

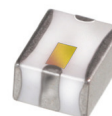
Ceramic

LTCC Bandpass Filter

BFCV-2895+

50Ω

2220 to 3570 MHz



Generic photo used for illustration purposes only
CASE STYLE: JV1210C

The Big Deal

- Small size 3.2mm x 2.5mm
- Wide passband (2220-3570 MHz)
- Low Insertion Loss (1.8 dB typical)
- Wide stopband rejection up to 7 GHz

Product Overview

The BFCV-2895+ LTCC Band Pass Filter is constructed with multiple layers in order to achieve a miniature size and high repeatability of performance. Wrap-around terminations minimize variations in performance due to parasitics. These units offer low insertion loss and very good wide band rejection.

Key Features

Feature	Advantages
Small Size (3.20mm x2.5 mm)	Allows for high layout density of circuit boards, while minimizing the effects of parasitics.
Wrap around termination	Provides excellent solderability and easy visual inspection capability.
Wide bandwidth	Enables high data rate in communication systems.
LTCC construction	Provides a rugged package that is well suited for tough environments including high humidity and high temperature extremes.

Notes

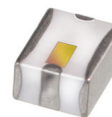
- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's 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/MCLStore/terms.jsp



Bandpass Filter

50Ω 2220 to 3570 MHz

BFCV-2895+



Generic photo used for illustration purposes only
CASE STYLE: JV1210C

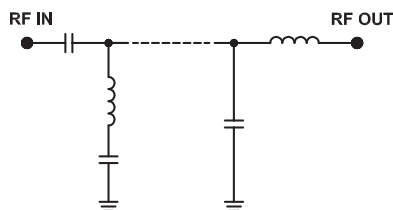
Features

- Small size
- Temperature stable
- Hermetically sealed
- LTCC construction

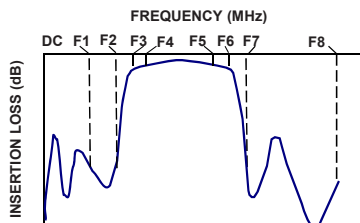
Applications

- Software defined radio
- WLAN
- Cellular network
- Satellite television broadcast

Functional Schematic



Typical Frequency Response



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

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Center Frequency	—	—	2895	—	MHz
	Insertion Loss	F3-F5 2220-3570	—	1.8	—	dB
	VSWR	F4-F5 2450-3570	—	1.8	4.0	dB
Stop Band, Lower	Insertion Loss	F2 1785	—	17	—	dB
	VSWR	DC-F1 1785	—	20	—	dB
	Insertion Loss	F6 4440	—	16	—	dB
Stop Band, Upper	VSWR	F7-F8 5000-7000	—	20	—	dB

1. Measured on Mini-Circuits Characterization Test Board TB-946+

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	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power Input*	5 W max @ +25°C

*Passband rating, derate linearly to 0.25W at 100°C ambient

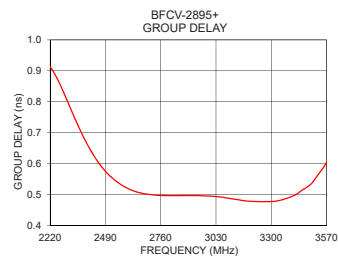
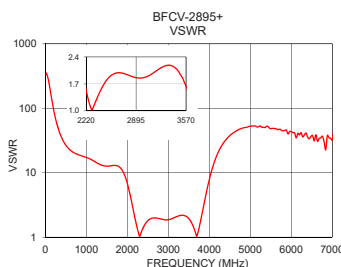
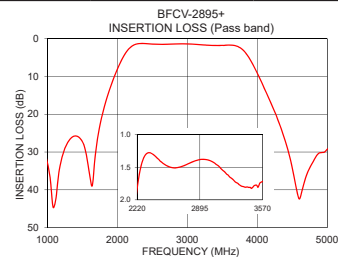
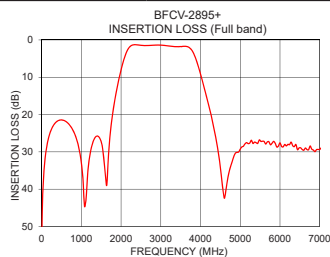
Permanent damage may occur if any of these limits are exceeded.

Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Group Delay (nsec)
10	50.41	339.97	2220	0.91
1680	31.42	12.98	2240	0.89
1785	20.03	12.48	2300	0.81
1850	15.66	11.40	2400	0.66
2000	8.04	6.68	2500	0.57
2150	2.98	2.48	2600	0.52
2220	1.83	1.54	2700	0.50
2450	1.38	1.66	2800	0.50
2895	1.38	1.86	2895	0.50
3570	1.72	1.64	2900	0.50
3600	1.71	1.49	3000	0.50
3800	3.08	1.98	3050	0.49
4000	9.16	7.93	3100	0.49
4100	13.19	13.36	3150	0.48
4280	20.80	24.88	3200	0.48
4440	29.62	34.62	3250	0.48
4600	42.43	42.30	3300	0.48
5000	29.26	52.61	3400	0.49
6000	27.59	43.06	3500	0.54
7000	29.35	32.15	3570	0.60

+RoHS Compliant

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



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-Circuit's 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/MCLStore/terms.jsp

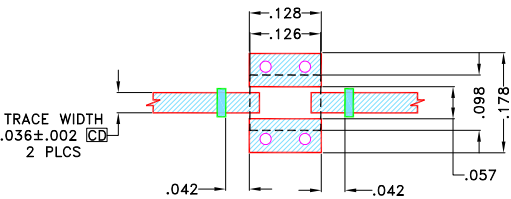


Pad Connections

RF IN	1
RF OUT	3
GROUND	2,4

Product Marking: HL

Demo Board MCL P/N: TB-946+
Suggested PCB Layout (PL-502)

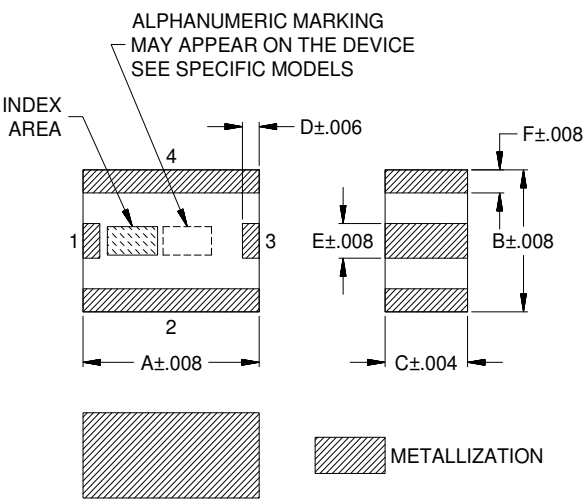


NOTES:

- 1. TRACE WIDTH & SPACE WIDTH IS SHOWN FOR ROGERS (R04350B) WITH DIELECTRIC THICKNESS .0166"±.0015". COPPER 1/2 Oz. EACH SIDE FOR OTHER MATERIALS TRACE WIDTH & SPACE 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 SOLDERMASK

Outline Drawing



Outline Dimensions (inch mm)

A	B	C	D	E	F	Wt.
.126	.098	.059	.012	.024	.016	grams
3.2	2.5	1.5	.3	.6	.4	.03

Note: Please refer to case style drawing for details

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-Circuit's 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/MCLStore/terms.jsp

