MICRO LAMBDA WIRELESS, INC.

PERMANENT MAGNET YTO COMMERCIAL DIGITAL DRIVERS BD-SERIES

FEATURES

- 2 GHz to 22 GHz
- Compensation for Temperature Drift
- Voltage Regulators for Improved Stability
- 12 Bit Tuning Resolution

DESCRIPTION

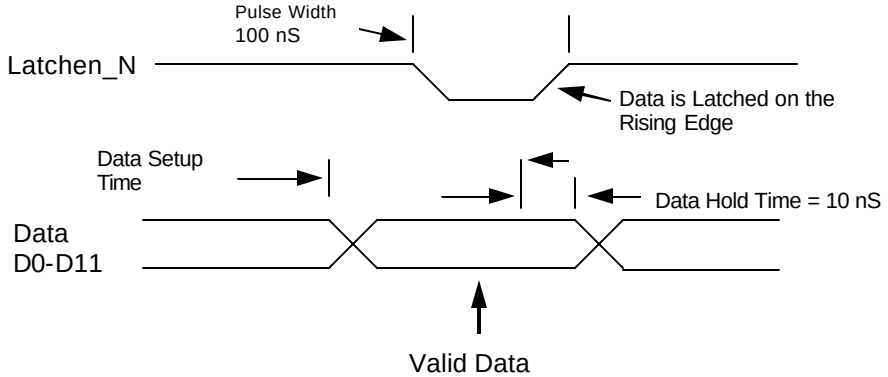
Micro Lambda ***MLPM Series*** Permanent Magnet YIG Oscillators are available with integrated digital driver circuits. These drivers eliminate the need for customers to design or develop their own driver circuits and sophisticated test and alignment procedures. Integrating a driver at Micro Lambda's factory ensures peak performance. Alignment and compensation with the particular YIG oscillator can be maximized down to the component level.

All drivers in this series provide input voltage regulators and compensation circuits to improve frequency drift. All voltages required by the YIG oscillator, except the heater inputs are supplied by the voltage regulators.

COMMERCIAL DIGITAL DRIVERS DRIVER INPUT & RESPONSE	**Permanent Magnet YTO's, BD & BG SERIES** SPECIFICATION (0 to + 65 deg. C)
Tuning Command	Start Word (all 0's) = Lowest Frequency Stop Word (all 1's) = Highest Frequency
Tuning Resolution	12 BIT Positive Logic (Fmax-Fmin)/4095 Bit Resolution All Data Bits have internal 10k ohm pull-up resistors to +5V
Tuning Accuracy (excluding hysteresis)	+/- 10 MHz
Tuning Speed (Note 1)	10 mSec for 1 GHz step to within +/-10 MHz. (residual FM is 10 kHz Pk-Pk)
Main Driver Inputs	
Supply Voltage & Current (Note 2)	+12 V +/- .5 V @ 265 mA, Max. -12 V +/- .5 V @ 165 mA, Max.
Supply Voltage Pushing	+/- 100 kHz, Max. @ +/- .5 Vdc
Supply Voltage Ripple	10 mV Ripple Pk-Pk over 2 kHz to 3 MHz
Ground	Chassis Ground
YIG Heater Voltage & Current	+15 Vdc ±4 Vdc @ 300 mA surge for 2 seconds, 50 mA steady state Polarity independent : ±12 Vdc or ±15 Vdc acceptable
Latch Enable	LATCHEN_N is a TTL, 5V CMOS control line. It has an internal 10k-ohm pull-up resistor to +5 V. It is used to transfer the data on the bus to the digital driver circuit. TTL high = data ignored. Connect to Ground if enable is not required. If the unit is to be used on a computer data bus, the below timing Diagram applies. (All times = Minimum) 10 nS rise/fall latch transitions.

Note 1. Optional 1mS Tuning Speeds Available.
2. Some YIG devices require higher voltages - Check with factory.

TIMING DIAGRAM



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

BD-SERIES — CONT.

