

## 0 to 63 dB High Power Programmable Relay Controlled Step Attenuator with a 1 dB Step SMA Female to SMA Female from 200 MHz to 2.5 GHz

The FMAT8013 is a 6 Bit Relay Controlled High Power Programmable Attenuator that operates over the frequency range of DC to 2500 Mhz. The 50 ohm design has an attenuation range that covers 0 to 63 dB in 1 dB steps. Attenuation steps are 1, 2, 4, 8, 16, and 32 dB. The FMAT8013 features an external TTL controlled driver printed circuit board. Insertion loss is 2 dB typical with a maximum RF input power rating of 0.5 Watts average and 100 Watts peak. Additional typical performance includes +/- 0.25 dB attenuation accuracy and switching speed of 6 milliseconds. Operational temperature range is -40°C to +85°C, and the DC supply is +12 Vdc @ 15 mA for 1, 2, 4, 8, and 16 dB steps, and +12V @ 60 mA for 32 dB. The compact and rugged package design supports SMA female RF input/output connectors, and a 10 pin male connector socket for DC and TTL controls. A mating DC cable connector plug assembly (model PE3C4220-24) is available in stock as an accessory.

### Electrical Specifications (Values at 25°C, sea level)

| Description            | Min | Typ   | Max   | Unit |
|------------------------|-----|-------|-------|------|
| Frequency Range        | DC  |       | 2.5   | GHz  |
| Impedance              |     | 50    |       | Ohms |
| Mean Attenuation Range | 0   |       | 63    | dB   |
| Insertion Loss         |     | 2     | 3.9   | dB   |
| VSWR                   |     | 1.4:1 | 1.6:1 |      |
| Step Size              | 1   |       |       | dB   |
| Switching Time         |     | 6     |       | us   |

### Performance by Frequency

| Description         | F1     | F2    | F3    | F4 | F5 | Units |
|---------------------|--------|-------|-------|----|----|-------|
| Freq. Range         | DC-0.5 | 0.5-1 | 1-2.5 |    |    | GHz   |
| Insertion Loss, Typ | 1      | 1.7   | 3.5   |    |    | dB    |

#### Electrical Specification Notes:

TTL Low for thru path

TTL High for Attenuation



### Features:

- 6 Bit Relay Controlled High Power Programmable Attenuator
- Frequency Range DC to 2500 MHz
- Attenuation Range: 0 to 63 dB in 1 dB steps
- Attenuation Steps: 1, 2, 4, 8, 16, and 32 dB
- Integrated TTL Controlled Driver Board
- Insertion Loss 2 dB typ
- Attenuation Accuracy +/- 0.25 dB typ
- Switching Speed 6 milliseconds typ
- Max RF Input Power 0.5 Watts Average and 100 Watts Peak
- DC Voltage +12 Vdc
- 50 Ohm Design
- -40°C to +85°C Operating Temperature
- SMA Female Connectors
- 10 Pin Make Connector Socket for DC and TTL controls
- Rugged Mil Grade Package Design

### Applications:

- Military & Commercial Communication Systems
- Microwave Radio Systems
- Radar Systems
- Test & Measurement
- Research & Development
- RF Wideband Front Ends

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**Absolute Maximum Rating**

| Description   | Min | Typ | Max   | Units |
|---|-----|-----|-------|-------|
| RF Input Power (Average)  |     |     | 0.5   | Watts |
| RF Input Power (Peak)   |     |     | 100   | Watts |
| DC Voltage 1 (1, 2, 4, 8, and 16 dB pads)                           |     | +12 |       | Vdc   |
| DC Current 1 (1, 2, 4, 8, and 16 dB pads)                           |     | 15  |       | mA    |
| DC Voltage 1 (32dB pads)  |     | +12 |       | Vdc   |
| DC Current 1 (32dB pads)  |     | 60  |       | mA    |
| Accuracy of Attenuation (1, 2, 4, 8, 16, and 32 dBpads) DC-1000 MHz |     |     | ± 0.2 | dB    |
|   |     |     | ± 0.3 | dB    |