Surface Mount Band Pass Filter

BFCV-2895+

Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	RETURN LOSS (dB)	FREQUENCY (MHz)	GROUP DELAY (nsec)
10	50.41	0.04	2220	0.91
20	44.45	0.04	2240	0.89
40	38.46	0.04	2260	0.87
120	29.19	0.03	2280	0.84
160	26.94	0.03	2300	0.81
200	25.32	0.03	2320	0.78
400	21.73	0.06	2340	0.75
600	21.78	0.09	2360	0.72
800	24.41	0.12	2380	0.69
1000	32.90	0.16	2400	0.66
1200	31.97	0.21	2420	0.64
1320	26.64	0.26	2440	0.62
1400	25.74	0.29	2460	0.60
1600	35.66	0.36	2480	0.58
1680	31.42	0.41	2500	0.57
1720	25.93	0.45	2520	0.56
1750	22.90	0.49	2540	0.54
1785	20.03	0.55	2560	0.54
1800	18.93	0.58	2580	0.53
1900	12.83	0.95	2600	0.52
2000	8.04	1.87	2620	0.51
2140	3.21	5.90	2640	0.51
2220	1.83	11.50	2660	0.51
2450	1.38	12.06	2680	0.50
2895	1.38	12.44	2700	0.50
3570	1.72	10.77	2720	0.50
3800	3.08	7.52	2740	0.50
4000	9.16	1.92	2760	0.50
4270	20.26	0.69	2780	0.50
4350	24.31	0.62	2800	0.50
4440	29.62	0.51	2820	0.50
4480	32.54	0.52	2840	0.50
5000	29.26	0.33	2860	0.50
5200	27.80	0.33	2895	0.50
5400	27.55	0.23	2900	0.50
5600	27.20	0.24	2920	0.50
5800	27.69	0.21	2940	0.50
6000	27.59	0.16	2980	0.50
6040	28.54	0.17	3000	0.50
6080	28.65	0.17	3060	0.49
6120	28.01	0.19	3100	0.49
6160	28.40	0.16	3140	0.48
6200	27.99	0.16	3180	0.48
6240	28.07	0.16	3200	0.48
6280	27.39	0.18	3240	0.48
6320	28.34	0.19	3260	0.48
6360	28.59	0.17	3280	0.48
6400	28.01	0.19	3300	0.48
6440	29.42	0.21	3320	0.48
6480	28.94	0.21	3340	0.48
6520	28.92	0.22	3380	0.49
6560	29.37	0.25	3400	0.49
6600	29.56	0.23	3420	0.50
6640	28.97	0.27	3450	0.51
6680	29.39	0.28	3480	0.53
6720	29.42	0.29	3500	0.54
6760	28.42	0.32	3520	0.56
6800	29.28	0.35	3540	0.57
6840	29.52	0.40	3550	0.58
7000	29.35	0.62	3570	0.60

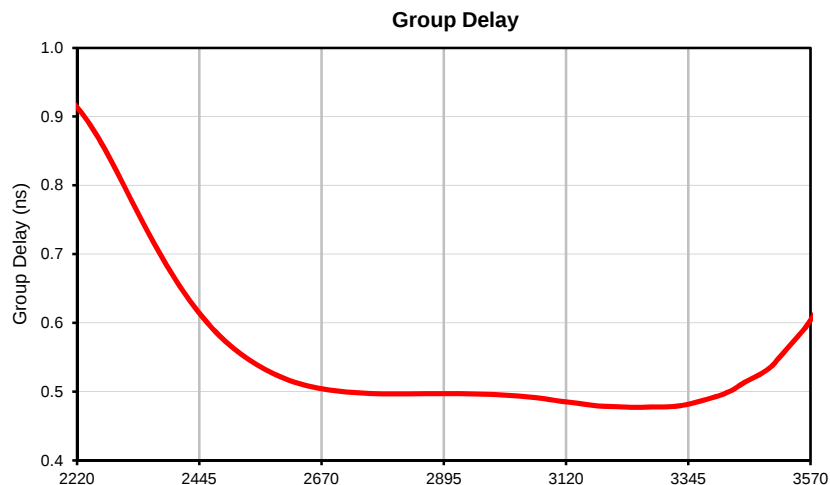


P.O. Box 350166, Brooklyn, New York 11235-0003 • Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site
The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

