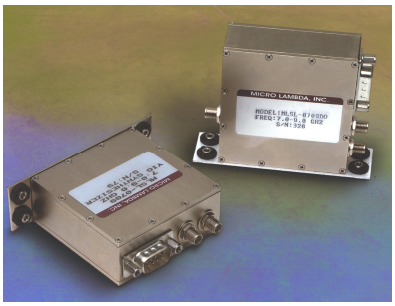
MICRO LAMBDA WIRELESS, INC.

MLSL "DO" SERIES
PMYTO BASED SYNTHESIZERS
2-12 GHz 2 GHz TUNING

FEATURES

- 2-12 GHz Frequency Coverage
- 2 GHz Tuning Ranges
- Superior Phase Noise
- Small Size and Low Power Consumption
- Dual RF Output Ports



DESCRIPTION

Micro Lambda's new MLSL DO Series of permanent magnet YIG (PMYTO) based synthesizers utilize an internal power splitter giving two RF output ports. These synthesizers provide superior phase noise, typically –98 dBc/Hz @ 10 kHz offset, in X-Band and are available in 2 GHz tuning bandwidths between 2 GHz and 12 GHz. Frequency doublers are optional through 24 GHz. Spurious performance is -70 dBc and switching speed is 100 mS. Micro Lambda's **MLSL** Series PMYTO based synthesizers are 2.5" x 2.5" x 1.0" and consume less than 6 watts. The micro-controller utilized in the MLSL synthesizers is non-volatile and remembers the tuned frequency after a power down incident.

PERFORMANCE SPECIFICATIONS - DO Series

(Operating Case Temperature: 0º to +60º C Baseplate) (Note 6)

Model No.	(Note 1) MLSL-0305DO	MLSL-0406DO	MLSL-0507DO	MLSL-0608DO
RF Specifications				
Output Frequency (Note 2 & 4)	3-5 GHz	4-6 GHz	5-7 GHz	6-8 GHz
Output Power Min. (Note 5)	+8 dBm	+8 dBm	+8 dBm	+6 dBm
Po Variation Over Temp./Freq.	+/-2 dB	+/-2 dB	+/-2 dB	+/-2 dB
Step Size, Min. (Note 3)	500 kHz	500 kHz	500 kHz	500 kHz
Switching Speed, 100 MHz step.	100 mS, Typ.	100 mS, Typ.	100 mS, Typ.	100 mS, Typ.
Output Impedance	50 Ohms	50 Ohms	50 Ohms	50 Ohms
Load VSWR	2.0:1	2.0:1	2.0:1	2.0:1
Harmonics	-12 dBc	-12 dBc	-12 dBc	-15 dBc
Spurious > 10 kHz	-70 dBc	-70 dBc	-70 dBc	- 70 dBc
Phase Noise @ 100 Hz Offset, Typ	-53 dBc/Hz	-53 dBc/Hz	-53 dBc/Hz	-53 dBc/Hz
@ 1 kHz Offset, Typ	-65 dBc/Hz	-65 dBc/Hz	-65 dBc/Hz	-65 dBc/Hz
@ 10 kHz Offset	-98 dBc/Hz	-98 dBc/Hz	-98 dBc/Hz	-98 dBc/Hz
@ 100 kHz Offset	-122 dBc/Hz	-122 dBc/Hz	-122 dBc/Hz	-122 dBc/Hz
@ 1 MHz Offset	-144 dBc/Hz	-144 dBc/Hz	-144 dBc/Hz	-144 dBc/Hz
External Ref. Osc. - Fixed Freq. Standard)	10 MHz	10 MHz	10 MHz	10 MHz
External Ref. Osc. Input Power	0 +/- 3 dBm	0 +/- 3 dBm	0 +/- 3 dBm	0 +/- 3 dBm
External Ref. Osc. - Fixed Freq. (Optional)	1-50 MHz	1-50 MHz	1-50 MHz	1-50 MHz
Supply Voltage & Current				
+15 Vdc (+5%,-2%), Max	300 mA	300 mA	300 mA	300 mA
+ 5 Vdc (+5%,-2%), Max	100 mA	100 mA	100 mA	100 mA
Supply Voltage Ripple (Pk-Pk from 2 kHz to 3 MHz)	10 mV	10 mV	10 mV	10 mV
Digital Control Format	3-Line Serial	3-Line Serial	3-Line Serial	3-Line Serial
Phase Lock Alarm	High=Locked	High=Locked	High=Locked	High=Locked
Connections				
Reference Input	SMA-F	SMA-F	SMA-F	SMA-F
RF Output	SMA-F	SMA-F	SMA-F	SMA-F
Control/Alarm	DB9	DB9	DB9	DB9
Case Style				
Horizontal H-Option	151-010	151-010	151-010	151-010
Vertical V-Option	151-005	151-005	151-005	151-005

Notes: 1) 2-4 GHz available.
2) Units can be set to a customer selected fixed frequency. No control interface is required.
3) Smaller step size available.
4) dual RF output frequencies are identical.
5) Output power minimums are for both RF outputs.

