YIG Filters

Super Notch YIG Tuned Band Reject Filters

Patented YIG Resonator Technology

EXPORT RESTRICTIONS MAY APPLY

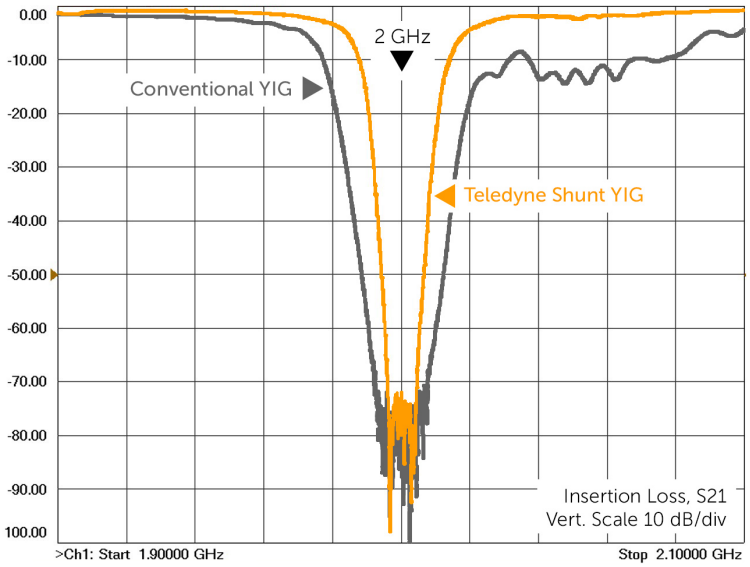
Overview

Teledyne RF & Microwave offers a broad portfolio of oscillators, bandpass filters, and super notch band reject filters designed and manufactured using Yttrium Iron Garnet (YIG) spheres. Ideal for electronic warfare applications, Teledyne's newest super notch band reject filters feature patented shunt YIG resonator technology. This innovative technology delivers industry-leading performance in 40dB rejection bandwidth compared to conventional super notch band reject filters.

Features

- Patented shunt YIG resonator technology
- 22 MHz 40 dB rejection bandwidth minimum
- 160 MHz 3dB notch bandwidth maximum
- 2-20 GHz notch frequency range over 1.8 - 20.2 GHz passband range
- Designed and manufactured in the USA

F3874 notch performance compared to a conventional YIG approach →



from Teledyne Defense Electronics Paper "A New Approach to YIG-Based Band-Reject Filters - An Introduction"

Teledyne Microwave Solutions
Aerospace & Defense Electronics

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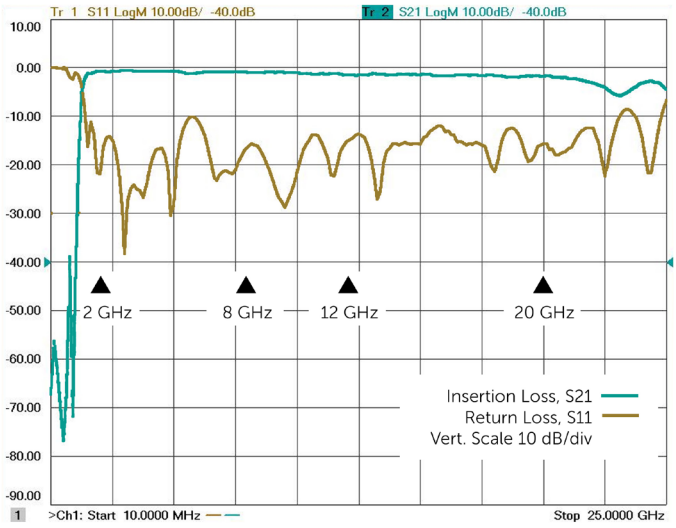
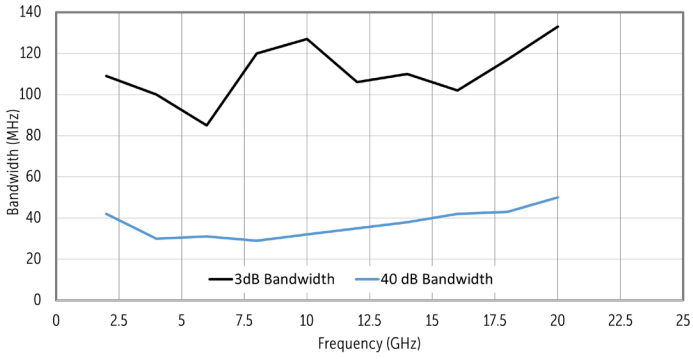
Technical Specifications

