



# Attenuator

## 100 to 2000 MHz

### Technical Data

#### Features

- 40 dB Attenuation Range
- 1 Microsecond Response Time
- Wideband Frequency Response
- Surface Mount Package

#### Applications

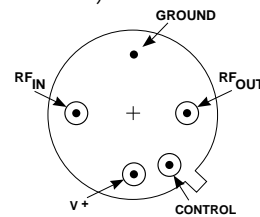
- Open and Closed Loop Gain Control
- AGC Circuits

#### Description

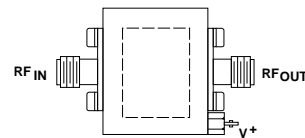
The UTF-030 is a thin-film voltage-controlled RF attenuator that offers a continuously-variable attenuation of up to 30 to 45 dB from 100 to 2000 MHz. Utilizing PIN diodes, attenuation over frequency typically has  $\pm 0.5$  to  $\pm 1.0$  dB flatness over the complete control voltage range. The UTF-030 comes hermetically sealed in a TO-8 case, a surface mount PlanarPak, or the connectorized TC-1 package.

### UTF-030

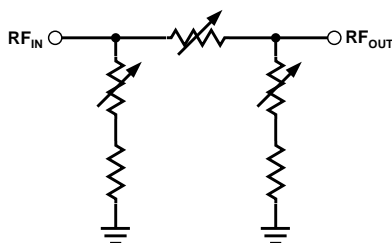
#### Pin Configuration UTF-030, TO-8F



#### TC-1



#### Schematic



#### Maximum Ratings

Parameter	Maximum
DC Voltage	+17 Volts
Continuous RF Input Power	+23.0 dBm
Operating Case Temperature	-55 to +125°C
Storage Temperature	-62 to +150°C
"R" Series Burn-In Temperature	+125°C
$\theta_{JC}$	75°C/W

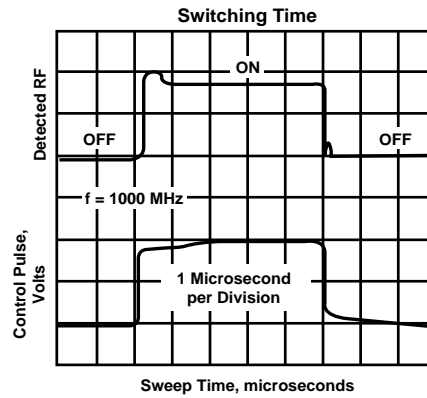
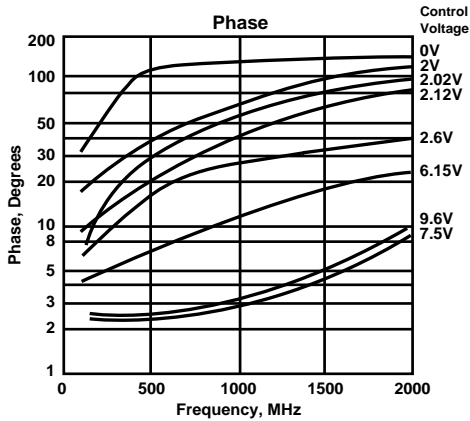
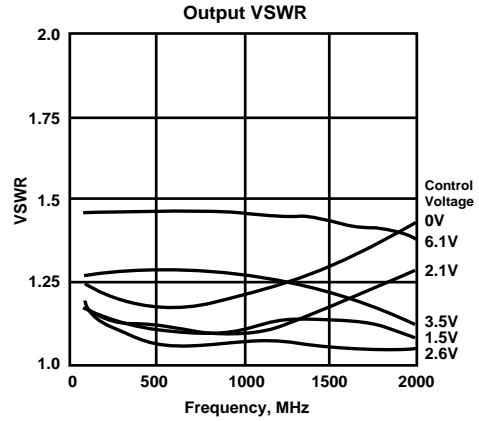
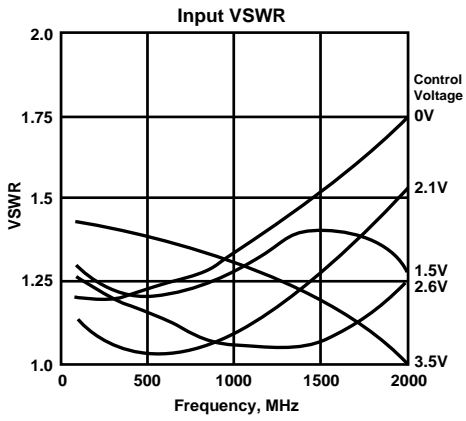
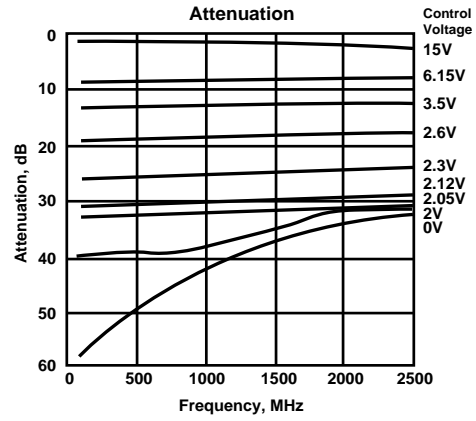
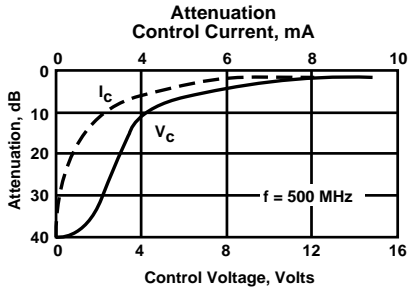
**Weight:** (typical) 2.1 grams

