

# Variable Attenuators



## Models 3053 & 3054 Manual Step, Ruggedized SMA Connectors

dc to 6.0 GHz  
1 Watt



### Specifications

NOMINAL IMPEDANCE: 50  $\Omega$   
 FREQUENCY RANGE: dc to 6.0 GHz  
 INCREMENTAL ATTENUATION RANGE/STEPS:  
 Model 3053: 0-10 dB in 1 dB steps  
 Model 3054: 0-70 dB in 1 dB steps  
 POWER COEFFICIENT: < 0.006 dB/dB/watt  
 TEMPERATURE COEFFICIENT: 0.0004 dB/dB/  $^{\circ}\text{C}$   
 TEMPERATURE RANGE:  
 Operating: -40 $^{\circ}\text{C}$  to +65 $^{\circ}\text{C}$   
 Non-Operating: -54 $^{\circ}\text{C}$  to +85 $^{\circ}\text{C}$

### Features

- /// **High Reliability** - Repeatability better than 0.1 dB over frequency range and life. Weinschel patented detent mechanism, tested to 1,000,000 operations at +75 $^{\circ}\text{C}$ , operates dependably even down to -40 $^{\circ}\text{C}$ .
- /// **Product Uniformity** - High volume fabrication techniques, including injection molding, stamping, broaching and thick film printing ensure a cost effective and uniform product.
- /// **Low Frequency Sensitivity** - Typically 0.1 to 0.2 dB up to 2.5 GHz.
- /// **Shock Resistant** - 100% spring contact system withstands mechanical and thermal shock and eliminates the need for epoxy or solder.
- /// **Wide Selection** - Wide choice of attenuation ranges and increments in standard stock models. Single and dual drum configurations available.
- /// **Knob Included** - Knobs for both single and dual drum models are included with every attenuator. Characters are screened on the face of the knob insert which is coated with a clear layer of epoxy for protection.

### Special Configurations

Some modifications to the basic configuration of the 3000 Series can be made during manufacturing. Examples of these special configurations are shafts having special lengths and ends; clockwise shaft rotation; modified mounting arrangements; and provisions for add-on items such as concentric potentiometer and ganged switches.

### ATTENUATION ACCURACY:

Model	Accuracy
3053	$\pm 0.3$ dB
3054	$\pm 0.3$ dB or 2% (dc to 3 GHz) $\pm 0.3$ dB or 3.5% (3 to 6 GHz)

**POWER RATING:** 1 watts **average** @ 25 $^{\circ}\text{C}$  ambient temperature, derated linearly to 0 watts @ 65 $^{\circ}\text{C}$ . 100 watts **peak** (5  $\mu\text{sec}$  pulse width; 0.5 % duty cycle).

**CONNECTOR:** SMA female connector per MIL-STD-348 interface dimensions - mate nondestructively with MIL-C-39012 connector.

**SHAFT ROTATION:** counter clockwise for increasing attenuation

**STEP ANGLE:** 32.7 $^{\circ}$

### DRUM CONFIGURATIONS:

Single Drum: 3003, 3006, 3007, 3053  
 Dual Drum: 3010, 3014, 3054

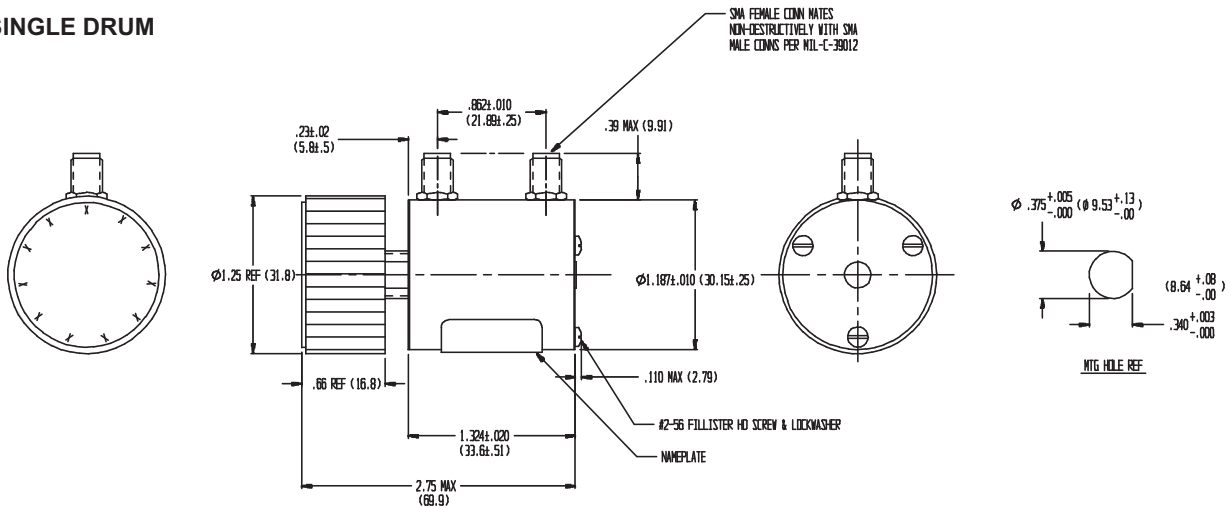
### MAXIMUM SWR & ZERO INSERTION LOSS:

Model	Frequency (GHz)	SWR	Loss (dB)
3053	dc - 3.0	1.30	< 0.3
	3.0 - 6.0	1.40	< 0.7
3054	dc - 3.0	1.30	< 0.8
	3.0 - 6.0	1.55	< 1.3

**SWITCHING LIFE:** 1,000,000 steps  
**REPEATABILITY:**  $\pm 0.1$  dB over frequency range and rated life  
**ROTATION STOPS:** Supplied on 10 dB step drums (not supplied on 1 dB drums).  
**INCREMENTAL PHASE SHIFT:**  $\sim 0.25^\circ$  per dB x f(GHz)  
**CONSTRUCTION:** Shafting and external hardware and connector shells: CRES Type 303, per ASTM-A582 passivated per QQ-P-35. Housing: AL ALLOY Gold Flash. Knob is included with each unit.  
**TEST DATA:** Test data is available at additional cost.  
**WEIGHT:** Single drum: Net 125 g (4.4 oz)  
Dual drum: Net 201 g (9.9 oz)

## PHYSICAL DIMENSIONS:

### SINGLE DRUM



### DUAL DRUM

