

Ceramic Bandpass Filter

BFCN-5100+

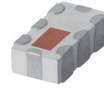
50Ω 3100 to 7100 MHz

Features

- Extremely wide passband, 3100-7100 MHz
- Low loss <1.3 dB typ.
- Small size (0.126"x0.063"x0.037")
- Temperature stable
- Hermetically sealed

Applications

- Harmonic Rejection
- Transmitters / receivers
- EW



Generic photo used for illustration purposes only

CASE STYLE: FV1206-6

+RoHS Compliant

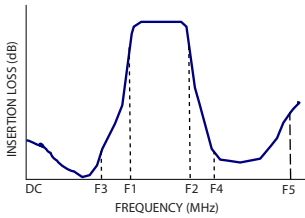
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications



Available Tape and Reel at no extra cost

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

Specification Definition



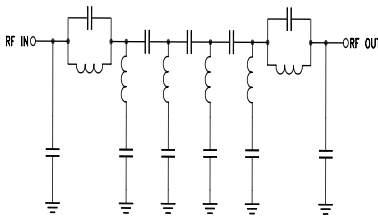
Electrical Specifications^{1,2} at 25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Center Frequency	—	—	5100	—	MHz
	Insertion Loss	F1 - F2	—	1.5	2.1	dB
	VSWR	F1 - F2	—	2.0	—	:1
Stop Band, Lower	Insertion Loss	DC - F3	—	25	—	dB
	VSWR	DC - F3	—	20	—	:1
Stop Band, Upper	Insertion Loss	F4 - F5	—	20	—	dB
	VSWR	F4 - F5	—	30	—	:1

1. Measured on Mini-Circuits Characterization Test Board TB-712+.

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.

Functional Schematic



Maximum Ratings

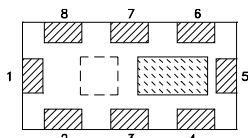
Operating Temperature	-40°C to +85°C
Storage Temperature*	-55°C to +100°C
RF Power Input**	2W at 25°C

* 12 months max.

**Passband rating, derate linearly to 0.5W at 85°C ambient

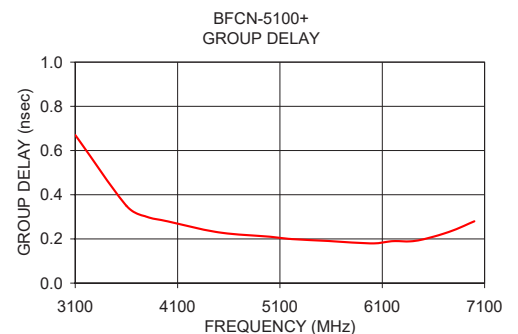
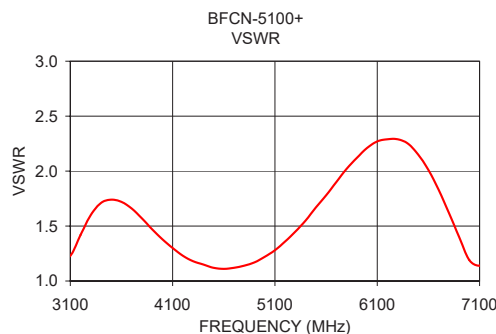
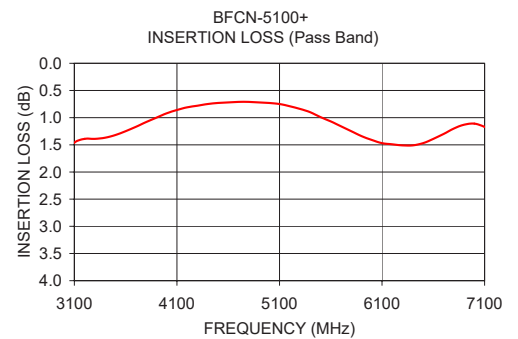
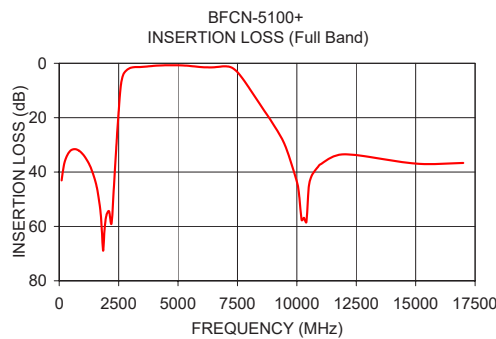
Permanent damage may occur if any of these limits are exceeded.

