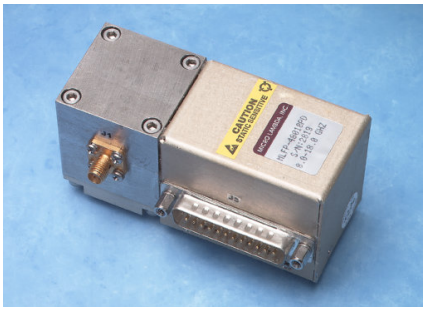
MICRO LAMBDA WIRELESS, INC.

YIG TUNED FILTERS WITH COMMERCIAL DIGITAL DRIVERS PD SERIES



FEATURES

- 500 MHz to 26 GHz
- Compensation for Temperature Drift
- Input Regulators for Improved Stability
  - Versus Power Supply Variations
- 12 Bit Tuning Resolution
- 0º C to +65º C Temperature Range

DESCRIPTION

MICRO LAMBDA YIG Filters, model types MLFP Series and MLFR-series are available with integrated digital driver circuits.

MICRO LAMBDA 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 that peak performance will be achieved at the time of manufacture. Alignment and compensation with the particular YIG filter can be maximized down to the component level.

All drivers in this series provide input voltage regulators, and compensation circuits to improve frequency drift.

YIG drivers act as Digital Word-To-Current convert, Converting standard 12 bit binary numbers into mA of current to tune a magnetic tuning coil.

POSITIVE INPUT DIGITAL DRIVERS PD Series

MICRO LAMBDA positive drivers are available for commercial environments. Standard products provide 12 bit TTL tuning input and operate over the 0° to 65° temperature range.

The PD series of digital drivers provide the main coil current from the +15 volt input line. Current increases linearly from 0 mA = 0 GHz at a rate of approximately 50 mA per 1 GHz. A 2-8 GHz filter will require 100 mA @ 2 GHz and 400 mA @ 8 GHz.

Negative input drives which provide the main coil current on the –15 volt input line, are available as an option.

Frequency drift performance can be minimized with the inclusive temperature compensation circuits within the driver. This yields filter/driver combinations set at the factory with excellent frequency accuracy performance.

In special cases, speed-up circuits like those used to improve the tuning speed of YIG oscillators can also be included to provide both fast-tuned filters and with good accuracy. Filter parameters can be maximized during factory alignment to meet customer specific requirements.

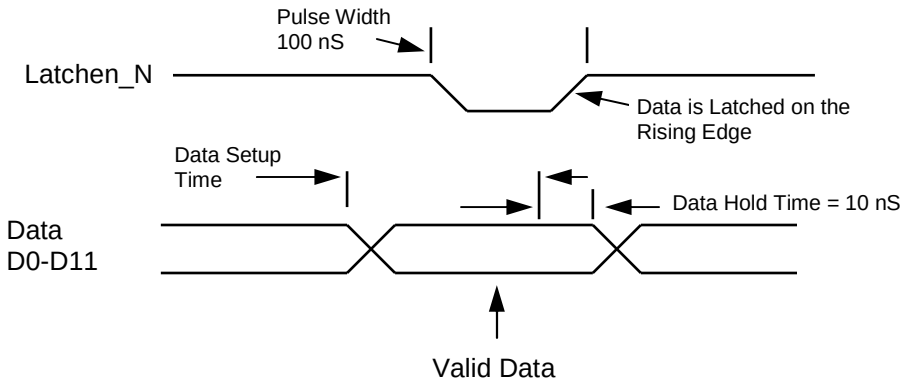
AVAILABLE OPTIONS FOR PD-SERIES COMMERCIAL DIGITAL DRIVERS

- **Customer Defined "Truth" Table**
- **Latched TTL**
- **Negative Input Drivers**

STANDARD POSITIVE INPUT DIGITAL DRIVER SELECTION GUIDE: PD SERIES

YIG TUNED FILTERS WITH COMMERCIAL DIGITAL DRIVERS

DRIVER INPUT & RESPONSE	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 Resistor to +5V
Frequency Accuracy (excluding hysteresis)	See Table
Tuning Speed	2 mS for 1 GHz step to within +/-10 MHz.
Main Driver Inputs	
Supply Voltage & Current	+15 V +/- .5 V @ Filter Tuning Current + 50 mA, Max. -15 V +/- .5 V @ 50 mA, Max.
Supply Voltage Pushing	+/- .5 Vdc , 0.1 MHz Max.
Supply Voltage Ripple	10 mV Ripple Pk-Pk from 2 kHz to 3 MHz
Ground	Chassis Ground
YIG Heater Voltage & Current	+24 Vdc ±4 Vdc @ 500 mA surge for 2 seconds, 150 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.



