CERAMIC

Band Pass Filter

BFCN-1900+

50Ω 1893 to 1920 MHz

THE BIG DEAL

- Small Size, 3.2 × 1.6 mm
- Temperature Stable
- Hermetically Sealed
- LTCC Construction



Generic photo used for illustration purposes only

CASE STYLE: FV1206-5

+RoHS Compliant
The +Suffix identifies RoHS Compliance.
See our website for methodologies and qualifications

APPLICATIONS

- Harmonic Rejection
- Transmitters/Receivers
- PCS

PRODUCT OVERVIEW

Mini-Circuits' BFCN-1900+ LTCC band pass filter achieves a miniature size and high repeatability of performance. Wrap-around terminations minimize variations in performance due to parasitics. Covering 1893 to 1920 MHz, these units offer excellent rejection over a wide stop band.

ELECTRICAL SPECIFICATIONS[1,2] AT +25 °C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Units
Passband	Center Frequency	–	–	–	1900	–	MHz
	Insertion Loss	F1–F2	1893–1920	–	2.6	3.2	dB
	VSWR	F1–F2	1893–1920	–	1.4	–	:1
Stop Band, Lower	Insertion Loss	DC–F3	DC–1687	–	35	–	dB
	VSWR	DC–F3	DC–1687	–	30	–	:1
Stop Band, Upper	Insertion Loss	F4–F5	2153–5500	–	25	–	dB
	VSWR	F4–F5	2153–5500	–	50	–	:1

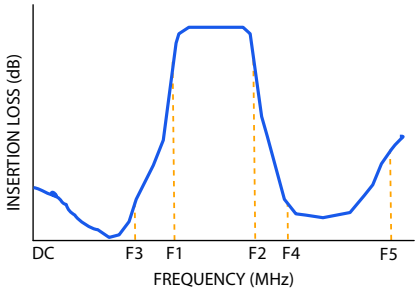
1. Measured on Mini-Circuits Characterization Test Board TB-BFCN-1900+.
2. This filter is not intended for use as a DC blocking circuit element. In applications where DC voltage is present at either input or output ports, blocking capacitors are required at the corresponding RF port.

ABSOLUTE MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-40 °C to +85 °C
Storage Temperature[3]	-55 °C to +100 °C
RF Power Input[4]	2 W at +25 °C

3. 12 months
4. Passband rating, derate linearly to 0.5 W at 85 °C ambient. Permanent damage may occur if any of these limits are exceeded.

