CERAMIC

Bandpass Filter

BFCV-2852+

50Ω 28 to 28.8 GHz

THE BIG DEAL

- mmWave bandpass filter
- Low Insertion Loss – Mid band 2.3 dB typical
- Pick and place standard case style
- Small size 3.2mm x 2.5mm
- Reduced footprint area by employing LGA (Land grid array)
- Suited for very high-volume production
- High quality distributed filter topology
- Wide rejection band



Generic photo used for illustration purposes only

CASE STYLE: JV1210C-10

+RoHS Compliant

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

APPLICATIONS

- 5G Telecommunications

PRODUCT OVERVIEW

The BFCV-2852+ LTCC Bandpass Filter covers the passband from 28 to 28.8 GHz, with as low as 2.3 dB passband loss, and up to 35dB stopband rejection. This model handles up to 1W RF input power and provides a wide operating temperature range from -55 to +125°C. Utilizing a proprietary LTCC material system and a distributed filter topology, this filter is able to achieve repeatable performance on a lot-to-lot basis, up to mmWave frequencies.

KEY FEATURES

Feature	Advantages
mmWave compatible	Designed for mmWave passband, 28 to 28.8 GHz
Proprietary mmWave compatible LTCC material system	Low loss and repeatable performance on a lot-to-lot basis up to mmWave frequencies.
Cost effective	LTCC is scalable technology that allows for cost reduction at volume.
Small size (3.2mm x 2.5mm)	Allows for high layout density of circuit boards, while minimizing effects of parasitics.
Surface Mountable	Suitable for very high volume automated assembly process

Bandpass Filter

BFCV-2852+

ELECTRICAL SPECIFICATIONS[1] AT 25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Units
Passband	Center Frequency	—	—	—	28.3	—	GHz
	Insertion Loss	F1-F2	28 - 28.8	—	2.3	3.5	dB
	Return Loss	F1-F2	28 - 28.8	—	11	—	dB
Stop Band, Lower	Insertion Loss	DC-F3	0.1 - 21	35	42	—	dB
			21 - 25.5	20	26	—	
Stop Band, Upper	Insertion Loss	F4-F5	31 - 35	16	22	—	dB
			35 - 45	—	12	—	

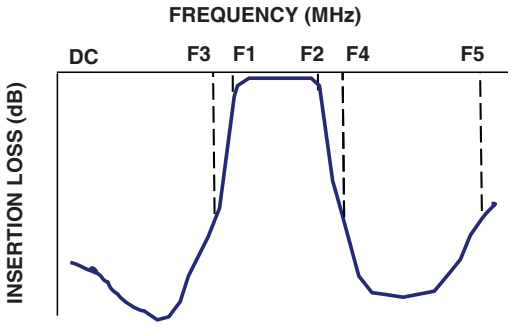
1. Measured on Mini-Circuits Test Board TB-BFCV-2852C+ with feedline losses removed by normalization of S12 and S21 traces to measurement of the thru-line.

MAXIMUM RATINGS

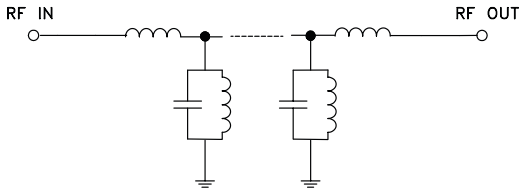
Parameter	Ratings
Operating temperature	-55°C to +125°C
Storage temperature	-55°C to +125°C
RF Power Input	1W max.