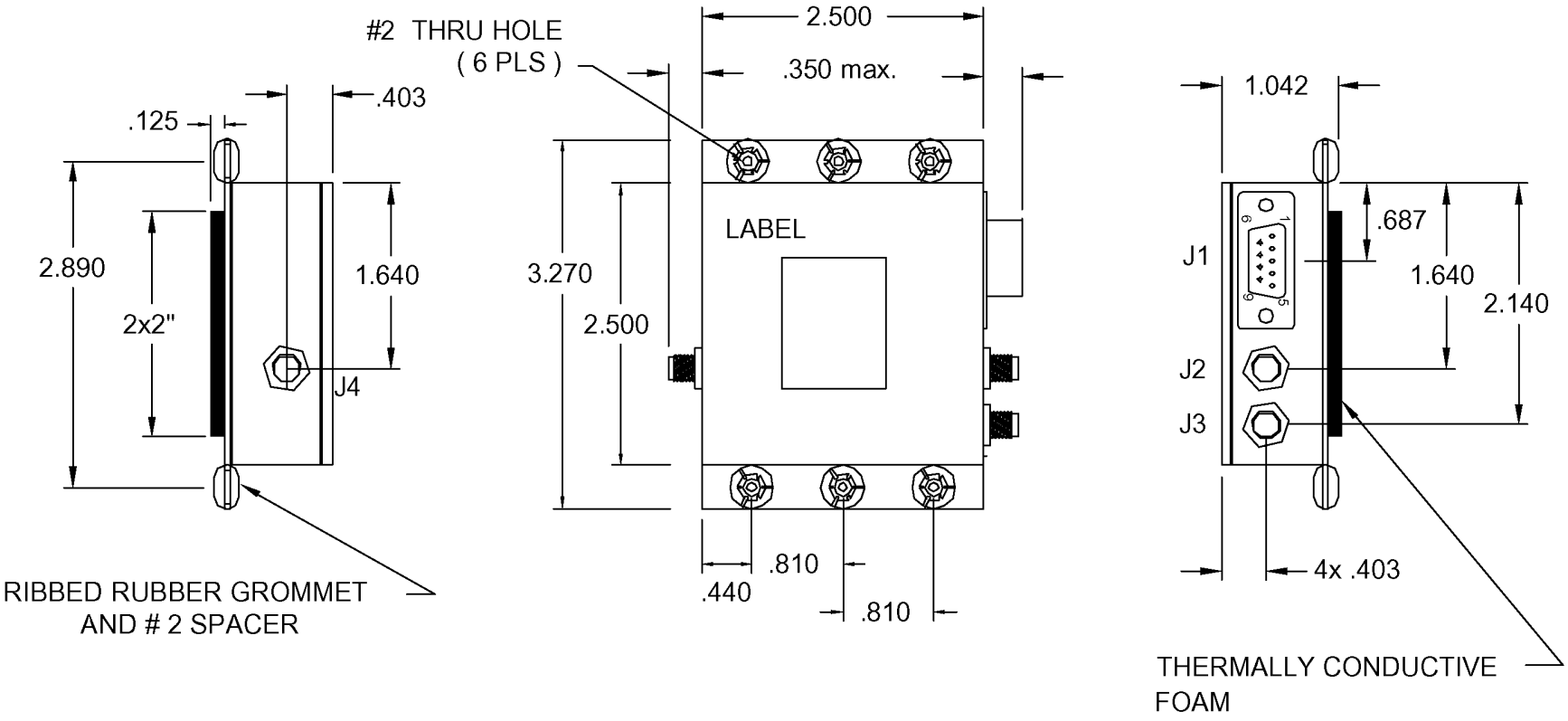
Micro Lambda Wireless, Inc. - 46515 Landing Parkway, Fremont California 94538 * Phone (510) 770-9221* Fax (510) 770-9213

MLSL DO Series PERFORMANCE SPECIFICATIONS

(Operating Case Temperature: 0º to +60º C Baseplate) (Note 6)

