LTCC SURFACE MOUNT

Band Pass Filter

BFCV-1272+

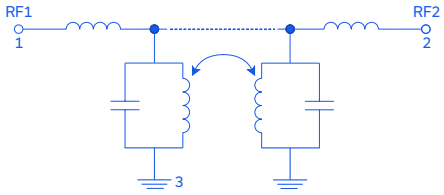
50Ω 9.8 to 14.6 GHz

THE BIG DEAL

- Wide Passband, 9.8 to 14.6 GHz
- Low Insertion Loss, 2.2 dB Typical
- Wide Rejection Band
- High-Power Handling, 6 W Maximum
- Small Size 3.2x2.5 mm

Generic photo used for illustration purposes only

FUNCTIONAL DIAGRAM



APPLICATIONS

- Microwave Radio Backhaul Systems
- Radar, EW, and ECM Defense Systems
- Test and Measurement Equipment

PRODUCT OVERVIEW

The BFCV-1272+ LTCC Band Pass Filter covers the passband from 9.8 to 14.6 GHz, with as low as 2.2 dB loss in the passband, and up to 40 dB stopband rejection. This model handles up to 6 W 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 achieves highly repeatable performance on a lot-to-lot basis.

ELECTRICAL SPECIFICATIONS[1,2,3] AT +25°C

Parameter		F#	Frequency (GHz)	Min.	Typ.	Max.	Units
Passband	Center Frequency[4]				12.2		GHz
	Insertion Loss	F2-F3	9.8-14.6		2.2	2.7	dB
	Return Loss	F2-F3	9.8-14.6		8		dB
Stopband, Lower	Rejection	DC-F1	DC-8	30	35		dB
Stopband, Upper	Rejection	F4-F5	17.3-26	35	40		dB

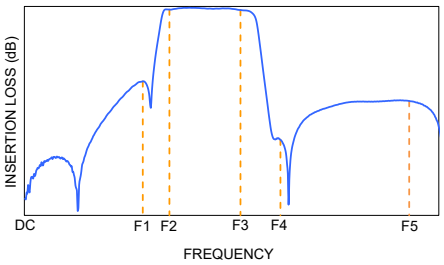
1. Tested in Evaluation Board P/N TB-BFCV-1272C+.
2. This filter is bi-directional RF1 and RF2 ports may be interchanged, see S-Parameters for actual performance.
3. This component should not be used as a DC-block. In applications where DC voltage and/or current is present at either the input or output ports, external DC blocking capacitors are required.
4. Typical variation ± 3%.

ABSOLUTE MAXIMUM RATINGS[5]

Operating Temperature	-55°C to +125°C
Storage Temperature	-55°C to +125°C
Input Power[6]	6 W max. at +25°C

5. Permanent damage may occur if any of these limits are exceeded.
6. Power rating applies only to signals within the passband. Power rating above +25°C operating temperature decreases linearly to 4 W at +125°C.