TIMING DIAGRAM

Bandpass Filters with Positive Input Digital Drivers (0º C to +65º C)

MODEL NUMBER	# Stages	Frequency GHz	3 dB Bandwidth (MHz)	Accuracy (MHz) *	Current +15V (mA)	Current -15V (mA)	Outline Drawing
MLFP-20520PD	2	.50 to 2.0	20	+/- 5	350	50	21-050
MLFP-22018PD	2	2.0 to 18.0	25	+/- 20	1050	50	21-050
MLFP-22026PD	2	2.0 to 26.5	20	+/- 35	1200	50	21-050
MLFP-40520PD	4	.50 to 2.0	20	+/- 5	350	50	21-050
MLFP-42018PD	4	2.0 to 18.0	40	+/- 20	1050	50	21-050
MLFP-42026PD	4	2.0 to 26.5	25	+/- 35	1200	50	21-050
MLFP-46018PD	4	6.0 to 18.0	100	+/- 20	1050	50	21-050
MLFP-48018PD	4	8.0 to 18.0	400	+/- 50	1050	50	21-050
MLFP-62018PD	6	2.0 to 18.0	40	+/- 20	1050	50	21-042
MLFP-62026PD	6	2.0 to 26.5	30	+/- 35	1430	50	21-040**
MLFP-66018PD	6	6.0 to 18.0	100	+/- 20	1050	50	21-042
MLFP-68018PD	6	8.0 to 18.0	500	+/- 50	1050	50	21-042
MLFP-72018PD	7	2.0 to 18.0	40	+/- 35	1050	50	21-042
MLFP-72026PD	7	2.0 to 26.5	30	+/- 60	1430	50	21-040**
MLFP-76018PD	7-L	6.0 to 18.0	500	+/- 45	1050	50	21-042
MLFP-78018PD	7-L	8.0 to 18.0	500	+/- 45	1050	50	21-042
MLFP-78020PD	7-L	8.0 to 20.0	500	+/- 45	1150	50	21-042

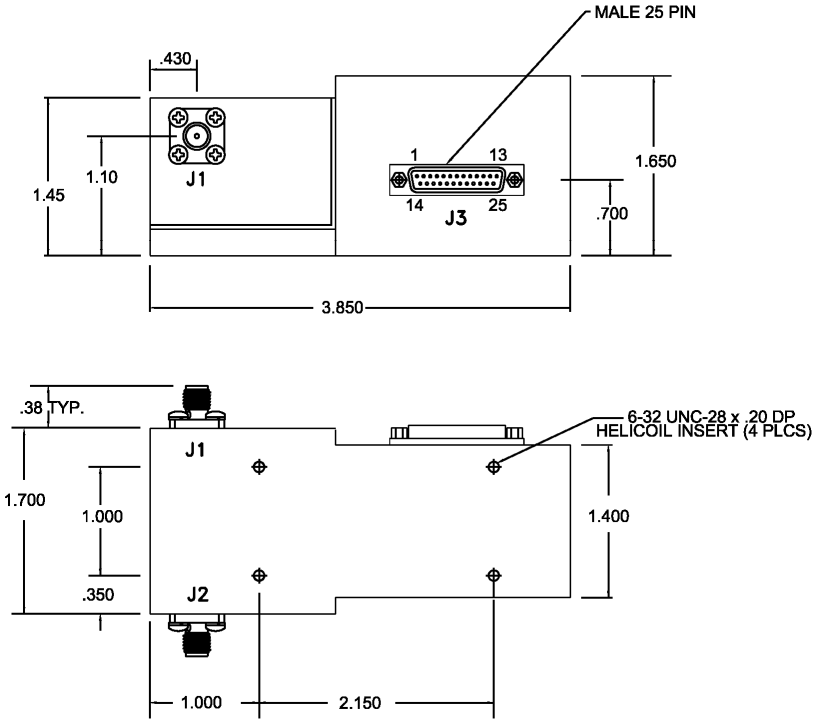
* Accuracy includes frequency drift and linearity errors over the temperature range.

Band Reject Filters with Positive Input Digital Drivers (0º C to +65º C)

Model Number	Frequency GHz	3 dB Bandwidth (MHz)	40 dB Bandwidth (MHz)	Accuracy (MHz) *	Current +15 V (mA)	Current -15 V (mA)	Outline Drawing
MLFR-0102PD	1.0 to 2.0	100	10	+/- 5	250	50	21-043**
MLFR-0204PD	2.0 to 4.0	125	15	+/- 7	350	50	21-043**
MLFR-0408PD	4.0 to 8.0	150	20	+/- 10	550	50	21-043**
MLFR-0812PD	8.0 to 12.4	150	25	+/- 12	750	50	21-043**
MLFR-1218PD	12.4 to 18.0	150	25	+/- 12	1050	50	21-043**
MLFR-0502PD	.50 to 2.0	150	5	+/- 5	250	50	21-043**
MLFR-0206PD	2.0 to 6.0	150	20	+/- 10	450	50	21-043**
MLFR-0208PD	2.0 to 8.0	150	15	+/- 14	550	50	21-043**
MLFR-0212PD	2.0 to 12.0	150	10	+/- 15	750	50	21-043**
MLFR-0418PD	4.0 to 18.0	150	10	+/- 20	1050	50	21-043**
MLFR-0618PD	6.0 to 18.0	150	25	+/- 18	1050	50	21-043**
MLFR-0818PD	8.0 to 18.0	150	35	+/- 18	1050	50	21-043**

* Accuracy includes frequency drift and linearity errors over the temperature range.
** Outline drawing is available from Factory or from website.