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

TYPICAL FREQUENCY RESPONSE



FUNCTIONAL SCHEMATIC



Bandpass Filter

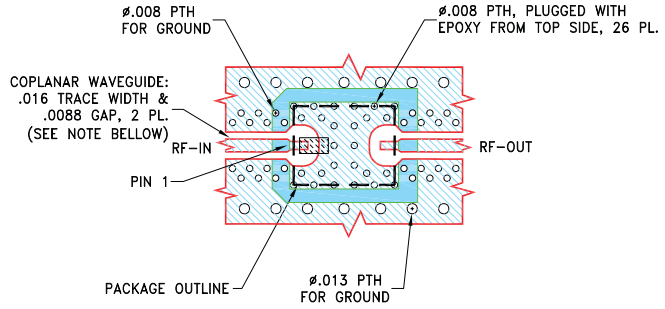
BFCV-2852+

PAD CONNECTIONS

INPUT	1
OUTPUT	2
GROUND	3

PRODUCT MARKING: MG

DEMO BOARD MCL P/N: TB-BFCV-2852C+
SUGGESTED PCB LAYOUT: PL-712

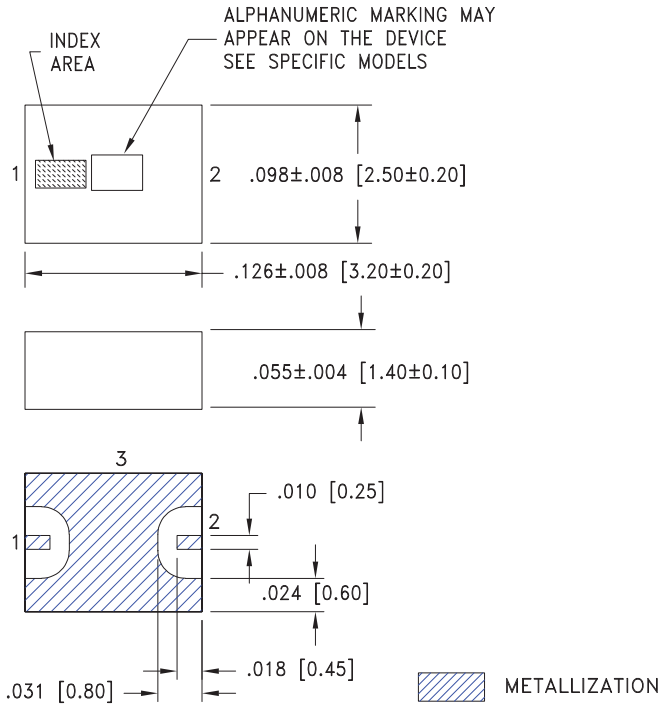


NOTES:
1. TRACE WIDTH & GAP PARAMETERS ARE SHOWN FOR MEGTRON-7 R5785(N); DIELECTRIC THICKNESS: .0079±.001; COPPER: HVLP/HVLP. FOR OTHER MATERIALS TRACE WIDTH & GAP MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

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

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

OUTLINE DRAWING

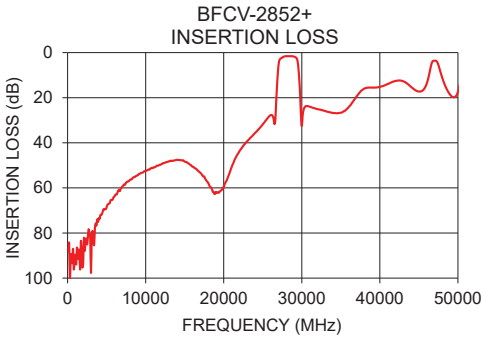


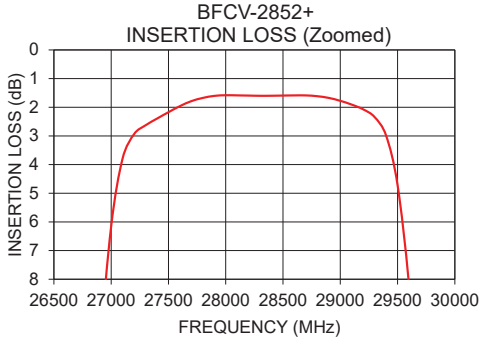
Weight: .045 grams

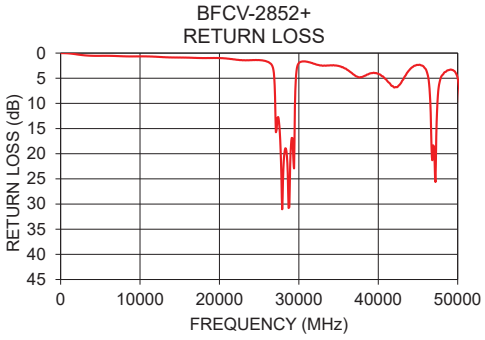
Dimensions are in inches (mm). Tolerances: 3 Pl. ±.005