TYPICAL FREQUENCY RESPONSE



REV. A
ECO-030938
BFCN-1900+
MCL NY
260914

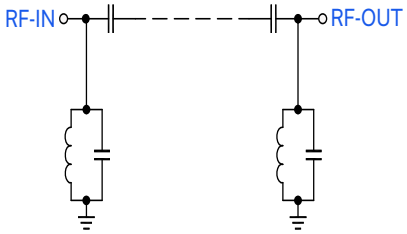
CERAMIC

Band Pass Filter

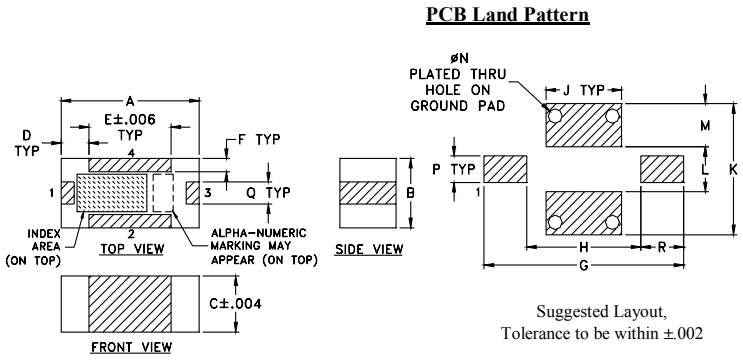
BFCN-1900+

50Ω 1893 to 1920 MHz

FUNCTIONAL SCHEMATIC



CASE STYLE DRAWING



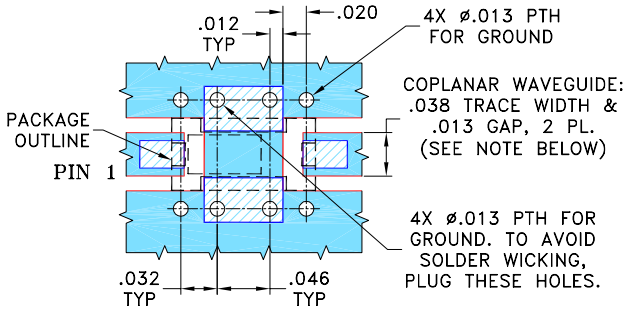
PAD CONNECTIONS

RF-IN	1
RF-OUT	3
Ground	2.4

PRODUCT MARKING: N/A

DEMO BOARD P/N: TB-BFCN-1900+

SUGGESTED PCB LAYOUT (PL-305)



NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" ± .0015". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

OUTLINE DIMENSIONS (Inches / mm)

A	B	C	D	E	F	G	H	J
.126	.063	.051	.026	.075	.012	.182	.104	.069
3.20	1.60	1.30	0.66	1.91	0.30	4.62	2.64	1.75

K	L	M	N	P	Q	R		wt
.119	.041	.039	.013	.024	.020	.039		grams
3.02	1.04	0.99	0.33	0.61	0.51	0.99		.020

TAPE & REEL INFORMATION: F75

CERAMIC

Band Pass Filter

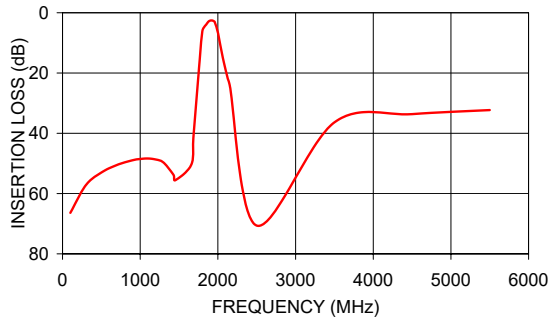
BFCN-1900+

50Ω 1893 to 1920 MHz

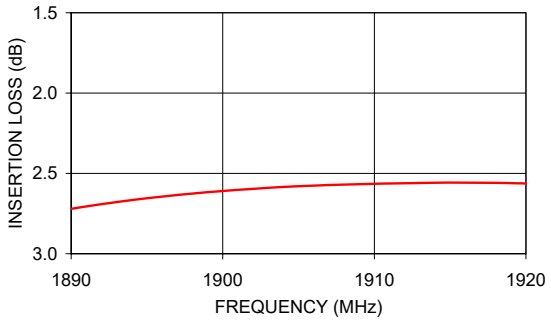
TYPICAL PERFORMANCE DATA AT +25 °C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Insertion Loss (dB)	Group Delay (nsec)
100	66.39	138.63	1893	2.68	3.54
500	53.03	102.96	1903	2.59	3.47
1000	48.53	94.67	1913	2.56	3.41
1200	48.68	92.97	1920	2.56	3.37
1660	50.31	45.30			
1687	40.78	37.21			
1800	6.13	2.56			
1893	2.68	1.23			
1920	2.56	1.23			
2000	6.53	4.20			
2153	24.20	43.19			
3500	36.36	137.82			
4500	33.62	95.34			
5500	32.30	90.59			

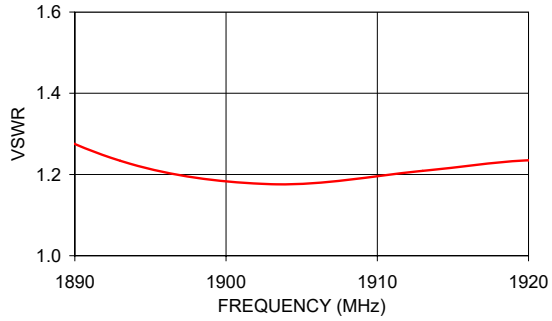
BFCN-1900+
INSERTION LOSS (Full Band)



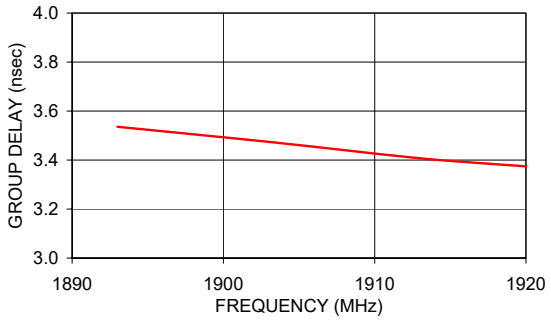
BFCN-1900+
INSERTION LOSS (Pass Band)