FM Coil Driver (BG Option)

Voltage	+/- 10 V
Current	+/- 100 mA
Input Impedance	10 k-Ohms
Sensitivity (Note 3)	+/- 2.5 MHz/V
Frequency Deviation	+/- 25 MHz

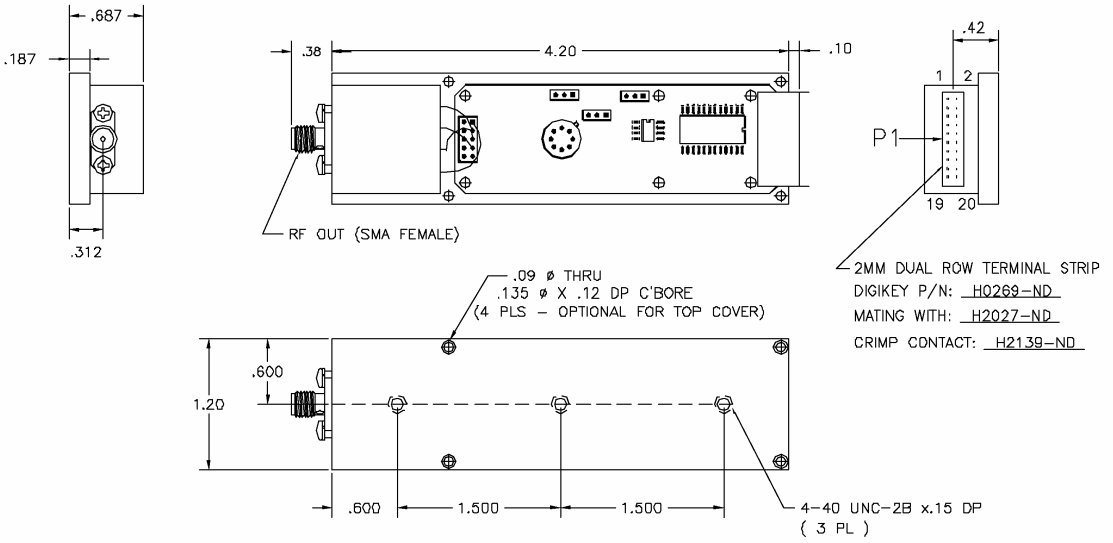
Note 3: Sensitivity Adjustment Available. Sensitivity Stated is Average Over Frequency Range.

Permanent Magnet YIG Oscillators with Positive Input Digital Drivers (0º C to +65º C)

Model Number	Frequency GHz	Accuracy (MHz) *	Current +12 V (mA)	Current -12 V (mA)	Outline Drawing	Outline Drawing (BG Option)
Bi-Polar						
MLPM-0204BD	2-4	+/- 10	265	165	61-058	61-058-4
MLPM-0305BD	3-5	+/- 10	265	165	61-058	61-058-4
MLPM-0406BD	4-6	+/- 10	265	165	61-058	61-058-4
MLPM-0507BD	5-7	+/- 10	265	165	61-058	61-058-4
MLPM-0608BD	6-8	+/- 10	265	165	61-058	61-058-4
MLPM-0709BD	7-9	+/- 10	265	165	61-058	61-058-4
MLPM-0810BD	8-10	+/- 10	265	165	61-058	61-058-4
MLPM-0911BD	9-11	+/- 10	265	165	61-058	61-058-4
MLPM-1012BD	10-12	+/- 10	265	165	61-058	61-058-4
MLPM-1113BD	11-13	+/- 10	265	165	61-058	61-058-4
MLPM-1214BD	12-14	+/- 10	265	165	61-058	61-058-4
FET						
MLPM-0911FBD	9-11	+/- 10	265	165	61-058	61-058-4
MLPM-1012FBD	10-12	+/- 10	265	165	61-058	61-058-4
MLPM-1113FBD	11-13	+/- 10	265	165	61-058	61-058-4
MLPM-1214FBD	12-14	+/- 10	265	165	61-058	61-058-4
MLPM-1315FBD	13-15	+/- 10	265	165	61-058	61-058-4
MLPM-1416FBD	14-16	+/- 10	265	165	61-072	**
MLPM-1517FBD	15-17	+/- 10	265	165	61-072	**
MLPM-1618FBD	16-18	+/- 10	265	165	61-072	**
MLPM-1719FBD	17-19	+/- 10	265	165	61-072	**
MLPM-1820FBD	18-20	+/- 10	265	165	61-072	**

Model Number	Frequency GHz	Accuracy (MHz) *	Current +15 V (mA)	Current -15 V (mA)	Outline Drawing	Outline Drawing (BG Option)
MLPW-0812BD	8-12	+/- 10	315	215	61-072	**
MLPW-1014BD	10-14	+/- 10	315	215	61-072	**
MLPM-1418BD	14-18	+/- 10	315	215	61-072	**
MLPM-1822BD	18-22	+/- 10	315	215	61-072	**

* Accuracy includes frequency drift and linearity errors over the temperature range.
** Outline Drawing Available from Factory or Web-site.



