

1 GHz to 20 GHz Digital Control Attenuator, 127.5 dB, 8 Bits, 0.5 dB Step Size, Field Replaceable SMA

The FMAT5017 is an Absorptive 8 Bit Digitally Controlled Programmable Attenuator that operates across a broadband frequency from 1 GHz to 20 GHz. The 50 Ohm design supports TTL control logic and has an attenuation range that covers 0 to 127.5 dB in 0.5 dB steps. Attenuation steps are 0.5, 1, 2, 4, 8, 16, 32, and 64 dB. Insertion loss is 11 dB typical with a maximum RF input power of +27 dBm. Additional typical performance includes attenuation flatness of +/- 4 dB, Input P0.1dB compression power of +25 dBm, input IP3 of 44 dBm, and switching speed of 200 nsec. The unit requires a dual bias supply of +5V/-5V with DC current of 250mA/130 mA max. The low profile pin package is aluminum with Gold plating and supports field replaceable SMA RF connectors and a Micro-D15 female connector for DC Bias and Command Control functions. The module has an operational temperature range from -40°C to +85°C and is guaranteed to meet a series of environmental test conditions for Altitude, Vibration, Humidity, and Shock.

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

Description	Min	Typ	Max	Unit
Frequency Range	1		20	GHz
Impedance		50		Ohms
Attenuation Range		127.5		dB
Insertion Loss		11	15	dB
VSWR		1.9:1	2.3:1	
Input at 0.1 dB Compression Point		+25		dB
Input IP3		+44		dBm
DC Voltage		+5		Vdc
Attenuation Flatness*		4		dB
TTL Low for Thru Path		0 to 0.8V		Vdc
TTL High for Attenuation		2-5V		Vdc
Step Size		0.5		dB
Switching Speed		200		ns
RF Input Power			27	dBm
Control Bits		8		Bits
Bias Current			250/130	mA
IL Temperature Coefficient		0.01		dB/deg C

*Referenced to Insertion Loss

Absolute Maximum Rating

Parameter	Rating
Biasing	5V±10%/-5V±10%
RF Input power	+30dBm



ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in approved ESD Workstation.



Features:

- Absorptive Programmable Voltage Controlled Attenuator
- 1 GHz to 20 GHz
- Attenuation Range 0 to 127.5 dB typ
- 0.5 dB Step Size
- 8 Bits
- Digital TTL Logic Control
- Insertion Loss 11 dB
- Attenuation Flatness +/- 4 dB typ
- Input P0.1 dB Compression Power +25 dBm typ
- Input IP3 44 dBm typ
- Max RF Input Power (CW) +27 dBm
- Switching Speed 200 nsec typ
- Dual DC Supply +5V/-5V @ 250mA/130mA
- 50 Ohm Design
- Field Replaceable SMA Female RF Connectors
- Micro-D15 Female connector for DC Bias and Command Control
- Operational Temperature Range -40°C to +85°C
- Rugged and Compact Aluminum Gold Plated Package Design
- Guaranteed Environmental Test Conditions Altitude, Vibration, Humidity, Shock
- Single Positive Control Line Per Bit

Applications:

- Test & Measurement
- Military and Commercial Communications
- Military Electronic Systems
- Research & Development

Fairview Microwave
301 Leora Ln., Suite 100
Lewisville, TX 75056
Tel: 1-800-715-4396 / (972) 649-6678
Fax: (972) 649-6689
www.fairviewmicrowave.com
sales@fairviewmicrowave.com

Mechanical Specifications

Size

Length	1.5 in [38.1 mm]
Width	0.37 in [9.4 mm]
Height	1.42 in [36.07 mm]
Weight	0.002 lbs [0.91 g]
Connector 1	Field Replaceable SMA Female
Connector 2	Field Replaceable SMA Female

Environmental Specifications

Temperature

Operating Range	-40 to +85 deg C
Storage Range	-50 to +105 deg C

Humidity	100% RH at 35°C, 95% RH at 40°C
Shock	20G for 11 msec half sine wave, 3 axis both directions
Vibration	25g RMS (15 degrees 2KHz) endurance, 1 hour per axis
Altitude	30,000 Feet

