

## 40 GHz to 60 GHz E-Band 6x Active Frequency Multiplier, +15 dBm Pout, WR-12 Output with UG-387/U Flange, SMA Female Input

The FMFX2024 is a WR-12 Waveguide 6x Active Frequency Multiplier that covers the full E frequency band from 60 GHz to 90 GHz with an input frequency band from 10 GHz to 15 GHz. Typical performance for the 50 ohm design includes -1 dBm input power, +15 dBm output power, and -15 dBc harmonics. Maximum input power (CW) is +10 dBm, and DC bias is +6 Vdc at 198 mA typ. The rugged and small size aluminum package design is gold plated and supports an SMA female connector for the RF input port and a UG-387/U waveguide flange pattern at the output port. Solder pins are used for DC bias voltage and ground pin. The module operates across a wide temperature range from -40°C to +80°C maximum.



### Electrical Specifications@ +25°C

Description	Min	Typ	Max	Units
Input Frequency Range	10		15	GHz
Output Frequency Range	60		90	GHz
Input Power	-2	-1	10	dBm
Output Power		15		dBm
DC Voltage	5	6	8	Volts
DC Current		198		mA
Input VSWR		2.5:1		
Harmonics		-15		dBc

### Biasing Up and Down Procedure

Biasing Up Procedure	
Step 1	Connect Ground Pin
Step 2	Apply DC Supply Voltage
Step 3	Turn ON RF input
Power Down Procedure	
Step 1	Turn OFF RF input
Step 2	Turn OFF DC Supply Voltage
Step 3	Remove Ground

#### Electrical Specification Notes:

- 1.) DC Supply must be able to source at least 0.5A DC at startup
- 2.) Open and short circuit loads are not recommended at the multiplier output.
- 3.) Ensure proper 50 Ohm load before turning the multiplier "ON".
- 4.) Do not put any foreign objects inside the waveguide. The warranty will be voided.

### Mechanical Specifications

<b>Size</b>	
Length	1.5 in [38.1 mm]
Width	1.5 in [38.1 mm]

### Features:

- WR-12 Waveguide 6x Active Frequency Multiplier
- Output Frequency 60 GHz to 90 GHz, E Band
- Input Frequency 10 GHz to 15 GHz
- Pout +15 dBm typ
- Bias Voltage Range +6 Vdc to +8 Vdc
- DC current 300 mA typ
- 50 Ohm Design
- Input RF Connector SMA Female
- Output Waveguide WR-12 with UG-387/U flange
- Solder Pins for DC Bias Voltage and Ground
- Operational Temperature Range -40°C to +80°C
- Rugged and Compact Aluminum Gold Plated Package Design

### Applications:

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

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Height	0.937 in [23.8 mm]
Weight	0.2 lbs [90.72 g]
Body Material and Plating	Aluminum
Finish	GLD
Input Port	SMA Female
Output Port	WR-12 Waveguide with UG-387/U Flange
DC Bias	Feed-thru Pin

