MICRO LAMBDA WIRELESS, INC.

MINIATURE YIG FILTERS WITH COMMERCIAL ANALOG DRIVERS CA SERIES

FEATURES

- 500 MHz to 18 GHz
- Compensation for Temperature Drift
- Low-Profile Package
- Input Regulators for Improved Stability
  - Versus Power Supply Variations
- 0-10 Volt Tuning Resolution

DESCRIPTION

MICRO LAMBDA YIG Filters, model types MLFI Series and MLFM-series are available with integrated analog 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 Voltage-To-Current converters, converting standard 0-10 DC voltages into mA of current to tune a magnetic tuning coil.

POSITIVE INPUT ANALOG DRIVERS CA Series

MICRO LAMBDA positive analog drivers are available for commercial environments. Standard products provide 0-10 Volt tuning input and operate over the 0° to 65° temperature range.

The CA series of analog driver 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.

Frequency drift performance can be optimized 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 CA-SERIES COMMERCIAL ANALOG DRIVERS

- **Optional Tuning Speeds**
- **Optional Sweep Speeds**

STANDARD POSITIVE INPUT ANALOG DRIVER SELECTION GUIDE: CA SERIES

YIG TUNED FILTERS WITH COMMERCIAL ANALOG DRIVERS	.5-18 GHz CA SERIES
DRIVER INPUT & RESPONSE	SPECIFICATION (0 to +65 deg. C)
Main Coil Driver Function	
Tuning Command	0 Volts = Lowest Frequency +10 Volts = Highest Frequency
Tuning Accuracy (excluding hysteresis)	See Table
Tuning Speed (Note 1)	5 mS for 1 GHz step to within +/-10 MHz.
Sweep Speed (Note 2) (0-10 Volt Ramp)	50 mS up / 10 mS Retrace for 1 GHz, Linearity @ 0.1%
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	+/- 100 kHz, Max. @ +/- .5 Vdc
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
Input Impedance	> 10 k-Ohms
Common Rejection Mode	> 40 dB

Note 1: Optional .5 mS Tuning Speeds Available

2: Optional 5 mS Sweep Speed Available

Bandpass Filters with Analog Drivers CA Series: Mini Profile Filter (0º C to +65º C)

MODEL NUMBER	# Stages	Frequency GHz	3 dB Bandwidth (MHz)	Accuracy (MHz) *	Current +15V (mA)	Current -15V (mA)	Outline Drawing
MLFI-41002CA	4	1.0 to 2.0	20	+/- 6	150	50	21-037
MLFI-42004CA	4	2.0 to 4.0	30	+/- 8	250	50	21-037
MLFI-44008CA	4	4.0 to 8.0	40	+/- 12	450	50	21-037
MLFI-42008CA	4	2.0 to 8.0	30	+/- 13	450	50	21-037
MLFI-61002CA	6	1.0 to 2.0	25	+/- 6	150	50	21-037
MLFI-62004CA	6	2.0 to 4.0	40	+/- 8	250	50	21-037
MLFI-64008CA	6	4.0 to 8.0	45	+/- 12	450	50	21-037
MLFI-62008CA	6	2.0 to 8.0	40	+/- 13	450	50	21-037

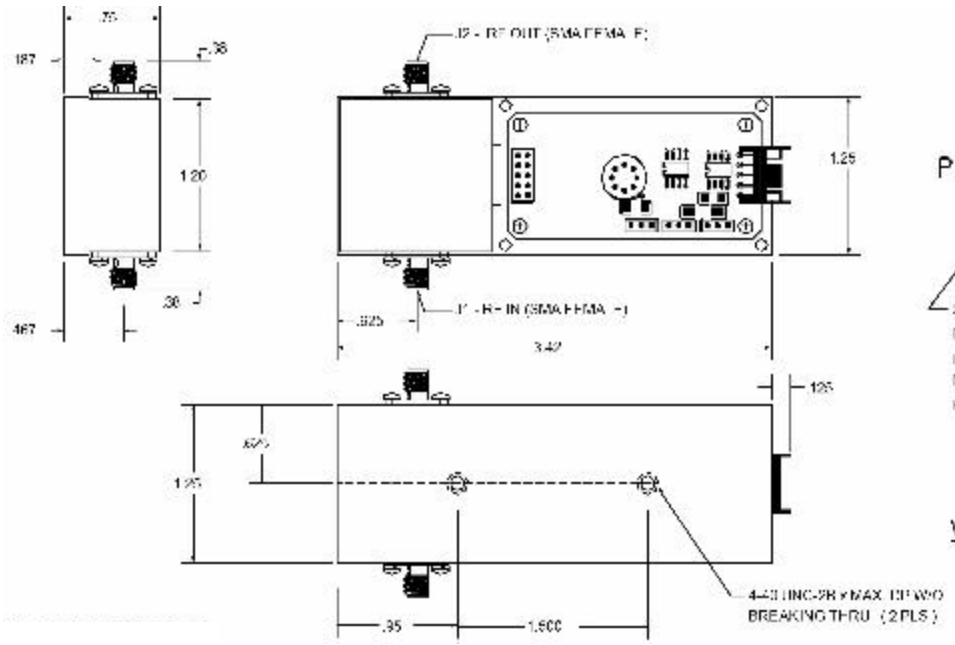
* Accuracy includes frequency drift and linearity errors over the temperature range.