TYPICAL PERFORMANCE DATA AT 25°C

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)
100	88.09	0.01
5000	68.52	0.54
10000	52.51	0.65
12500	48.81	0.77
15000	48.32	0.88
17500	54.91	0.98
20000	59.70	0.98
22500	41.35	1.38
25000	31.80	1.39
27500	2.17	13.76
28000	1.58	25.19
28800	1.61	30.54
30000	32.58	1.99
32500	25.47	2.37
35000	26.66	2.55
37500	17.32	4.79
40000	15.22	4.12
42500	12.37	6.58
45000	17.23	2.36
50000	17.34	5.01







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

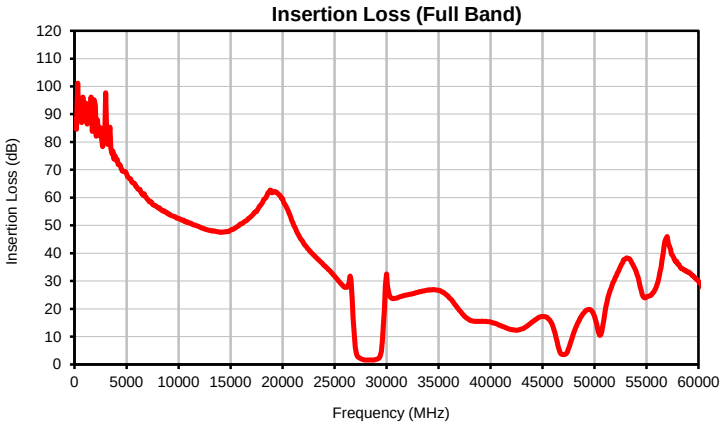
Ceramic Bandpass Filter BFCV-2852+

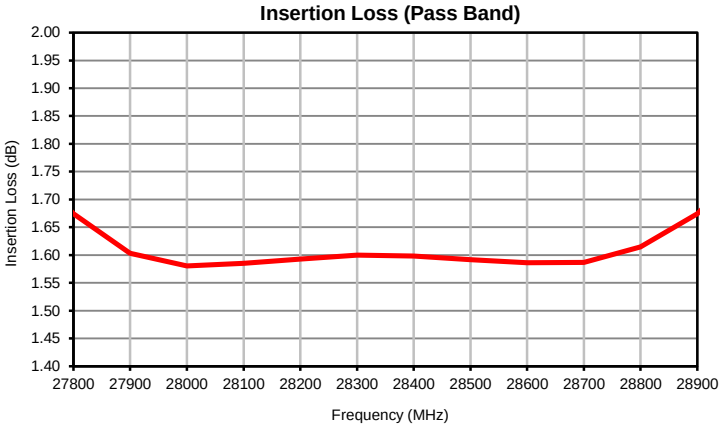
Typical Performance Data

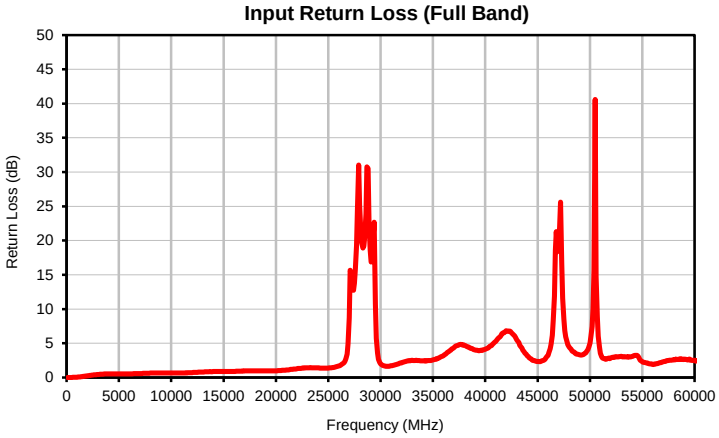
FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT RETURN LOSS (dB)	OUTPUT RETURN LOSS (dB)
100	88.09	0.01	0.01
2600	81.72	0.38	0.32
5100	67.51	0.54	0.50
7700	57.13	0.63	0.56
10200	52.19	0.65	0.60
12800	48.44	0.80	0.74
15300	48.76	0.89	0.79
17900	57.26	0.99	0.93
20400	56.53	1.01	0.95
23000	39.31	1.43	1.24
23100	38.97	1.42	1.25
26500	31.73	2.17	2.07
26600	30.43	2.40	2.26
27700	1.79	19.25	19.28
27800	1.67	24.61	26.03
27900	1.60	31.04	35.84
28000	1.58	25.19	25.10
28100	1.59	21.39	20.62
28200	1.59	19.67	18.52
28300	1.60	18.91	17.73
28400	1.60	19.20	17.74
28500	1.59	20.65	18.28
28600	1.59	23.89	19.87
28700	1.59	30.76	21.42
28800	1.61	30.54	21.53
28900	1.67	22.53	19.90
29000	1.78	18.56	17.47
29100	1.91	16.86	15.86
30000	32.58	1.99	1.75
30100	28.14	1.84	1.65
32500	25.47	2.37	2.24
35000	26.66	2.55	2.09
35100	26.61	2.60	2.10
36300	23.00	3.54	2.86
37500	17.32	4.79	3.95
38700	15.48	4.25	3.59
40000	15.22	4.12	3.47
40100	15.12	4.22	3.51
43000	12.72	5.51	4.65
46000	13.74	3.25	3.11
49000	18.66	3.33	2.91
52000	31.21	2.86	2.51
55000	24.23	2.31	2.96
58000	36.05	2.60	2.48
61000	20.17	2.63	3.10

