MICRO LAMBDA WIRELESS, INC.

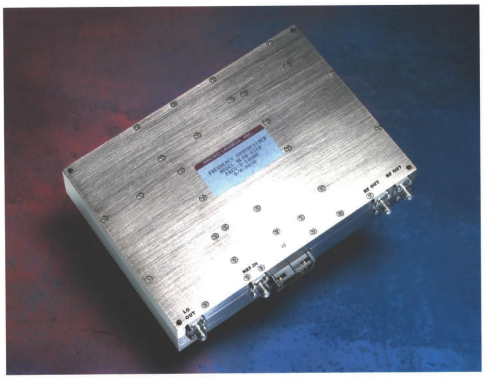
MLSW SERIES
WIDEBAND, LOW NOISE SYNTHESIZERS
600 MHz - 10 GHz

FEATURES

- .6-3, 2-8 & 2-10 GHz Frequency Coverage
- Superior Phase Noise
- 1 Hz Step Size
- Dual RF Output (Optional)
- External Reference 5-50 MHz (Optional)
- 2nd L.O. Output (Optional)
- Low Profile Package

APPLICATIONS

Test Equipment
Local Oscillators
Frequency Converters



DESCRIPTION

The MLSW-Series of YIG-Based wideband synthesizers are ideal as the main local oscillators in receiving systems, frequency converters and test and measurement equipment. Rivaling the best lab-grade test equipment, they provide 1 Hz frequency resolution over the 600 MHz to 3 GHz, 2 to 8 GHz and 2 to 10 GHz frequency range. Power levels of +10 to +12 dBm are standard through out the series. Spurious performance is –60 dBc and full band tuning speed is 13-18 mSec. The units are 7" x 5" x 1" high and consume 29 watts. This series of synthesizers utilizes a micro controller with non-volatile memory and up to 1,000 preset frequency commands. Flexibility of the design yields special options available to the user when specified. These options include; dual RF outputs, second LO output and special external reference input.

PERFORMANCE SPECIFICATIONS

(Operating Case Temperature: 0º to +60º C Baseplate) (Note 1)

Model No.	MLSW-0603	MLSW-2080	MLSW-2010
RF Specifications			
Output Frequency	0.6-3.0 GHz	2-8 GHz	2-10 GHz
Output Power Min.	+12 dBm	+12 dBm	+10 dBm
Po Variation over Freq/Temp	5 dB	4 dB	5 dB
Step Size, Min.	1 Hz	1 Hz	1 Hz
Switching Speed, 100 MHz Step, Typ.	10 mS	10 mS	10 mS
1000 MHz Step, Typ.	11 mS	11 mS	11 mS
Full Band Step, Typ.	13 mS	16 mS	18 mS
Warm-up Time ("Lock") @ 0C (Minutes)	3.0	3.0	3.0
Output Impedance	50 Ohms	50 Ohms	50 Ohms
Load VSWR	2.0:1	2.0:1	2.0:1
Harmonics	-8 dBc	-10 dBc	-10 dBc
Non-Harmonic Spurious			
100 Hz ≤ f off ≤10 kHz	-60 dBc	-60 dBc	-60 dBc
10 kHz ≤ f off ≤100 kHz	-60 dBc	-60 dBc	-60 dBc
f off >100 kHz	-60 dBc	-60 dBc	-60 dBc
Phase Noise @ 100 Hz Offset	-80 dBc/Hz	-74 dBc/Hz	-73 dBc/Hz
@ 1 kHz Offset	-100 dBc/Hz	-98 dBc/Hz	-97 dBc/Hz
@ 10 kHz Offset	-108 dBc/Hz	-108 dBc/Hz	-105 dBc/Hz
@ 100 kHz Offset	-118 dBc/Hz	-115 dBc/Hz	-112 dBc/Hz
@ 1 MHz Offset	-140 dBc/Hz	-138 dBc/Hz	-135 dBc/Hz
External Ref. Osc. - Fixed Freq.	10 MHz	10 MHz	10 MHz
(Unit is not Phase Coherent to External Reference)			
External Ref. Osc. Input Power	0 +/- 6 dBm	0 +/- 6 dBm	0 +/- 6 dBm
Supply Voltage & Current			
+15 Vdc (+10%, -5%)	950 mA	1500 mA	1650 mA
+5 Vdc (+10%, -5%)	700 mA	750 mA	750 mA
Supply Voltage Ripple (Pk-Pk from 2 kHz to 3 MHz)	10 mV	10 mV	10 mV
Digital Control Format	5-Line Serial	5-Line Serial	5-Line Serial
Phase Lock Alarm (Programmable)	High=Locked	High=Locked	High=Locked
Connections			
Control/Alarm (J1)	AMP-103166-8	AMP-103166-8	AMP-103166-8
RF Connectors (J2 - J5)	SMA-F	SMA-F	SMA-F
Case Style	161-001	161-001	161-001

Notes: 1) Special operating temperature range available.