BFCN-1900+
VSWR



BFCN-1900+
GROUP DELAY



NOTES

A. 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.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuits' applicable established test performance criteria and measurement instructions.
C. 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/terms/viewterm.html

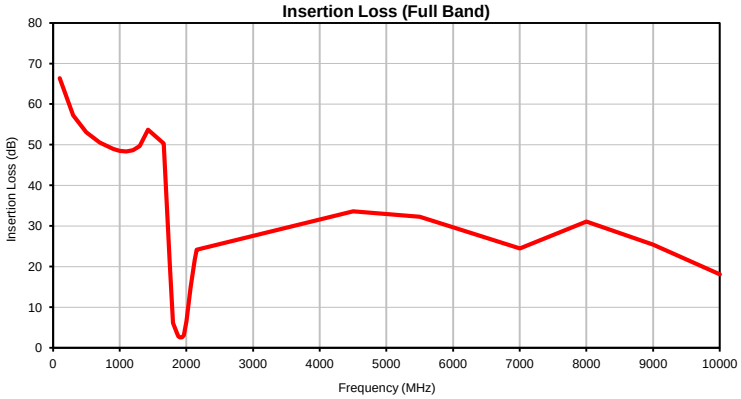
Ceramic Bandpass Filter BFCN-1900+

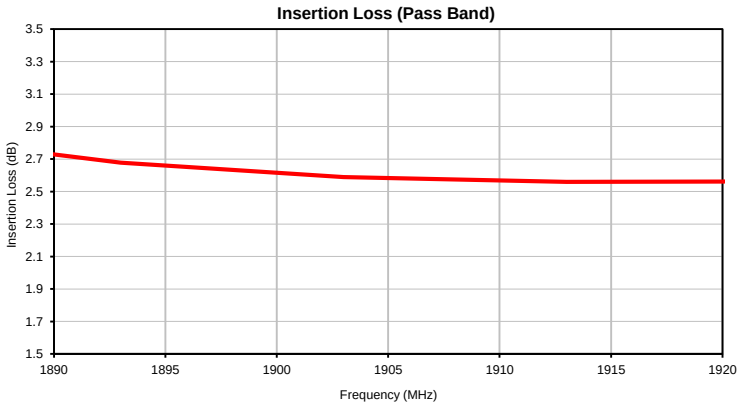
Typical Performance Data

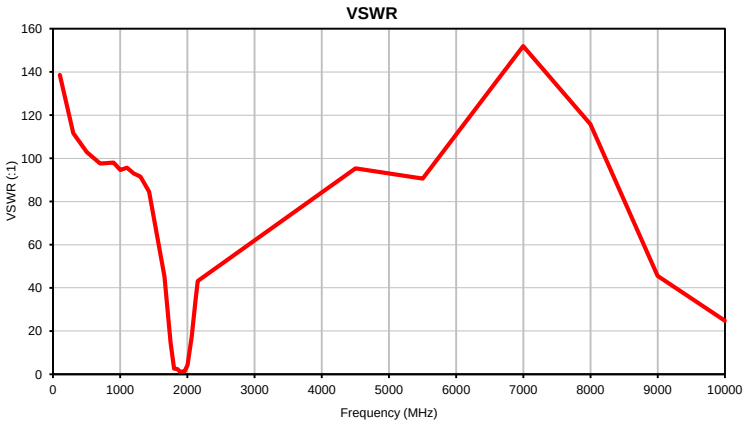
FREQUENCY (MHz)	INSERTION LOSS (dB)	VSWR (:1)	GROUP DELAY (ns)
100	66.39	138.63	0.00
300	57.20	111.73	0.00
500	53.03	102.96	0.02
700	50.51	97.53	0.03
900	48.95	97.96	0.02
1000	48.53	94.67	0.04
1100	48.36	95.69	0.03
1200	48.68	92.97	0.04
1300	49.71	91.46	0.03
1427	53.74	84.51	0.00
1660	50.31	45.30	0.94
1750	20.63	14.74	0.84
1800	6.13	2.56	4.60
1850	3.94	2.45	4.57
1873	3.10	1.67	3.55
1883	2.85	1.41	3.57
1893	2.68	1.23	3.54
1903	2.59	1.18	3.47
1913	2.56	1.21	3.41
1920	2.56	1.23	3.37
1930	2.60	1.24	3.38
1940	2.67	1.22	3.45
1950	2.83	1.25	3.58
1960	3.13	1.43	3.71
2000	6.53	4.20	3.58
2063	14.89	17.27	1.93
2126	21.72	35.57	0.78
2153	24.20	43.19	0.47
4500	33.62	95.34	0.03
5500	32.30	90.59	0.03
7000	24.46	151.95	0.18
8000	31.13	115.87	0.07
9000	25.40	45.51	0.06
10000	18.13	24.80	0.10