TYPICAL FREQUENCY RESPONSE



REV. OR
ECO-027071
BFCV-1272+
MCL NY
250922

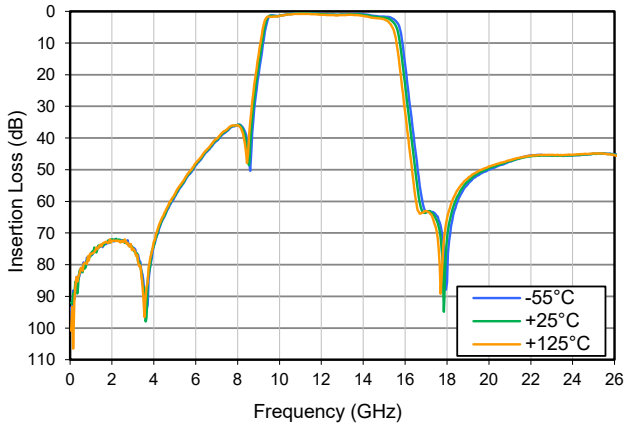
Band Pass Filter

BFCV-1272+

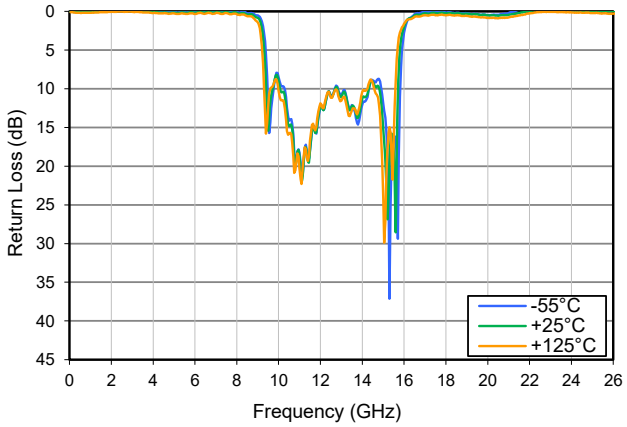
50Ω 9.8 to 14.6 GHz

TYPICAL PERFORMANCE GRAPHS

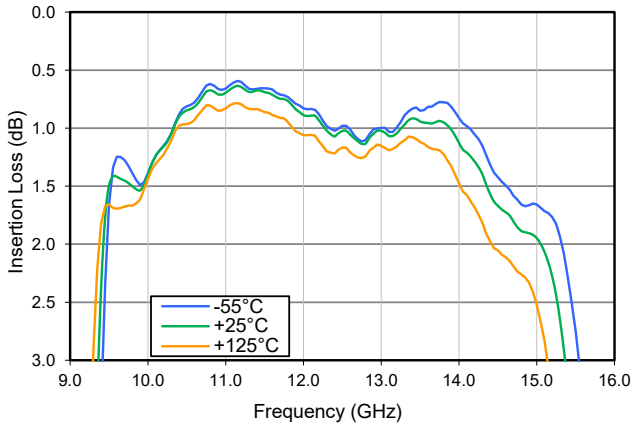
INSERTION LOSS



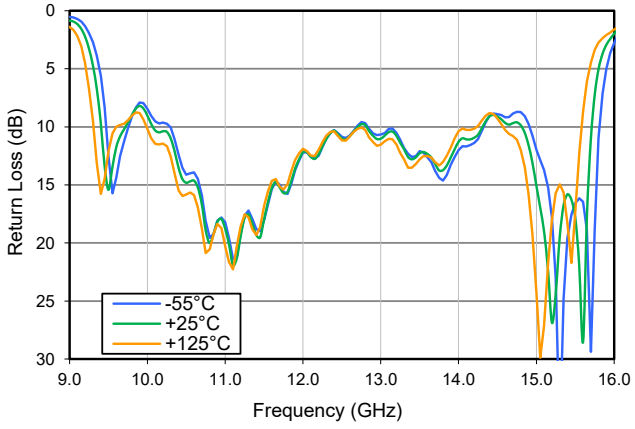
RETURN LOSS



INSERTION LOSS (PASSBAND)



RETURN LOSS (PASSBAND)



LTCC SURFACE MOUNT

Band Pass Filter

BFCV-1272+

50Ω 9.8 to 14.6 GHz

FUNCTIONAL DIAGRAM

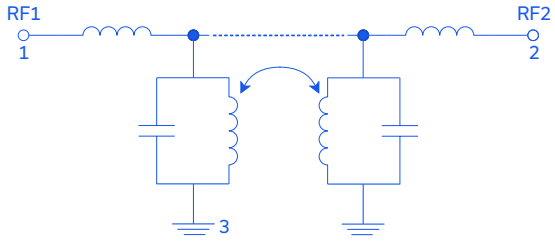


Figure 1. BFCV-1272+ Functional Diagram

PAD DESCRIPTION

Function	Pad Number	Description
RF1	1	Connects to RF Input Port
RF2	2	Connects to RF Output Port
GROUND	3	Connects to Ground on PCB, (See drawing PL-822)

