

FEATURES

- 50 MHz to 10.5 GHz Frequency Coverage
- 0.001 Hz Frequency Resolution
- 50 μ sec Switching Speed
- Superior Phase Noise
- Compact Size

DESCRIPTION

LUXYN™ synthesizers are ideal main local oscillators in Receiving Systems, Frequency Converters and Test & Measurement Equipment. **MLVS-0510** is VCO-based and provides 0.001 Hz frequency resolution over the 50 MHz to 10.5 GHz frequency range. Output power level of +15 dBm is provided throughout the full frequency range. Full band switching speed is 50 μ sec maximum. The **MLVS-0510** is 4" x 3.6" x 0.94" high.

APPLICATIONS

Test Equipment
Local Oscillators
Frequency Converters



PERFORMANCE SPECIFICATIONS

RF Specifications

Frequency Range ⁽¹⁾	50 MHz to 10.5 GHz
Resolution	0.001 Hz
Output Power	+15 dBm min.
Switching Speed ⁽²⁾ (Full band) (List Mode)	50 μ sec max. (settling within ± 1 ppm)
Harmonics ⁽³⁾	-12 dBc typ.
Sub-Harmonics	-50 dBc typ.
Spurs	-60 dBc typ.

Phase Noise	50 MHz ⁽¹⁾		500 MHz		5 GHz		10 GHz	
	Typ.	Max	Typ.	Max	Typ.	Max	Typ.	Max
100 Hz	-132	-129	-116	-113	-104	-101	-100	-97
1 kHz	-144	-141	-132	-129	-125	-122	-120	-117
10 kHz	-153	-150	-140	-137	-132	-129	-126	-123
100 kHz	-155	-152	-146	-143	-131	-129	-125	-122
1 MHz	-155	-152	-146	-143	-127	-124	-124	-121
10 MHz	-156	-153	-151	-148	-140	-137	-136	-133
50 MHz	-156	-153	-152	-149	-152	-149	-153	-150
100 MHz	-156	-153	-154	-151	-152	-149	-153	-150

(1): Optional frequencies available. Please see Options.

(2): Optional switching speeds available. Please see Options

(3): -10dBc typ. below 250 MHz

Reference
Internal Reference

Output Frequency	10 MHz
Output Power	+5 dBm ± 1 dB
Stability	± 1 ppm
Aging	± 0.5 ppm / year
Tuning Range	± 2 ppm
Output Impedance	50 Ω
Warm Up Time	2 minutes

External Reference

Input Frequency	10 MHz
Stability for lock	± 2 ppm
Input Level	0 dBm ± 6 dB
Input Impedance	50 Ω

Environmental

Operating Case Temperature ⁽⁴⁾	0° to +60° C
Operating Relative Humidity	10% to 90%, non-condensing
Operating Shock	30g, half-sine pulse, 11 msec duration
Operating Vibration	5 Hz to 500 Hz, 0.31g _{rms}

Additional

Supply Voltage	+10 to +16 V DC
Power Consumption	15 W nom. / ≈ 1.2 amp @ 12 V
Control Interface	SPI & USB
Size	4" x 3.6" x 0.94"
Weight	21 ounces