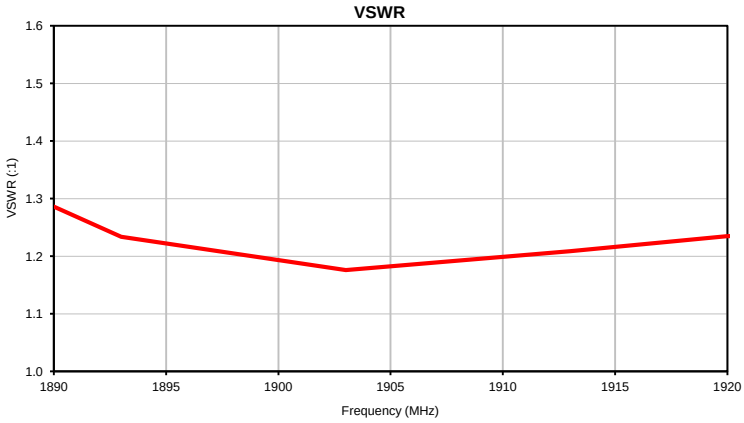
Ceramic Bandpass Filter BFCN-1900+

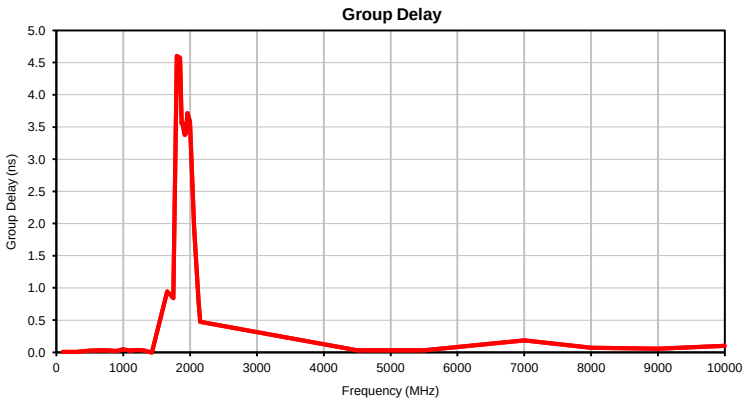
Typical Performance Curves

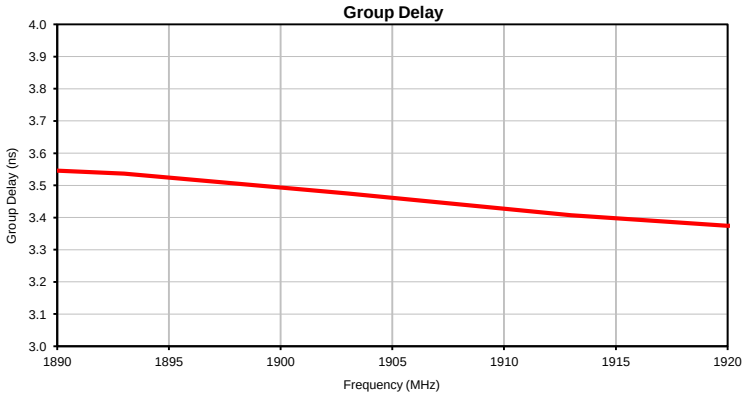










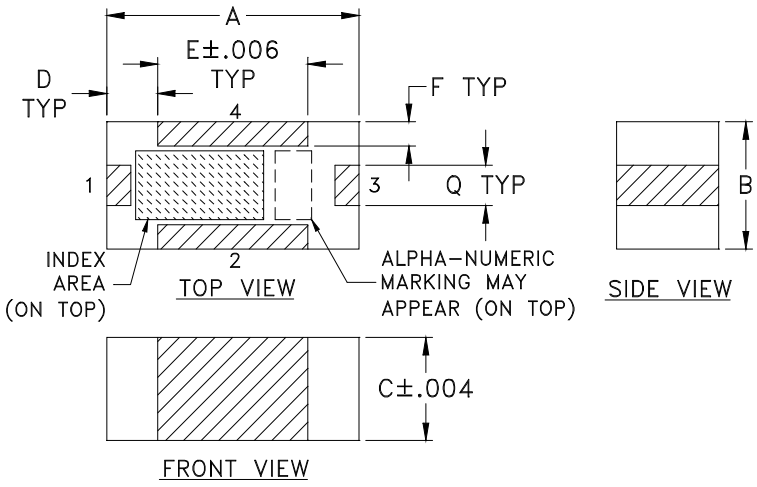


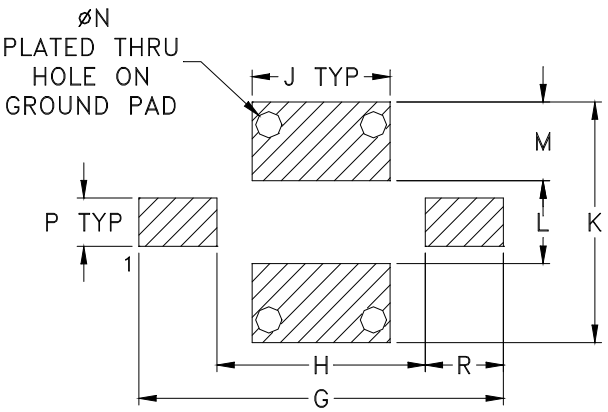
Case Style FV

Outline Dimensions

FV1206-5

PCB Land Pattern





Suggested Layout,
Tolerance to be within ±.002

CASE #	A	B	C	D	E	F	G	H	J	K	L	M
FV1206-5	.126 (3.20)	.063 (1.60)	.051 (1.30)	.026 (0.66)	.075 (1.91)	.012 (0.30)	.182 (4.62)	.104 (2.64)	.069 (1.75)	.119 (3.02)	.041 (1.04)	.039 (0.99)

CASE #	N	P	Q	R	WT. GRAM
FV1206-5	.013 (0.33)	.024 (0.61)	.020 (0.51)	.039 (0.99)	.020

Dimensions are in inches (mm). Tolerances: 2 Pl. ± .01; 3 Pl. ± .005

Notes:

1. Open style, ceramic base.
2. Termination finish: **as shown below or indicated on Data Sheet.**