Top View



Pad Connections

Input	1
Output	5
Ground	2,3,4,6,7,8



Full Band Performance

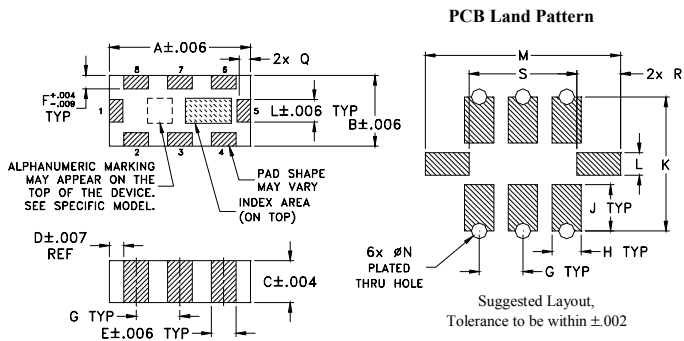
Pass Band Performance

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Insertion Loss (dB)	Group Delay (nsec)
100.00	43.08	331.23	3100.00	1.46	0.67
1000.00	33.50	69.18	3600.00	1.25	0.35
2000.00	55.46	29.88	3800.00	1.08	0.30
2100.00	54.46	25.43	4000.00	0.92	0.28
3100.00	1.46	1.23	4500.00	0.73	0.23
5000.00	0.73	1.22	5000.00	0.73	0.21
6000.00	1.41	2.21	5200.00	0.79	0.20
7000.00	1.11	1.19	5600.00	1.07	0.19
7100.00	1.17	1.14	6000.00	1.41	0.18
9000.00	22.35	32.17	6200.00	1.49	0.19
9500.00	30.15	38.73	6400.00	1.51	0.19
11000.00	37.13	57.48	6600.00	1.39	0.21
12000.00	33.46	102.12	6800.00	1.20	0.24
15000.00	36.89	39.53	7000.00	1.11	0.28
17000.00	36.67	54.34	7100.00	1.17	0.31

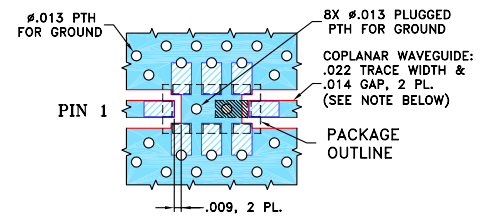
Pad Connections

Input	1
Output	5
Ground	2,3,4,6,7,8

Outline Drawing



Demo Board MCL P/N: TB-712-D+ Suggested PCB Layout (PL-393)



- NOTE:**
- TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .010" ± .001". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP 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

Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J	
.126	.063	.037	.013	.022	.012	.039	.026	.041	
3.20	1.60	0.94	0.33	0.56	0.30	0.99	0.66	1.04	
K	L	M	N	P	Q	R	S	wt	
.119	.020	.174	.014	--	.012	.039	.096	grams	
3.02	0.51	4.42	0.36	--	0.30	0.99	2.44	.017	