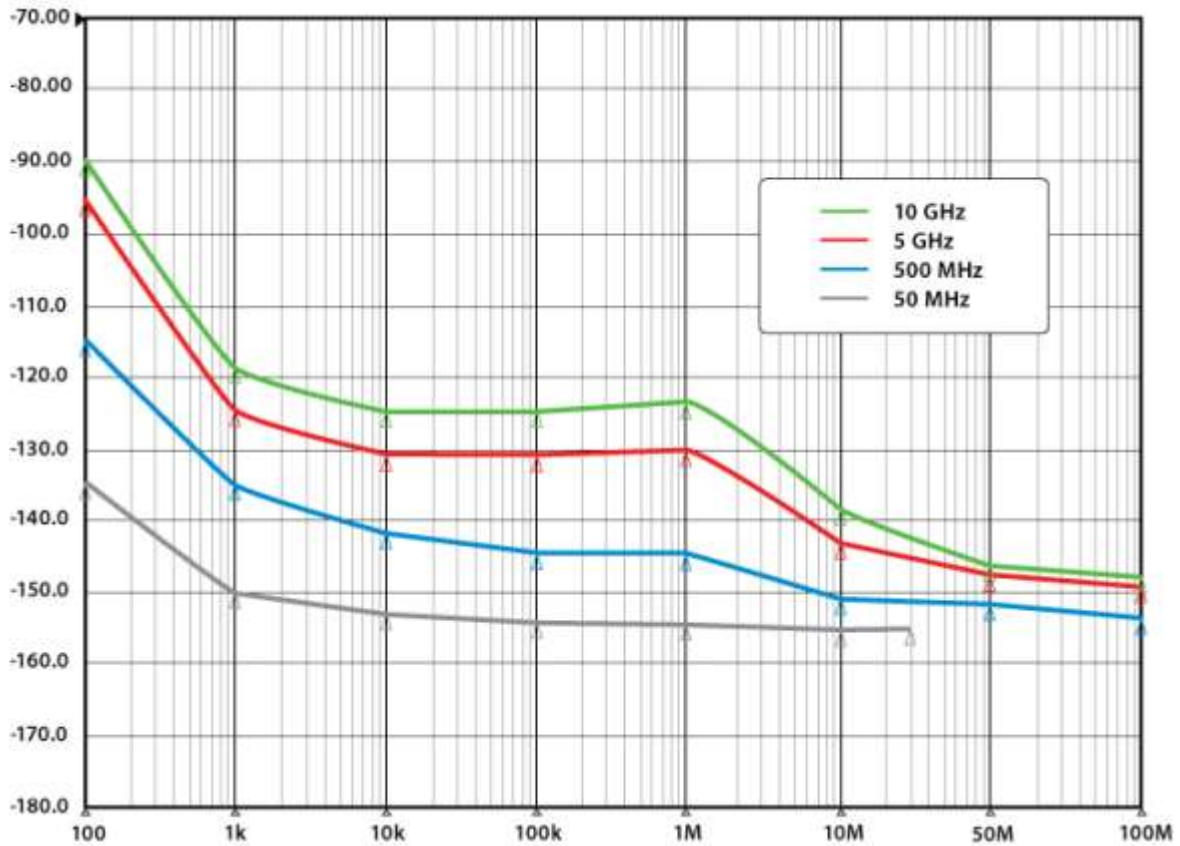
Options

Frequency Range	Option A: 500 MHz to 10.5 GHz
	Option B: 50 MHz to 10.5 GHz
Switching Speed	Option R: 150 –200 μsec
	Option S: 50 μsec max.

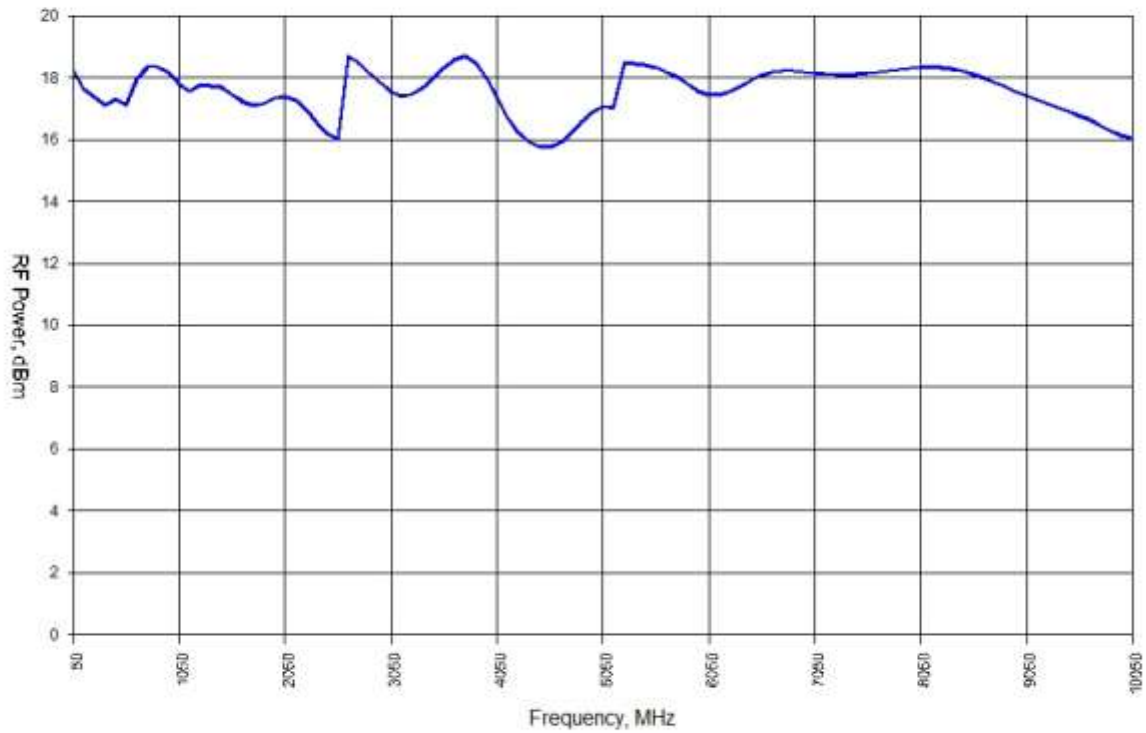
Part Number Example: MLVS-0510AS represents 500MHz to 10.5GHz frequency synthesizer with 50 μsec max. switching speed

