

# SMT Stripline Mounting Fixed Attenuators

## AT-2200 Series



### ■ Features

#### 1. Small Size and Lightweight

4mm x 3.6 mm x 1.4 mm max height and weighting only 0.1g.

#### 2. Wide Range of Variations for Each Type of Attenuator

Attenuation levels available in 1 dB steps from 0 to 10 dB, and 20 dB for a total of 12 types of variations.

#### 3. Automatic placement

Supplied in embossed packaging to allow placement with automatic equipment.

Individual piece packaging is also available.

### ■ Product Specifications

Ratings	Frequency range Characteristic impedance Maximum input power	DC to 2.5GHz (Note) 50Ω 1W	Operating temperature Operating humidity	-10°C to +65°C 95% max.
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Note: DC to 600MHz for AT-2220.

Item	Characteristic requirement	Conditions
1.Vibration	No electrical discontinuity of 1μs or more. No damage, cracks, or parts dislocation.	Frequency of 10 to 2000 Hz, overall amplitude of 1.5mm, acceleration of 98m/s <sup>2</sup> , 2 hours in each of the 3 directions.
2.Shock		Acceleration of 490m/s <sup>2</sup> , sine half-wave waveform, 3 cycles in each of the 3 axis.
3.Temperature cycle		Temperature : -55°C → +15°C to +35°C → +85°C → +15°C to +35°C Time : 30 → 2 to 3 → 30 → 2 to 3 (Minutes) 5 cycles

The test method conforms to MIL-STD-202.

### ■ Materials

Component	Material	Finish
Attenuation element	Metal film	Tin-lead plated

### ■ Ordering information

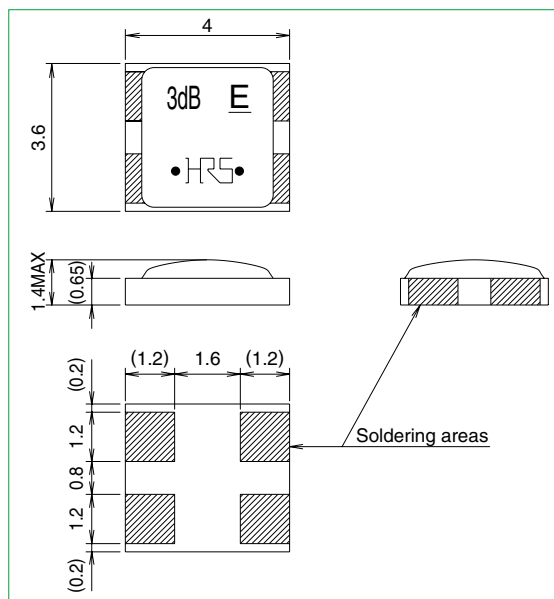
## AT-22 01 (40)

① ② ③ ④

① AX:Fixed attenuator
② Series name :2200 Series
③ Attenuation 00-(0) : 0 dB (Through) 01 : 1dB 06 : 6dB
④ (40): RoHS Compliant