Additional Notes

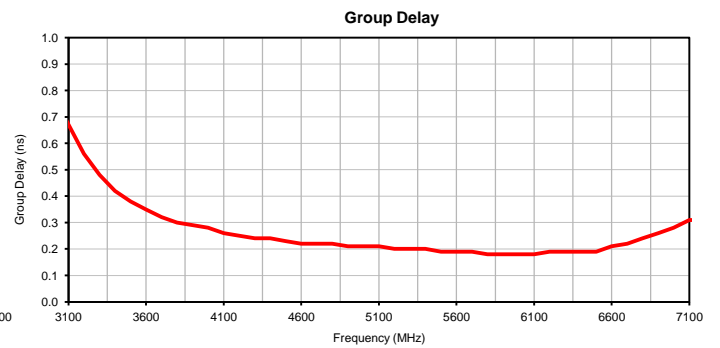
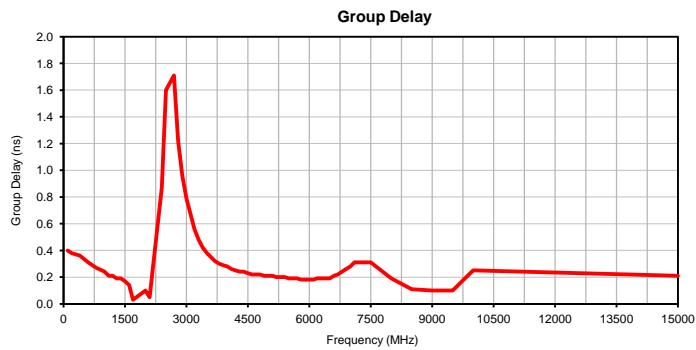
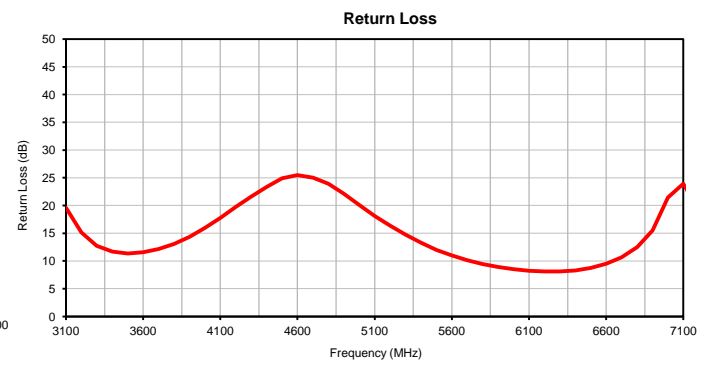
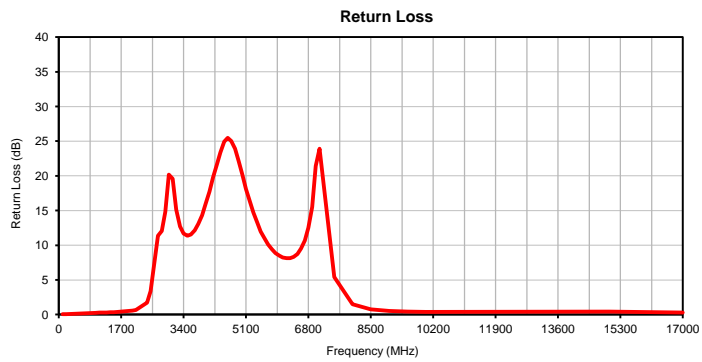
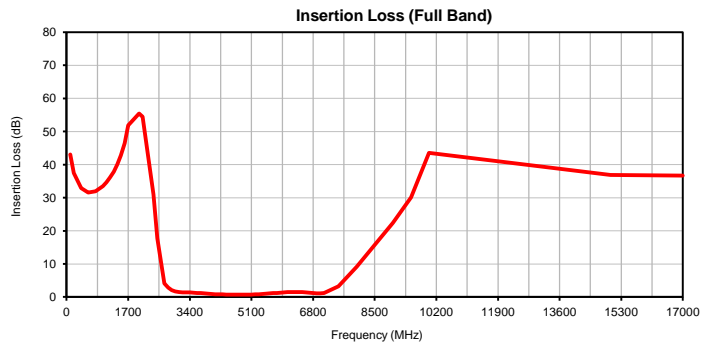
- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
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Typical Performance Data

