



MICRO LAMBDA WIRELESS, INC.

MINIATURE YIG FILTERS WITH COMMERCIAL ANALOG DRIVERS AM SERIES

FEATURES

- 500 MHz to 18 GHz
- 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, MLFM-Series and MLFD-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 a Voltage-To-Current (constant current source) converters, converting standard 0-10 DC voltages into mA of current to tune a magnetic tuning coil.

POSITIVE INPUT ANALOG DRIVERS AM 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 AM 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.

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 AM-SERIES COMMERCIAL ANALOG DRIVERS

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



YIG TUNED FILTERS WITH

COMMERCIAL ANALOG DRIVERS

.5-18 GHz AM SERIES

DRIVER INPUT & RESPONSE

SPECIFICATION (0 to +65 deg. C)

Main Coil Driver Function

Tuning Command (P1-1&2)

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 (P1-6)
(P1-5)

+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 (P1-4 & 12)

Chassis Ground

YIG Heater Voltage & Current (P1-7 & 8)

+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 AM Series: Mini Profile Filter (0° C to +65° C)

MODEL NUMBER	# Stages	Frequency GHz	3 dB Bandwidth (MHz)	Accuracy (MHz) *	Current +15V (mA)	Current -15V (mA)	Outline Drawing
MLFI-41002AM	4	1.0 to 2.0	20	+/- 6	150	50	99-0021-170
MLFI-42004AM	4	2.0 to 4.0	30	+/- 8	250	50	99-0021-170
MLFI-44008AM	4	4.0 to 8.0	40	+/- 12	450	50	99-0021-170
MLFI-42008AM	4	2.0 to 8.0	30	+/- 13	450	50	99-0021-170
MLFI-61002AM	6	1.0 to 2.0	25	+/- 6	150	50	99-0021-170
MLFI-62004AM	6	2.0 to 4.0	40	+/- 8	250	50	99-0021-170
MLFI-64008AM	6	4.0 to 8.0	45	+/- 12	450	50	99-0021-170
MLFI-62008AM	6	2.0 to 8.0	40	+/- 13	450	50	99-0021-170

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

Bandpass Filters with Analog Drivers AM Series: 1" Cube Filter (0° C to +65° C)

MODEL NUMBER	# Stages	Frequency GHz	3 dB Bandwidth (MHz)	Accuracy (MHz) *	Current +15V (mA)	Current -15V (mA)	Outline Drawing
MLFM-30520AM	3	0.5 to 2.0	15	+/- 7	150	50	99-0021-169
MLFM-40540AM	4	0.5 to 4.0	15	+/- 10	250	50	99-0021-169
MLFM-42008AM	4	2.0 to 8.0	30	+/- 13	450	50	99-0021-169
MLFM-42018AM	4	2.0 to 18.0	30	+/- 13	950	50	99-0021-169
MLFM-46018AM	4	6.0 to 18.0	40	+/- 13	950	50	99-0021-169

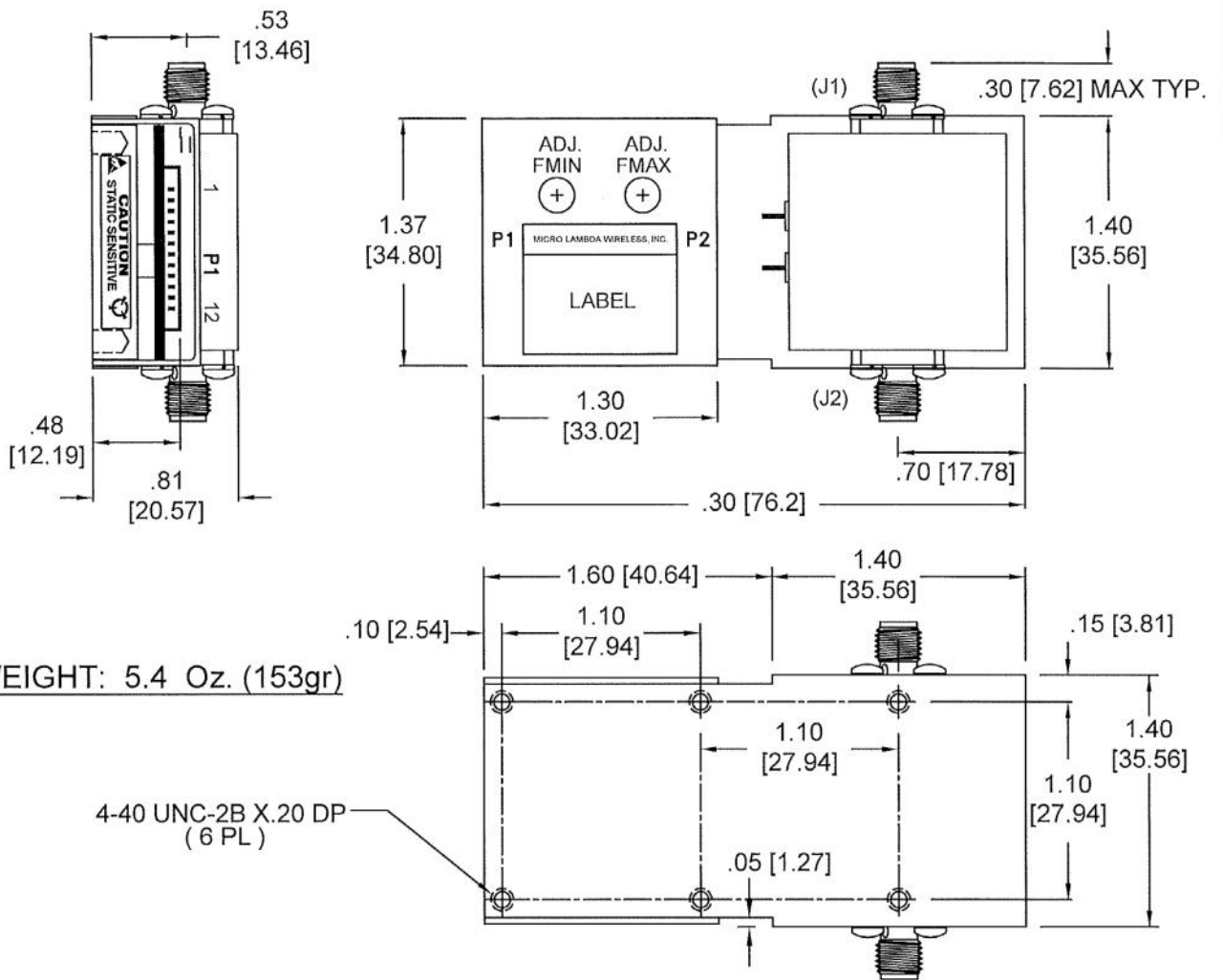
* Accuracy includes frequency drift and linearity errors over the temperature range.

