

Bandpass Filter

PIF-21.4+

50Ω Constant Impedance 18 to 25 MHz

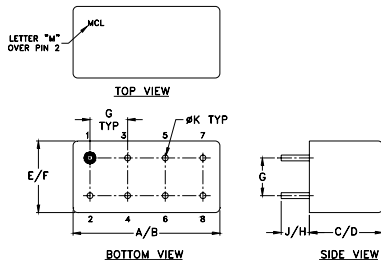
Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power Input	0.5W max.
Permanent damage may occur if any of these limits are exceeded.	

Pin Connections

INPUT	1
OUTPUT	6
GROUND	2,3,4,5,7,8
CASE GROUND	2,5,7,8

Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F
.770	.800	.385	.400	.370	.400
19.56	20.32	9.78	10.16	9.40	10.16
G	H	J	K	wt	
.200	.20	.14	.031	grams	5.2
5.08	5.08	3.56	0.79		



Features

- low VSWR in pass & stopbands, 1.3:1 typ.
- shielded welded case, hermetically sealed
- custom designs available

Applications

- harmonic rejection
- lab use
- military/hi-rel applications



Generic photo used for illustration purposes only

CASE STYLE: A01

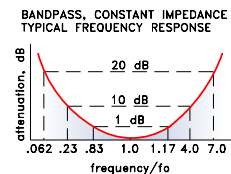
+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

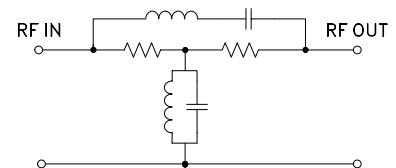
Bandpass Filter Electrical Specifications

MODEL NO.	CENTER FREQ. (MHz)	PASSBAND (MHz)	STOPBANDS		VSWR, 1.3:1 Typ. TOTAL BAND (MHz)
		(loss<1 dB)	(loss > 10 dB) at MHz	(loss > 20 dB) at MHz	
PIF-21.4+	21.4	18-25	4.9 & 85	1.3 & 150	DC-220

typical frequency response

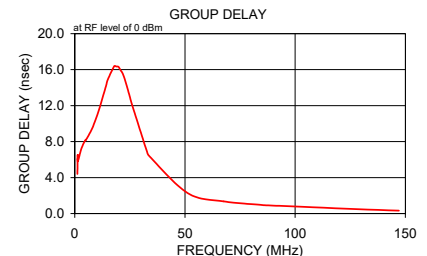
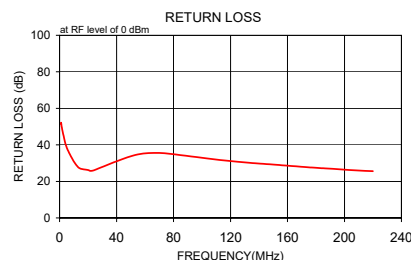


electrical schematic



Typical Performance Data

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	Frequency (MHz)	Group Delay (nsec)
	$\bar{x}$	σ		
1.00	25.27	0.20	1.20	4.399
1.10	24.91	0.20	1.30	6.493
1.10	24.55	0.20	1.40	5.803
1.20	24.24	0.20	2.60	6.877
1.20	23.93	0.20	3.70	7.658
1.30	23.64	0.20	4.90	8.204
1.40	23.17	0.20	5.00	8.142
3.70	15.71	0.10	7.90	9.473
4.90	13.27	0.10	11.00	11.528
6.00	11.38	0.10	14.00	14.015
8.70	7.85	0.10	15.00	14.909
11.30	5.18	0.10	17.90	16.385
14.00	2.92	0.10	18.80	16.348
18.00	0.72	0.10	19.80	16.309
20.30	0.14	0.10	20.90	15.915
21.50	0.01	0.10	21.60	15.629
23.80	0.05	0.10	22.40	15.139
40.00	2.02	0.20	23.20	14.502
55.00	7.93	0.20	24.00	13.843
70.00	10.88	0.20	24.80	13.162
85.00	13.23	0.20	26.20	11.927
100.00	15.41	0.20	32.70	6.934
116.70	17.64	0.20	33.90	6.349
133.30	19.87	0.10	51.30	2.263
150.00	22.27	0.10	67.60	1.347
175.00	26.56	0.20	84.60	0.959
186.30	28.96	0.20	86.10	0.936
197.50	31.82	0.30	107.80	0.693
208.80	35.24	0.60	128.10	0.484
220.00	38.08	1.40	147.10	0.321