   For RoHS Case Styles: Silver plate over Nickel plate. All models, (+) suffix.

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Tape & Reel Packaging TR-F75

DEVICE ORIENTATION IN T&R

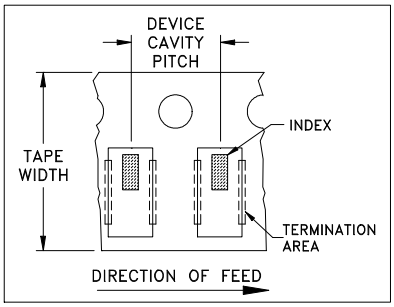


ILLUSTRATION 1

Applicable Case Styles
FV1206-1
FV1206-3

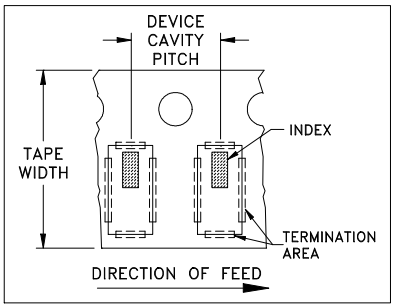


ILLUSTRATION 2

Applicable Case Styles
FV1206-4
FV1206-5
FV1206-6
FV1206-7
FV1206-9

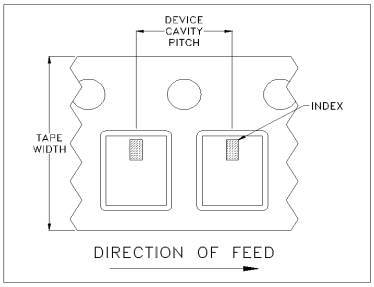


ILLUSTRATION 3

Applicable Case Styles
FV1206-11
FV1206-12
GE0805C-18
NL1008C-6
NL1008C-7
NL1008C-9
NL1008C-10
NL1008C-12

Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel	
8	4	7	Small quantity standards (see note)	20
				50
				100
				200
				500
				1000
			Standard	3000

Note: Please consult individual model data sheet to determine device per reel availability.

