

FA03/05 Series Thick Film Fixed Attenuators

1、Introduction

The FA03/05 series thick film fixed attenuator is passive fixed attenuator manufactured using thick film technology. They feature high reliability, small size, excellent frequency characteristics, no distortion and no phase shift. Widely used in microwave communication systems such as microwave power amplifiers, low noise amplifiers, T/R modules and active modules for gain adjustment. This series of products can directly replace the TS03/05 series fixed attenuators

2、Features

- ★ Attenuation Values Available: 1-10 in 1dB Increments
- ★ VSWR: ≤ 1.3 (typical)
- ★ Attenuation Accuracy: $\pm 0.5\text{dB}$
- ★ Maximum Operating Frequency: 18GHz
- ★ Rated Power: 2W
- ★ Operating Temperature: -55°C to $+150^{\circ}\text{C}$
- ★ Mounting Options: Surface Mount or Wire Bondable



3、Applications

- ★ Microwave Communication Modules
- ★ Broadcasting and Television
- ★ Wireless Local Area Network
- ★ Satellite Communication
- ★ Electronic Countermeasure
- ★ Internet of Things

4、How To Order

① Quality Grade: “J” indicates military grade, blank indicates industrial grade.

②

Quality Grade	Model	Frequency	Attenuation Value	Mounting Style	Lead Marking
J	FA03	12	03	W3	S
①	②	③	④	⑤	⑥

FA03: Denotes Thick Film Fixed Attenuator, where “JC” is the company code, “FA” stands for fixed attenuator series, and “03” is the series identification code.

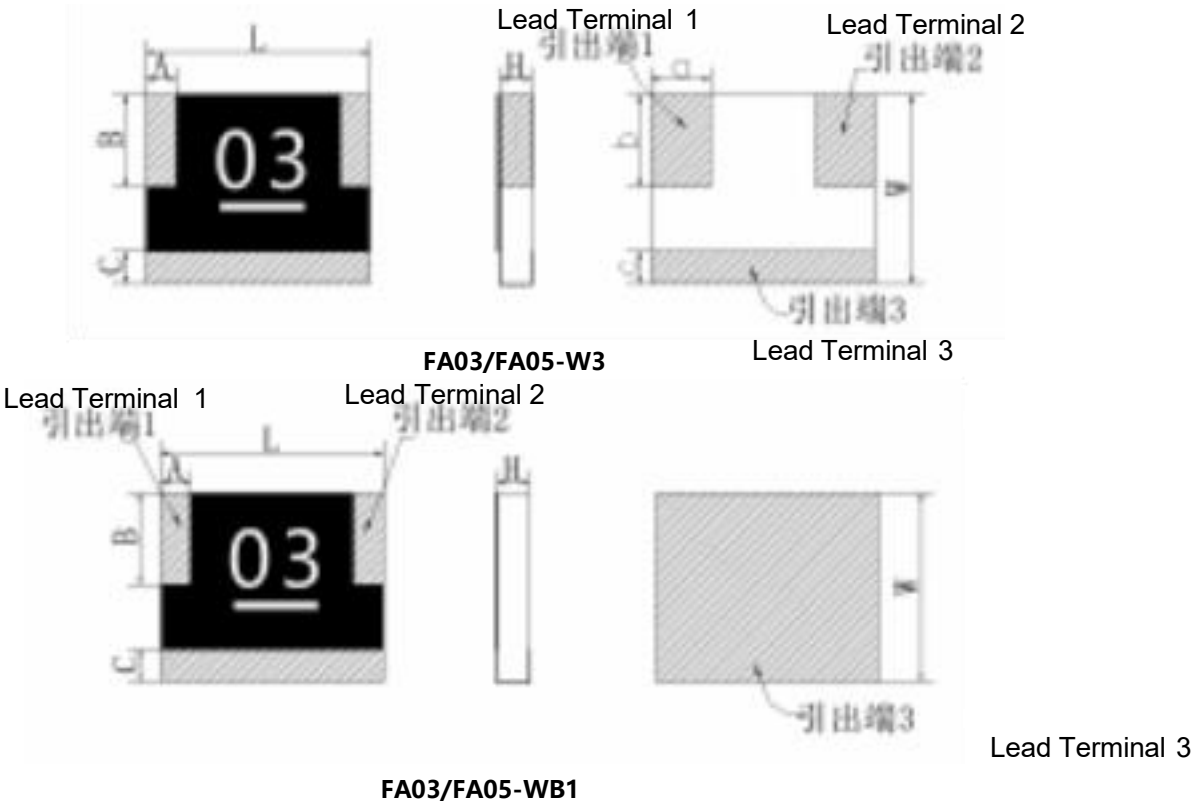
③ Frequency: Represented by two significant digits, unit in GHz, e.g., 12 denotes 12GHz.