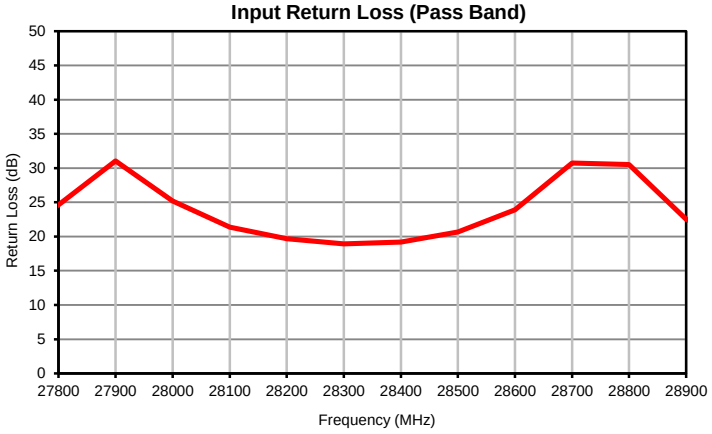
Ceramic Bandpass Filter BFCV-2852+

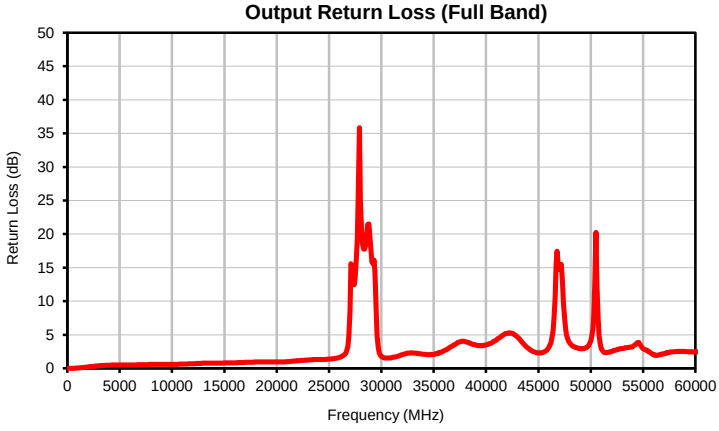
Typical Performance Curves

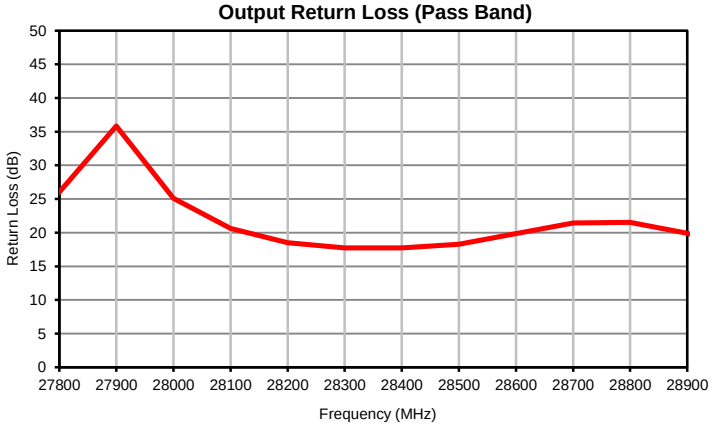








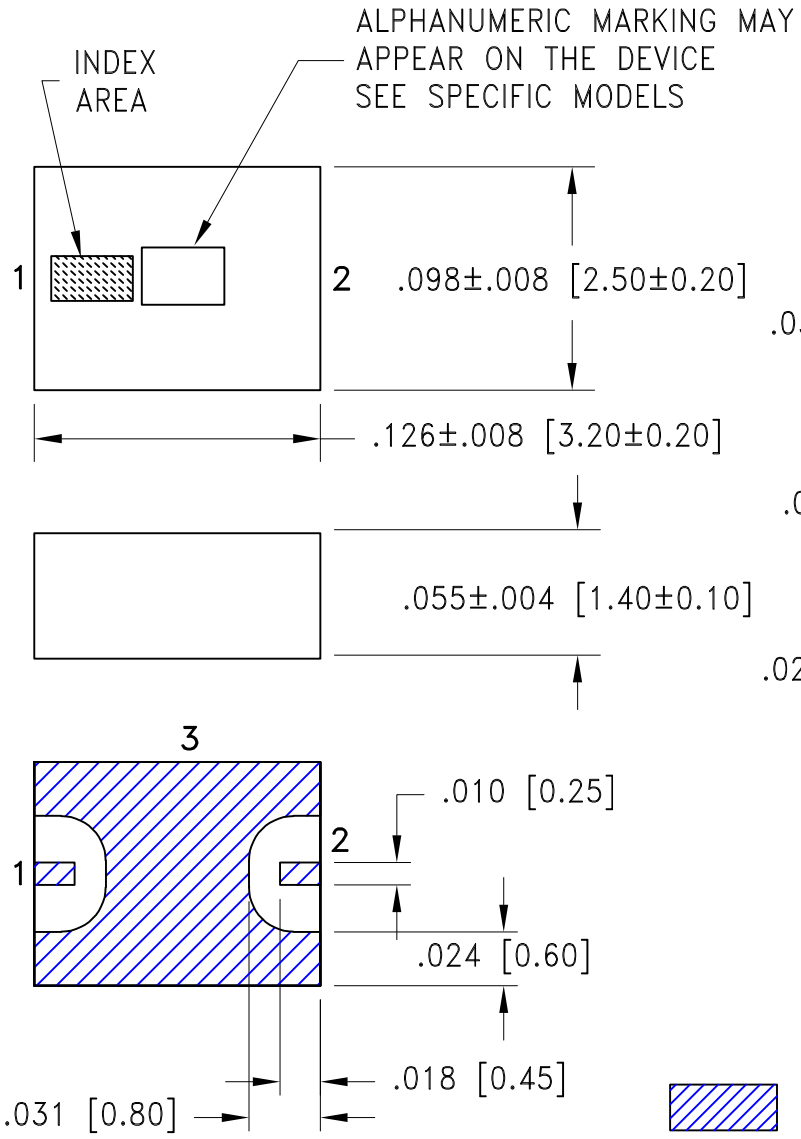




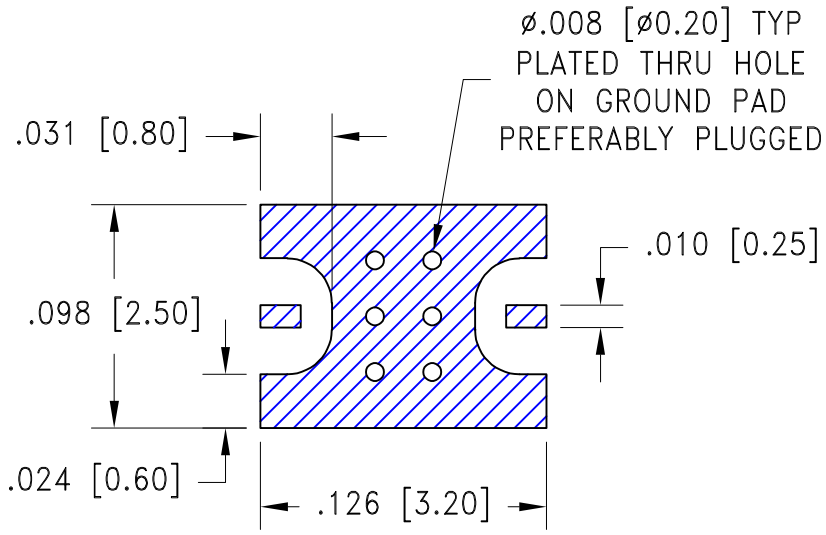
Case Style JV

Outline Dimensions

JV1210C-10



PCB Land Pattern



Suggested Layout
Tolerances to be within ±.002

Weight: .045 grams

Dimensions are in inches (mm). Tolerances: 3 Pl. ±.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.
   For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.