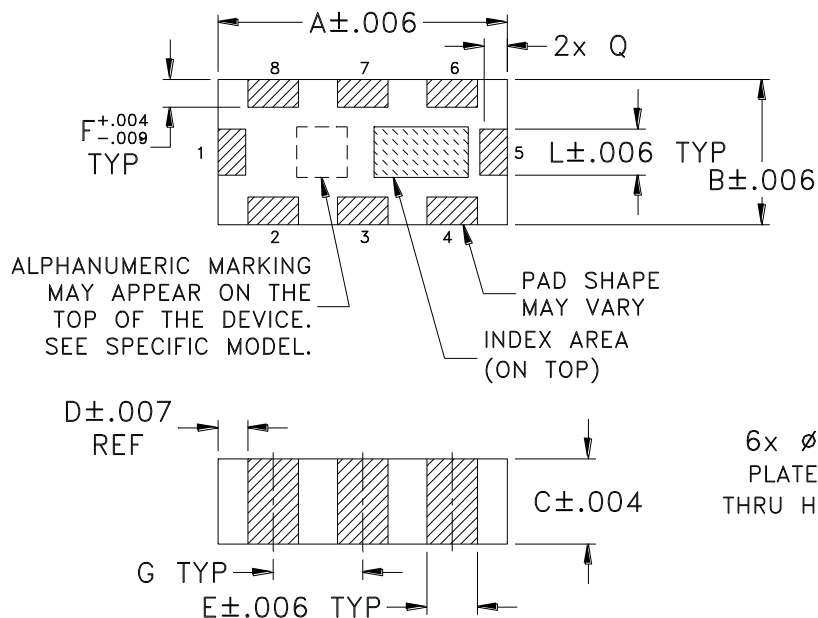
FREQUENCY (MHz)	INSERTION LOSS (dB)	RETURN LOSS (dB)	FREQUENCY (MHz)	GROUP DELAY (ns)
100.0	43.08	0.05	100.0	0.40
200.0	37.45	0.06	200.0	0.38
400.0	32.87	0.10	400.0	0.36
600.0	31.60	0.15	600.0	0.31
800.0	31.97	0.20	800.0	0.27
1000.0	33.50	0.25	1000.0	0.24
1100.0	34.66	0.28	1100.0	0.21
1200.0	36.09	0.30	1200.0	0.21
1300.0	37.85	0.32	1300.0	0.19
1400.0	40.03	0.34	1400.0	0.19
1500.0	42.76	0.36	1500.0	0.17
1600.0	46.44	0.39	1600.0	0.14
1700.0	51.83	0.42	1700.0	0.03
2000.0	55.46	0.58	2000.0	0.10
2100.0	54.46	0.68	2100.0	0.05
2400.0	30.96	1.74	2400.0	0.87
2500.0	17.75	3.39	2500.0	1.60
2700.0	4.08	11.38	2700.0	1.71
2800.0	2.82	12.08	2800.0	1.22
2900.0	2.12	14.84	2900.0	0.96
3000.0	1.68	20.20	3000.0	0.79
3100.0	1.46	19.59	3100.0	0.67
3200.0	1.39	15.13	3200.0	0.56
3300.0	1.39	12.72	3300.0	0.48
3400.0	1.37	11.68	3400.0	0.42
3500.0	1.32	11.36	3500.0	0.38
3600.0	1.25	11.55	3600.0	0.35
3700.0	1.17	12.14	3700.0	0.32
3800.0	1.08	13.08	3800.0	0.30
3900.0	1.00	14.34	3900.0	0.29
4000.0	0.92	15.96	4000.0	0.28
4100.0	0.86	17.74	4100.0	0.26
4200.0	0.81	19.77	4200.0	0.25
4300.0	0.78	21.63	4300.0	0.24
4400.0	0.75	23.36	4400.0	0.24
4500.0	0.73	24.92	4500.0	0.23
4600.0	0.72	25.50	4600.0	0.22
4700.0	0.71	25.01	4700.0	0.22
4800.0	0.71	23.91	4800.0	0.22
4900.0	0.72	22.14	4900.0	0.21
5000.0	0.73	20.12	5000.0	0.21
5100.0	0.75	18.12	5100.0	0.21
5200.0	0.79	16.37	5200.0	0.20
5300.0	0.84	14.75	5300.0	0.20
5400.0	0.90	13.29	5400.0	0.20
5500.0	0.99	11.99	5500.0	0.19
5600.0	1.07	11.01	5600.0	0.19
5700.0	1.16	10.14	5700.0	0.19
5800.0	1.25	9.42	5800.0	0.18
5900.0	1.34	8.90	5900.0	0.18
6000.0	1.41	8.49	6000.0	0.18
6100.0	1.47	8.23	6100.0	0.18
6200.0	1.49	8.13	6200.0	0.19
6300.0	1.51	8.13	6300.0	0.19
6400.0	1.51	8.31	6400.0	0.19
6500.0	1.47	8.76	6500.0	0.19
6600.0	1.39	9.51	6600.0	0.21
6700.0	1.30	10.66	6700.0	0.22
6800.0	1.20	12.50	6800.0	0.24
6900.0	1.13	15.52	6900.0	0.26
7000.0	1.11	21.42	7000.0	0.28
7100.0	1.17	23.92	7100.0	0.31
7500.0	3.25	5.41	7500.0	0.31
8000.0	9.18	1.50	8000.0	0.19
8500.0	15.75	0.76	8500.0	0.11
9000.0	22.35	0.54	9000.0	0.10
9500.0	30.15	0.45	9500.0	0.10
10000.0	43.55	0.38	10000.0	0.25
15000.0	36.89	0.44	15000.0	0.21
17000.0	36.67	0.32		