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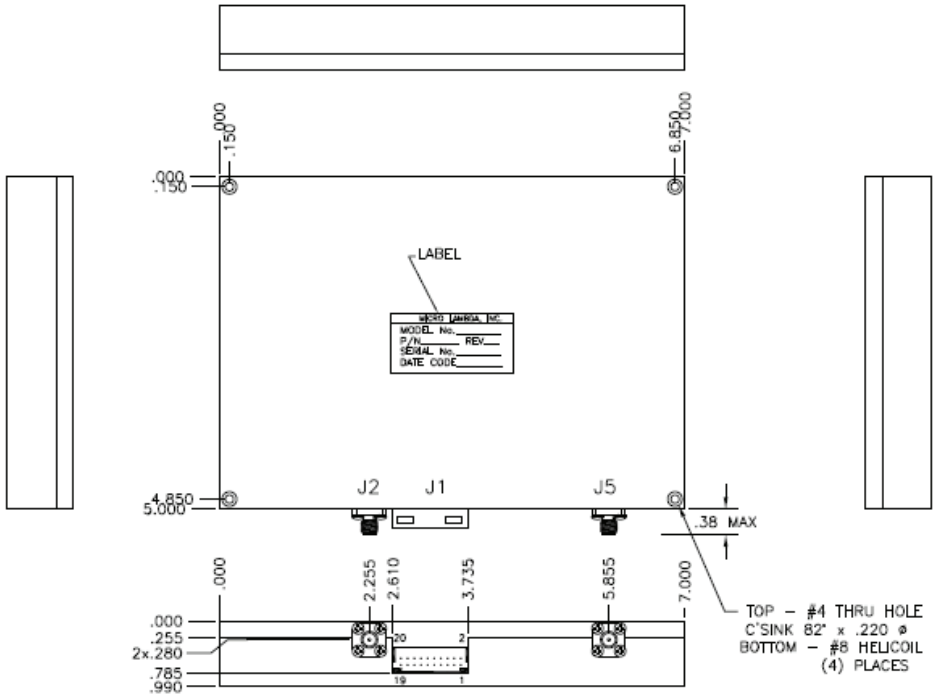
REV	DESCRIPTIONS	DATE	APP'D
A	NEW DRAWING #	8/27/01	DS
B	ADDED NOTE : WEIGHT	1/22/02	DS
C	CHANGED CONNECTOR LOCATIONS & ADDED (16)#2 MTG HOLES (VERTICAL)	6/12/02	DS
D	CORRECTED THE WEIGHT	9/22/03	DS
E	CORRECTED THE MTG HOLE LOCATIONS (UPPER SIDE)	4/04/06	DS
F	ELIMINATED THE VERT. MTG HOLES & J3 & J4 CONNECTORS.	9/09/08	DS
G	CORRECTED DRAWING NAME TO: "...EXT. REF."	6/03/09	

NOTE:

J2 AND J5 MALE SMA MATING CONNECTOR CENTER PIN MUST BE 0.065" TO 0.085" LONG OR DAMAGE MAY OCCUR



NOTES :

–J1 MATES WITH: – AMP#102398–8
–FRONT LATCHING COVER:– AMP#102681–5
–BACK COVER: – AMP#102536–8
–RECOMMENDED WIRE SIZE = A.W.G. 22–24
–** POLARITY SOFTWARE PROGRAMMABLE
(*) ACTIVE LOW

CONNECTIONS			
CONN.	TYPE	PIN #	FUNCTION
J1	AMP103166–8	1	+15 VDC
J1	AMP103166–8	2	+15 VDC
J1	AMP103166–8	3	GROUND
J1	AMP103166–8	4	GROUND
J1	AMP103166–8	5	+ 5 VDC
J1	AMP103166–8	6	+ 5 VDC
J1	AMP103166–8	7	N/C
J1	AMP103166–8	8	N/C
J1	AMP103166–8	9	CLOCK ⎍
J1	AMP103166–8	10	DATA IN
J1	AMP103166–8	11	ENABLE (*)
J1	AMP103166–8	12	BUSY
J1	AMP103166–8	13	LOCK ALARM **

CONNECTIONS			
CONN.	TYPE	PIN #	FUNCTION
J1	AMP103166–8	14	DATA OUT
J1	AMP103166–8	15	EXT NB FM +
J1	AMP103166–8	16	EXT WB FM +
J1	AMP103166–8	17	EXT NB FM –
J1	AMP103166–8	18	EXT WB FM COMMON
J1	AMP103166–8	19	N/C
J1	AMP103166–8	20	RESET (LOW=RESET) (*)
J2	SMA–FEMALE	1	REF. INPUT
J5	SMA–FEMALE	1	R.F. OUTPUT

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCE ARE :
FRACTIONS ± | DECIMALS .xx ±.020 .xxx±.005 | ANGLES ±
WEIGHT: 24 Oz. / 680gr
FINISH:
DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS	DATE
DRAWN N.NGUYEN	6/03/09
ENGR.	
MANUF.	
Q.A.	

MICRO LAMBDA WIRELESS, INC.

HIGH RES. SYNTHESIZER W/ EXT. REF.

SIZE	CAGE No	DWG. NO.	REV.
	0RN63	161 – 001	G