SUGGESTED PCB LAYOUT: PL-822

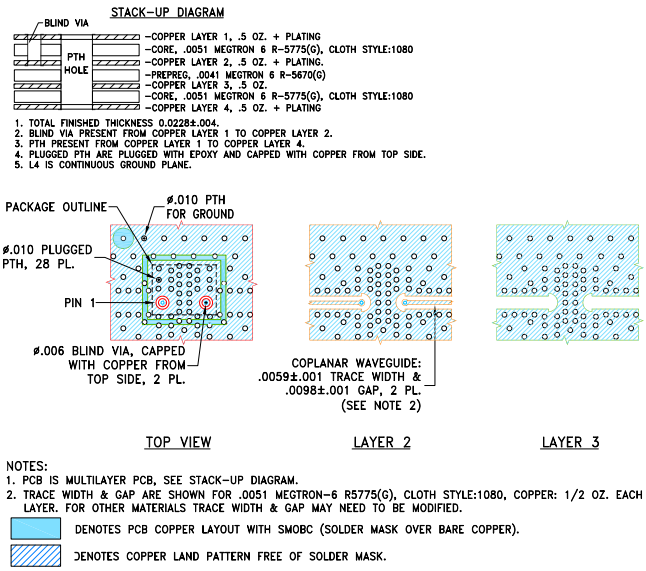
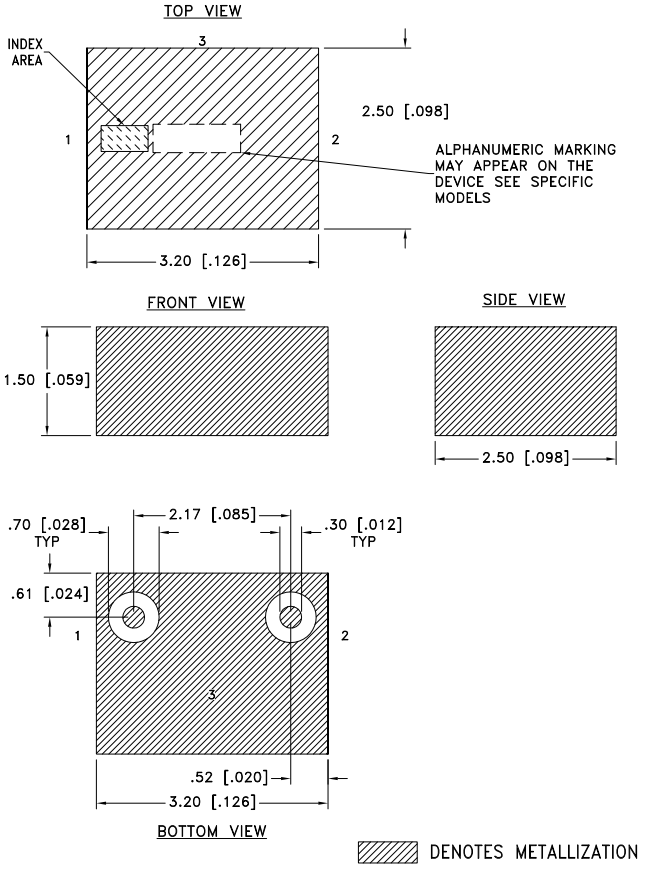


Figure 2. Suggested PCB Layout

CASE STYLE DRAWING



Weight: .040 grams

Dimensions are in mm [inches]. Tolerances: 2 Pl.± 0.05 mm

PRODUCT MARKING*: J9

*Marking may contain other features or characters for internal lot control.

Band Pass Filter

BFCV-1272+

50Ω 9.8 to 14.6 GHz

ADDITIONAL DETAILED INFORMATION IS AVAILABLE ON OUR DASHBOARD CLICK HERE

Performance Data & Graphs	Data Graphs S-Parameter (S2P Files) Data Set (.zip file) De-embedded to device pads
Case Style	JV1210C-14 Lead Finish: Tin over Nickel plating
RoHS/REACH Status	Compliant
Tape and Reel	F74
Suggested Layout for PCB Design	PL-822
Evaluation Board	TB-BFCV-1272C+ Gerber File
Environmental Rating	ENV06T10