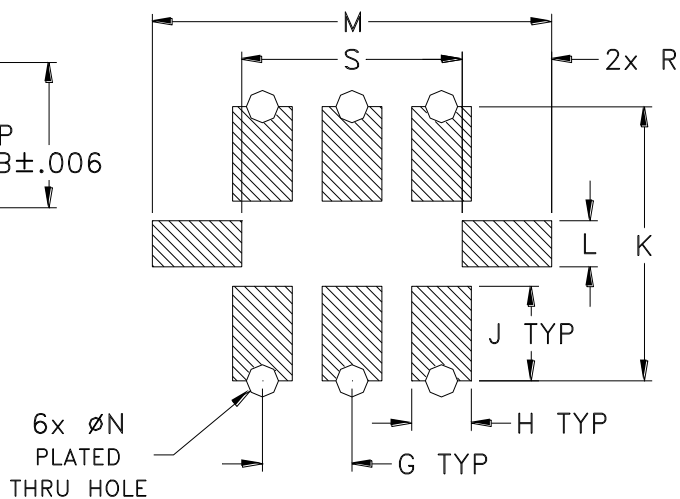
Typical Performance Curves



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
FV1206-6	.126 (3.20)	.063 (1.60)	.037 (0.95)	.013 (0.33)	.022 (0.56)	.012 (0.30)	.039 (0.99)	.026 (0.65)	.041 (1.05)	.119 (3.02)	.020 (0.50)	.174 (4.42)

CASE #	N	P	Q	R	S	WT. GRAM
FV1206-6	.014 (0.35)	-- --	.012 (0.30)	.039 (0.99)	.096 (2.44)	.017

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

Notes:

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



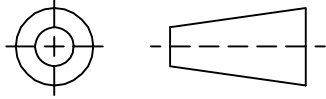
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

RF/IF MICROWAVE COMPONENTS

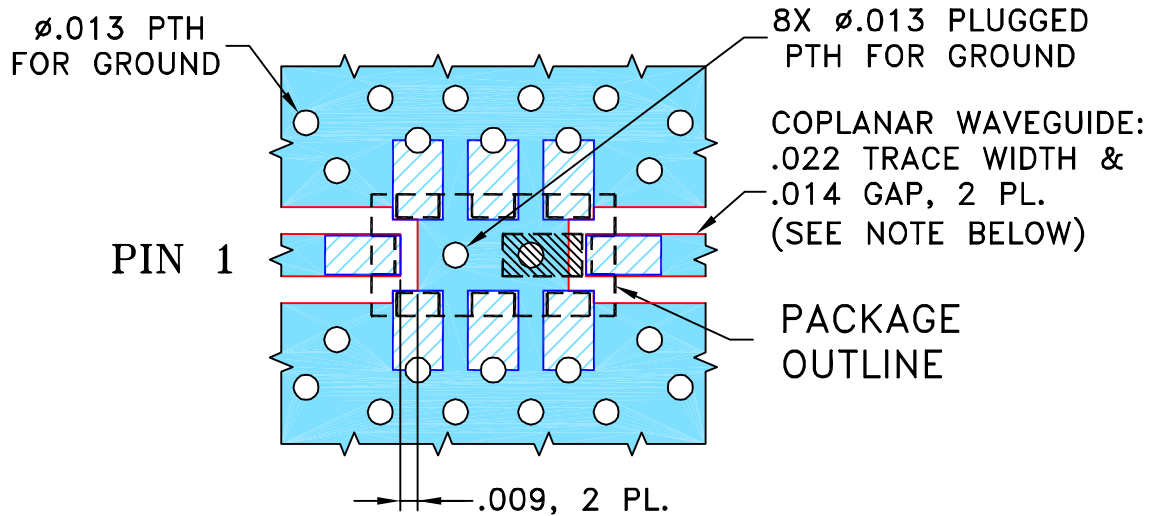
THIRD ANGLE PROJECTION



REVISIONS

REV OR	ECN No.	DESCRIPTION	DATE	DR	AUTH
	M143026	NEW RELEASE	08/21/13	AV	CH

SUGGESTED MOUNTING CONFIGURATION
FOR FV1206-6 CASE STYLE, "08FL05" PIN CODE



NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .010" ± .001". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.