④ Attenuation Value: Represented by two significant digits, unit in dB, e.g., 03 denotes 3dB.

⑤ Mounting Style: “W3” denotes tin-lead electrode with wrap-around, all terms; “WB1” denotes gold electrode with wrap-around wire bondable.

⑥ Lead Marking: “S” indicates lead-containing material; gold-electrode versions do not carry this mark

5、Structure and Dimensions



Note: Attenuators are identified by a two-digit code followed underscore, e.g., "03" denotes 3dB, "10" denotes 10dB.

Dimensions Table

Series	Dimensions (mm)								
	L	W	H	A	B	C	a	b	c
FA03	3.73	3.12	0.53	0.49	1.52	0.76	0.38	1.57	0.38
	±0.15	±0.15	±0.15	±0.25	±0.15	±0.15	±0.12	±0.12	±0.12
FA05	1.96	1.55	0.41	0.38	0.64	0.25	0.53	0.64	0.38
	±0.15	±0.15	±0.15	±0.15	±0.15	±0.15	±0.12	±0.12	±0.12

Terminal Definitions

Lead Terminal No.	Function Symbol	Function Description
1	RF I/O	Signal Input/Output Terminal
2	RF I/O	Signal Input/Output Terminal
3	GND	Signal Ground Terminal

6、Selector Chart

Model	Dimensions (mm)	Frequency Range (GHz)	Attenuation Value (dB)	Rated Power (W)	Mounting Option
FA031200W3S	3.73×3.12×0.53	DC-12	0	2	SMT
FA031201W3S	3.73×3.12×0.53	DC-12	1	2	SMT
FA031202W3S	3.73×3.12×0.53	DC-12	2	2	SMT
FA031203W3S	3.73×3.12×0.53	DC-12	3	2	SMT
FA031204W3S	3.73×3.12×0.53	DC-12	4	2	SMT
FA031205W3S	3.73×3.12×0.53	DC-12	5	2	SMT
FA031206W3S	3.73×3.12×0.53	DC-12	6	2	SMT
FA031207W3S	3.73×3.12×0.53	DC-12	7	2	SMT
FA031208W3S	3.73×3.12×0.53	DC-12	8	2	SMT
FA031209W3S	3.73×3.12×0.53	DC-12	9	2	SMT
FA031210W3S	3.73×3.12×0.53	DC-12	10	2	SMT
FA051800W3S	1.96×1.55×0.41	DC-18	0	0.2	SMT
FA051801W3S	1.96×1.55×0.41	DC-18	1	0.2	SMT
FA051802W3S	1.96×1.55×0.41	DC-18	2	0.2	SMT
FA051803W3S	1.96×1.55×0.41	DC-18	3	0.2	SMT
FA051804W3S	1.96×1.55×0.41	DC-18	4	0.2	SMT
FA051805W3S	1.96×1.55×0.41	DC-18	5	0.2	SMT
FA051806W3S	1.96×1.55×0.41	DC-18	6	0.2	SMT
FA051807W3S	1.96×1.55×0.41	DC-18	7	0.2	SMT
FA051808W3S	1.96×1.55×0.41	DC-18	8	0.2	SMT
FA051809W3S	1.96×1.55×0.41	DC-18	9	0.2	SMT
FA051810W3S	1.96×1.55×0.41	DC-18	10	0.2	SMT