## Electrical Specifications

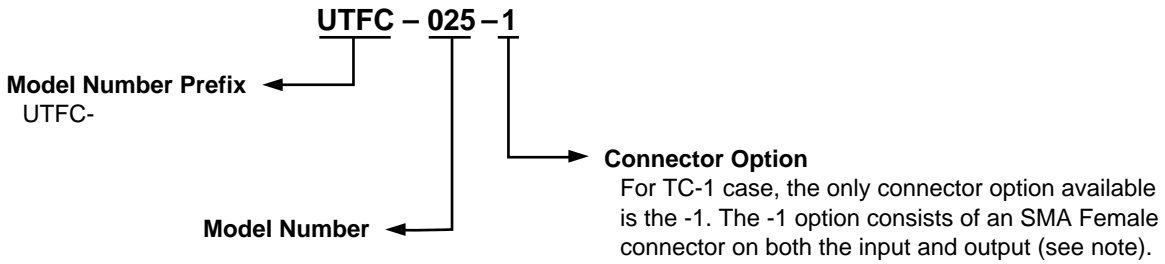
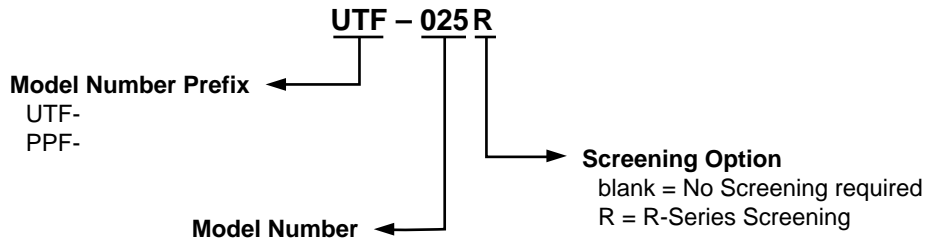
(Measured in 50  $\Omega$  system @ +15 VDC nominal)

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	100-2300	100-2000	100-2000	MHz
—	Attenuation, Min. ( $V_C = 0 \text{ V}$ )				
	100-500 MHz	45	40	30.0	dB
	500-1000 MHz	40	35	25.0	dB
	1000-2000 MHz	30	25	20.0	dB
—	Insertion Loss, Max. ( $V_C = 15 \text{ V}$ )				
	100-500 MHz	2.0	2.5	3.0	dB
	500-1000 MHz	2.5	3.0	3.5	dB
	1000-2000 MHz	3.0	3.5	4.0	dB
—	VSWR (Worst Case In Attenuation Range)				
	100-2000 MHz	1.7:1	2.0:1	2.0:1	—
—	Flatness Over Frequency (to 25 dB)				
	100-1000 MHz	$\pm 0.5$	$\pm 1.0$	$\pm 1.0$	dB
	1000-2000 MHz	$\pm 1.0$	$\pm 1.5$	$\pm 1.5$	dB
—	Switching Speed (10% to 90%) (ON to OFF or OFF to ON)	.5	1	1	$\mu\text{s}$
—	Bias Current	8.0	—	—	mA
—	Control Voltage	0 to +15	—	—	VDC
—	Control Current	0 to 10	—	—	mA