### ■ Dimensions

AT-2203 shown



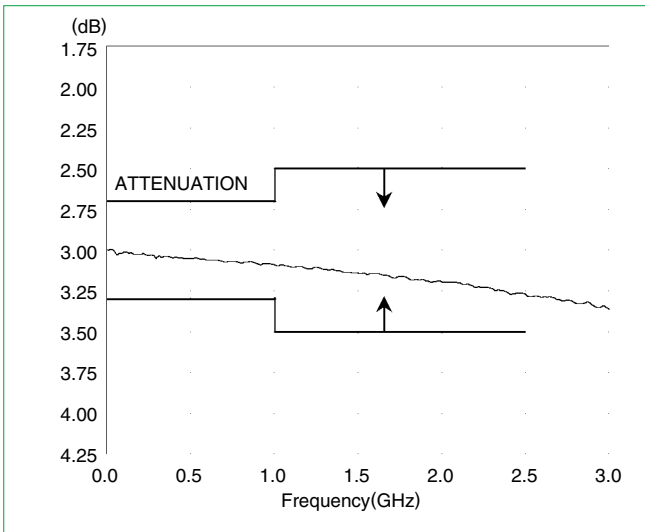
## ■ Specifications

Part number	Attenuation (dB)			V.S.W.R (Max)		Characteristic Impedance (Ω)	Power (W)	Mounting surface temperature (°C Max.) at time of maximum input power	Weight (g)
	DC~1,000MHz	1,000~2,000MHz	2,000~2,500MHz	DC~2,500MHz					
AT-2200-(0)(40)	0 <sup>+0.3</sup>	0 <sup>+0.5</sup>		1.2		50	1	+85	0.1
AT-2201(40)	1±0.3	1±0.5		1.2		50	1	+85	0.1
AT-2202(40)	2±0.3	2±0.5		1.2		50	1	+85	0.1
AT-2203(40)	3±0.3	3±0.5		1.2		50	1	+85	0.1
AT-2204(40)	4±0.3	4±0.5		1.2		50	1	+85	0.1
AT-2205(40)	5±0.3	5±0.5		1.2		50	1	+85	0.1
AT-2206(40)	6±0.3	6±0.5		1.2		50	1	+85	0.1
AT-2207(40)	7±0.3	7±0.5		1.2		50	1	+85	0.1
AT-2208(40)	8±0.3	8±0.5		1.2	1.25	50	1	+85	0.1
AT-2209(40)	9±0.3	9±0.5		1.2	1.25	50	1	+85	0.1
AT-2210(40)	10±0.3	10±0.5	10±0.7	1.2	1.25	50	1	+85	0.1
AT-2220(40)	20±1.5(DC to 600MHz)			1.2(DC to 600MHz)		50	1	+85	0.1

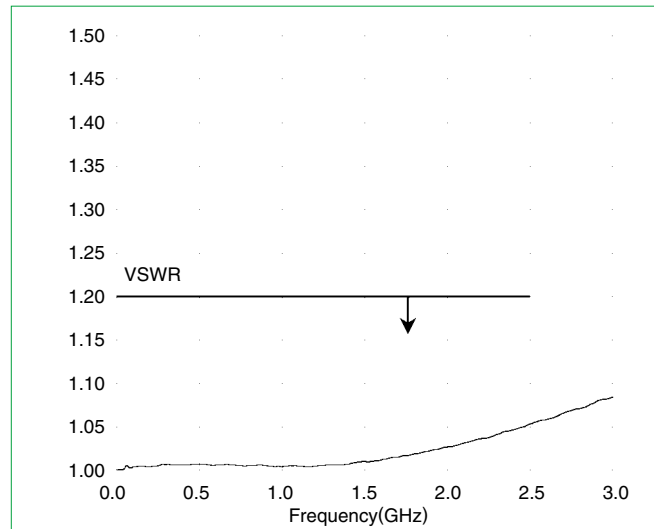
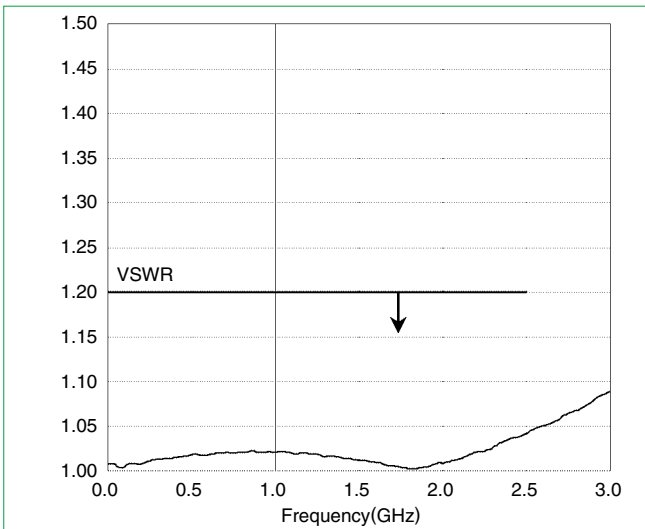
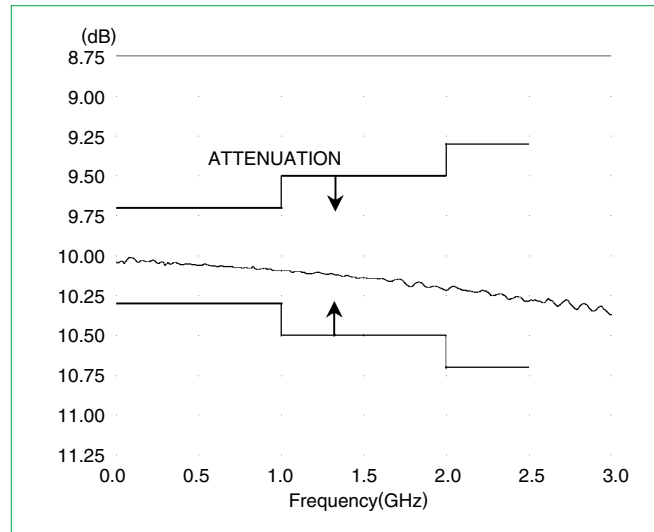
Note: When ordering packaged on tape and reel, add (06) after the end of the part number. One reel = 1,000 pieces