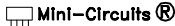
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

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

 DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK


UNLESS OTHERWISE SPECIFIED	INITIALS		DATE
	DRAWN	AV	08/20/13
	CHECKED	IL	08/21/13
	APPROVED	CH	08/21/13

DIMENSIONS ARE IN INCHES
 TOLERANCES ON:
 2 PL DECIMALS ±
 3 PL DECIMALS ± .005
 ANGLES ± 1°
 FRACTIONS ±

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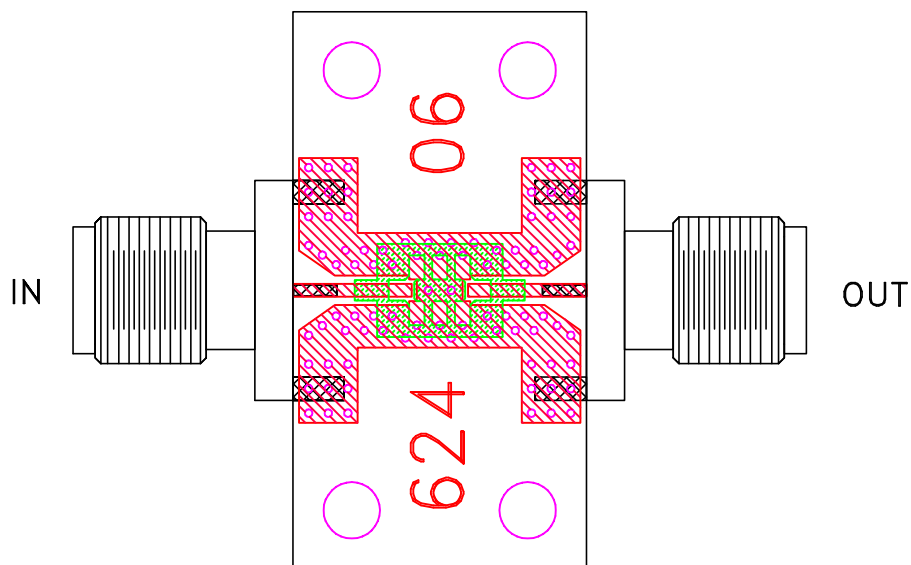
ASHEETA1.DWG REV:A DATE:01/12/95

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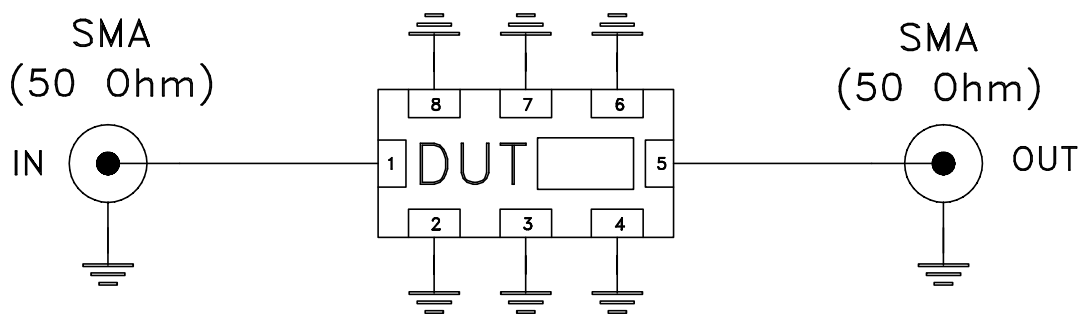
PL, 08FL05, FV1206-6, TB-712-D+

SIZE A	CODE IDENT 15542	DRAWING NO: 98-PL-393	REV: OR
FILE: 98PL393	SCALE: 10:1	SHEET: 1 OF 1	

Evaluation Board and Circuit




TB-712-D+



Schematic Diagram

Notes:

1. 50 Ohm SMA Female connectors.
2. PCB Material: R04350 or equivalent,
Dielectric Constant=3.5, Thickness=.010 inch.

 **Mini-Circuits®**



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