3. Pad tolerance is non-cumulative. Minimum spacing between each pad is .004.

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Tape & Reel Packaging TR-F74

DEVICE ORIENTATION IN T&R

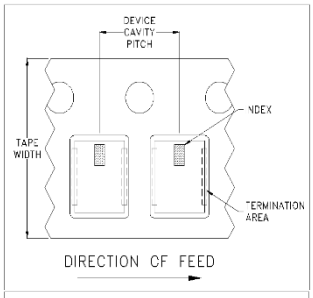


ILLUSTRATION 1

Applicable Case Styles
GE0805C-1
GE0805C-1AP
JV1210C-1
GU2939

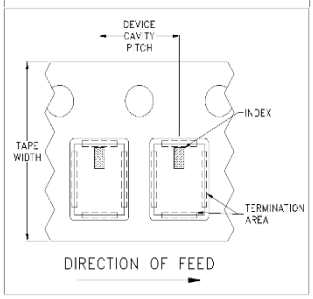


ILLUSTRATION 2

Applicable Case Styles
JV1210C
JV1210C-2
JV1210C-3
JV1210C-4
JV1210C-5
JV1210C-6
JV1210C-11

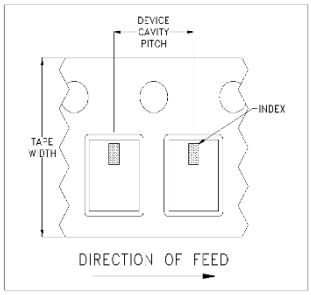


ILLUSTRATION 3

Applicable Case Styles
JC0603C-8