P1 – PIN CONNECTIONS

PIN NO	FUNCTION	PIN NO	FUNCTION
1	DATA BIT 0	11	DATA BIT 10
2	DATA BIT 1	12	DATA BIT 11(MSB)
3	DATA BIT 2	13	LATCHEN_N
4	DATA BIT 3	14	GND
5	DATA BIT 4	15	+ SUPPLY
6	DATA BIT 5	16	– SUPPLY
7	DATA BIT 6	17	HEATER (+ V)
8	DATA BIT 7	18	HEATER (GND)
9	DATA BIT 8	19	FM +
10	DATA BIT 9	20	FM –

REV	DESCRIPTION	DATE	APPROVED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCE ARE :
FRACTIONS DECIMALS ANGLES
± .XX ±.02
± .XXX ±.010
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO.

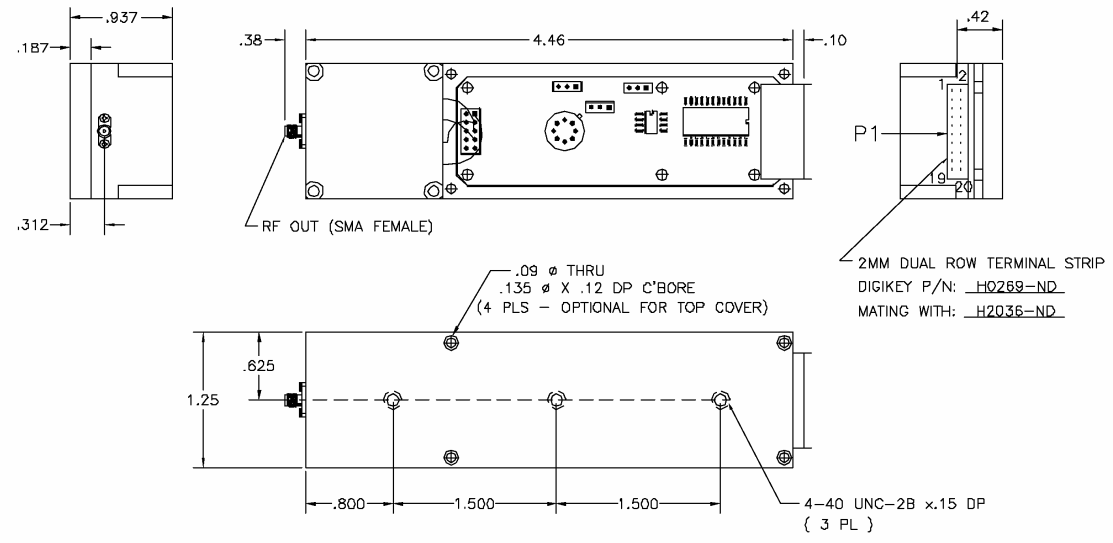
APPROVALS	DATE
DRAWN N.NGUYEN	10/9/98
CHECKED	
ISSUED	

MICRO LAMBDA, INC.

PMO W/DICITAL DRV. (OPEN BOARD)

SIZE	CAGE	DWG. NO.	REV.
	0RN63	61– 058	

SCALE SHEET



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4	DATA BIT 3	14	GND
5	DATA BIT 4	15	+ SUPPLY
6	DATA BIT 5	16	– SUPPLY
7	DATA BIT 6	17	HTR (+V) or N/C
8	DATA BIT 7	18	HTR (GND)or N/C
9	DATA BIT 8	19	FM +
10	DATA BIT 9	20	FM –

REV	DESCRIPTION	DATE	APPROVED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCE ARE :
FRACTIONS DECIMALS ANGLES
± .XX ±.02
± .XXX ±.010
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO.

