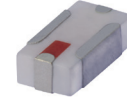


# Ceramic Bandpass Filter

50Ω 2400 to 2550 MHz

## BFCN-2450+



Generic photo used for illustration purposes only

CASE STYLE: FV1206-4

**+RoHS Compliant**

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



Available Tape and Reel at no extra cost

Reel Size	Devices/Reel
7"	20, 50, 100, 200, 500, 1000, 3000

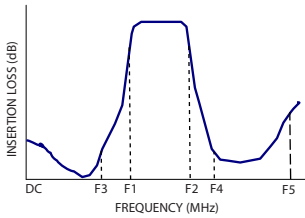
### Features

- Small size (0.126"x0.063"x0.037")
- Temperature stable
- Hermetically sealed
- LTCC construction

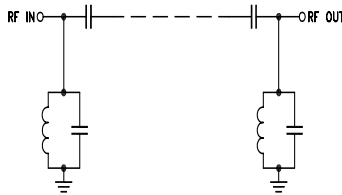
### Applications

- Harmonic rejection
- Transmitters / Receivers
- ISM band
- Blue tooth

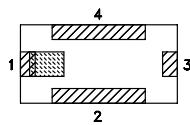
### Specification Definition



### Functional Schematic



### Top View



### Pad Connections

Input	1
Output	3
Ground	2,4

### Electrical Specifications<sup>1,2</sup> at 25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Center Frequency	—	—	2450	—	MHz
	Insertion Loss	F1 - F2	2400 - 2550	—	2.0	dB
	VSWR	F1 - F2	2400 - 2550	—	1.4	:1
Stop Band, Lower	Insertion Loss	DC - F3	DC - 2100	—	30	dB
	VSWR	DC - F3	DC - 2100	—	30	:1
Stop Band, Upper	Insertion Loss	F4 - F5	3400 - 12000	—	20	dB
	VSWR	F4 - F5	3400 - 12000	—	30	:1

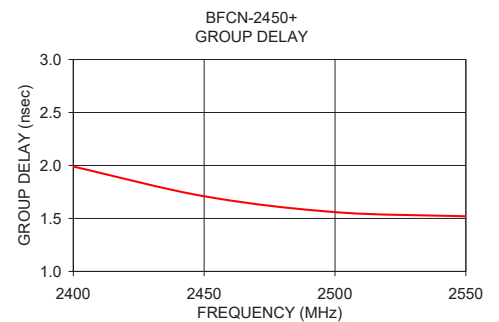
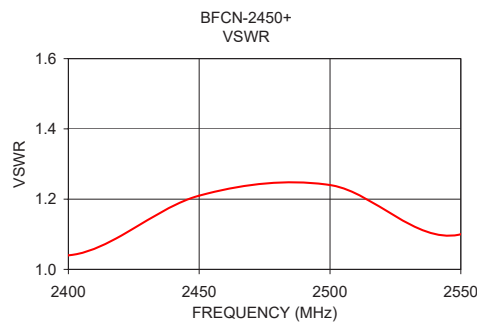
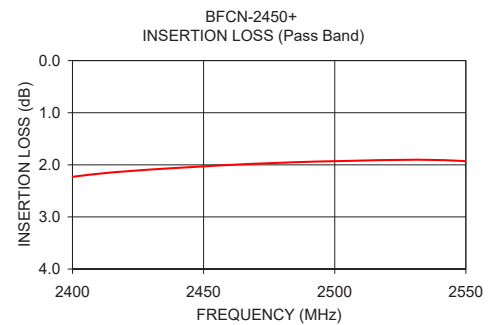
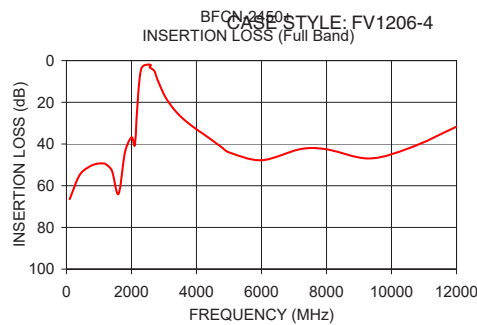
1. Measured on Mini-Circuits Characterization Test Board TB-518+.

2. This filter is not intended for use as a DC Blocking circuit element. In Application where DC voltage is present at either input or output ports, blocking capacitors are required at the corresponding RF port.