Notes

- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp



Plug-In Band Pass Filter(Constant Impedance) PIF-21.4+

Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	RETURN LOSS (dB)	FREQUENCY (MHz)	GROUP DELAY (nsec)
1.00	25.27	52.20	1.2	4.399
1.10	24.91	51.60	1.4	5.803
1.20	24.24	51.40	2.6	6.877
1.30	23.64	50.90	3.7	7.658
1.40	23.17	50.10	4.9	8.204
3.70	15.71	41.80	5.0	8.142
4.90	13.27	39.00	7.9	9.473
6.00	11.38	36.80	11.0	11.528
8.70	7.85	32.80	14.0	14.015
11.30	5.18	29.50	15.0	14.909
14.00	2.92	27.20	17.9	16.385
18.00	0.72	26.50	18.8	16.348
20.30	0.14	26.20	20.9	15.915
21.50	0.01	25.80	21.6	15.629
23.80	0.05	26.00	22.4	15.139
40.00	2.02	31.00	23.2	14.502
55.00	7.93	34.80	24.0	13.843
70.00	10.88	35.60	24.8	13.162
85.00	13.23	34.40	26.2	11.927
100.00	15.41	32.90	32.7	6.934
116.70	17.64	31.40	33.9	6.349
133.30	19.87	30.20	51.3	2.263
150.00	22.27	29.20	67.6	1.347
175.00	26.56	27.70	84.6	0.959
186.30	28.96	27.10	86.1	0.936
197.50	31.82	26.60	107.8	0.693
208.80	35.24	26.00	128.1	0.484
220.00	38.08	25.60	147.1	0.321

REV. X1
PIF-21.4+
070610
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Patent Pending

Mini-Circuits®

IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS9100 CERTIFIED RoHS compliant

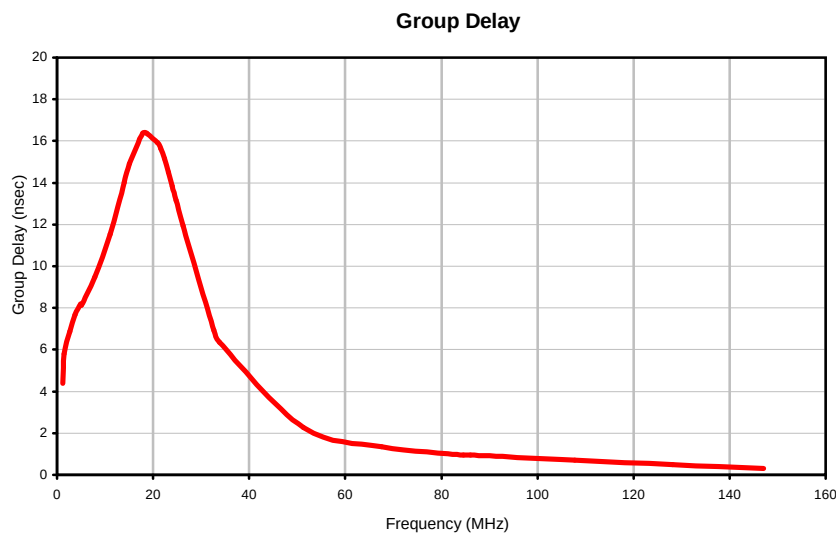
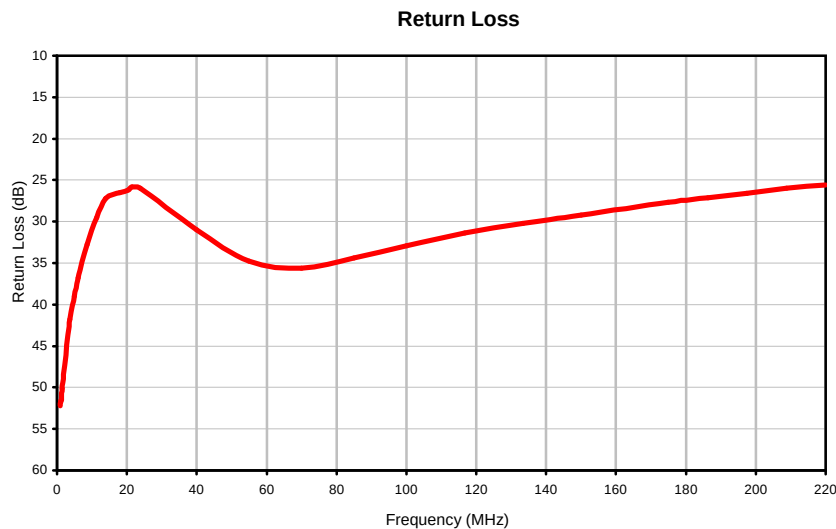
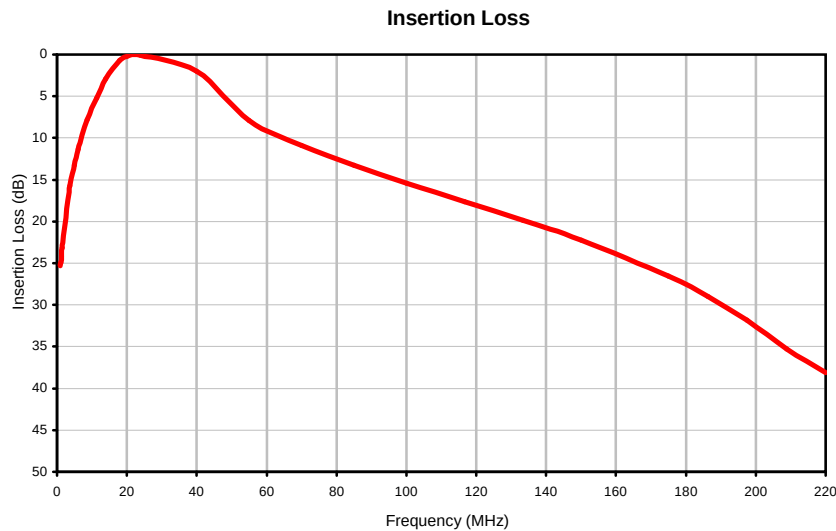
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Plug-In Band Pass Filter(Constant Impedance) PIF-21.4+