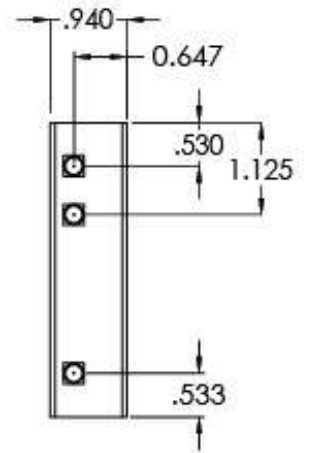
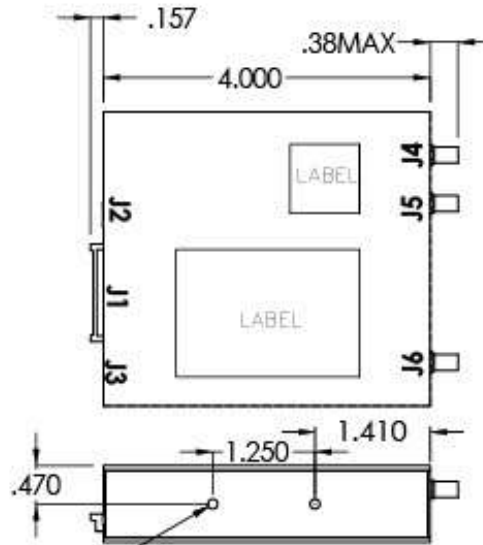
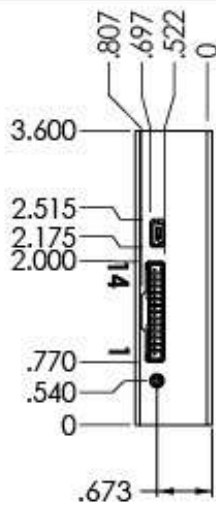
(4): Extended temperature ranges available

Phase Noise Performance



Maximum RF Output Power vs. Frequency





4X #4-40 X.200 DP
HELICOIL NEARSIDE
&FARSIDE

4X #4-40 X.200 DP
HELICOIL

WEIGHT: 21 Oz. [595 g]

CONNECTIONS			
CONN.	TYPE	PIN #	FUNCTION
J1	35363-1480	1	+10V TO +18VDC
J1	35363-1480	2	+10V TO +18VDC
J1	35363-1480	3	GROUND
J1	35363-1480	4	GROUND
J1	35363-1480	5	N/C
J1	35363-1480	6	REF LOCK
J1	35363-1480	7	TRIG
J1	35363-1480	8	RESET (*)
J1	35363-1480	9	CLOCK
J1	35363-1480	10	DATA IN
J1	35363-1480	11	SELECT (*)
J1	35363-1480	12	BUSY
J1	35363-1480	13	RF LOCK
J1	35363-1480	14	DATA OUT

CONNECTIONS			
CONN.	TYPE	PIN #	FUNCTION
J2	USB MINI-B	1	+V
J2	USB MINI-B	2	D-
J2	USB MINI-B	3	D+
J2	USB MINI-B	4	GND
J2	USB MINI-B	5	GND
J3	DC PWR JACK	1	+12V INPUT
J4	SMA-FEMALE	1	REF OUTPUT
J5	SMA-FEMALE	1	REF. INPUT
J6	SMA-FEMALE	1	RF OUTPUT

NOTES:

- J1 MALE: MOLEX# 0353631460
- J1 MATES WITH: MOLEX# 0355071400
- CRIMP PIN: MOLEX#0502128100
- J1 OR J3 POWER SUPPLY INPUTS ARE REQUIRED FOR USB AND SPI OPERATION.
- RECOMMENDED POWER SUPPLY WIRE SIZE = A.W.G. 22-24
- J3 CENTER PIN 1.3MM DIA; OUTER 3.7MM DIA.
- SMA ENGAGE/DISENGAGE TORQUE: 2 INCH-POUNDS MAX.
- SMA MATING TORQUE (ROTATIONAL): 8 INCH POUNDS MAX.
- SMA CONTACT RETENTION: 6 LBS. MIN. AXIAL FORCE ON MATING END. 4 IN-OZ MIN. RADIAL TORQUE.
- (*) ACTIVE LOW
- DO NOT** USE THERMAL COMPOUND/PASTE TO MOUNT THE PRODUCT!

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONS DECIMALS ANGLES ± .xx ±.02 ± .xxx ±.010	
MATERIAL	6061 AL. & SS
FINISH	NICKEL PLATE
DO NOT SCALE DRAWING	

UNCONTROLLED DRAWING: SUBJECT TO CHANGE WITHOUT NOTICE	
APPROVAL	DATE
DRAWN NVN	12/5/24
ENGR. TD	12/5/24
MFG.	
Q.A.	

MICRO LAMBDA WIRELESS, INC.			
MLVS SYNTHESIZER			
SIZE	CAGE NO.	DWG. NO.	REV
A	ORN63	99-0101-001	H
SCALE: 1:2		SHEET 1 OF 1	