### Maximum Ratings

Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +100°C
RF Power Input*	2W at 25°C

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



### Full Band Performance

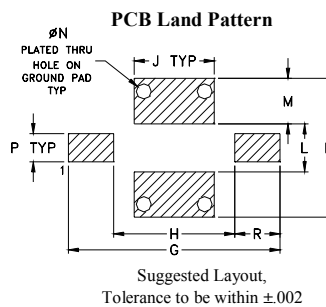
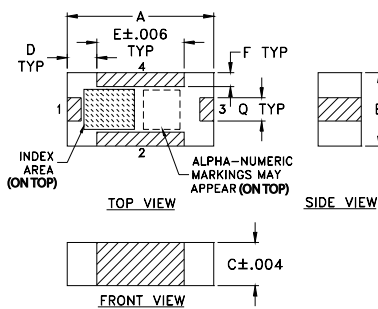
### Pass Band Performance

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Insertion Loss (dB)	Group Delay (nsec)
100.00	66.45	179.21	2400.00	2.23	1.99
700.00	50.93	91.48	2450.00	2.03	1.71
1200.00	49.59	77.10	2500.00	1.93	1.56
2000.00	36.75	32.32	2550.00	1.93	1.52
2150.00	29.41	14.28			
2300.00	3.98	1.43			
2400.00	2.23	1.04			
2550.00	1.93	1.10			
2560.00	3.22	2.35			
3000.00	16.22	28.51			
3400.00	24.98	51.59			
4000.00	32.93	57.94			
5000.00	44.03	51.22			
8000.00	42.55	51.41			
12000.00	31.70	16.01			

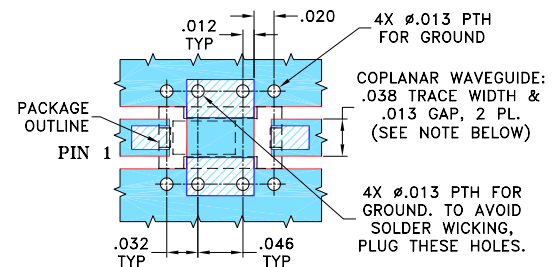
### Pad Connections

Input	1
Output	3
Ground	2,4

### Outline Drawing



### Demo Board MCL P/N: TB-518+ Suggested PCB Layout (PL-305)



- NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B 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 (inch/mm)

A	B	C	D	E	F	G	H	J
.126	.063	.037	.026	.075	.012	.182	.104	.069
3.20	1.60	0.94	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	

### Additional 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.
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# Ceramic Bandpass Filter

# BFCN-2450+

## Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	RETURN LOSS (dB)	FREQUENCY (MHz)	GROUP DELAY (ns)
100.0	66.45	0.11	100.0	0.19
400.0	55.04	0.20	400.0	0.19
700.0	50.93	0.23	700.0	0.20
929.0	49.50	0.24	929.0	0.20
1128.0	49.31	0.25	1128.0	0.20
1200.0	49.59	0.25	1200.0	0.21
1400.0	52.82	0.26	1400.0	0.18
1600.0	63.92	0.29	2000.0	0.28
1800.0	43.87	0.34	2200.0	0.75
2000.0	36.75	0.53	2250.0	2.30
2100.0	40.72	0.85	2300.0	3.12
2150.0	29.41	1.25	2350.0	2.53
2200.0	17.61	2.26	2400.0	1.99
2250.0	8.52	5.98	2450.0	1.71
2300.0	3.98	19.55	2500.0	1.56
2350.0	2.71	24.22	2550.0	1.52
2400.0	2.23	23.76	2560.0	1.57
2450.0	2.03	19.14	2600.0	1.57
2500.0	1.93	18.39	2700.0	1.41
2550.0	1.93	21.63	2800.0	1.04
2600.0	2.25	14.20	3000.0	0.58
2560.0	3.22	7.67	3200.0	0.36
2700.0	4.91	4.28	3400.0	0.29
2800.0	9.12	1.67	3600.0	0.26
3000.0	16.22	0.59	3800.0	0.24
3200.0	21.19	0.38	4000.0	0.24
3400.0	24.98	0.32	4200.0	0.25
3600.0	28.03	0.28	4400.0	0.26
3800.0	30.63	0.27	4600.0	0.27
4000.0	32.93	0.28	4800.0	0.28
4200.0	35.08	0.29	5000.0	0.33
4400.0	37.27	0.32	6000.0	0.50
4600.0	39.59	0.33	7200.0	0.28
4800.0	41.83	0.34	8000.0	0.25
5000.0	44.03	0.37	9333.0	0.22
6000.0	47.77	0.39	10666.0	0.18
7200.0	42.46	0.32	12000.0	0.33
8000.0	42.55	0.29		
9333.0	46.92	0.47		
10666.0	41.21	0.68		
12000.0	31.70	1.12		