Model	Dimensions (mm)	Frequency Range (GHz)	Attenuation Value (dB)	Rated Power (W)	Mounting Option
FA031200WB1	3.73×3.12×0.53	DC-12	0	2	Micro-assembly
FA031201WB1	3.73×3.12×0.53	DC-12	1	2	Micro-assembly
FA031202WB1	3.73×3.12×0.53	DC-12	2	2	Micro-assembly
FA031203WB1	3.73×3.12×0.53	DC-12	3	2	Micro-assembly
FA031204WB1	3.73×3.12×0.53	DC-12	4	2	Micro-assembly
FA031205WB1	3.73×3.12×0.53	DC-12	5	2	Micro-assembly
FA031206WB1	3.73×3.12×0.53	DC-12	6	2	Micro-assembly
FA031207WB1	3.73×3.12×0.53	DC-12	7	2	Micro-assembly
FA031208WB1	3.73×3.12×0.53	DC-12	8	2	Micro-assembly
FA031209WB1	3.73×3.12×0.53	DC-12	9	2	Micro-assembly
FA031210WB1	3.73×3.12×0.53	DC-12	10	2	Micro-assembly
FA051800WB1	1.96×1.55×0.41	DC-18	0	0.2	Micro-assembly
FA051801WB1	1.96×1.55×0.41	DC-18	1	0.2	Micro-assembly
FA051802WB1	1.96×1.55×0.41	DC-18	2	0.2	Micro-assembly
FA051803WB1	1.96×1.55×0.41	DC-18	3	0.2	Micro-assembly
FA051804WB1	1.96×1.55×0.41	DC-18	4	0.2	Micro-assembly
FA051805WB1	1.96×1.55×0.41	DC-18	5	0.2	Micro-assembly
FA051806WB1	1.96×1.55×0.41	DC-18	6	0.2	Micro-assembly
FA051807WB1	1.96×1.55×0.41	DC-18	7	0.2	Micro-assembly
FA051808WB1	1.96×1.55×0.41	DC-18	8	0.2	Micro-assembly
FA051809WB1	1.96×1.55×0.41	DC-18	9	0.2	Micro-assembly
FA051810WB1	1.96×1.55×0.41	DC-18	10	0.2	Micro-assembly

7、 Main Parameter Curves

Power Derating Curve:

It can be used at full power when the temperature range is -55°C ~ 75°C. When temperature exceeds 75°C, power must be derated according to the specified curve.

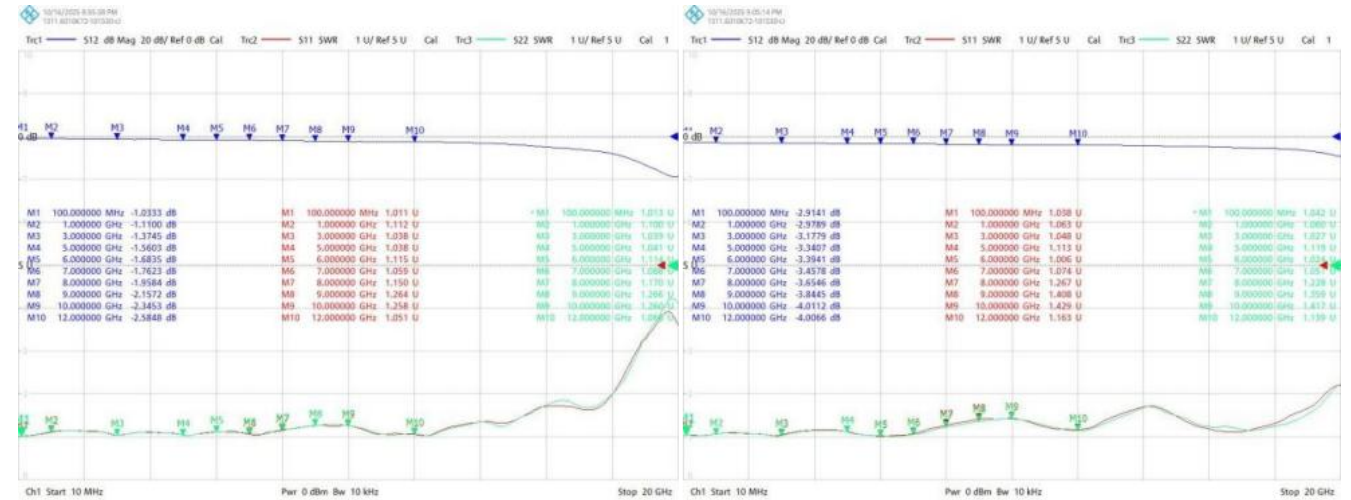
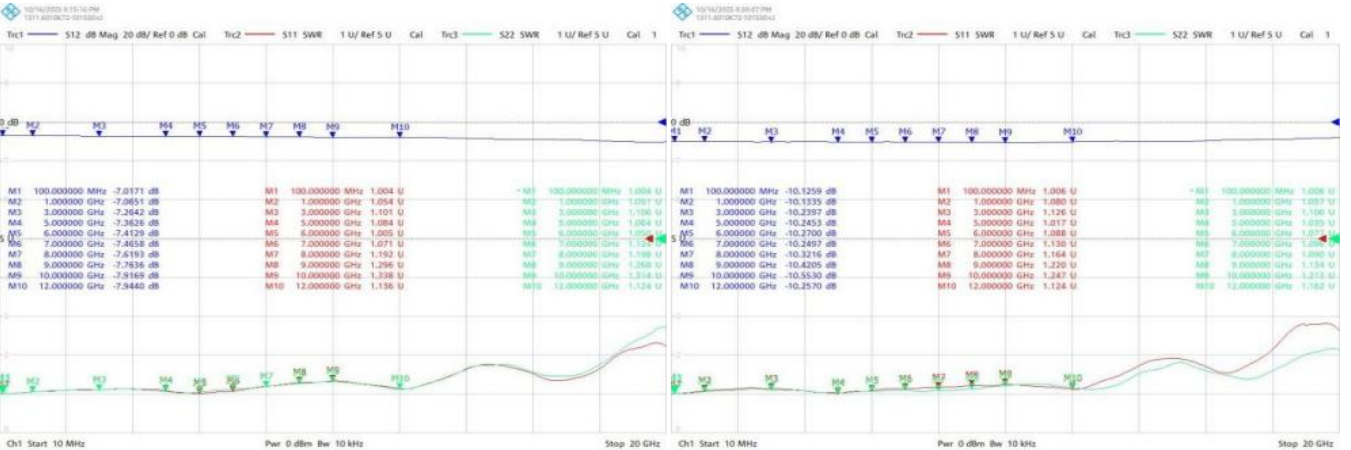
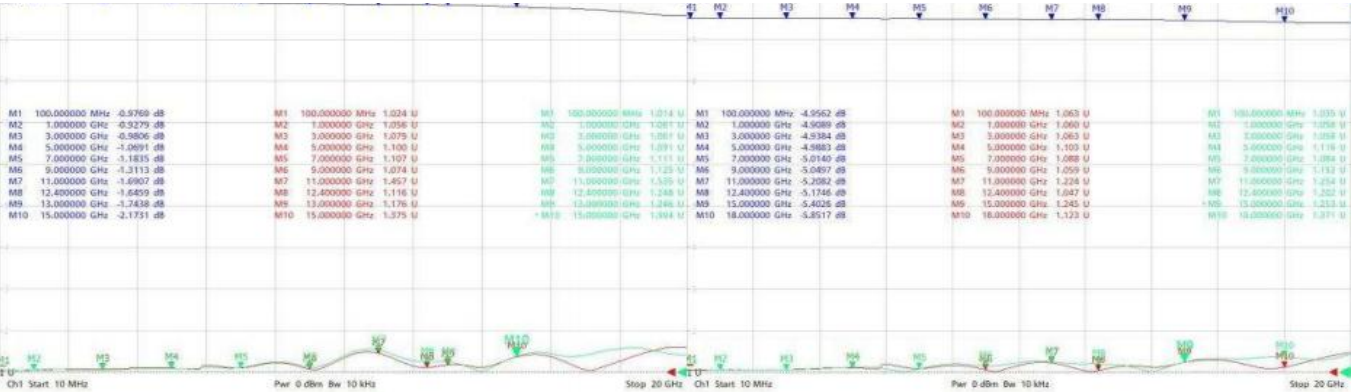
Percentage of Rated Power

