



Blue Tops RF Modules > Low Noise Odd Even Order Multiplier

Features:

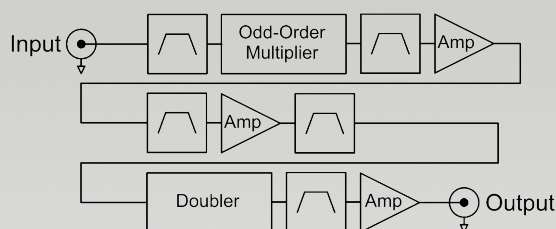
- Output Frequencies to 1.5 GHz
- Multiplier Factors (x6, x10 and x14)
- Low Conversion Loss
- Intrinsic Phase Noise to -177 dBc/Hz
- Integral Filters and Amplifiers

Applications:

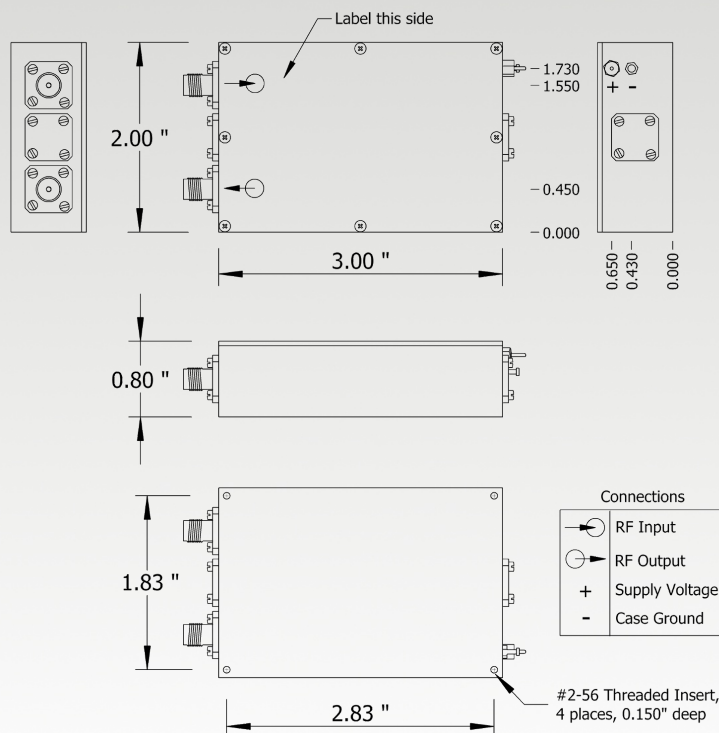
- Synthesizer Building Block
- Communication Systems
- Radar Systems
- Electronic Warfare Systems

Description:

The LNOEM is a low noise odd and even frequency multiplier utilizing a proprietary Schottky Diode odd-order multiplier followed by a Schottky Diode doubler to achieve exceptionally low phase noise and excellent conversion efficiency. Multiplication factors of 6, 10 and 14 with output frequencies to 1.5 GHz are available. Integral bandpass filters effectively control undesired sub-harmonics and harmonics. The LNOEM provides input referred phase noise floors to -177 dBc/Hz and unusually low flicker noise. Integral amplifiers provide near unity gain. Please consult our technical staff for assistance in configuring a multiplier to suit your input and output requirements.



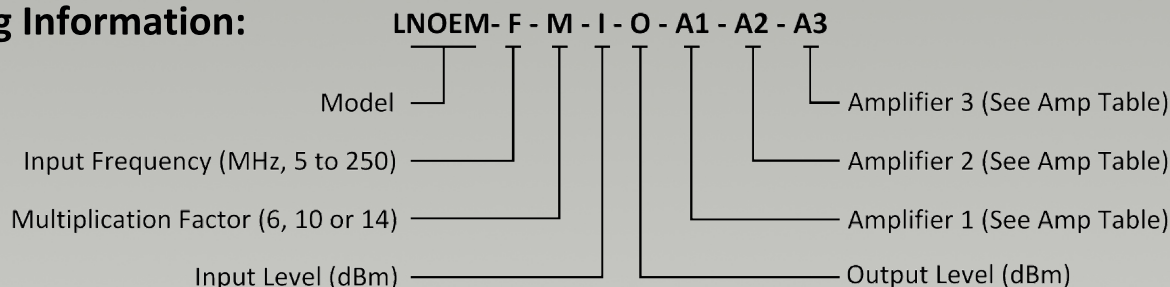
Electrical Specifications			
Input Frequency Range	5 MHz to 250 MHz, fixed		
Multiplication Factors	x6	x10	x14
	Max Input Frequency	250 MHz	150 MHz
Input Level	+12 dBm to +15 dBm, fixed (±1 dB)		
Output Frequency	to 1.5 GHz		
Output Level	to +15 dBm		
Phase Noise Floor (Intrinsic, Input Referred)	to -177 dBc/Hz		
Conversion Loss	0 dB, typical (±2 dB)		
Harmonics	≤ -25 dBc		
Sub-Harmonics	≤ -40 dBc		
Spurious (Excluding Supply Line Related Spurs)	≤ -80 dBc		
Supply Voltage	+15 VDC ±2%		
Current Draw (Amplifier Dependent)	150 to 300 mA		
Operating Temperature	0 to +50°C		
Storage Temperature	-40 to +85°C		
Mechanical			
Dimensions	3" x 2" x 0.8"		
DC Supply	Feed Thru Capacitor Solder Pins		
Ground	Turret Terminal Solder Pin		
RF Input / Output	SMA female *		
NOTE: See amplifier selection chart for internal amplifier options or consult factory.			
* SMA female connectors are used unless otherwise specified. Other options include SMA male, right angle SMAs, BNC female and others. Contact factory for custom configurations.			