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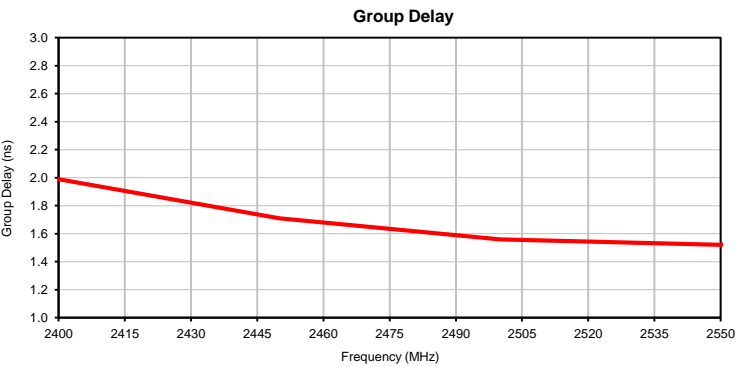
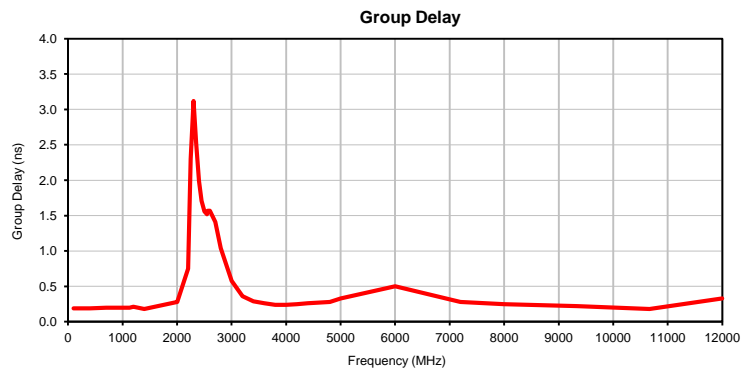
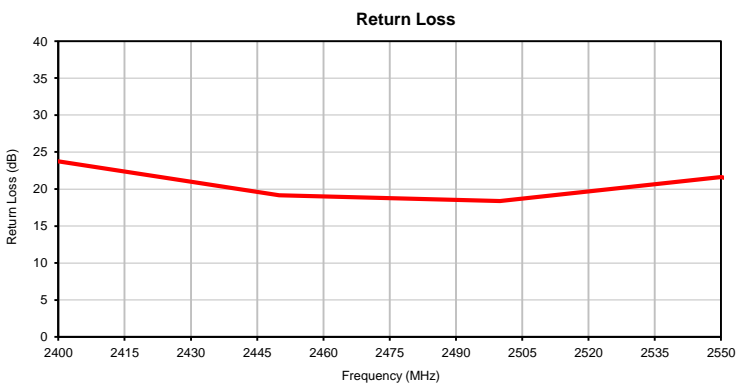
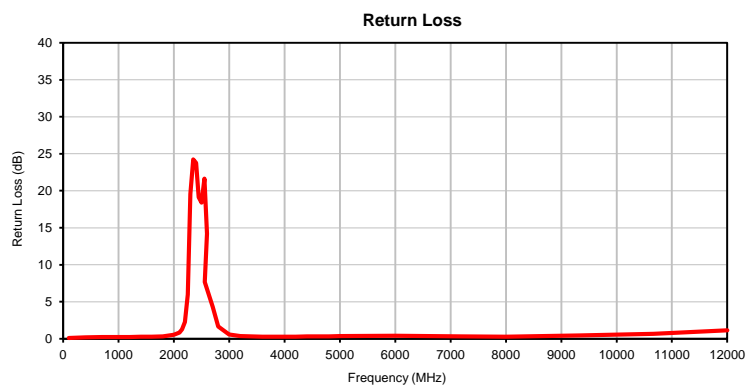
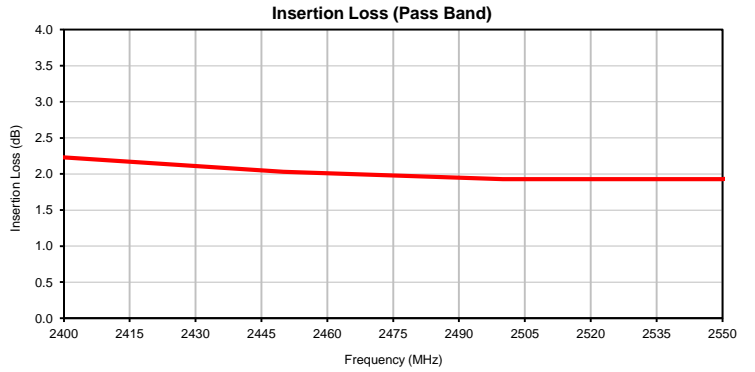
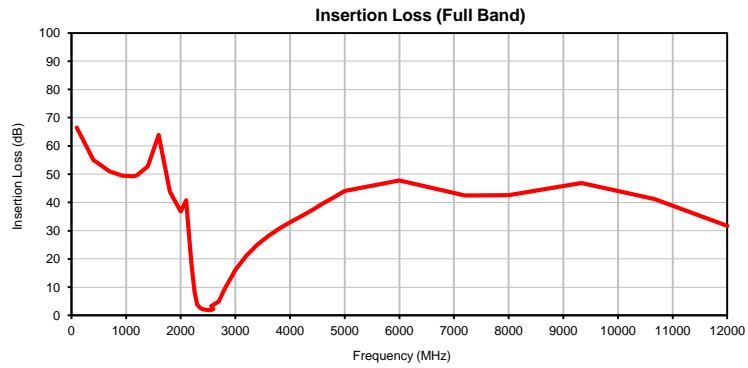