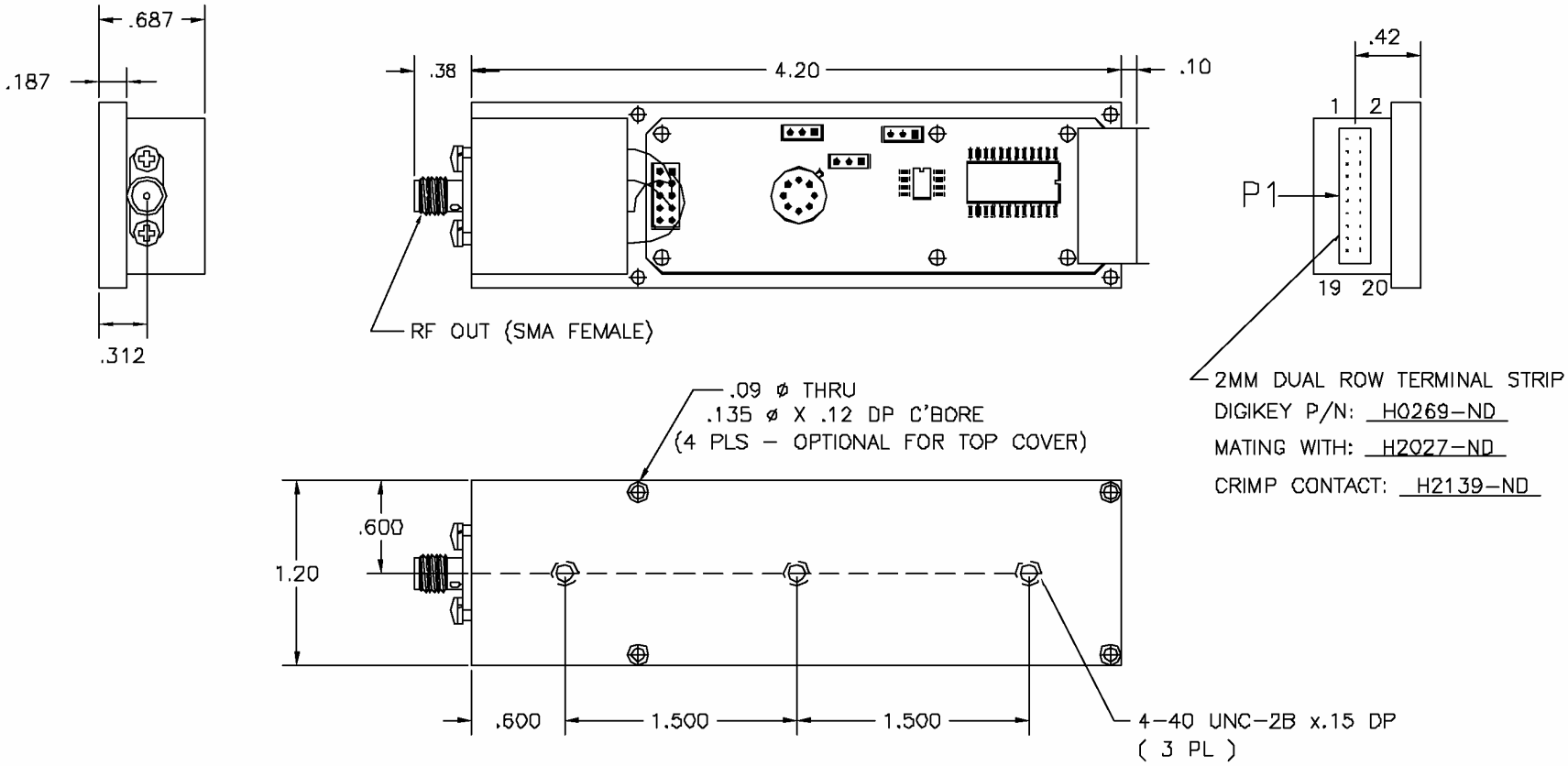
APPROVALS	DATE
DRAWN N.NGUYEN	8/27/02
CHECKED	
ISSUED	

MICRO LAMBDA WIRELESS, INC

1.25" PMO W/DICITAL DRIVER

SIZE	CAGE	DWG. NO.	REV.
	0RN63	61 – 072	A

SCALE SHEET



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1	DATA BIT 0	11	DATA BIT 10
2	DATA BIT 1	12	DATA BIT 11(MSB)
3	DATA BIT 2	13	LATCHEN_N
4	DATA BIT 3	14	GND
5	DATA BIT 4	15	+ SUPPLY
6	DATA BIT 5	16	- SUPPLY
7	DATA BIT 6	17	HEATER (+ V)
8	DATA BIT 7	18	HEATER (GND)
9	DATA BIT 8	19	FM INPUT ± V
10	DATA BIT 9	20	FM (GROUND)

REV	DESCRIPTION	DATE	APPROVED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCE ARE :
FRACTIONS DECIMALS ANGLES
± .xx ±.02
± .xxx±.01D

MATERIAL

FINISH

DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS	DATE
DRAWN N.NGUYEN	10/9/98
CHECKED	
ISSUED	

MICRO LAMBDA, INC.

PMO W/DIGITAL & FM DRV.
(OPEN BOARD)

SIZE	CAGE	DWG. NO.	REV.
	0RN63	61-058-4	

SCALE SHEET