	F3874	F3875	F4002
Passband Frequency Range (GHz)	0.4 - 3.0	1.8 - 18.2	1.8 - 20.2
Notch Frequency Range (GHz)	0.5 - 3.0	2.0 - 6.0	2.0 - 20.0
Passband Insertion Loss (dB)	<1.5	<1.8	<1.9
Passband Return Loss (dB)	>10	>10	>10
Min 40dB Rejection Bandwidth (MHz)	6	30	22
Max 3dB Notch Bandwidth (MHz)	50 @ 2.0 GHz 70 @ 2.6 GHz 90 @ 3.0 GHz	150	160
Max Notch Tracking Spur Amplitude (dB)	3	4	4
0 to +70 °C Temperature Drift (MHz)	10	10	20
Input Power (dBm)	+5	+10	+10
Tuning sensitivity, typical (MHz/mA)	10	20	20
Tuning Coil Resistance (Ohms)	8	6	6
Tuning Coil Inductance (mH)	200	65	65
Heater Voltage (V)	28	28	28
Heater Current, Steady State (mA)	150	150	150
Heater Current, Surge (mA)	1,000	1,000	1,000

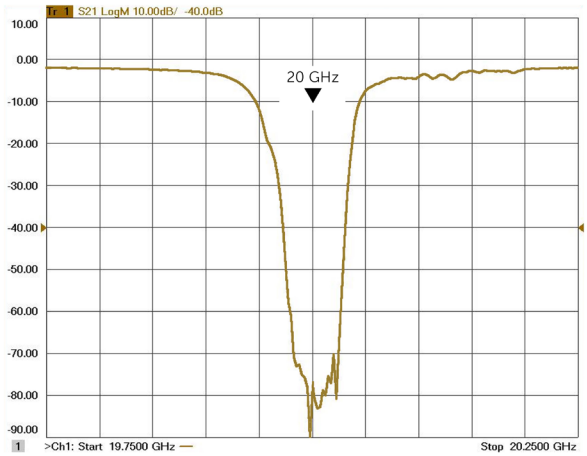
Example Performance: F4002

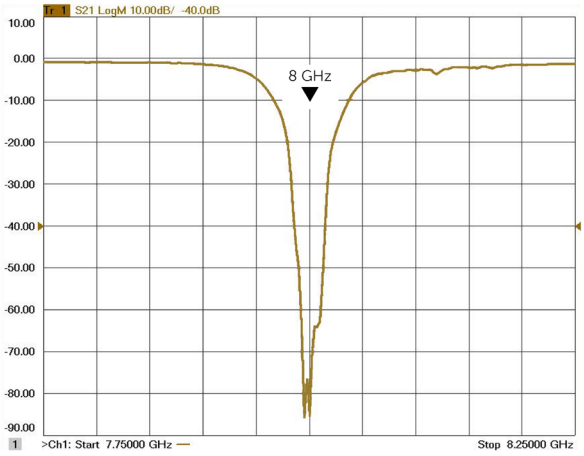


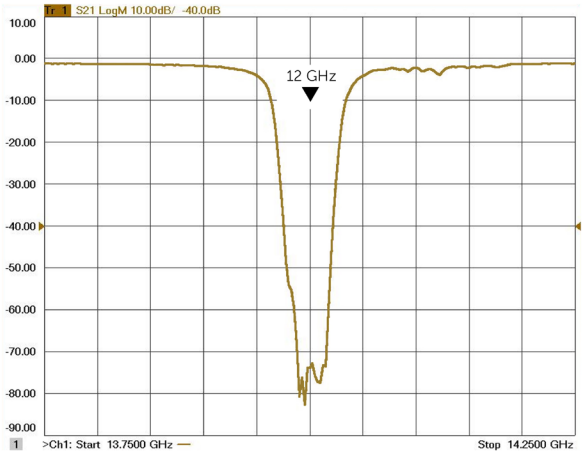
Insertion Loss, Return Loss



Notch Performance



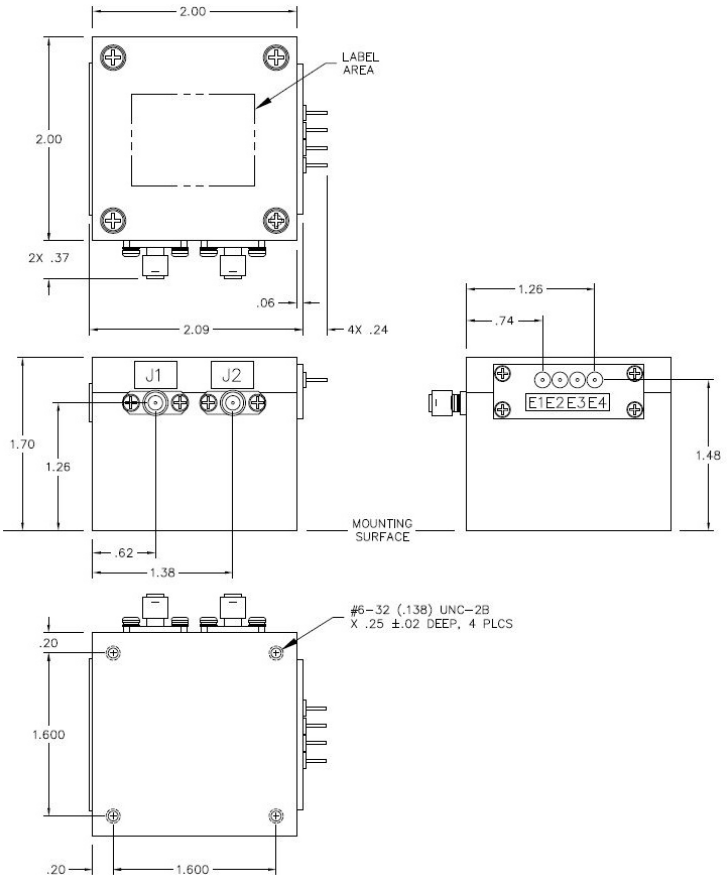




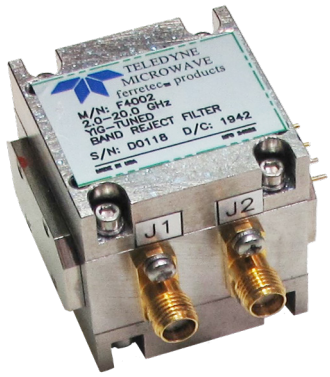
Outline Drawings - F3874 Package

PIN	FUNCTION	
E1	COIL +	1
E2	HTR	
E3	HTR	
E4	COIL −	1

J1	RF IN
J2	RF OUT



Outline Drawings - F3875, F4002 Package



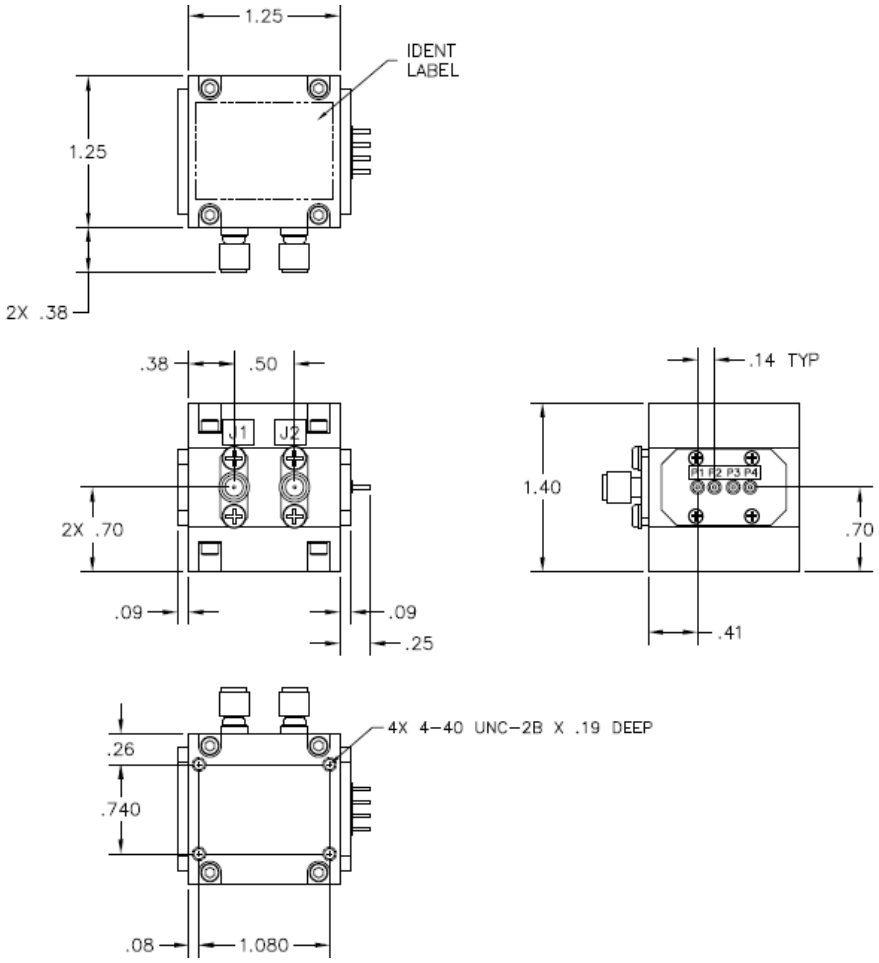


TABLE 1			
CONN	PIN NO.	FUNCTION	
J1	SMA-F	RF INPUT	
J2	SMA-F	RF OUTPUT	
P1	1	TUNE +	2
P1	2	HEATER	
P1	3	HEATER	
P1	4	TUNE -	2