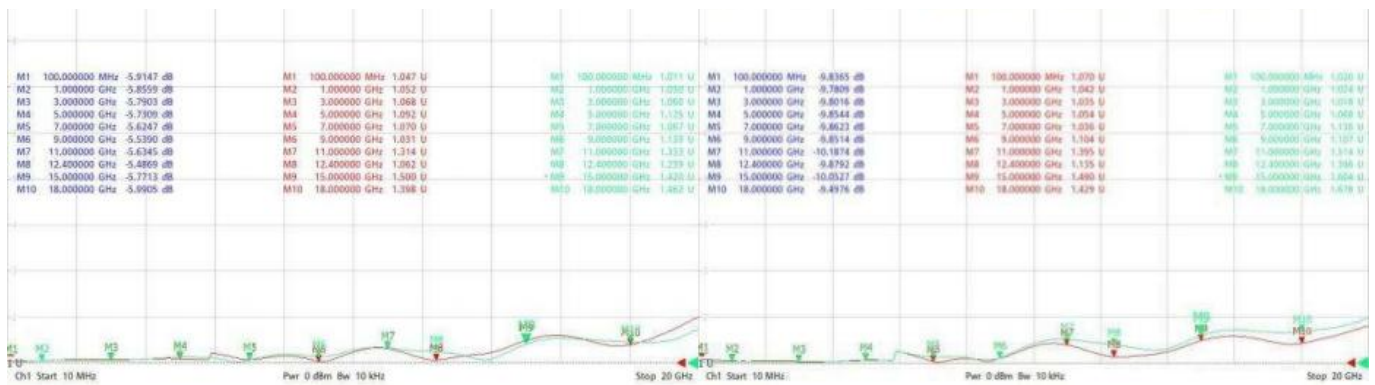
Safe Working Area

Working Temperature (°C)