IF/RF MICROWAVE COMPONENTS

REV.OR
BFCV-2895+
URJ
170309
Page 1 of 1

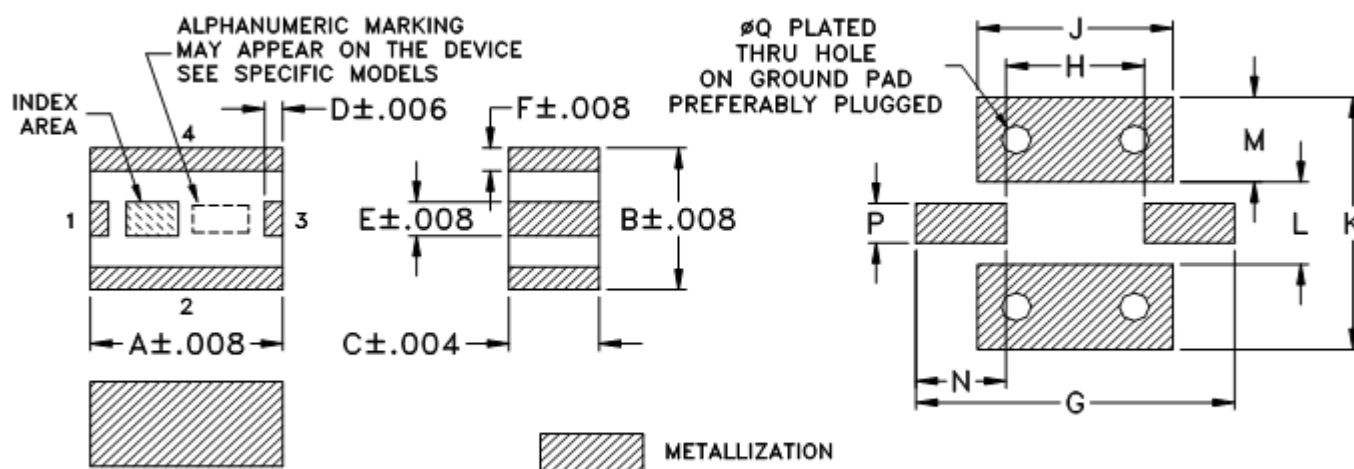
Typical Performance Curves



Outline Dimensions

JV1210C

PCB Land Pattern



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

CASE #	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	WT. GRAM
JV1210C	.126 (3.2)	.098 (2.5)	.059 (1.5)	.012 (.3)	.024 (.6)	.016 (.4)	.209 (5.3)	.091 (2.3)	.128 (3.25)	.175 (4.45)	.057 (1.45)	.059 (1.5)	.059 (1.5)	.028 (.7)	.020 (.5)	.03

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.
- Pad tolerance is non-cumulative. Minimum spacing between each pad is .004.

