

## Avantek Products

# Modular Cascaded Amplifiers

## Selection Guide

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### UTC Series

#### Features

- **Factory-Assembled**
- **Optimized Electrical Parameters**
- **Convenient SMA Connected Package**

#### Applications

- **Laboratory Amplifiers**
- **IF/RF Gain Blocks**

#### Description

The UTC Series is made up of connected, aluminum cases containing substrates that accept 1 to 4 of HP's cascable TO-8 packaged devices. Rugged, connected UTC devices are useful for system applications where SMA connections are used, for lab gain blocks, or for system breadboard applications.

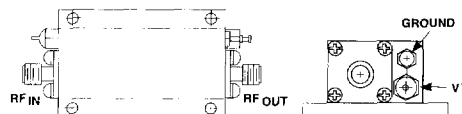
Available cases and substrates are TC-1 (containing one TO-8), TC-2 (containing two TO-8 modules) and the TC-4 (containing three or four TO-8 modules).

All of HP's TO-8 UTO amplifiers are available in the TC-1 package with SMA Female connectors. In addition to these single TC-1 units, HP offers the standard line of cascaded TC-2 and TC-4 products described in this section.

Beyond these standard amplifier cascades, the wide range of HP amplifiers, AGC amps, and limiting amps, can be cascaded in various configurations, providing a wide range of solutions. An application note is included in this catalog that discusses the tradeoffs between NF and other specifications as a function of the placement of different TO-8 devices. Special configurations can be ordered from HP, or the user may assemble an application specific cascade with individual TO-8 devices and case parts.

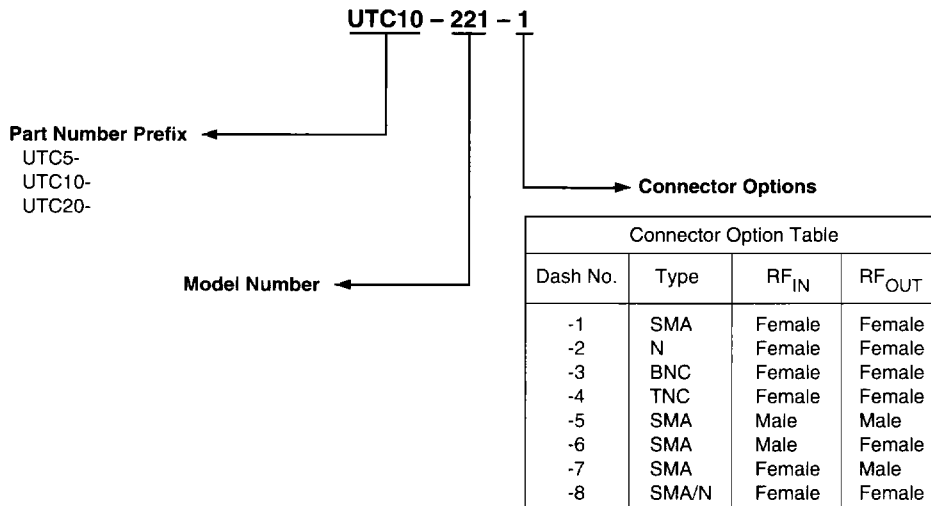
#### Case Types

##### TC-2, TC-4



(See Section 5 for detailed case drawings.)

## Product Options



Contact your nearest HP sales office and/or distributor for assistance in ordering this product.