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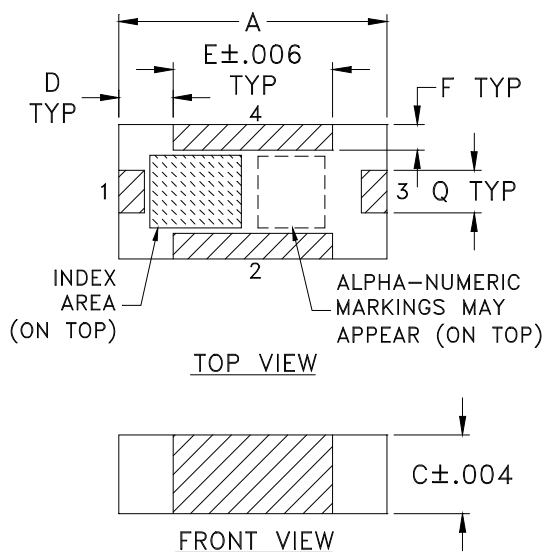
IF/RF MICROWAVE COMPONENTS

REV. OR  
BFCN-2450+  
8/28/2014  
Page 1 of 1

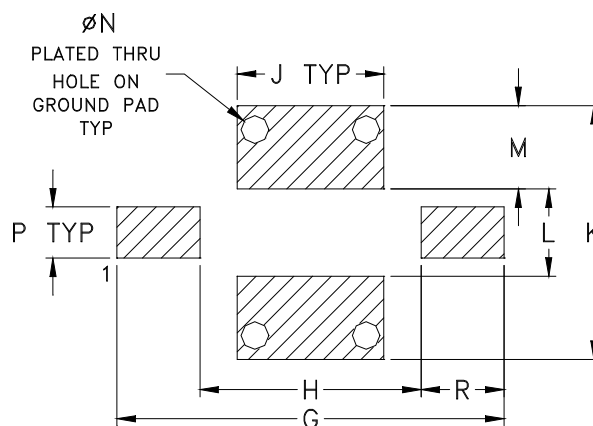
## Typical Performance Curves



### Outline Dimensions



### PCB Land Pattern



Suggested Layout,  
Tolerance to be within  $\pm .002$

CASE #	A	B	C	D	E	F	G	H	J	K	L	M
FV1206-4	.126 (3.20)	.063 (1.60)	.037 (0.94)	.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
FV1206-4	.013 (0.33)	.024 (0.61)	.020 (0.51)	.039 (0.99)	.020

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

#### Notes:

- Open style, ceramic base.
- Termination finish: **as shown below or indicated on Data Sheet.**  
For RoHS Case Styles: Tin plate over Nickel plate. All models, (+) suffix.  
For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.