## ■ Typical data

AT-2203(40)



AT-2210(40)

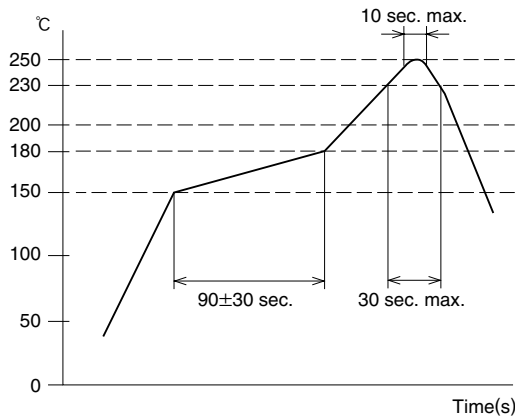


## ■ Mounting and Soldering Recommendations

The attenuators can be placed using reflow or manual soldering

### ◆ Recommended Solder temperature profile

#### ● Reflow Soldering (Temperature Profile Recommendations)

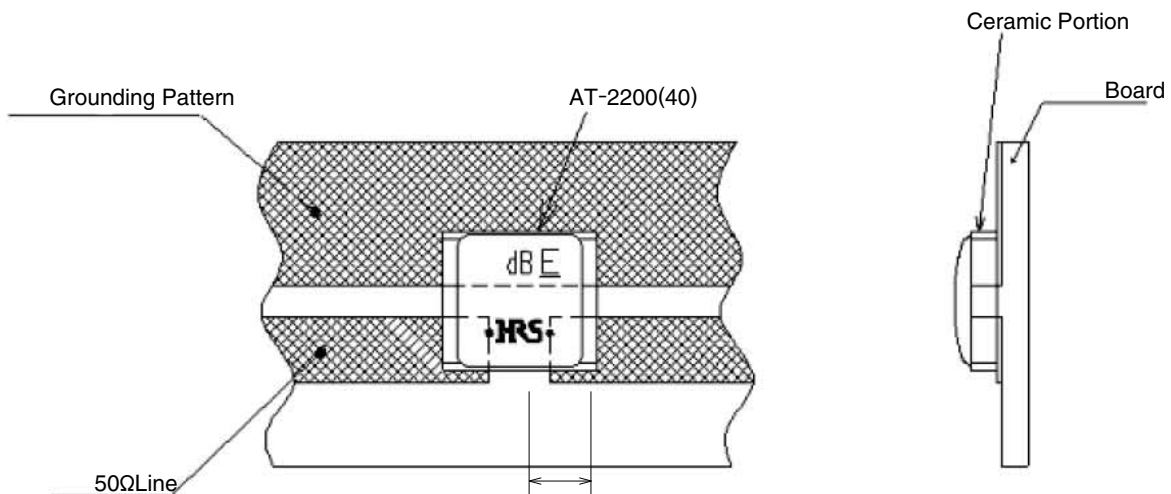


#### Manual Soldering

Tip temperature: 350°C max. for 3 sec. max.

Note 1: Do not touch the ceramic portion with the soldering iron tip.

### ◆ Recommended Mounting Example



※The dotted line portion indicates the position of the pattern.

Note: This attenuator is intended for a one-time use. Do not re-solder or re-use.