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

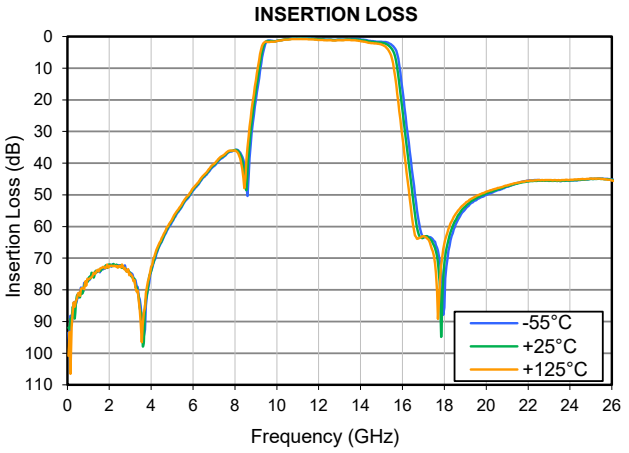
LTCC Bandpass Filter BFCV-1272+

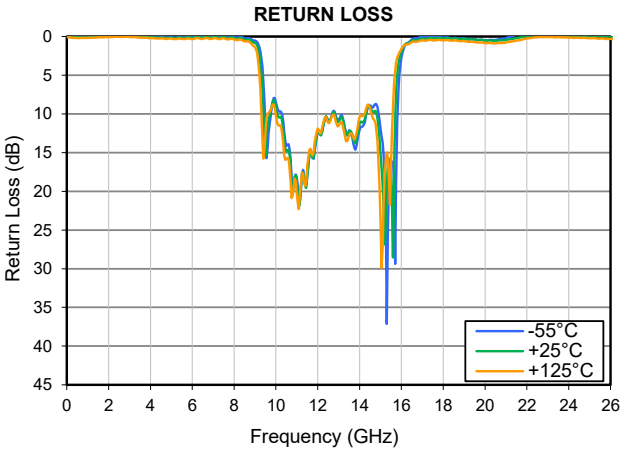
Typical Performance Data

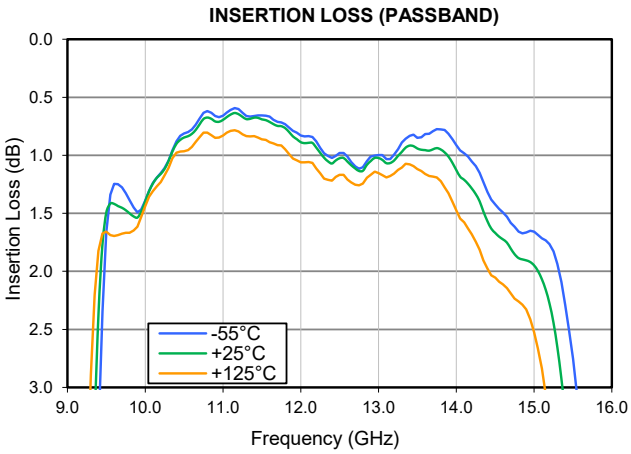
FREQUENCY (GHz)	INSERTION LOSS (dB)			RETURN LOSS (dB)		
	@-55°C	@+25°C	@+125°C	@-55°C	@+25°C	@+125°C
0.1	100.09	92.37	93.29	0.03	0.05	0.10
0.5	81.29	81.51	81.12	0.09	0.12	0.19
1.0	76.34	76.88	76.72	0.07	0.10	0.18
1.5	73.89	74.01	74.17	-0.01	0.04	0.12
2.0	72.58	72.02	72.42	-0.09	-0.03	0.05
2.5	72.27	72.44	72.42	-0.14	-0.06	0.04
3.0	74.57	74.82	74.82	-0.12	-0.03	0.07
3.5	85.09	86.98	90.22	-0.05	0.04	0.14
4.0	74.15	73.95	72.75	0.03	0.11	0.21
4.5	64.91	64.51	63.72	0.07	0.14	0.25
5.0	58.56	58.13	57.71	0.09	0.15	0.27
5.5	53.29	52.94	52.48	0.11	0.17	0.30
6.0	48.64	48.27	47.92	0.11	0.17	0.32
6.5	44.51	44.15	43.81	0.07	0.13	0.28
7.0	40.94	40.55	40.23	-0.01	0.06	0.21
7.5	37.79	37.48	37.19	-0.04	0.06	0.22
8.0	35.88	35.85	35.98	0.04	0.18	0.36
8.5	42.84	47.14	44.62	0.24	0.41	0.64
9.0	19.94	17.19	13.76	0.54	0.85	1.41
9.2	10.85	8.37	5.50	1.32	2.25	4.53
9.4	3.41	2.35	1.82	5.60	9.60	15.79
9.6	1.25	1.42	1.69	14.37	11.75	9.99
9.8	1.39	1.50	1.67	9.15	8.99	9.05
10.0	1.39	1.40	1.44	8.44	9.04	10.18
10.2	1.15	1.16	1.23	9.64	10.38	11.45
10.4	0.88	0.90	0.98	12.40	13.51	15.47
10.6	0.78	0.82	0.93	13.92	14.64	15.88
10.8	0.62	0.67	0.81	19.57	20.00	20.54
11.0	0.66	0.69	0.83	18.22	18.78	20.29
11.2	0.60	0.65	0.79	19.25	19.37	18.60
11.4	0.66	0.68	0.84	18.81	19.32	19.31
11.6	0.67	0.71	0.89	15.37	15.27	14.65
11.8	0.73	0.77	0.95	15.78	15.62	14.94