OUTLINE Drawing: 21-042



NOTES :

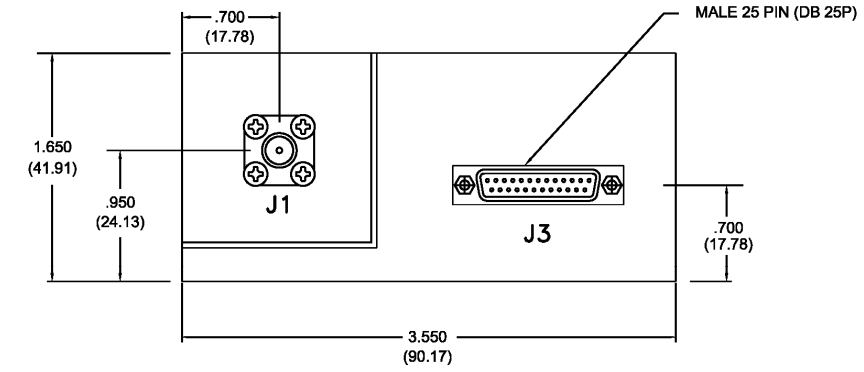
1. - DIMENSIONS ARE IN INCHES
2. - SUPPLY & GROUND WIRES = 20-22 GAUGE
   ALL OTHER WIRES = 24-26 GAUGE
3. - THERMAL COMPOUND REQUIRED BETWEEN
   BASE PLATE AND MOUNTING SURFACE
4. - LATCH/STROBE TTL 0 = DATA ACTIVE
   TTL 1 = DATA LATCHED

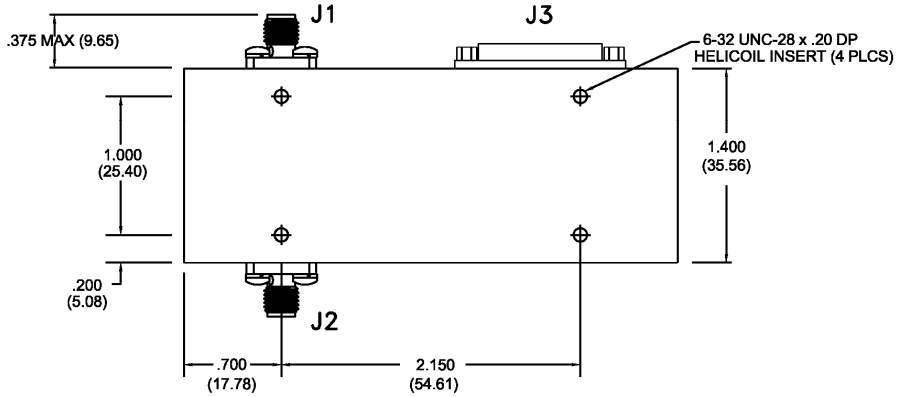
(*) : TTL BAND SEL. 0=8-Fmax ; 1=2-8 GHz
* 000=2GHz ; 5FF=8GHz ; FFF=Fmax

CONNECTIONS			
CONN.	TYPE	PIN #	FUNCTION
J1	SMA FEMALE	THD	RF IN
J2	SMA FEMALE	THD	RF OUT
J3	DB25 MALE	1	DATA BIT 0 (LSB)
J3	DB25 MALE	2	DATA BIT 1
J3	DB25 MALE	3	DATA BIT 2
J3	DB25 MALE	4	DATA BIT 3
J3	DB25 MALE	5	DATA BIT 4
J3	DB25 MALE	6	DATA BIT 5
J3	DB25 MALE	7	DATA BIT 6
J3	DB25 MALE	8	DATA BIT 7
J3	DB25 MALE	9	DATA BIT 8
J3	DB25 MALE	10	DATA BIT 9
J3	DB25 MALE	11	DATA BIT 10
J3	DB25 MALE	12	DATA BIT 11 (MSB)
J3	DB25 MALE	13	N/C
J3	DB25 MALE	14	N/C
J3	DB25 MALE	15	N/C
J3	DB25 MALE	16	N/C
J3	DB25 MALE	17	LATCH/STROBE
J3	DB25 MALE	18	GROUND
J3	DB25 MALE	19	+SUPPLY VOLTAGE
J3	DB25 MALE	20	-SUPPLY VOLTAGE
J3	DB25 MALE	21	HEATER VOLTAGE
J3	DB25 MALE	22	HEATER RETURN
J3	DB25 MALE	23	FM COIL + **
J3	DB25 MALE	24	FM COIL - **
J3	DB25 MALE	25	TTL BAND SELECT *

* REQUIRED FOR DUAL OSC. ONLY
** NOT USED FOR FILTER

OUTLINE Drawing: 21-050





Weight: 16 oz.