



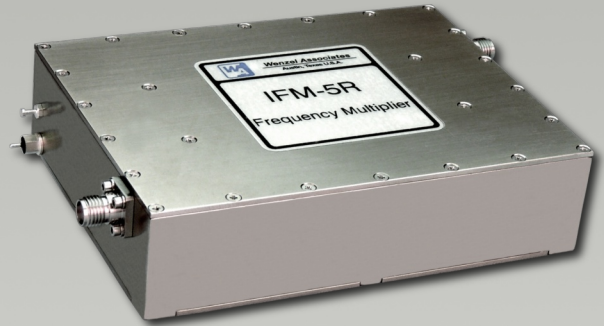
Blue Tops RF Modules > Integrated Frequency Multiplier (IFM-5R)

Features:

- Input Frequency: 5 MHz to 500 MHz
- Multiplication Factors: x32 to x3125
- Output Frequency to 16 GHz
- Low Conversion Loss
- Intrinsic Phase Noise to -176 dBc/Hz
- Integral Filters and Amplifiers
- Includes Low Noise Voltage Regulator

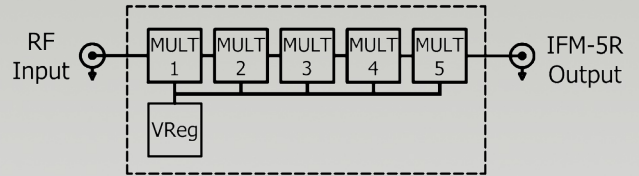
Applications:

- Synthesizer Building Block
- Communication Systems
- Radar Systems
- Electronic Warfare Systems

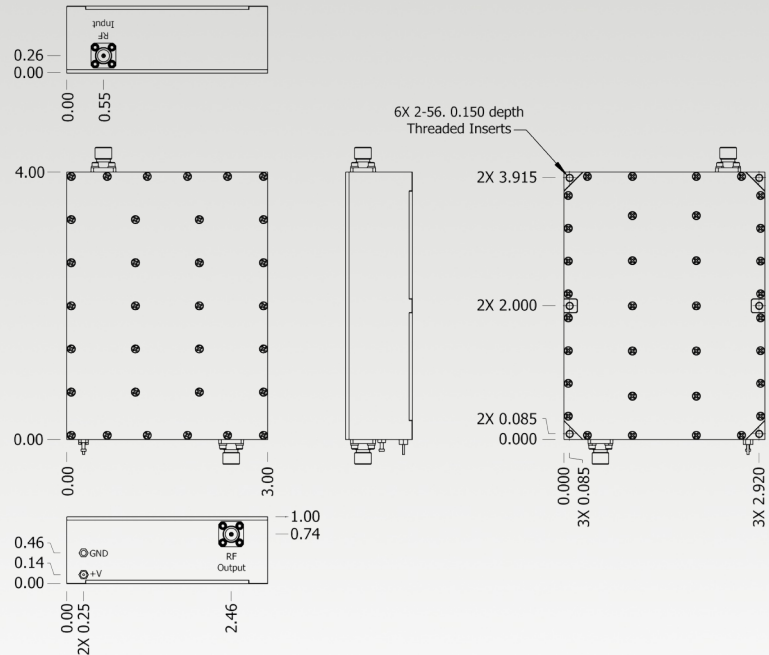


Description:

The IFM-5R is a low noise multiplier module, which combines low noise multipliers, bandpass filters, amplifiers and a voltage regulator to achieve exceptionally low phase noise, excellent spectral purity and good conversion efficiency. Multiplication factors of x32 to x3125 are available using a combination of up to five (5) standard multipliers (2, 3, 4, 5, 7, 9 and 11) with output frequencies to 16 GHz. The IFM-5R provides input referred phase noise floors as low as -176 dBc/Hz. Please consult Wenzel technical staff for assistance in configuring a multiplier to suit specific requirements.