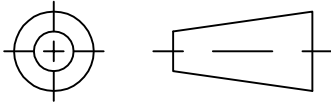


P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site

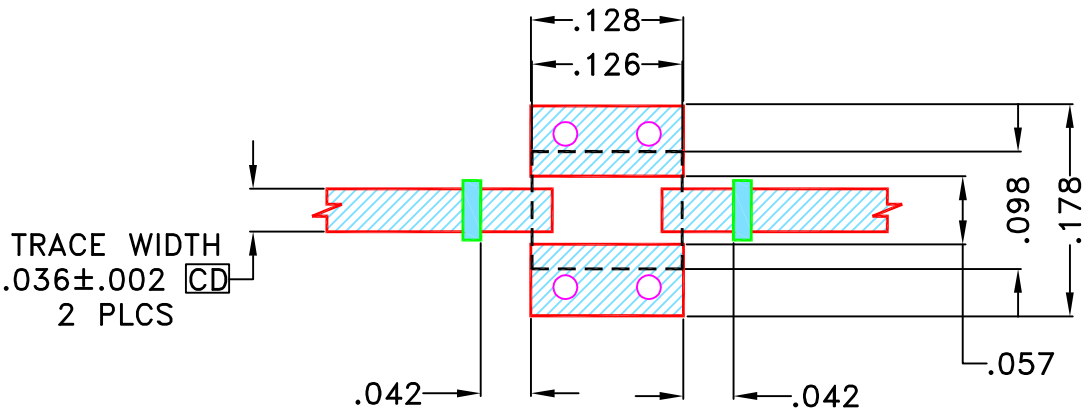


The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

RF/IF MICROWAVE COMPONENTS

THIRD ANGLE PROJECTION		REVISIONS					
		REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
		OR	M160679	NEW RELEASE	MAR 17	TM	MD

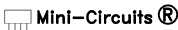
SUGGESTED MOUNTING CONFIGURATION FOR
JV1210C CASE STYLE



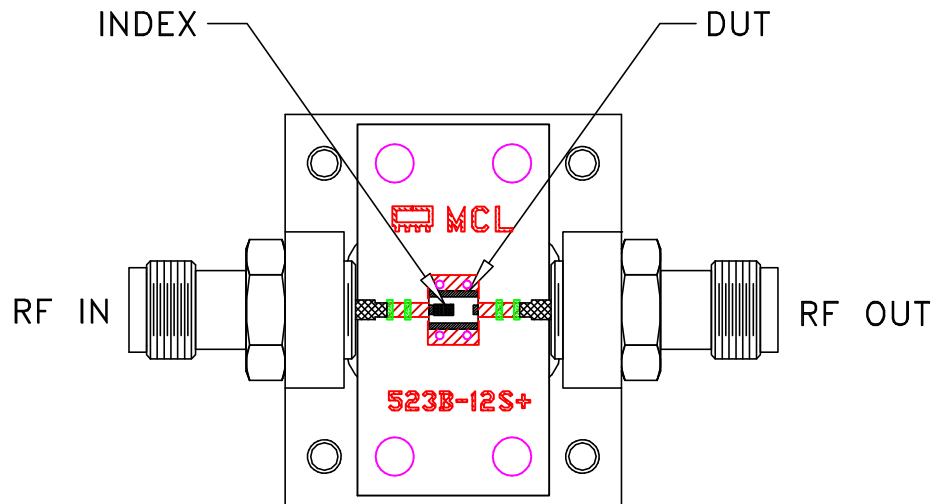
NOTES:

- TRACE WIDTH & SPACE WIDTH IS SHOWN FOR ROGERS (R04350B) WITH DIELECTRIC THICKNESS .0166”±.0015”. COPPER 1/2 Oz. EACH SIDE
FOR OTHER MATERIALS TRACE WIDTH & SPACE WIDTH MAY NEED TO BE MODIFIED.
- BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