**Mechanical Specifications**
**Size**

Connector 1  
 Connector 2

SMA Female  
 SMA Female

**Environmental Specifications**
**Temperature**

Operating Range

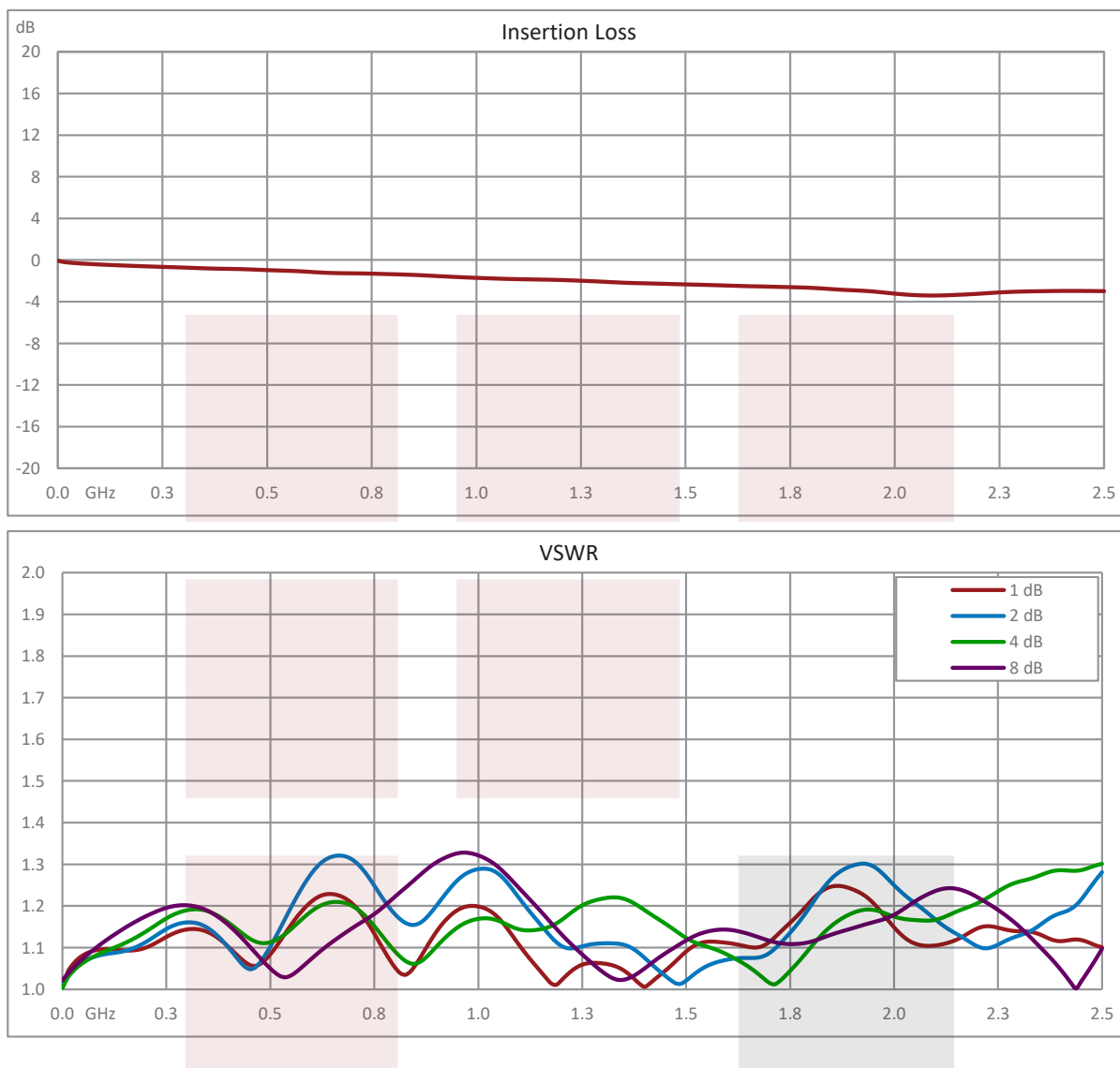