**Typical Performance At 25°C Temperature** (at +15 VDC unless otherwise noted)

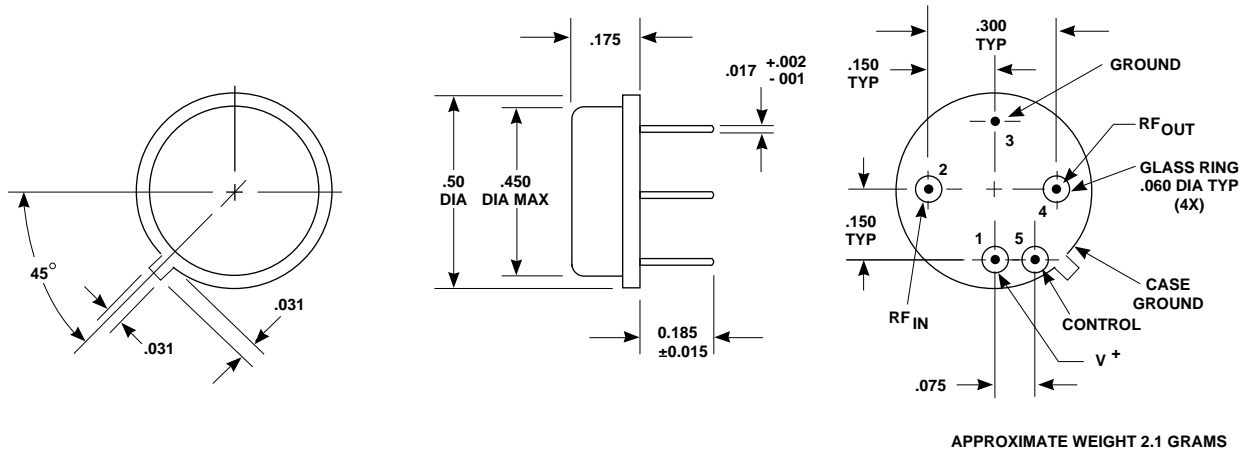


### Product Options



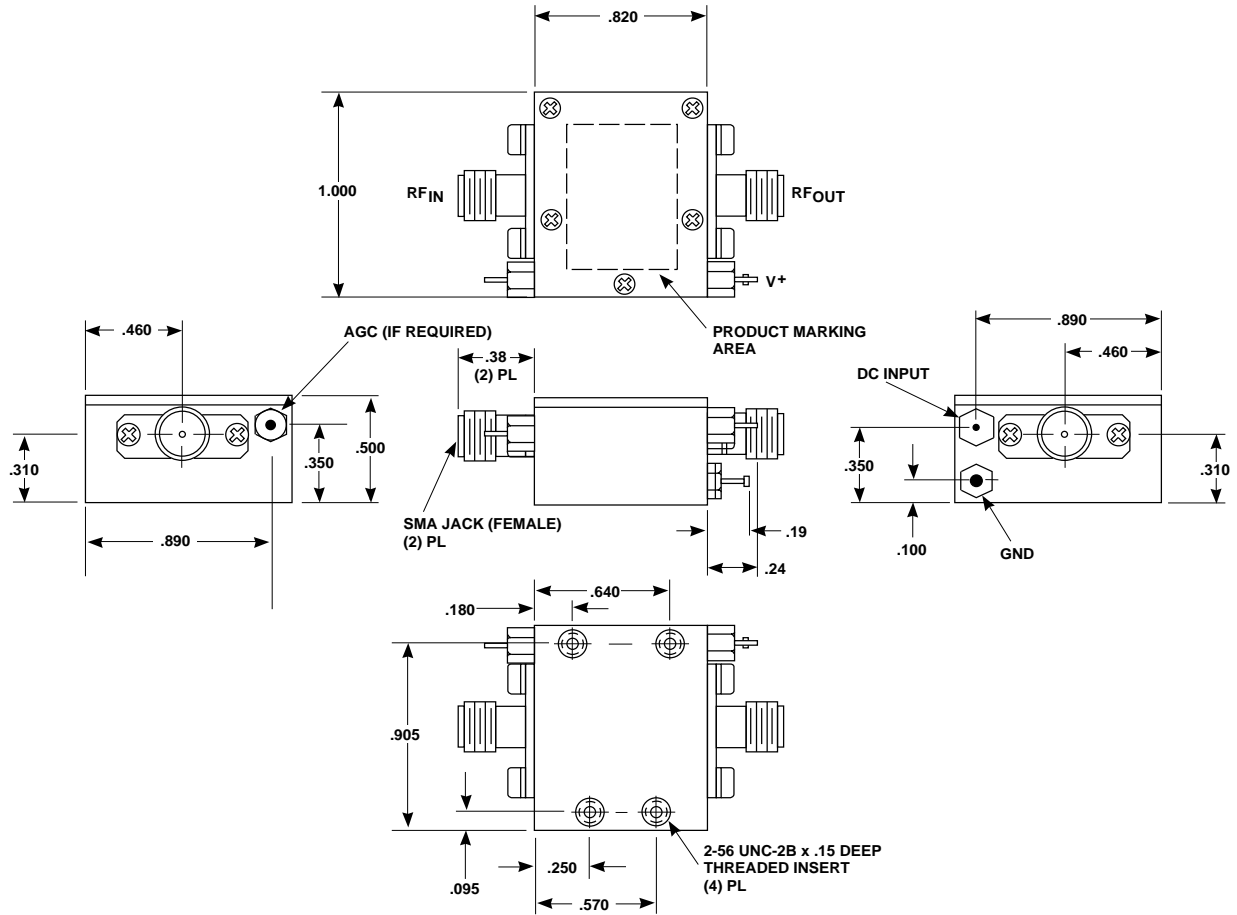
Note: No R-Series screening is available in the TC-1 case as the case is non-hermetic.

### Case Drawings TO-8F



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

# Case Drawings 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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