	-38.9	-.4	.19	4.18	10.45	.69	
1.000	.10	144.8	10.5	-36.0	-37.1	-19.6	.20	-13.89	10.27	.68	
1.200	.28	132.9	5.4	-78.4	-35.2	-58.9	.19	-49.53	13.90	.59	
1.400	.44	104.1	-1.3	-99.5	-34.5	-93.3	.15	-80.67	24.36	.29	
1.600	.55	77.2	-5.5	-90.7	-34.2	-122.9	.13	-106.33	33.26	-.12	
1.800	.63	52.2	-4.7	-89.1	-33.8	-149.4	.11	-127.86	25.46	-.02	
2.000	.68	27.7	-3.5	-106.5	-33.2	-173.9	.11	-145.40	18.60	.24	
2.200	.71	2.3	-2.9	-131.0	-32.3	160.2	.11	-159.50	14.20	.34	

Product Options



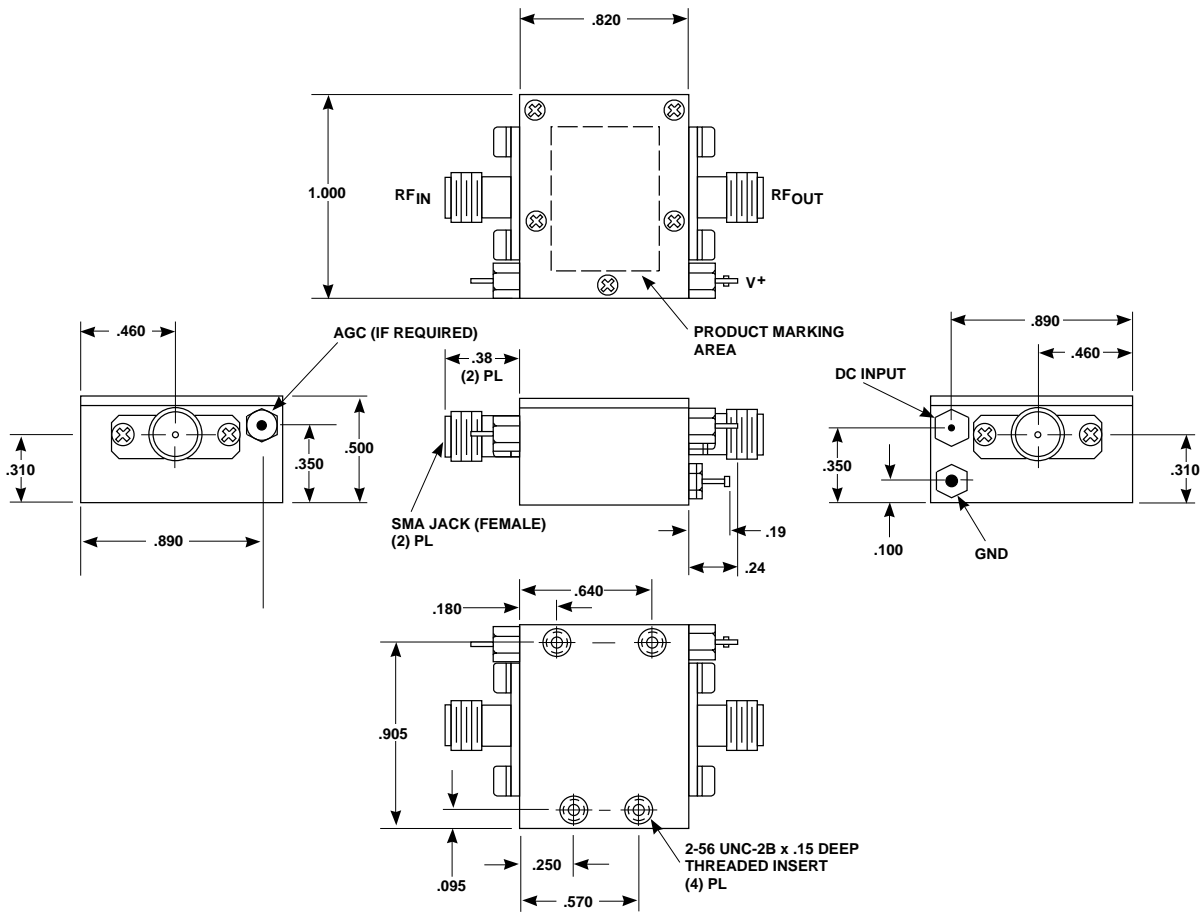
Note: R-Series screening is not available in the TC-1 case as the case is non-hermetic.

Case Drawings TO-8U



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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