## UTC Series Modular Cascaded Amplifiers

(Guaranteed Specifications at 0 to 50°C Case Temperature, V = 15 VDC)

Model	Frequency Range (MHz)	Gain (dB) Typ./Min.	Noise Figure (dB) Max.	Power Output for 1 dB Gain Compression (dBm) Min.	Flatness (dB) Max.	3rd-Order Intercept Point (dBm) Typ.	VSWR 50 Ohms Max. :1 In/Out	Input Bias Current (mA) Typ.	Case Type
<b>10 to 500 MHz</b>									
UTC5-200-X	10-500	26.5/25	2.7	+6	±1.5	+22	2.0:1	35	TC2
UTC5-201-X	10-500	37/35	2.7	+7	±1.5	+20	2.0:1	33	TC2
UTC5-202-X	10-500	51.5/49	2.7	+6	±1.5	+18	2.0:1	60	TC2
UTC5-203-X	10-500	64.5/62	2.7	-6	±2.0	+18	2.0:1	70	TC4
UTC5-210-X	10-500	27.5/26	3.0	+14	±1.5	+30	2.0:1	78	TC2
UTC5-211-X	10-500	38/36	3.5	+14	±1.5	+30	2.0:1	76	TC2
UTC5-212-X	10-500	47/45	2.7	+14	±1.5	+27	2.0:1	80	TC2
UTC5-213-X	10-500	54/52	2.7	+14	±2.0	+27	2.0:1	92	TC2
UTC5-214-X	10-500	67/65	2.7	+14	±2.0	+27	2.0:1	103	TC4
UTC5-220-X	10-500	24.5/23	3.5	+23	±1.5	+35	2.0:1	165	TC2
UTC5-221-X	10-500	35/33	3.0	+23	±2.0	+35	2.0:1	190	TC4
UTC5-222-X	10-500	46/44	3.0	+23	±2.0	+35	2.0:1	193	TC4
UTC5-223-X	10-500	60.5/58	3.0	-23	±2.0	+35	2.0:1	210	TC4
<b>10 to 1000 MHz</b>									
UTC10-210-X	10-1000	21.5/20	4.5	+11	±2.0	+28	2.0:1	60	TC2
UTC10-211-X	10-1000	31/29	3.7	+9	±1.5	+20	2.0:1	37	TC2
UTC10-212-X	10-1000	41/39	3.7	+9	±2.0	+20	2.0:1	62	TC4
UTC10-213-X	10-1000	52/50	3.7	+12	±1.5	+27	2.0:1	101	TC4
UTC10-220-X	20-1000	22.5/21	5.0	+20	±2.0	+35	2.0:1	125	TC2
UTC10-221-X	10-1000	33/31	4.5	+20	±2.0	+35	2.0:1	150	TC2
UTC10-222-X	10-1000	42/40	3.7	+20	±2.0	+35	2.0:1	155	TC4
UTC10-223-X	10-1000	49/47	3.7	-20	±2.0	+35	2.0:1	163	TC4
<b>10 to 2000 MHz</b>									
UTC20-210-X	10-2000	19.5/18	5.0	+7	±1.5	+17	2.2:1	41	TC2
UTC20-211-X	10-2000	28/26	5.0	+14	±2.0	+29	2.2:1	91	TC4
UTC20-212-X	10-2000	34/32	6.0	+14	-2.0	+29	2.2:1	104	TC4
UTC20-213-X	10-2000	40/38	6.0	+12	±2.0	+29	2.2:1	126	TC4

See Section 5 for connector options available for TC-2 and TC-4 cases.

- Notes:
- Both RF input and RF output pins are at DC ground—no blocking capacitor.
  - RF input pin is at DC ground—no input blocking capacitor.
  - A portion of any DC voltage applied to the RF input pin will appear at the RF output pin (i.e., a resistive DC path exists between pins). There is no input or output blocking capacitor.
  - High reverse isolation, Typ.  $S_{12} = -48$  dB at 500 MHz.
  - From 10-500 MHz, Power Output for 1 dB Comp = +24.5 dBm.
  - From 10-500 MHz, Power Output for 1 dB Comp = +26 dBm.
  - Guaranteed at 0° to 50°C min.
  - Minimum and maximum performance specifications guaranteed at 25°C only.
  - Guaranteed parameters are split across the frequency band. Please refer to the detailed specification pages listed for more information.