12.0	0.83	0.89	1.06	12.22	12.19	11.89
12.2	0.88	0.93	1.11	12.49	12.38	11.97
12.4	1.02	1.07	1.22	10.28	10.33	10.39
12.6	1.01	1.05	1.21	10.77	10.81	10.85
12.8	1.10	1.13	1.24	9.68	9.85	10.26
13.0	1.00	1.02	1.15	10.66	11.03	11.55
13.2	1.00	1.04	1.16	10.52	10.76	11.52
13.4	0.83	0.92	1.08	12.58	12.80	13.53
13.6	0.82	0.96	1.16	12.64	12.34	12.53
13.8	0.78	0.95	1.22	14.63	13.73	13.01
14.0	0.91	1.13	1.48	12.01	11.29	10.38
14.2	1.05	1.29	1.68	11.39	10.94	10.17
14.4	1.32	1.57	1.98	9.06	9.08	8.80
14.6	1.49	1.72	2.11	9.19	9.67	10.29
14.8	1.66	1.89	2.26	8.74	9.87	11.99
15.0	1.66	1.95	2.52	11.99	15.06	24.34
15.2	1.77	2.28	3.33	17.82	26.87	18.03
15.4	2.29	3.22	5.13	19.58	15.80	18.28
15.6	3.41	5.29	10.37	16.47	28.55	8.69
15.8	7.01	12.37	20.73	10.96	5.00	2.73
16.0	16.74	23.25	31.70	2.77	1.97	1.61
16.5	44.52	51.01	59.22	0.36	0.53	0.69
17.0	63.35	63.49	63.10	0.02	0.25	0.48
17.5	64.58	65.93	69.23	0.02	0.22	0.50
18.0	85.60	71.81	65.40	0.13	0.26	0.53
18.5	60.10	58.37	56.46	0.19	0.26	0.53
19.0	54.48	53.69	52.68	0.27	0.30	0.58
19.5	51.71	51.13	50.46	0.32	0.37	0.69
20.0	49.98	49.46	49.01	0.47	0.50	0.82
20.5	48.66	48.41	47.95	0.46	0.57	0.89
21.0	47.38	47.26	47.04	0.20	0.45	0.77
21.5	46.28	46.42	46.13	-0.21	0.20	0.51
22.0	45.52	45.80	45.62	-0.52	-0.08	0.23
22.5	45.30	45.50	45.32	-0.51	-0.22	0.07
23.0	45.47	45.60	45.35	-0.34	-0.22	0.07
23.5	45.58	45.59	45.41	-0.19	-0.18	0.10
24.0	45.48	45.42	45.18	-0.10	-0.13	0.14
24.5	45.33	45.25	45.04	-0.07	-0.09	0.18
25.0	44.94	44.95	44.89	-0.13	-0.06	0.24
25.5	44.87	44.99	44.97	-0.20	-0.06	0.26
26.0	45.14	45.25	45.47	-0.15	-0.03	0.31
26.5	45.84	46.01	46.43	0.06	0.06	0.41

