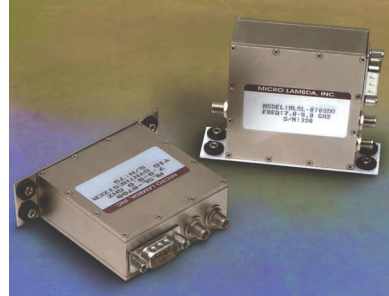




FEATURES

- 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: 0° to +60° 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	400 mA	400 mA	400 mA	400 mA
Supply Voltage Ripple (Pk-Pk from 2 kHz to 3 MHz)				
	10 mV	10 mV	10 mV	10 mV
Digital Control Format				
Phase Lock Alarm	3-Line Serial High=Locked	3-Line Serial High=Locked	3-Line Serial High=Locked	3-Line Serial 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.

6) Special operating temperature ranges available.

MLSL DO Series PERFORMANCE SPECIFICATIONS

(Operating Case Temperature: 0° to +60° 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	400 mA	450 mA	450 mA	450 mA
Supply Voltage Ripple				
(Pk-Pk from 2 kHz to 3 MHz)	10 mV	10 mV	10 mV	10 mV
Digital Control Format				
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.

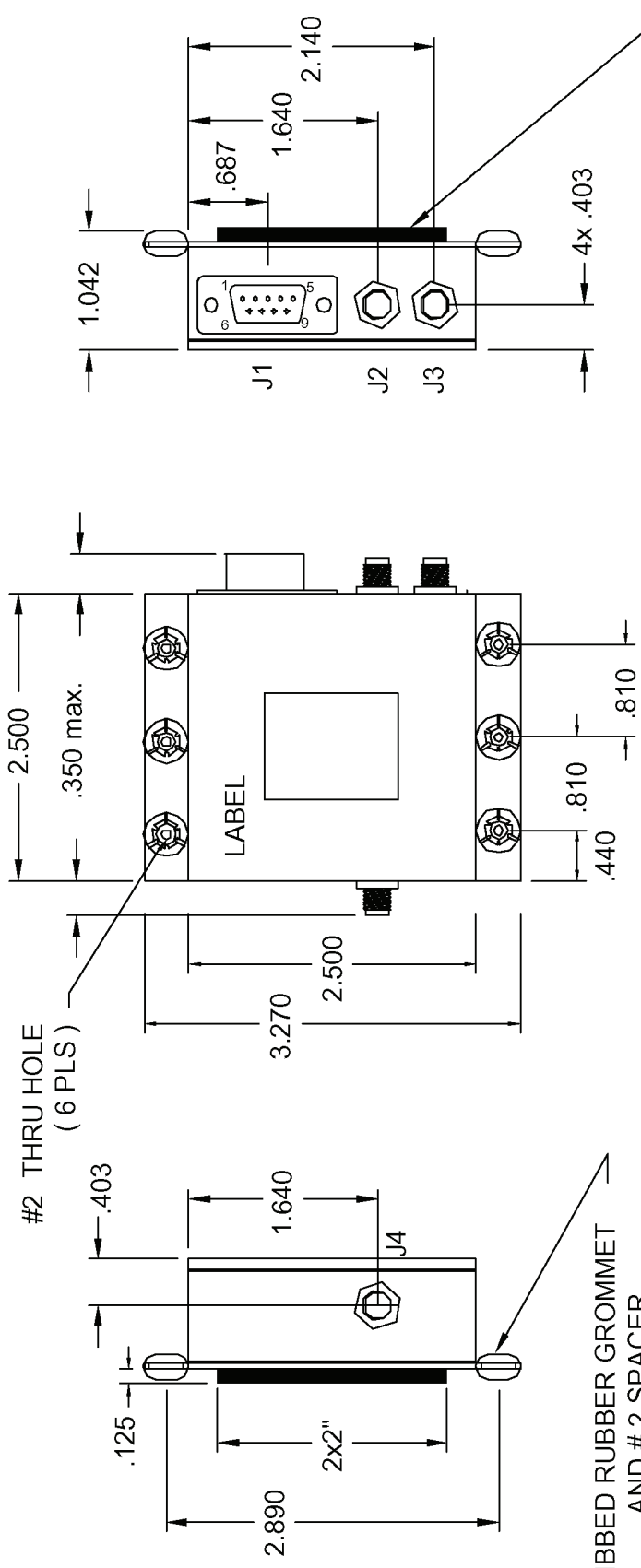
3) Smaller step size available.

4) Dual RF output frequencies are identical.

5) Output power minimums are for both RF outputs.

6) Special operating temperature range available.