**Environmental Specifications**

**Temperature**

Operating Range	-40 to 80 deg C
Storage Range	-40 to 100 deg C

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

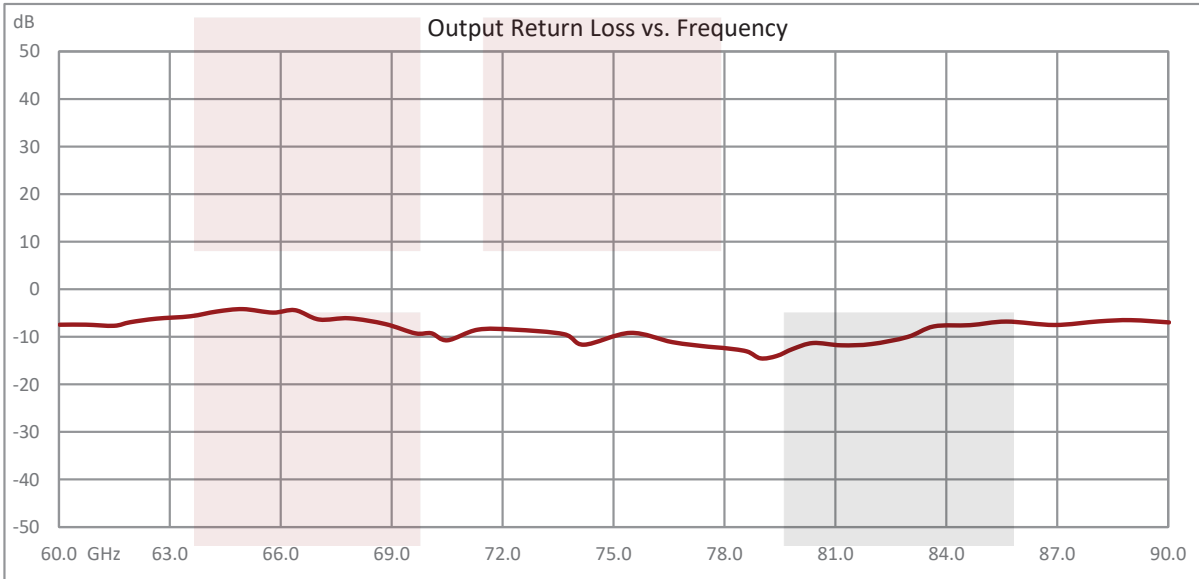
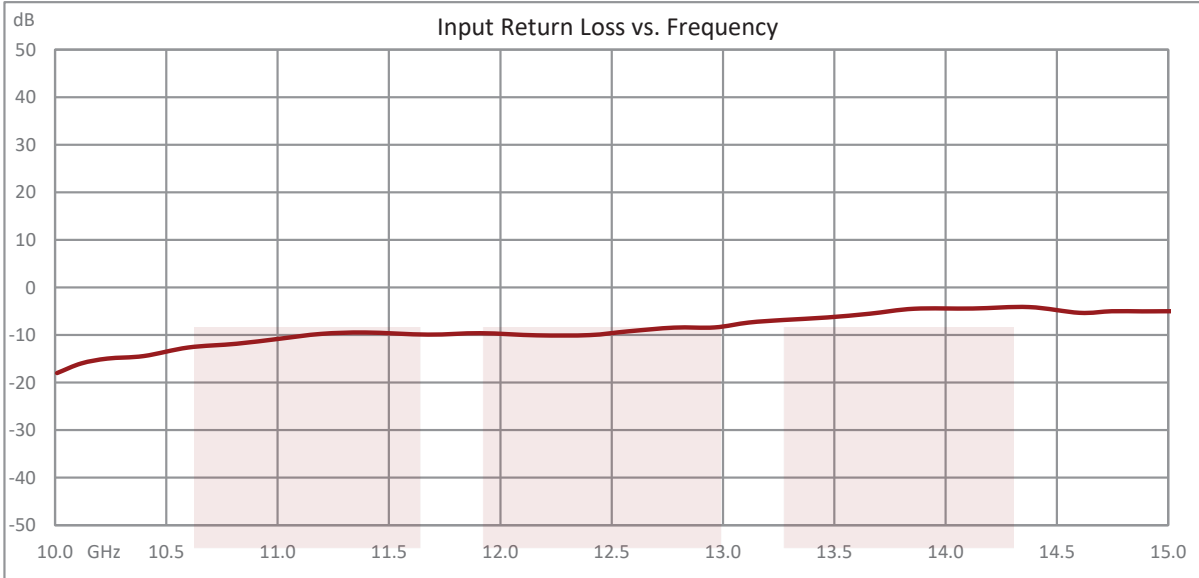
**Plotted and Other Data**