Mini-Circuits carrier tape materials provide protection from ESD (Electro-Static Discharge) during handling and transportation. Tapes are static dissipative and comply with industry standards EIA-481/EIA-541.

Go to: www.minicircuits.com/pages/pdfs/tape.pdf

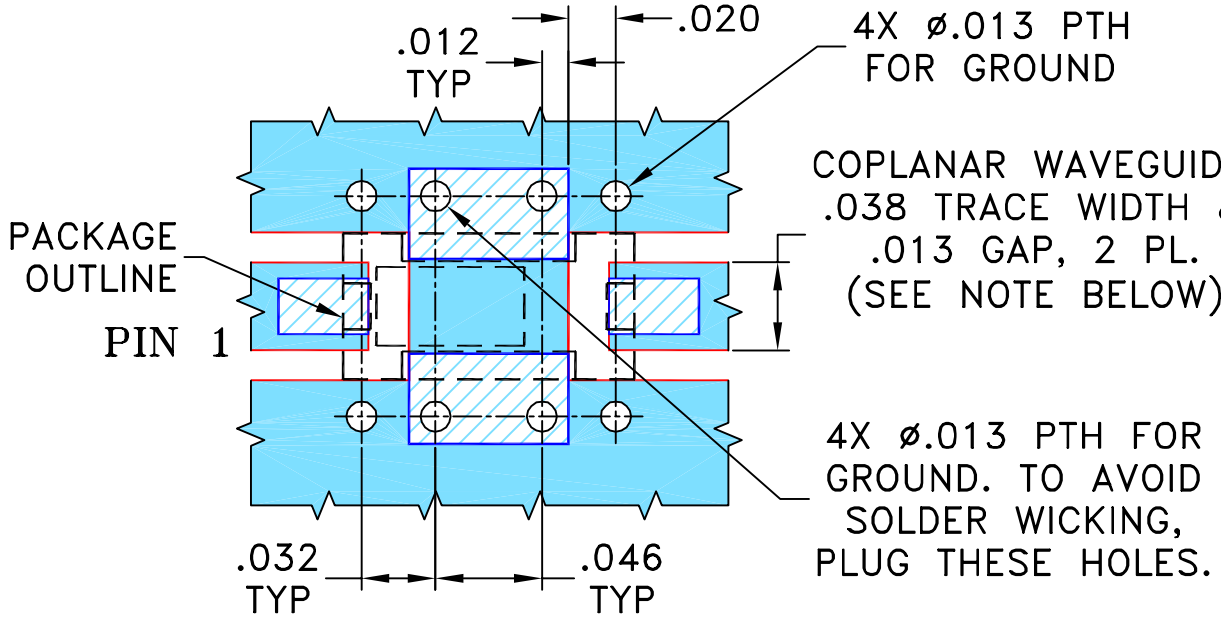
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THIRD ANGLE PROJECTION

REVISIONS					
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M123589	NEW RELEASE	01/15/09	AV	ABD

SUGGESTED MOUNTING CONFIGURATION
FOR FV1206-4 CASE STYLE, "04FL01" PIN CODE



NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" ± .0015". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.

2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

UNLESS OTHERWISE SPECIFIED		INITIALS	DATE
DIMENSIONS ARE IN INCHES	DRAWN	AV	07/10/09
TOLERANCES ON:	CHECKED	IL	01/15/09
2 PL DECIMALS ±	APPROVED	ABD	01/15/09
3 PL DECIMALS ± .005			
ANGLES ±			
FRACTIONS ±			