JC0603C-9
JV1210C-7
JV1210C-8
JV1210C-9
JV1210C-10
JV1210C-13
GE0805C-13
GE0805C-19
GE0805C-20

Tape Width, mm	Device Cavity Pitch, mm	Real Size, inches	Devices per Reel	
8	4	7	Small quantity standards **(see note)**	20
				50
				100
				200
				500
				1000
			Standard	2000
				4000

Note: Small reel availability varies by model. Refer to pricing and availability on individual model dashboard.

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

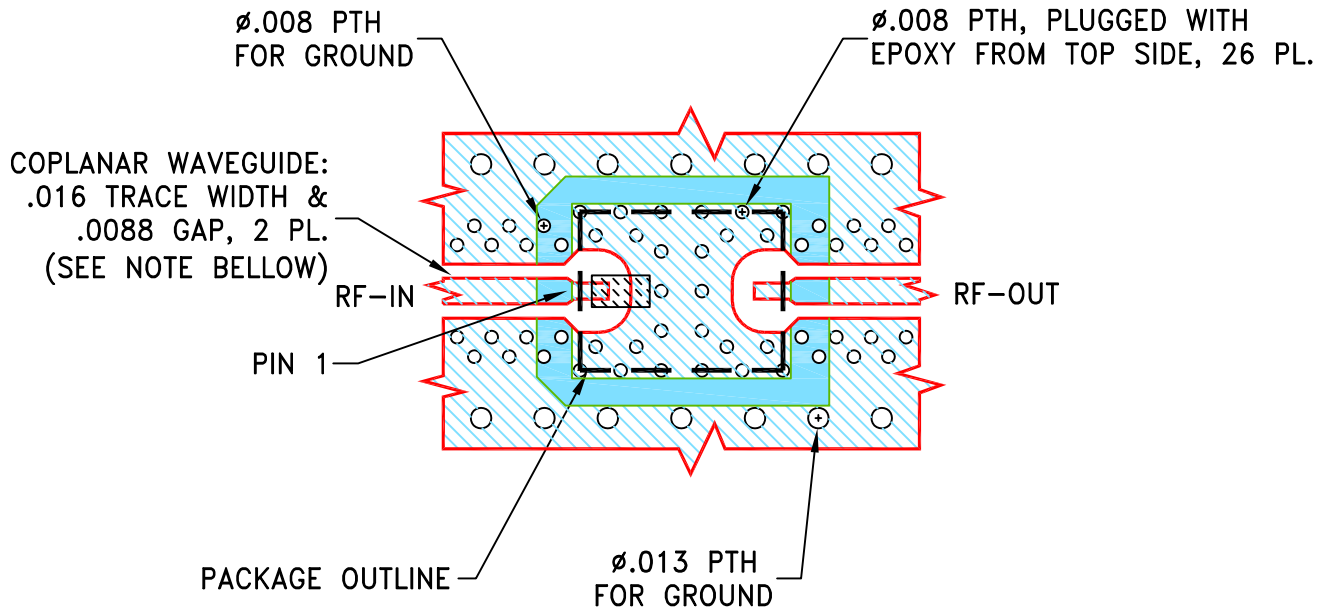
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THIRD ANGLE PROJECTION