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Ordering Information:



Standard P/N **	Input Frequency	Multiplier Factor	Input Level	Output Level	Output Frequency	Input Referred Residual Phase Noise (100 kHz offset)	Supply Voltage
LNOEM-10-10-13-13-BT-BT-BT	10 MHz	x10	+13 dBm	+13 dBm	100 MHz	≤ -170 dBc/Hz	+15 VDC
LNOEM-10-10-13-13-AU-AU-BT	10 MHz	x10	+13 dBm	+13 dBm	100 MHz	≤ -176 dBc/Hz	+15 VDC
LNOEM-80-6-13-13-BT-BT-BT	80 MHz	x6	+13 dBm	+13 dBm	480 MHz	≤ -170 dBc/Hz	+15 VDC
LNOEM-80-6-13-13-AU-BT-BT	80 MHz	x6	+13 dBm	+13 dBm	480 MHz	≤ -176 dBc/Hz	+15 VDC
LNOEM-100-10-13-13-BT-BT-BT	100 MHz	x10	+13 dBm	+13 dBm	1000 MHz	≤ -170 dBc/Hz	+15 VDC
LNOEM-100-10-13-13-AU-BT-BT	100 MHz	x10	+13 dBm	+13 dBm	1000 MHz	≤ -176 dBc/Hz	+15 VDC
LNOEM-100-14-13-13-BT-BT-BT	100 MHz	x14	+13 dBm	+13 dBm	1400 MHz	≤ -170 dBc/Hz	+15 VDC

** These part numbers are a few common configurations. Use the Ordering Information guide and the [Amplifier Selection Table](#) for additional amplifier options or consult the factory for assistance.

Standard Amplifier Options:

Amplifier ***	Frequency Range		Gain (dB)		P1dB (dBm)		Input Referred Residual Phase Noise (dBc/Hz), typical				Supply Voltage (VDC)	Current Draw (mA)
	Min.	Max.	Min.	Max.	Min.	Max.	100 Hz	1 kHz	10 kHz	100 kHz		
AA	50 MHz	1.3 GHz	10	12	15	17	-155	-165	-170	-170	+8, +10, +12 or +15	60
AB	DC	4 GHz	16	20	16	18	-155	-165	-170	-170	+5, +8, +10, +12 or +15	65
AC	5 MHz	500 MHz	12	14	19	21	-158	-168	-175	-175	+15	90
AD	5 MHz	1 GHz	10	12	18	20	-158	-168	-175	-175	+15	90
AE	10 MHz	1 GHz	11	13	23	26	-156	-166	-173	-173	+15	205
AU	5 MHz	500 MHz	12	14	20	22	-158	-168	-175	-175	+15	88
AV	5 MHz	300 MHz	12	14	19	21	-158	-168	-175	-175	+15	85
BA	100 MHz	2 GHz	9	11	24	26	-156	-166	-172	-172	+15	175
BP	10 MHz	200 MHz	7	8	18	20	-158	-168	-178	-178	+15	30
BT	DC	4 GHz	13	18	16	18	-155	-165	-170	-170	+5, +8, +10, +12 or +15	65
CK	10 MHz	1.5 GHz	12	13	21	23	-156	-166	-172	-172	+15 VDC	195
CT	DC	4 GHz	9	10	14	16	-155	-165	-170	-170	+5, +8, +10, +12 or +15	70
CZ	DC	6 GHz	23	25	17	19	-155	-165	-170	-170	+8, +10, +12 or +15	80
DB	30 MHz	200 MHz	7	8	18	20	-158	-168	-178	-178	+12	30

*** See the complete [Amplifier Selection Table](#) for additional amplifier options.