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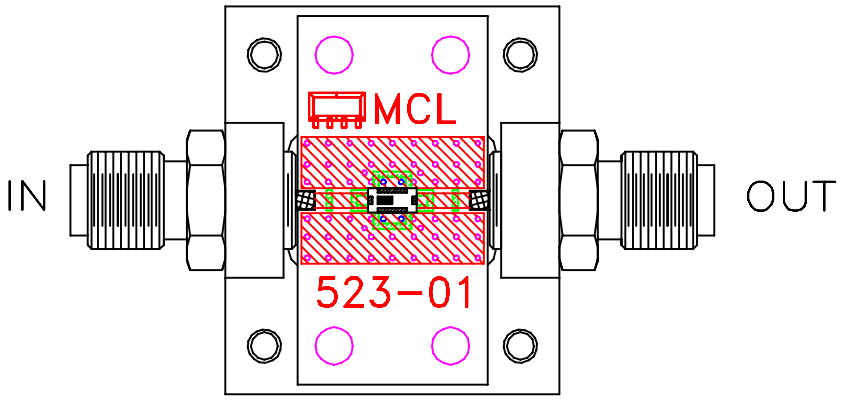
ASHEETA1.DWG REV:A DATE:01/12/95

Mini-Circuits® 13 Neptune Avenue Brooklyn NY 11235

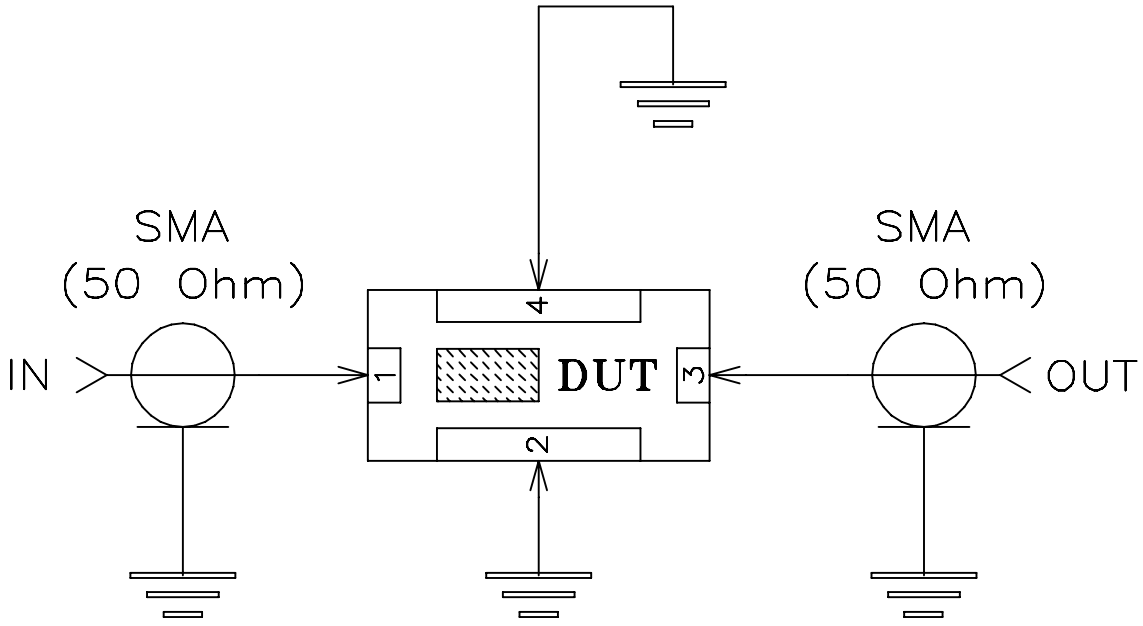
PL, 04FL01, FV1206-4, BFCN, TB-518+

SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-305	OR
FILE: 98PL305		SCALE: 12:1	SHEET: 1 OF 1

Evaluation Board and Circuit



TB-518+



Schematic Diagram

Notes:

1. 50 Ohm SMA Female connectors.
2. PCB Material: RO4350 or equivalent,
   Dielectric Constant=3.5, Thickness=.020 inch.

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Environmental Specifications **ENV28T5**

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	-40° to 85°C	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D
Humidity	90% RH, 65°C Units may require bake-out after humidity to restore full performance.	MIL-STD-202, Method 103
Thermal Shock	-65° to 125°C, 5 cycles	MIL-STD-202, Method 107, Condition B
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	100g, 6ms sawtooth, 3 shocks each direction 3 axes (total 18)	MIL-STD-202, Method 213, Condition I

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