Rated Power Derating Curve

Typical Test Datas:



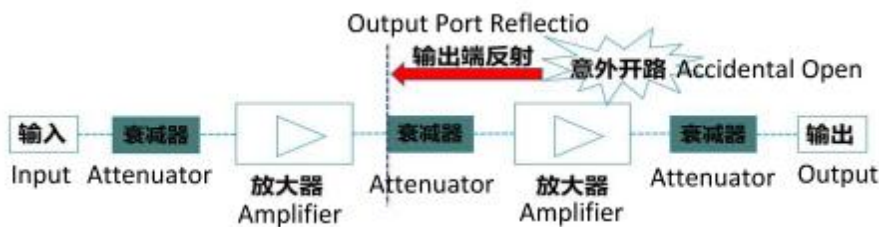


FA05 - 6dB

FA05 - 10dB

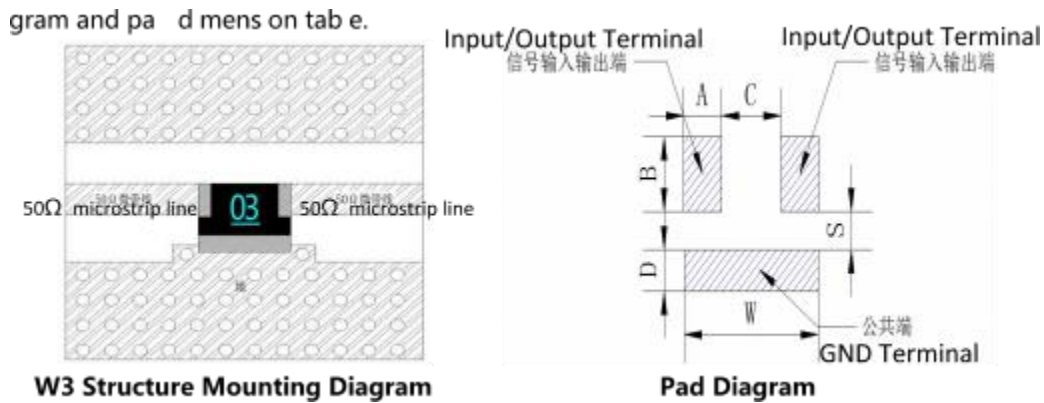
8、Typical Applications

Attenuators are used in radar, microwave communication and other fields, and play the role of power adjustment and isolation protection in microwave T/R modules and power modules.



9、Mounting and precautions

The recommended mounting method for products with ww3 package structure is shown in the mounting diagram. The recommended pad structure and dimensions are shown in the paddiagram.



Pad Dimensions Table (Typical)

series	Dimensions (mm)					
	A	B	C	D	S	W
FA05	0.83	0.69	0.80	0.68	0.48	2.48
FA03	1.00	1.57	2.55	0.90	0.97	4.55

Precautions:

(1) Reflow soldering is recommended. The general reflow peak time is 15s ~ 60s, maximum not more than 90s, and the peak temperature not more than 245°C;

(2) For manual soldering, the tip diameter of the soldering iron shall not exceed 1 mm.

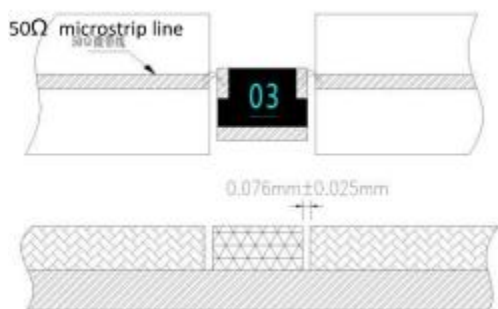
Temperature-controllable electric soldering iron is preferred, and the temperature of the

soldering iron tip shall not exceed 300°C; if an ordinary electric soldering iron is used, attention shall be paid that the power of the electric soldering iron should not be greater than 20w, and the soldering time should not exceed 5s;

(3) Reflow soldering should be used with caution;

(4) The back of the fixed attenuator with WB1 structure is bonded to ground with conductive adhesive resistant to high and low temperatures (curing temperature not exceeding 200°C), and the input and output terminals are mounted with gold wire or gold ribbon bonding. The

recommended mounting method is shown in the following figure.



WB1 structure product Mounting Diagram