Typical Performance Curves



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PIF-21.4+
070610
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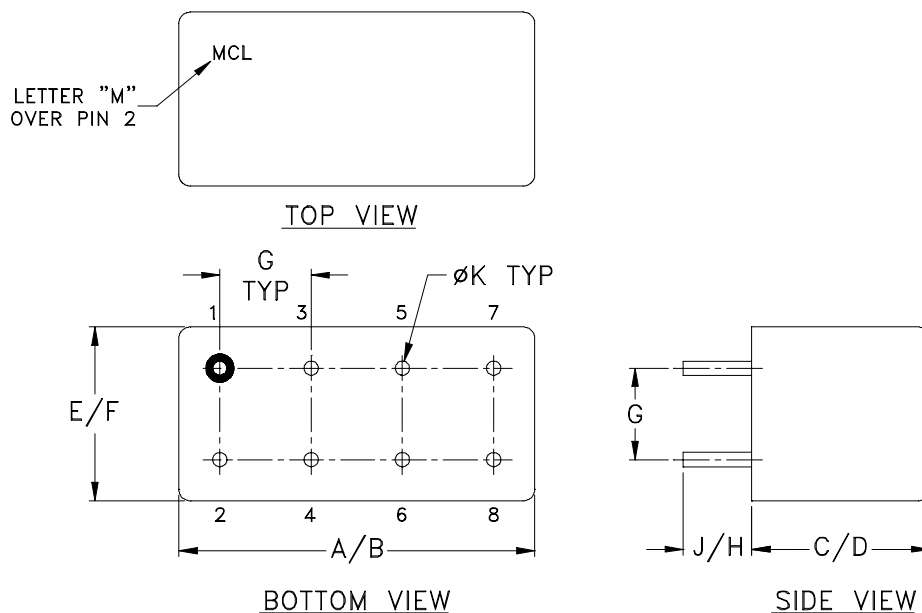
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A01
A04
A05
A06

Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	WT, GRAM
A01	.770 (19.56)	.800 (20.32)	.385 (9.78)	.400 (10.16)	.370 (9.40)	.400 (10.16)	.200 (5.08)	.20 (5.08)	.14 (3.56)	.031 (.79)	5.2
A04			.200 (5.08)	.210 (5.33)							3.7
A05			.240 (6.10)	.250 (6.35)							3.7
A06			.285 (7.24)	.310 (7.87)							5.2

Dimensions are in inches (mm). Tolerances: 2 Pl. $\pm .03$; 3 Pl. $\pm .015$

Notes:

- Header material: C.R.S.
Pin material: #52 alloy.
Cover material: Cupro-Nickel.
- Pin finish: Electro Tin-Silver.
- Insulated spacer available. Request P/N B14-045-01.
- Tolerance on pin diameter $\pm .005$ inch.
- Glass meniscus 0.015 inch max.
- Blue bead indicates Pin 1. Pin numbers do not appear on unit, for reference only.

Mini-Circuits®

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All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D
Mechanical Shock	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A
Moisture Resistance	10 cycles, 24 hours per cycle	MIL-STD-202, Method 106, Condition A, except 50°C and end point electrical test done within 12 hours
Solderability	10X Magnification	J-STD-002, 95% Coverage
Resistance to Solder Heat	260°C for 10 seconds	MIL-STD-202, Method 210, Condition B
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215
Terminal Strength	4 1/2 Pound Pull	MIL-STD-202, Method 211, Condition A



All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Gross Leak	125°C Bubble Test	MIL-STD-202, Method 112, Condition D
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D