**Dual Channel Bandpass Filters with Analog Drivers AM Series: 1" Cube Filter
(0° C to +65° C)**

MODEL NUMBER	# Stages	Frequency GHz	3 dB Bandwidth (MHz)	Accuracy (MHz) *	Current +15V (mA)	Current -15V (mA)	Outline Drawing
MLFD-40540AM	Dual 2	0.5 to 4.0	15	+/- 10	250	50	**
MLFD-42008AM	Dual 2	2.0 to 8.0	20	+/- 13	450	50	**
MLFD-42018AM	Dual 2	2.0 to 18.0	30	+/- 13	950	50	**
MLFD-46018AM	Dual 2	6.0 to 18.0	30	+/- 13	950	50	**

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

** Contact Factory



INPUT

PIN	P1 ANALOG MODEL FUNCTION	P1 SERIAL MODEL FUNCTION
1	CONTROL-V 0-10V	CLOCK (SCLK)
2	CONTROL RETURN	DATA (MOSI)
3	N/C	SELECTn (CS)
4	GROUND	GROUND
5	-V SUPPLY	-V SUPPLY
6	+V SUPPLY	+V SUPPLY
7	HEATER 1	HEATER 1
8	HEATER 2	HEATER 2
9	N/C	N/C
10	N/C	N/C
11	N/C	N/C
12	GROUND	GROUND

FILTER RF CONNECTIONS

CONN.	TYPE	FUNCTION
J1	SMA	RF INPUT
J2	SMA	RF OUTPUT

NOTES:

- RECOMMENDED WIRE SIZE = 24 GAUGE
- P1 CONNECTION:
 - MOLEX PART # : 5040501291(1.5MM)
 - MATING WITH # : 5040511201
 - CRIMP CONTACT : 5040520098
- DIMENSIONS ARE IN INCHES
- [] DIMENSIONS ARE IN MM.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCE ARE:

FRACTIONS DECIMALS ANGLES
 ▲ XX ± .02
 ▲ XXX ± 0.10

CONTRACT NO.