Bandpass Filters with Analog Drivers CA Series: 1” Cube Filter (0º C to +65º C)

MODEL NUMBER	# Stages	Frequency GHz	3 dB Bandwidth (MHz)	Accuracy (MHz) *	Current +15V (mA)	Current -15V (mA)	Outline Drawing
MLFM-30520CA	3	0.5 to 2.0	15	+/- 7	150	50	21-051
MLFM-40540CA	4	0.5 to 4.0	15	+/- 10	250	50	21-051
MLFM-42008CA	4	2.0 to 8.0	30	+/- 13	450	50	21-051
MLFM-42018CA	4	2.0 to 18.0	30	+/- 13	950	50	21-051
MLFM-46018CA	4	6.0 to 18.0	40	+/- 13	950	50	21-051

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

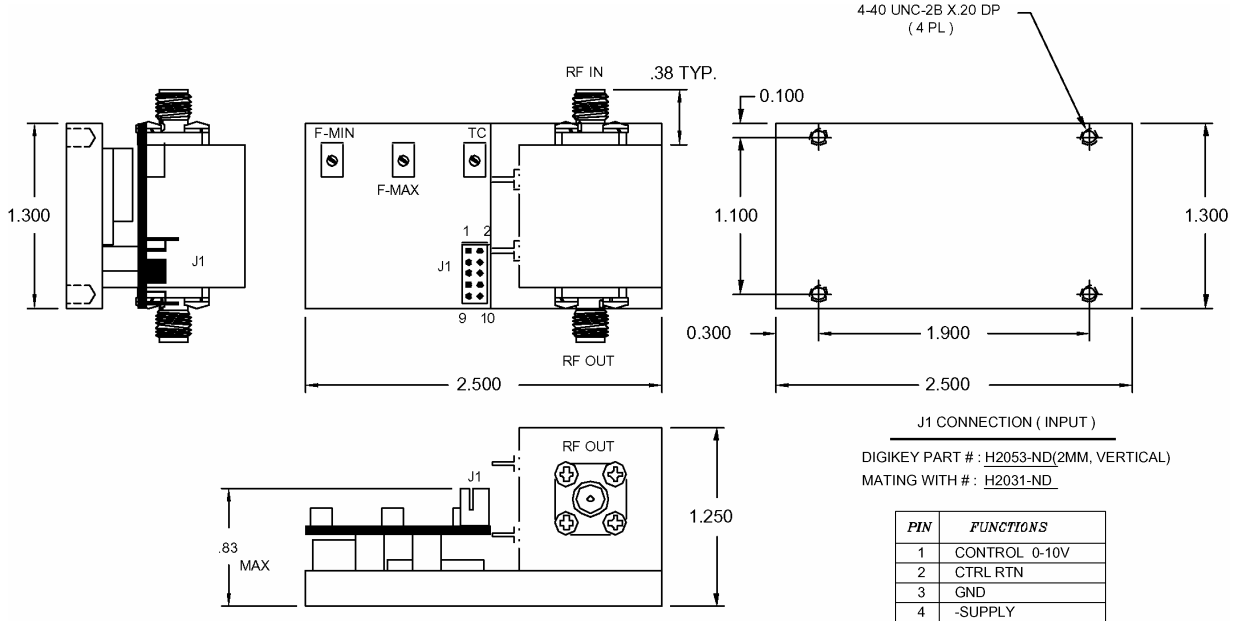
Outline Drawing: 21-037



P1 - PIN CONNECTIONS

PIN NO	FUNCTION
1	CONTROL
2	CONTROL RTN
3	GROUND
4	SUPPLY
5	+SUPPLY
6	HEATER +
7	HEATER -
8	NC
9	NC
10	NC

Outline Drawing: 21-051



J1 CONNECTION (INPUT)

DIGIKEY PART # : H2053-ND(2MM, VERTICAL)

MATING WITH # : H2031-ND

PIN	FUNCTIONS	
1	CONTROL 0-10V	
2	CTRL RTN	
3	GND	
4	-SUPPLY	
5	+SUPPLY	
6	HEATER +	
7	HEATER -	
8	FM +	(*)
9	FM -	(*)
10	GND	

WEIGHT: 10 Oz

NOTES:

1- (*) : NOT USED FOR FILTER

2- RECOMMENDED WIRE SIZE = 20-22 GAUGE