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RF/IF MICROWAVE COMPONENTS

## DEVICE ORIENTATION IN T&R

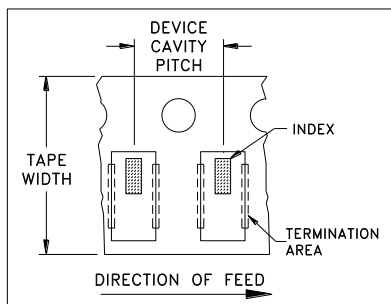


ILLUSTRATION 1

### Applicable Case Styles

FV1206-1  
FV1206-3

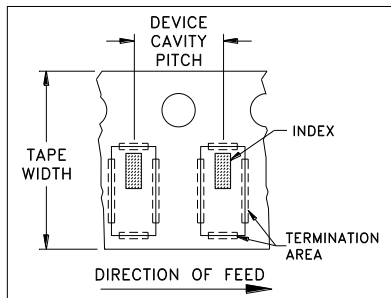


ILLUSTRATION 2

### Applicable Case Styles

FV1206-4  
FV1206-5  
FV1206-6  
FV1206-7  
FV1206-9

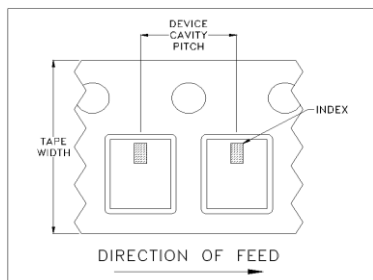


ILLUSTRATION 3

### Applicable Case Styles

FV1206-12  
GE0805C-18  
NL1008C-6  
NL1008C-7  
NL1008C-9  
NL1008C-10

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.

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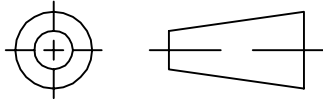
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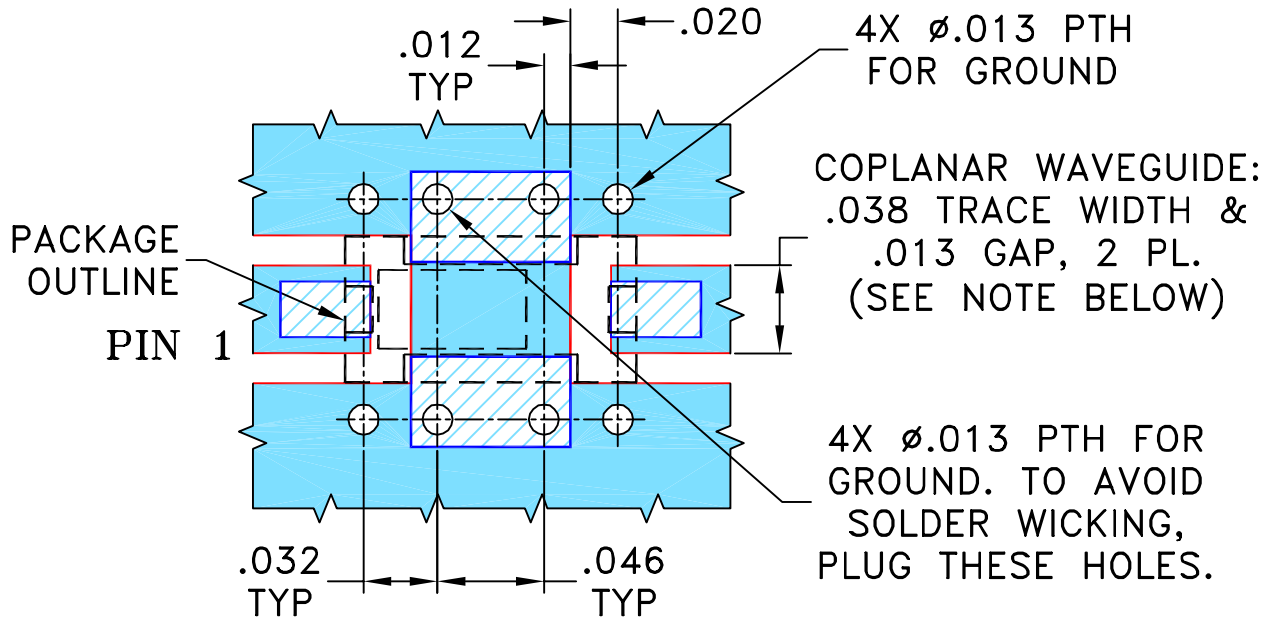
THIRD ANGLE PROJECTION