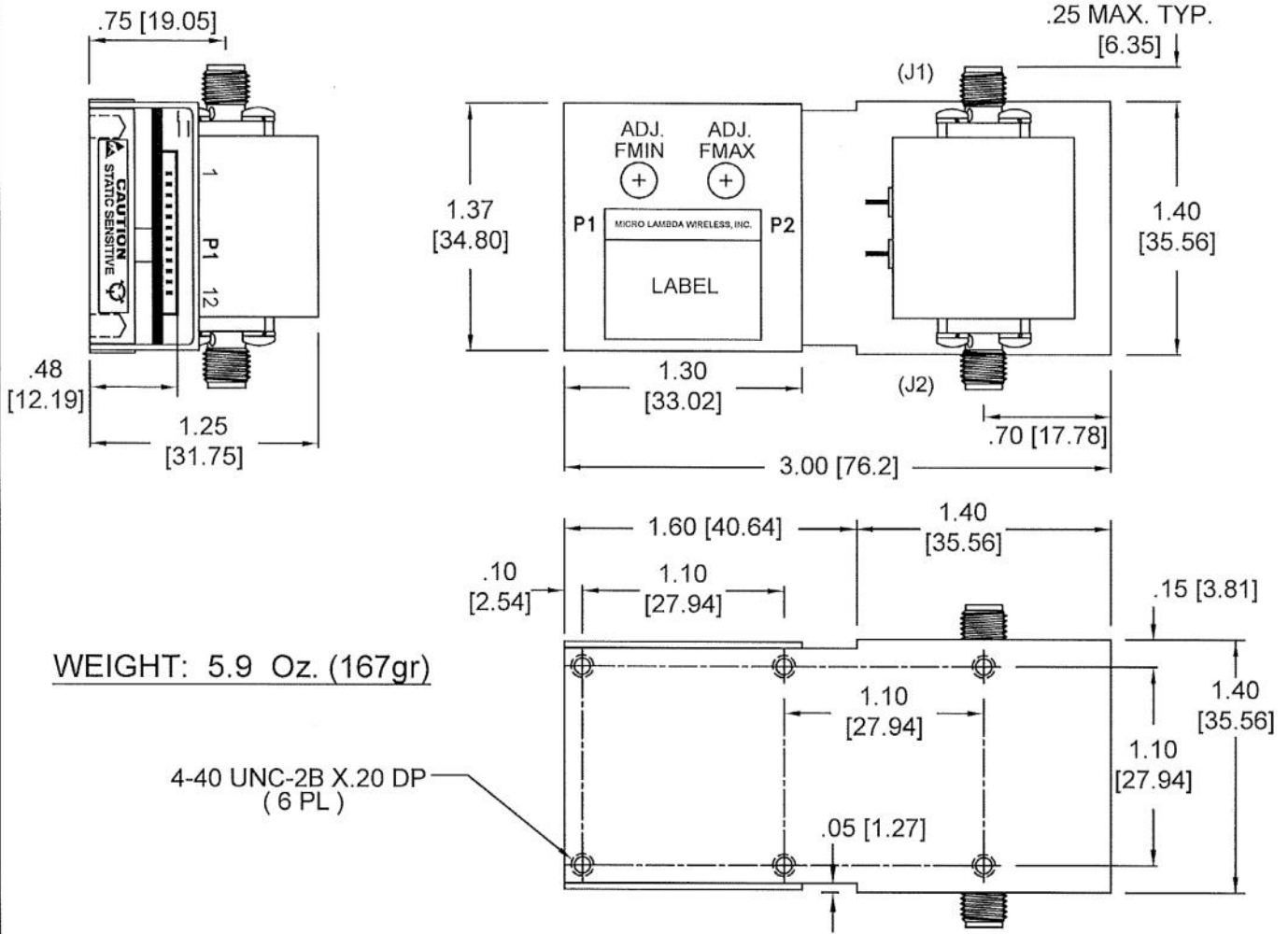
APPROVALS	DATE
DRAWN N NGUYEN	5/19/2022
CHECKED DS	5/26/22
ISSUED	



MICRO LAMBDA WIRELESS, INC.

ANALOG OR SERIAL DRIVER WITH 1.2" BP FILTER

DO NOT SCALE DRAWING	SIZE	CAGE No ORN63	DWG. NO. 99 - 0021 - 170	REV. A
----------------------	------	------------------	-----------------------------	-----------



WEIGHT: 5.9 Oz. (167gr)

4-40 UNC-2B X.20 DP
(6 PL)

INPUT

PIN	FUNCTION	FUNCTION
1	CONTROL-V 0-10V	CLOCK (SCLK)
2	CONTROL RETURN	DATA (MOSI)
3	N/C	SELECTn (CS)
4	GROUND	GROUND
5	-V SUPPLY	-V SUPPLY
6	+V SUPPLY	+V SUPPLY
7	HEATER 1	HEATER 1
8	HEATER 2	HEATER 2
9	N/C	N/C
10	N/C	N/C
11	N/C	N/C
12	GROUND	GROUND

FILTER RF CONNECTIONS

CONN.	TYPE	FUNCTION
J1	SMA	RF INPUT
J2	SMA	RF OUTPUT

NOTES:

- RECOMMENDED WIRE SIZE = 24 GAUGE
- P1 CONNECTION:
 - MOLEX PART # : 5040501291(1.5MM)
 - MATING WITH # : 5040511201
 - CRIMP CONTACT : 5040520098
- DIMENSIONS ARE IN INCHES
- [] DIMENSIONS ARE IN MM.

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

CONTRACT NO.



MICRO LAMBDA WIRELESS, INC.

APPROVALS	DATE
DRAWN N.NGUYEN	5/19/2022
CHECKED DS	5/26/22
ISSUED	

ANALOG OR SERIAL DRIVER WITH 1.0" BP FILTER

SIZE	CAGE No	DWG. NO.	REV.
	0RN63	99 - 0021 - 169	A

DO NOT SCALE DRAWING