REVISIONS					
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	ECO-008442	NEW RELEASE	06/24/21	ITG	IL

SUGGESTED MOUNTING CONFIGURATION
JV1210C-10 CASE STYLE



NOTES:
1. TRACE WIDTH & GAP PARAMETERS ARE SHOWN FOR MEGTRON-7 R5785(N); DIELECTRIC THICKNESS: .0079±.001; COPPER: HVLP/HVLP. FOR OTHER MATERIALS TRACE WIDTH & 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
DIMENSIONS ARE IN INCHES	DRAWN	ITG	06/24/21
TOLERANCES ON:	CHECKED	GF	06/24/21
2 PL DECIMALS ±	APPROVED	IL	06/24/21
3 PL DECIMALS ± .005			
ANGLES ±			
FRACTIONS ±			

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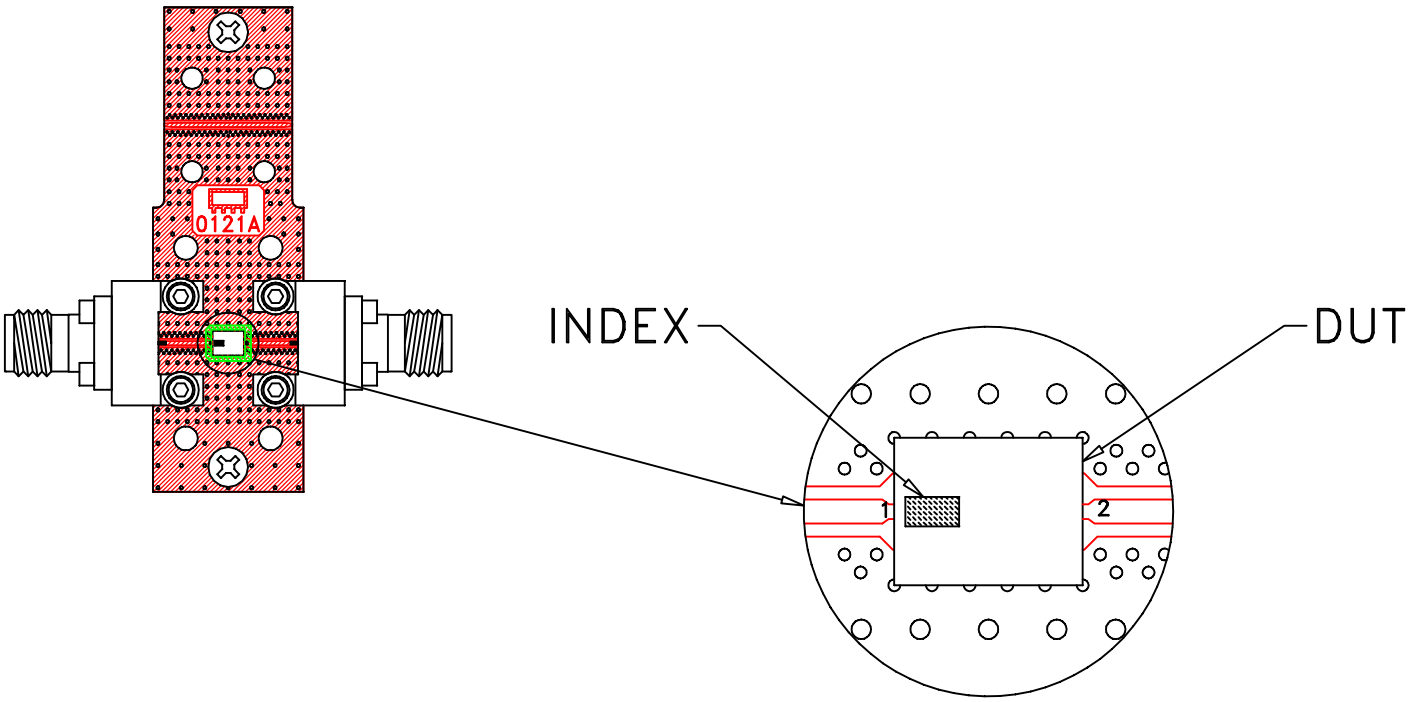
ASHEETA1.DWG REV:A DATE:01/12/95