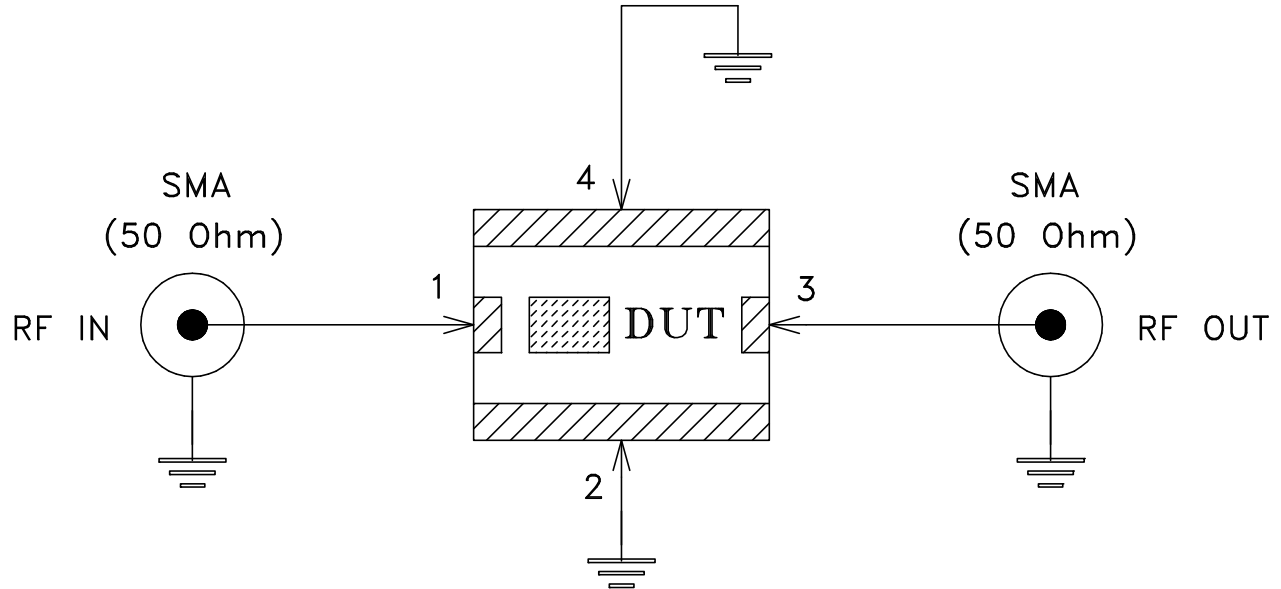
- 
DENOTES PCB COPPER LAYOUT WITH SMOBC
(SOLDER MASK OVER BARE COPPER)
- 
DENOTES COPPER LAND PATTERN FREE OF SOLDERMASK

UNLESS OTHERWISE SPECIFIED		INITIALS		DATE	 Mini-Circuits® 13 Neptune Avenue Brooklyn NY 11235	
DIMENSIONS ARE IN INCHES TOLERANCES ON: 2 PL DECIMALS ± 3 PL DECIMALS ± .005" ANGLES ± FRACTIONS ±	DRAWN	TM	8 MAR 17			
	CHECKED	MD	8 MAR 17			
	APPROVED	RV	8 MAR 17			
 Mini-Circuits® THIS DOCUMENT AND ITS CONTENTS ARE THE PROPERTY OF MINI-CIRCUITS. EXCEPT FOR USE EXPRESSLY GRANTED, IN WRITING, TO ITS VENDORS, VENDEE AND THE UNITED STATES GOVERNMENT, MINI-CIRCUITS RESERVES ALL PROPRIETARY DESIGN, USE , MANUFACTURING AND REPRODUCTION RIGHTS THERETO. THESE CONTENTS SHALL NOT BE USED, DUPLICATED OR DISCLOSED TO ANY OUTSIDE PARTY, IN WHOLE OR IN PART, WITHOUT WRITTEN PERMISSION OF MINI-CIRCUITS.					PL, JV1210C, BFCV-4085+, BFCV-2895+, BFCV-3350+, BFCV-2610+, TB-946+ 50 OHM	
		SIZE A	CODE IDENT 15542	DRAWING NO: 98-PL-502		REV: OR
		FILE:	98PL502	SCALE:	6:1	SHEET: 1 OF 1
ASHEETA1.DWG REV:A DATE:01/12/95						

Evaluation Board and Circuit



TB-946+



Schematic Diagram

Notes:

1. 50 Ohm SMA Female connectors.
2. PCB Material: R04350 or equivalent,
Dielectric Constant=3.48, Thickness=.0166 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 Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Humidity	90 to 95% RH, 240 hours, 50°C	MIL-STD-202, Method 103, Condition A, Except 50°C and end-point electrical test done within 12 hours
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Solder Reflow Heat	Sn-Pb Eutetic Process: 225°C peak Pb-Free Process 245° - 250°C peak	J-STD-020, Table 4-1, 4-2 and 5-2, Figure 5-1
Solderability	10X Magnification	J-STD-002, 95% Coverage
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
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