-40 to +85 deg C

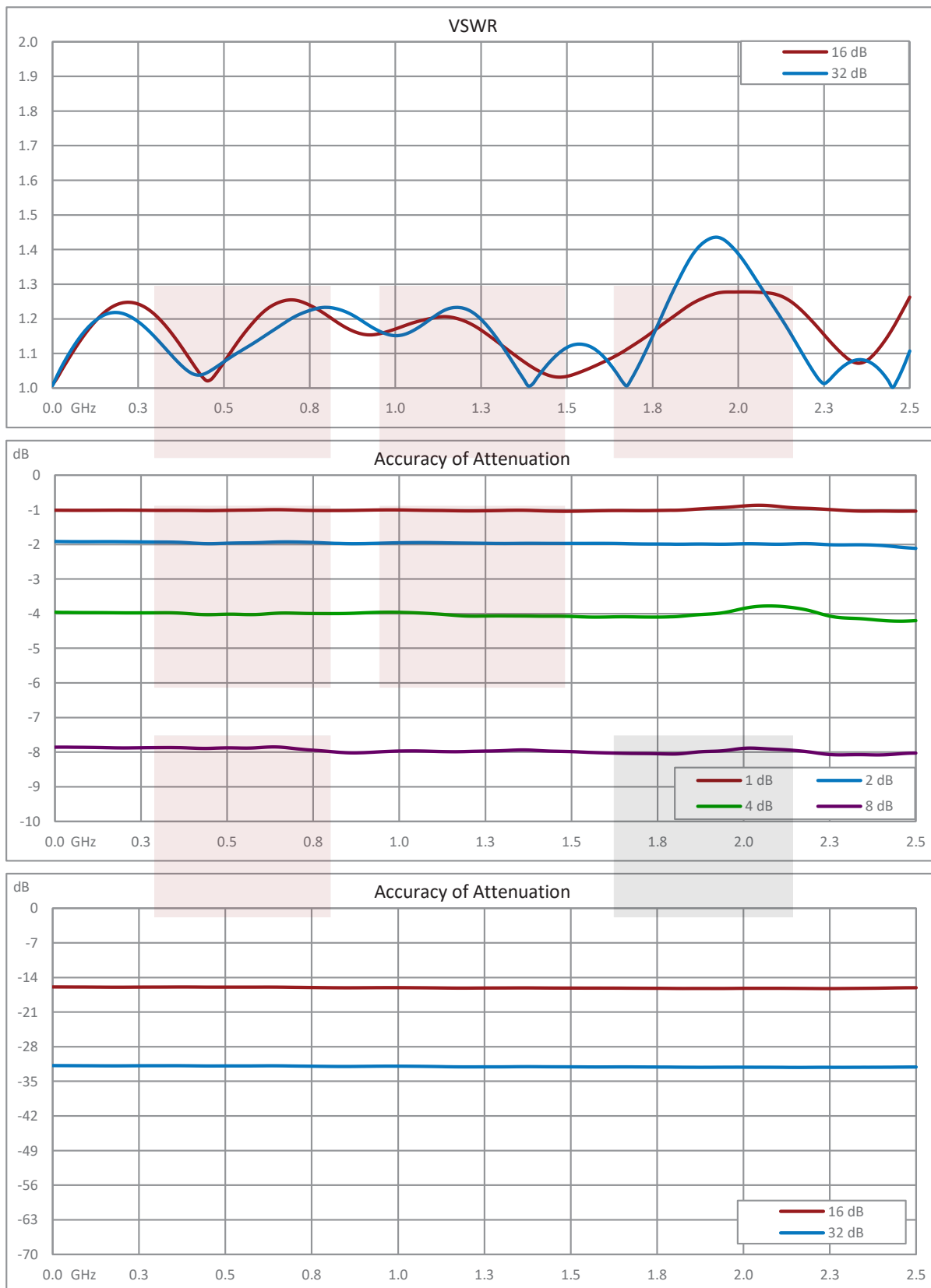
**Compliance Certifications** (see [product page](#) for current document)

**Plotted and Other Data**

Notes:

**Typical Performance Data**



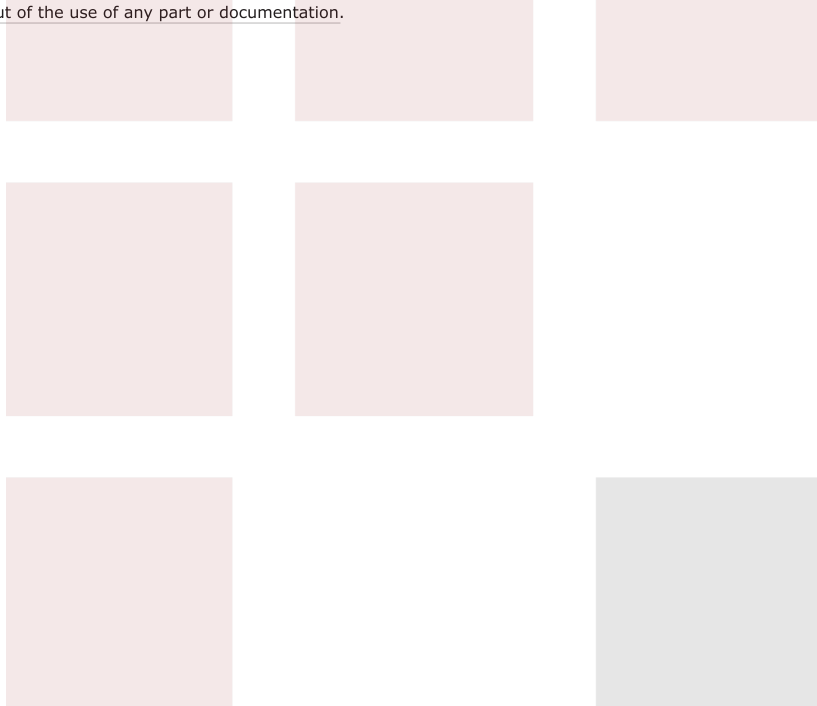


0 to 63 dB High Power Programmable Relay Controlled Step Attenuator with a 1 dB Step SMA Female to SMA Female from 200 MHz to 2.5 GHz from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Lewisville, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [0 to 63 dB High Power Programmable Relay Controlled Step Attenuator with a 1 dB Step SMA Female to SMA Female from 200 MHz to 2.5 GHz FMAT8013](https://www.fairviewmicrowave.com/0-to-63-db-high-power-programmable-relay-controlled-step-attenuator-with-a-1-db-step-sma-female-to-sma-female-from-200-mhz-to-2.5-ghz-fmat8013-p.aspx)

URL: <https://www.fairviewmicrowave.com/0-to-63-db-high-power-programmable-relay-controlled-step-attenuator-with-a-1-db-step-sma-female-to-sma-female-from-200-mhz-to-2.5-ghz-fmat8013-p.aspx>

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TITLE

0 to 63 dB High Power Programmable Relay Controlled Step Attenuator with a 1 dB Step SMA Female to SMA Female from 200 MHz to 2.5 GHz

UNLESS OTHERWISE SPECIFIED LEADING DIMENSIONS ARE INCHES  
DIMENSIONS IN [ ] ARE MILLIMETERS

TOLERANCES:

CABLE LENGTH (L) TOLERANCES:

X = ±.2 [5.08]

.XX = ±.02 [.51]

XXX = ±.005 [.13]

FRACTIONS

± 1/32

ANGLES ± 1°

L ≤ 12 [305] = +1 [25] / -0

12 [305] < L ≤ 60 [1524] = +2 [51] / -0

60 [1524] < L ≤ 120 [3048] = +4 [102] / -0

120 [3048] < L ≤ 300 [7620] = +6 [152] / -0

300 [7620] < L = +5%L / -0

ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.

SIZE  
A

CAGE CODE  
3FKR5

DRAWN BY  
MVEERAPPAN

ITEM NO.  
FMAT8013

REV  
A

THIRD-ANGLE PROJECTION

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SHEET  
1

OF  
1

SCALE  
N/A

REVISIONS

REV.

DESCRIPTION

DATE

APPROVED

A

INITIAL RELEASE

14-08-2021

TGALLA

1.125  
[28.6]

4.125  
[104.8]

4X 4-40 Ø.085 DP  
[2.2]

1.38  
[34.9]

1.63  
[41.3]

4.63  
[117.5]

LABEL PER ILS-100-05  
SEE NOTE 2

SEE NOTE 1

2X SMA FEMALE

DETAIL A  
3M #3793-5303

| PIN | FUNCTION       |
|-----|----------------|
| 1   | 1 dB TTL CONT. |
| 2   | 2dB TTL CONT.  |
| 3   | 4dB TTL CONT.  |
| 4   | 8dB TTL CONT.  |
| 5   | 16dB TTL CONT. |
| 6   | 32dB TTL CONT. |
| 7   | NO CONNECTION  |
| 8   | NO CONNECTION  |
| 9   | GROUND         |
| 10  | +VDC           |

NOTES:

1. SERIAL NUMBER AND DATE CODE ARE COMBINED. EX: 202008280001.

2. LABEL PER ILS-100-05. FOR INTERNAL REFERENCE ONLY. LABEL LOCATION SHOULD BE SAME AS SHOWN.

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