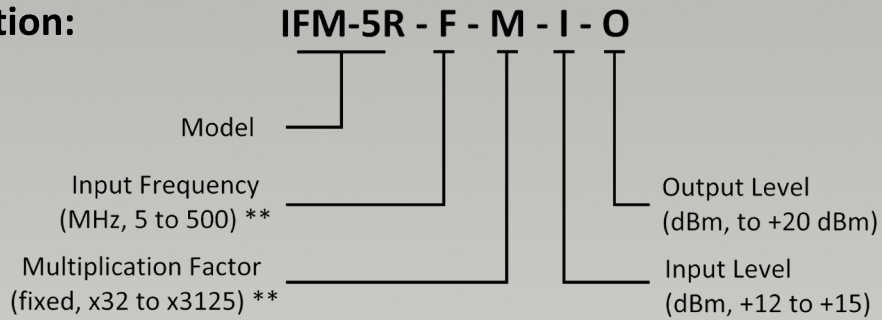
Electrical Specifications	
Input Frequency Range	5 MHz to 500 MHz, fixed
Multiplication Factor (Fixed)	x32 to x3125
Consists of a combination of five (5) standard multipliers. Input frequency limitations apply. See "Ordering Information" for more details.	
Max Input Frequency:	500 MHz to 5 MHz
Input Level	+12 dBm to +15 dBm, fixed (±1 dB)
Output Frequency	to 16 GHz
Output Level	to +20 dBm (±2 dB)
Phase Noise Floor (Intrinsic, Input Referred)	to -176 dBc/Hz
Conversion Loss	-3 dB to +5 dB
Harmonics	≤ -25 dBc
Sub-Harmonics	≤ -60 dBc
Spurious (Excluding Supply Line Related Spurs)	≤ -80 dBc
Supply Voltage	+15 VDC ±5% (Includes Internal Low Noise Voltage Regulator)
Current Draw (Configuration Dependent)	380 to 800 mA
Operating Temperature	+25 ±5°C **
Storage Temperature	-40 to +85°C
Mechanical	
Dimensions	3.0" x 4" x 1"
DC Supply	Feed Thru Capacitor Solder Pin
Ground	Turret Terminal Solder Pin
RF Input / Output	SMA female *
* SMA female connectors are used unless otherwise specified. Contact factory for custom configurations.	
** Please consult factory for custom Operating Temperature range options and capability.	





Blue Tops RF Modules > Integrated Frequency Multiplier (IFM-5R)

Ordering Information:



** The multiplication factor selected will be a combination of up to five (5) standard multipliers (x2, x3, x4, x5, x7, x9 and x11), which are cascaded together. Please note that each of the multiplier stages have minimum and maximum input frequency limitations, which must be considered when selecting an input frequency and overall multiplication factor. See the "Standard Multiplier Frequency Limits" table for details. Consult factory to verify that the selected input frequency and multiplication factor is a valid configuration before ordering.

Standard Multiplier Frequency Limits		
Multiplier	Minimum Input Frequency	Maximum Input Frequency
x2	5 MHz	8 GHz
x3	5 MHz	5 GHz
x4	5 MHz	250 MHz
x5	5 MHz	700 MHz
x7	5 MHz	550 MHz
x9	5 MHz	50 MHz
x11	5 MHz	10 MHz

Standard P/N	Input Frequency	Multiplication Factor	Input Level	Output Level	Output Frequency	Input Referred Residual Phase Noise (100 kHz offset)	Supply Voltage
IFM-5R-320-32-13-13	320 MHz	x32 (2 x 2 x 2 x 2 x 2)	+13 dBm	+13 dBm	10240 MHz	≤ -176 dBc/Hz	+15 VDC
IFM-5R-80-48-13-13	80 MHz	x48 (3 x 2 x 2 x 2 x 2)	+13 dBm	+13 dBm	3840 MHz	≤ -176 dBc/Hz	+15 VDC
IFM-5R-80-64-13-13	80 MHz	x64 (4 x 2 x 2 x 2 x 2)	+13 dBm	+13 dBm	5120 MHz	≤ -170 dBc/Hz	+15 VDC
IFM-5R-120-80-13-13	120 MHz	x80 (5 x 2 x 2 x 2 x 2)	+13 dBm	+13 dBm	9600 MHz	≤ -176 dBc/Hz	+15 VDC
IFM-5R-80-120-13-13	80 MHz	x120 (5 x 3 x 2 x 2 x 2)	+13 dBm	+13 dBm	9600 MHz	≤ -176 dBc/Hz	+15 VDC
IFM-5R-80-160-13-13	80 MHz	x160 (5 x 4 x 2 x 2 x 2)	+13 dBm	+13 dBm	12800 MHz	≤ -176 dBc/Hz	+15 VDC
IFM-5R-50-200-13-13	50 MHz	x200 (5 x 5 x 2 x 2 x 2)	+13 dBm	+13 dBm	10000 MHz	≤ -176 dBc/Hz	+15 VDC
IFM-5R-5-280-13-13	5 MHz	x280 (7 x 5 x 2 x 2 x 2)	+13 dBm	+13 dBm	1400 MHz	≤ -174 dBc/Hz	+15 VDC
IFM-5R-10-300-13-13	10 MHz	x300 (5 x 5 x 3 x 2 x 2)	+13 dBm	+13 dBm	3000 MHz	≤ -174 dBc/Hz	+15 VDC
IFM-5R-10-500-13-13	10 MHz	x500 (5 x 5 x 5 x 2 x 2)	+13 dBm	+13 dBm	5000 MHz	≤ -174 dBc/Hz	+15 VDC