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Brooklyn NY 11235

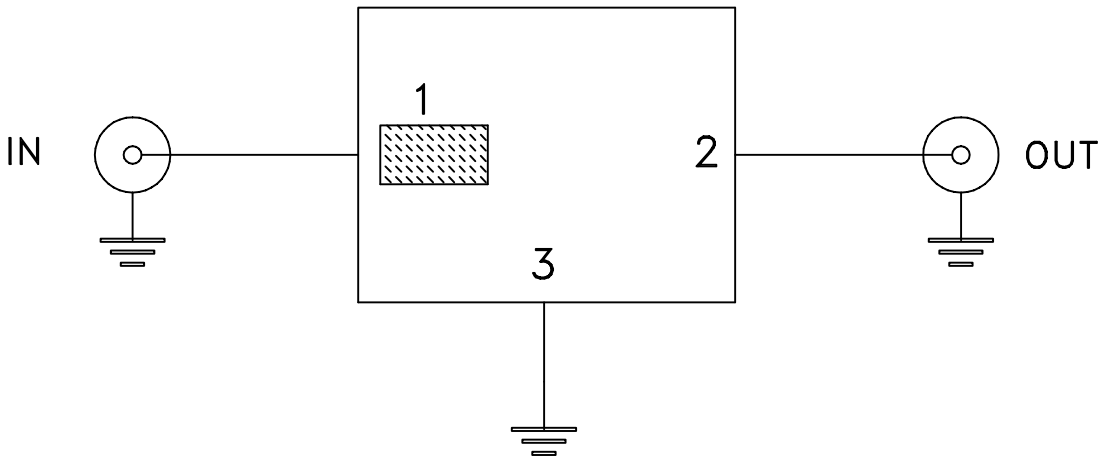
PL, JV1210C-10, TB-BFCV-2852C+

SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-712	OR
FILE: 98PL712	SCALE: 8:1	SHEET: 1 OF 1	

Evaluation Board and Circuit



TB-BFCV-2852C+



Schematic Diagram

1. 50 Ohm SMA Female connectors.
2. PCB Material: Megtron 7 or equivalent,
   Dielectric Constant=3.6, Thickness=.0079 inch.

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Environmental Specifications ENV06T8

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 125° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 125° C Ambient Environment	Individual Model Data Sheet
Thermal Cycling	-55 to 125°C, 100 cycles, Dwell Time 15 minutes.	MIL-STD-202, Method 107, Condition A-3
Mechanical Shock	50g, 11ms half-sine, 18 shocks applied each to 3 axes	MIL-STD-202 Method 213, Condition A
Vibration	10-2000Hz sine, 20g, 12 cycles applied each to 3 axes	MIL-STD-202, Method 204, Condition D
Constant Acceleration	30Kg, Y1 Direction	MIL-STD-883, Method 2001, Condition E
Humidity	85°C, 90-95% Relative Humidity, 250hours	
Solderability	10X / 30X Magnification	J-STD-002C Test S, J-STD-002C Test S1
High Temp Storage	125°C, 250 hours	

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