Model No.	MLSL-0709DO	MLSL-0810DO	MLSL-0911DO	MLSL-1012DO
RF Specifications				
Output Frequency (Note 2 & 4)	7-9 GHz	8-10 GHz	9-11 GHz	10-12 GHz
Output Power Min. (Note 5)	+6 dBm	+6 dBm	+6 dBm	+4 dBm
Po Variation Over Temp./Freq.	+/-2 dB	+/-2 dB	+/-2 dB	+/- 2 dB
Step Size, Min. (Note 3)	500 kHz	500 kHz	500 kHz	500 kHz
Switching Speed, 100 MHz step	100 mS, Typ.	100 mS, Typ.	100 mS, Typ.	100 mS, Typ.
Output Impedance	50 Ohms	50 Ohms	50 Ohms	50 Ohms
Load VSWR	2.0:1	2.0:1	2.0:1	2.0:1
Harmonics	-15 dBc	-15 dBc	-15 dBc	-15 dBc
Spurious > 10 kHz	-70 dBc	-70 dBc	-70 dBc	- 70 dBc
Phase Noise @ 100 Hz Offset Typ	-53 dBc/Hz	-53 dBc/Hz	-53 dBc/Hz	-53 dBc/Hz
@ 1 kHz Offset Typ	-60 dBc/Hz	-60 dBc/Hz	-60 dBc/Hz	-60 dBc/Hz
@ 10 kHz Offset	-94 dBc/Hz	-93 dBc/Hz	-87 dBc/Hz	-87 dBc/Hz
@ 100 kHz Offset	-118 dBc/Hz	-117 dBc/Hz	-110 dBc/Hz	-110 dBc/Hz
@ 1 MHz Offset	-140 dBc/Hz	-139 dBc/Hz	-133 dBc/Hz	-133 dBc/Hz
External Ref. Osc. - Fixed Freq.(Standard)	10 MHz	10 MHz	10 MHz	10 MHz
External Ref. Osc. Input Power	0 +/- 3 dBm	0 +/- 3 dBm	0 +/- 3 dBm	0 +/- 3 dBm
External Ref. Osc. - Fixed Freq. (Optional)	1-50 MHz	1-50 MHz	1-50 MHz	1-50 MHz
Supply Voltage & Current				
+15 Vdc (+5%,-2%), Max	300 mA	350 mA	350 mA	350 mA
+ 5 Vdc (+5%,-2%), Max	100 mA	100 mA	100 mA	100 mA
Supply Voltage Ripple (Pk-Pk from 2 kHz to 3 MHz)	10 mV	10 mV	10 mV	10 mV
Digital Control Format	3-Line Serial	3-Line Serial	3-Line Serial	3-Line Serial
Phase Lock Alarm	High=Locked	High=Locked	High=Locked	High=Locked
Connections				
Reference Input	SMA-F	SMA-F	SMA-F	SMA-F
RF Output	SMA-F	SMA-F	SMA-F	SMA-F
Control/Alarm	DB9	DB9	DB9	DB9
Case Style				
Horizontal H-Option	151-010	151-010	151-010	151-010
Vertical V-Option	151-005	151-005	151-005	151-005

Notes: 2) Units can be set to a customer selected fixed frequency. No control interface is required.
3) Smaller step size available.
4) Dual RF output frequencies are indentical.
5) Output power minimums are for both RF outputs.
6) Special operating temperature range available.



CONNECTIONS			
CONN.	TYPE	PIN #	FUNCTION
J1	DB9 MALE	1	CLOCK
J1	DB9 MALE	2	DATA
J1	DB9 MALE	3	ENABLE
J1	DB9 MALE	4	LOCK DET OUT
J1	DB9 MALE	5	N/C
J1	DB9 MALE	6	+15 VDC
J1	DB9 MALE	7	+5 VDC
J1	DB9 MALE	8	COMMON
J1	DB9 MALE	9	LOGIC COMMON
J2	SMA FEMALE	1	RF OUT
J3	SMA FEMALE	1	RF OUT
J4	SMA FEMALE	1	REF IN

WEIGHT: 9 Oz. max

REV	DESCRIPTION	DATE	APPROVED

UNLESS OTHERWISE SPECCIFIED DIMENSIONS ARE IN INCHES
TOLERANCE ARE:
FRACTIONS DECIMALS ANGLES
± .xx ±.02 ±
± .xxx ±.010

MATERIAL

FINISH

DO NOT SCALE DRAWING

CONTRACT NO.