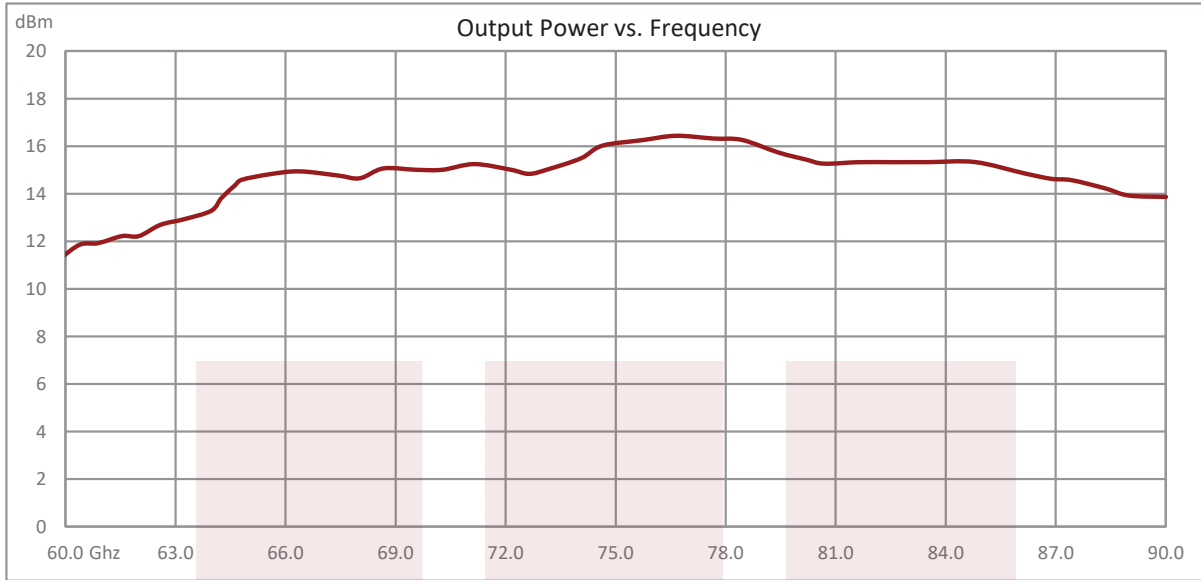
Notes:

**Absolute Maximum Rating**

Parameter	Rating
Operating Temperature	-40°C to +80°C
Storage Temperature	-40°C to +100°C
Total Power Dissipation	4W
Input Power (CW)	+10dBm
DC Operating Voltage	+12V