#2 THRU HOLE
(6 PLS)




THERMALLY CONDUCTIVE
FOAM

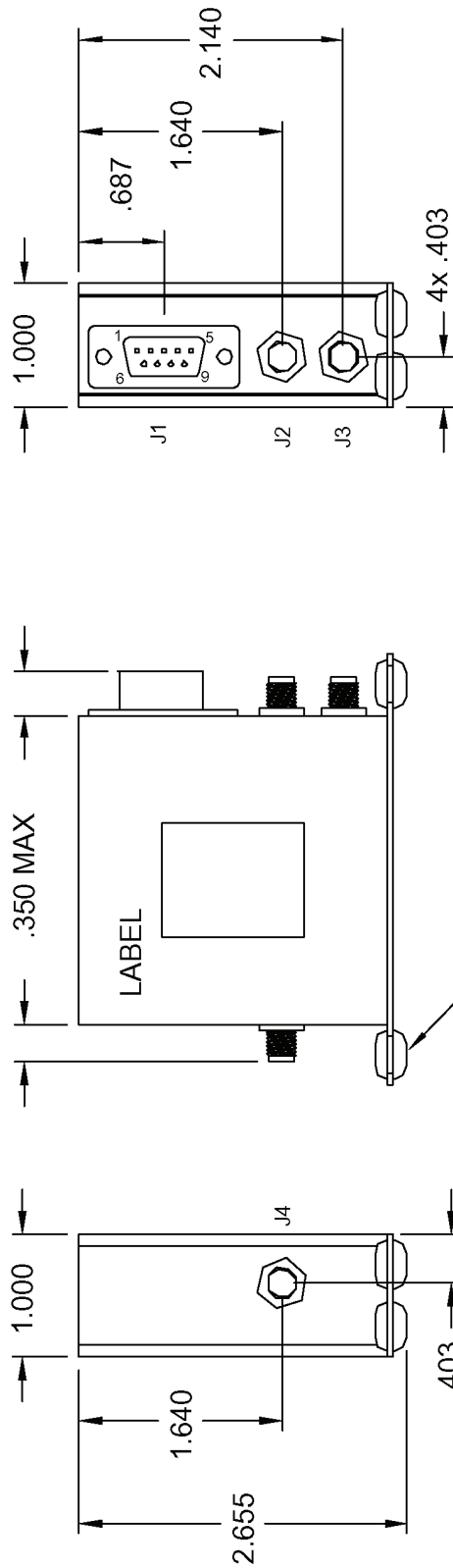
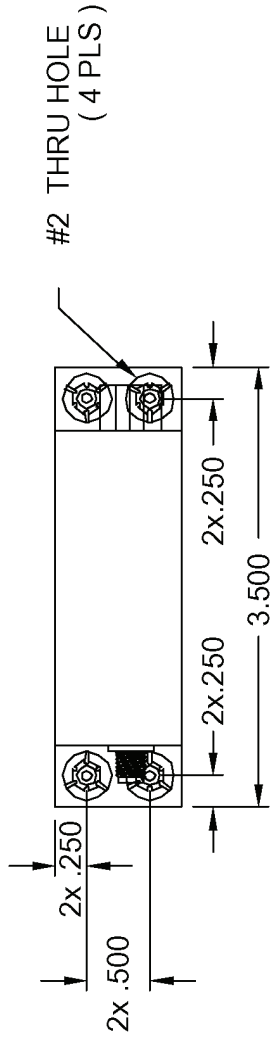
RIBBED RUBBER GROMMET
AND # 2 SPACER

WEIGHT: 9 Oz. max

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

REV	DESCRIPTION	DATE	APPROVED

	CONTRACT NO.		MICRO LAMBDA, INC.	
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:	APPROVALS	DATE	APPROVED
FRACTIONS: DECIMALS ANGLES	DRAWN: NVN	DATE: 6/19/01	MINI SYNT. DUAL RF OUTPUT EXT. REF., WITH HORIZONTAL MOUNTING	
MATERIAL:	ENGR.	MANUF.	CAGE NO. 0RN63	
FINISH:	O.A.	SIZE:	DWG. NO. 151 - 010	
DO NOT SCALE DRAWING	SCALE:	SHEET:	REV:	



WEIGHT: 9 Oz. max

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

REV	DESCRIPTION	DATE	APPROVED

		MICRO LAMBDA, INC.	
CONTRACT NO.		MINI SYNT. DUAL RF OUTPUT EXT. REF., WITH VERTICAL MOUNTING	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCE ARE: FRACTIONS DECIMALS ANGLES .xx .02 .010 .xxx .000 .010	APPROVALS	DATE	8/01/01
MATERIAL	DRAWN NVN	ENGR.	MANUF.
FINISH	O.A.	CAGE No. 0RN63	DWG. NO. 151 - 005
DO NOT SCALE DRAWING	SCALE	SHEET	REV. A