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

Plotted and Other Data

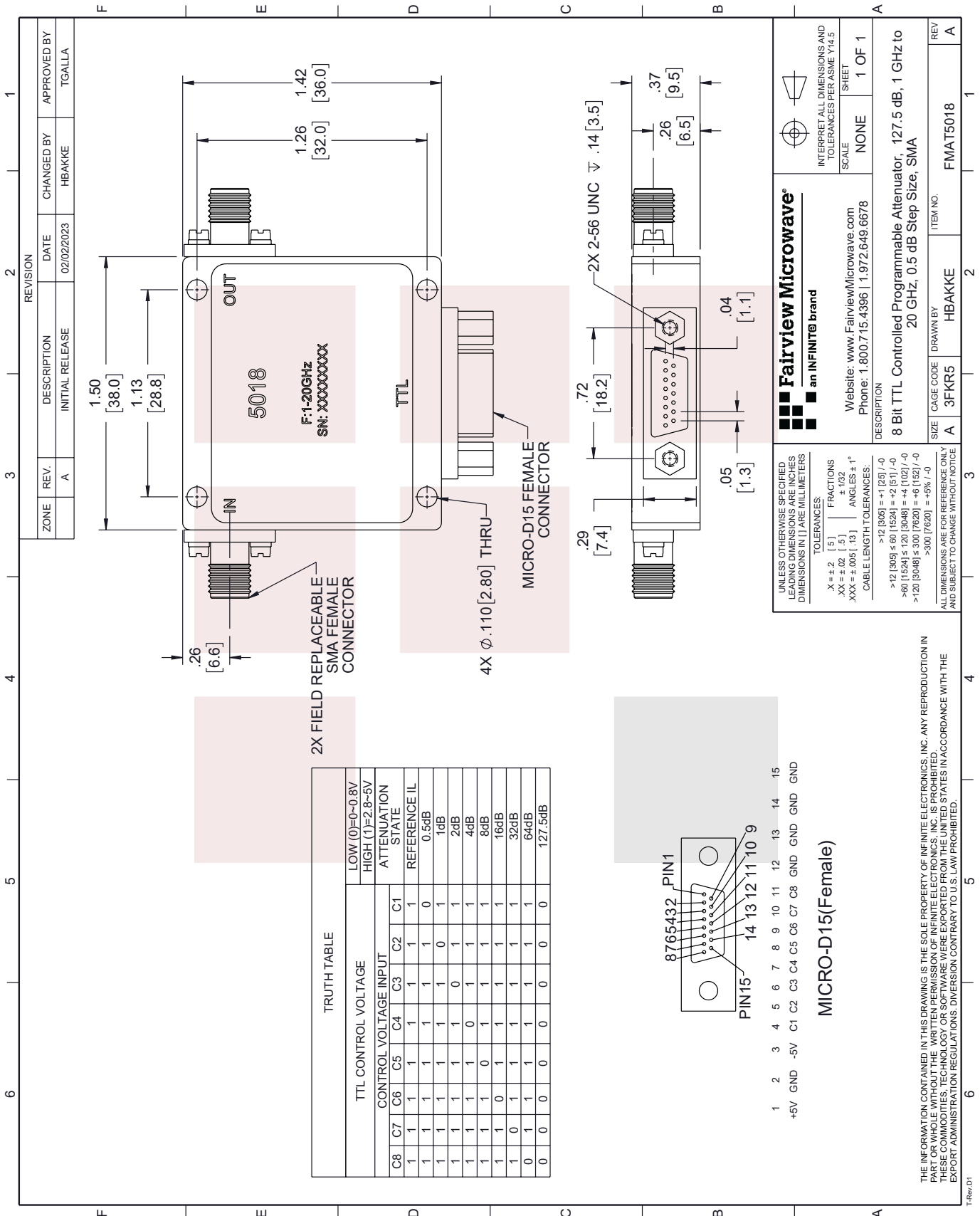
Notes:

1 GHz to 20 GHz Digital Control Attenuator, 127.5 dB, 8 Bits, 0.5 dB Step Size, Field Replaceable SMA 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: [1 GHz to 20 GHz Digital Control Attenuator, 127.5 dB, 8 Bits, 0.5 dB Step Size, Field Replaceable SMA FMAT5018](#)

URL: <https://www.fairviewmicrowave.com/127.5-db-ttl-controlled-step-attenuator-sma-female-fmat5018-p.aspx>

The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements. Fairview Microwave reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal. Fairview Microwave does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, and Fairview Microwave does not assume any liability arising out of the use of any part or documentation.

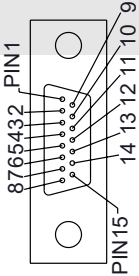


ZONE	REV.	DESCRIPTION	DATE	CHANGED BY	APPROVED BY
A	A	INITIAL RELEASE	02/02/2023	HBAKKE	TGALLA

REVISION	DESCRIPTION
1	INITIAL RELEASE

<p>Fairview Microwave® an INFINITE® brand</p> <p>Website: www.FairviewMicrowave.com Phone: 1.800.715.4396 1.972.649.6678</p>		<p>INTERPRET ALL DIMENSIONS AND TOLERANCES PER ASME Y14.5 SHEET</p> <p>SCALE: NONE</p> <p>SHEET: 1 OF 1</p>
<p>DESCRIPTION: 8 Bit TTL Controlled Programmable Attenuator, 127.5 dB, 1 GHz to 20 GHz, 0.5 dB Step Size, SMA</p>		
SIZE: A	CAGE CODE: 3FKR5	ITEM NO.: FMAT5018
REV: A	DRAWN BY: HBAKKE	REV: A

TTL CONTROL VOLTAGE			LOW (0)=0-0.8V	HIGH (1)=2.8-5V			
CONTROL VOLTAGE INPUT			ATTENUATION STATE				
C8	C7	C6	C5	C4	C3	C2	C1
1	1	1	1	1	1	1	0
1	1	1	1	1	1	0	1
1	1	1	1	1	0	1	0
1	1	1	1	0	1	1	1
1	1	1	0	1	1	1	1
1	1	0	1	1	1	1	1
1	0	1	1	1	1	1	1
1	0	1	1	1	1	1	0
0	1	1	1	1	1	1	1
0	1	1	1	1	1	0	1
0	0	0	0	0	0	0	0



MICRO-D15(Female)

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF INFINITE ELECTRONICS, INC. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF INFINITE ELECTRONICS, INC. IS PROHIBITED. THESE COMMODITIES, TECHNOLOGY OR SOFTWARE WERE EXPORTED FROM THE UNITED STATES IN ACCORDANCE WITH THE EXPORT ADMINISTRATION REGULATIONS. DIVERSION CONTRARY TO U.S. LAW PROHIBITED.