**Typical Performance Data**





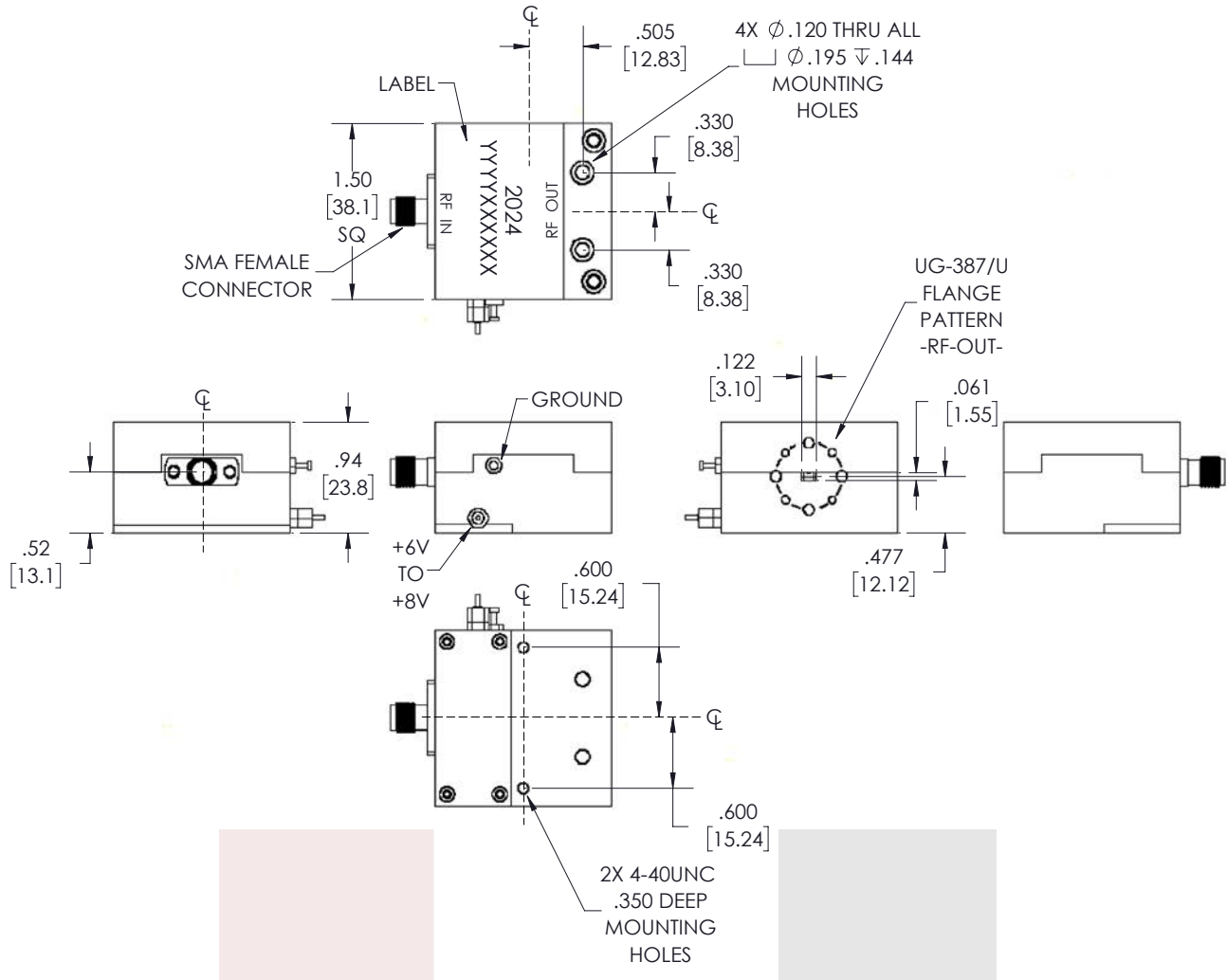
40 GHz to 60 GHz E-Band 6x Active Frequency Multiplier, +15 dBm Pout, WR-12 Output with UG-387/U Flange, SMA Female Input from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Lewisville, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [40 GHz to 60 GHz E-Band 6x Active Frequency Multiplier, +15 dBm Pout, WR-12 Output with UG-387/U Flange, SMA Female Input FMFX2024](#)

URL: <https://www.fairviewmicrowave.com/wr-12-waveguide-6x-frequency-multiplier-module-e-band-60-ghz-to-90-ghz-output-frequency-+10-dbm-pout-input-sma-ug-387-u-flange-fmfx2024-p.aspx>

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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	03/11/2022	TGALLA



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TITLE

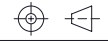
40 GHz to 60 GHz E-Band 6x Active Frequency Multiplier, +15 dBm Pout, WR-12 Output with UG-387/U Flange, SMA Female Input

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

TOLERANCES: CABLE LENGTH (L) TOLERANCES:

.X = ±.2 [5.08]	FRACTIONS	L ≤ 12 [305] = +1 [25] / -0
.XX = ±.02 [51]	± 1/32	12 [305] < L ≤ 60 [1524] = +2 [51] / -0
.XXX = ±.005 [13]	ANGLES ± 1°	60 [1524] < L ≤ 120 [3048] = +4 [102] / -0
		120 [3048] < L ≤ 300 [7620] = +6 [152] / -0
		300 [7620] < L = +5%L / -0

THIRD-ANGLE PROJECTION



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SHEET 1 OF 1

ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.

SCALE N/A

SIZE A	CAGE CODE 3FKR5	DRAWN BY BPUCHASKI	ITEM NO. FMFX2024	REV A
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PEPERFORMANCE  
T-Rev.D