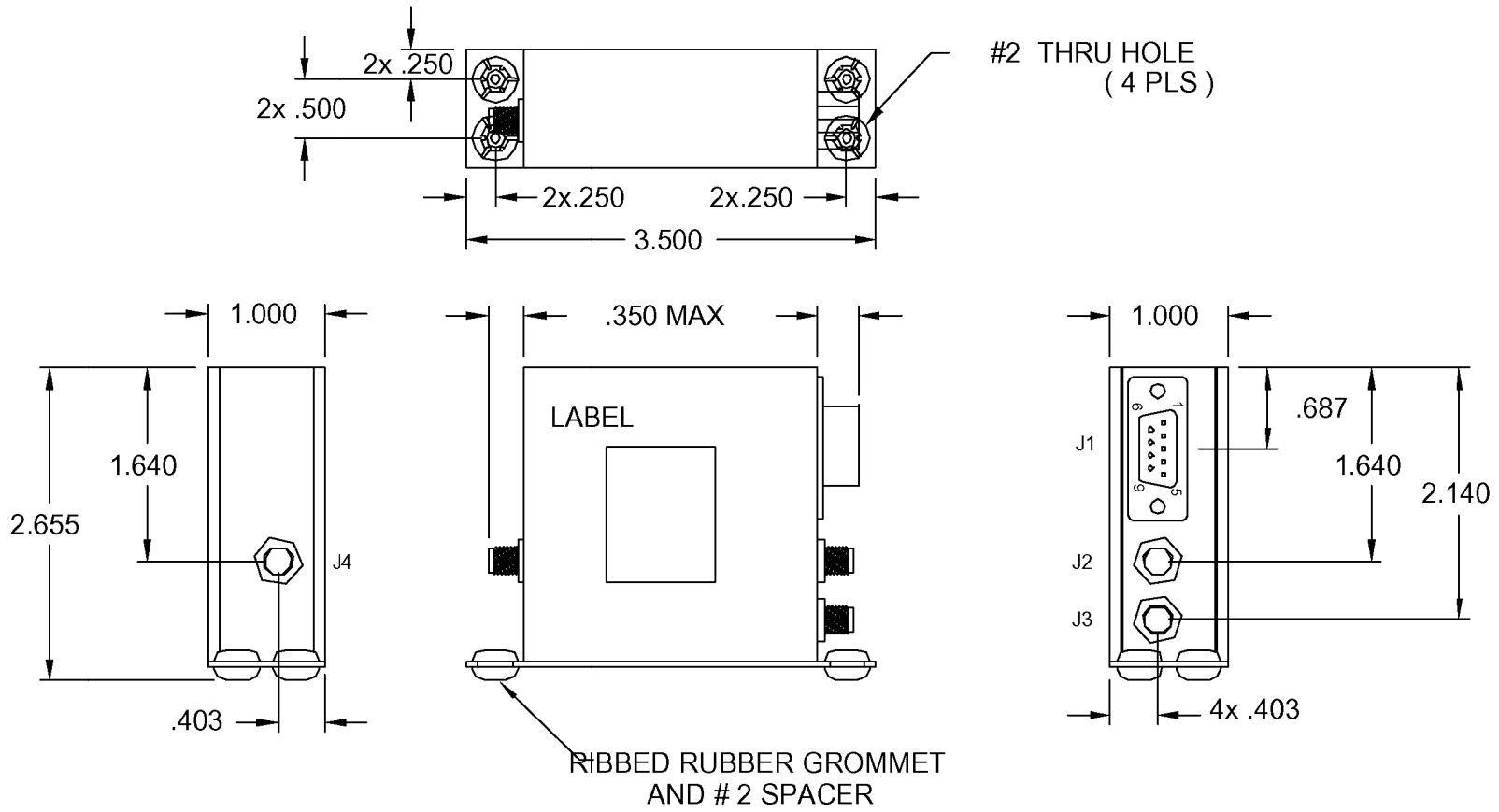
APPROVALS	DATE
DRAWN NVN	6/19/01
ENGR.	
MANUF.	
Q.A.	

MICRO LAMBDA, INC.

MINI SYNT. DUAL RF OUTPUT
EXT. REF., WITH HORIZOTAL MOUNTING

SIZE	CAGE No.	DWG. NO.	REV.
	0RN63	151 - 010	

SCALE SHEET



CONNECTIONS			
CONN.	TYPE	PIN #	FUNCTION
J1	DB9 MALE	1	CLOCK
J1	DB9 MALE	2	DATA
J1	DB9 MALE	3	ENABLE
J1	DB9 MALE	4	LOCK DET OUT
J1	DB9 MALE	5	N/C
J1	DB9 MALE	6	+15 VDC
J1	DB9 MALE	7	+5 VDC
J1	DB9 MALE	8	COMMON
J1	DB9 MALE	9	LOGIC COMMON
J2	SMA FEMALE	1	RF OUT
J3	SMA FEMALE	1	RF OUT
J4	SMA FEMALE	1	REF IN

WEIGHT: 9 Oz. max

REV	DESCRIPTION	DATE	APPROVED

UNLESS OTHERWISE SPECCIFIED DIMENSIONS ARE IN INCHES
TOLERANCE ARE:
FRACTIONS DECIMALS ANGLES
± .xx ±.02 ±0°0
.xxx ±.010

MATERIAL

FINISH

DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS	DATE
DRAWN NVN	8/01/01
ENGR.	
MANUF.	
Q.A.	

MICRO LAMBDA, INC.

MINI SYNT. DUAL RF OUTPUT EXT. REF., WITH VERTICAL MOUNTING

SIZE	CAGE No.	DWG. NO.	REV.
	0RN63	151 - 005	A

SCALE SHEET