REVISIONS

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

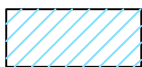
**SUGGESTED MOUNTING CONFIGURATION  
FOR FV1206-4 CASE STYLE, "04FL01" PIN CODE**



- NOTE:**
- TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .020" ± .0015". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
  - 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

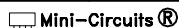
ABD

01/15/09

3 PL DECIMALS ± .005

ANGLES ±

FRACTIONS ±



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

SIZE  
A

CODE IDENT  
15542

DRAWING NO:

98-PL-305

REV:

OR

FILE: 98PL305

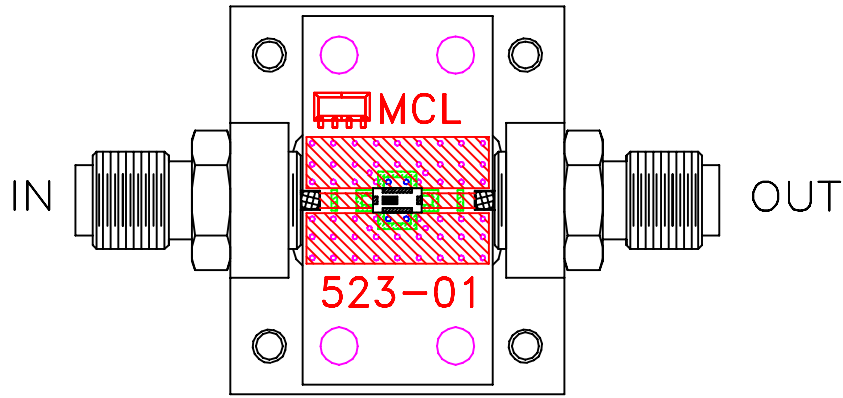
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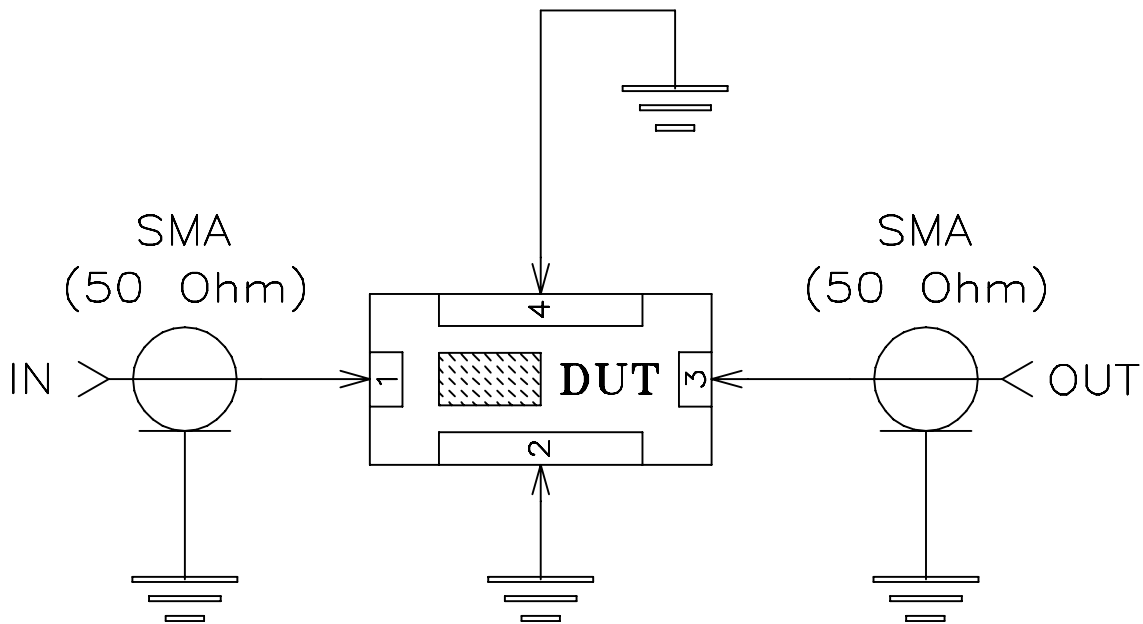
SHEET:

1 OF 1

# Evaluation Board and Circuit



TB-518+



Schematic Diagram

## Notes:

1. 50 Ohm SMA Female connectors.
2. PCB Material: R04350 or equivalent,  
Dielectric Constant=3.5, Thickness=.020 inch.

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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	-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