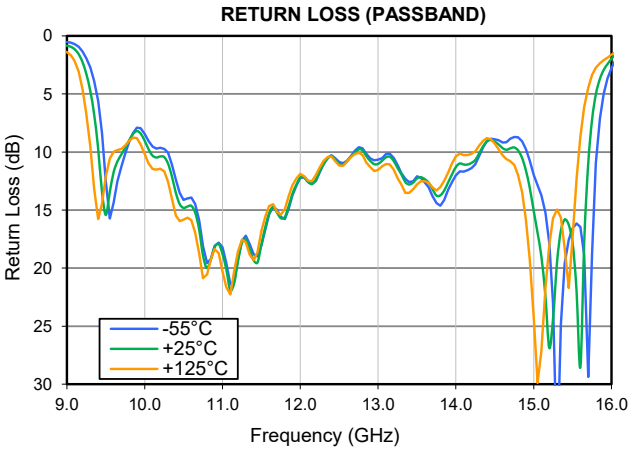
LTCC Bandpass Filter BFCV-1272+

Typical Performance Data



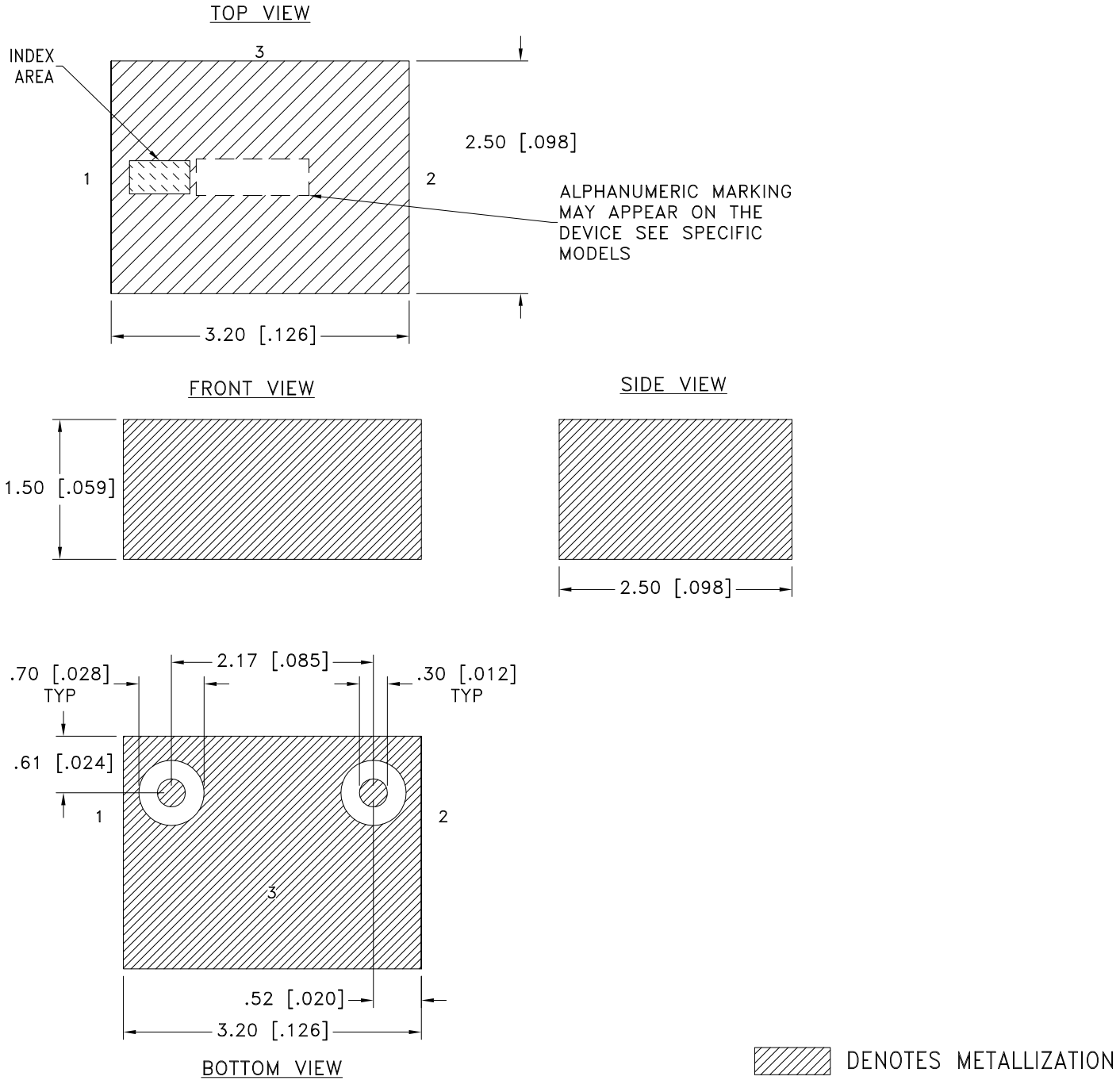






Case Style JV

Outline Dimensions JV1210C-14



Weight: .040 grams

Dimensions are in mm [inches]. Tolerances: 2 Pl.± 0.05 mm

Notes:

1. Case material: Ceramic.
2. Termination Finish: **as shown below or indicated on Data Sheet.**
   For RoHS Case Styles: Tin Plate over Nickel plate. All models, (+) suffix.

Tape & Reel Packaging TR-F74

DEVICE ORIENTATION IN T&R

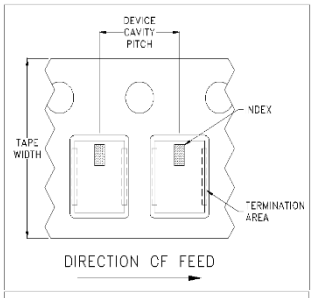


ILLUSTRATION 1

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

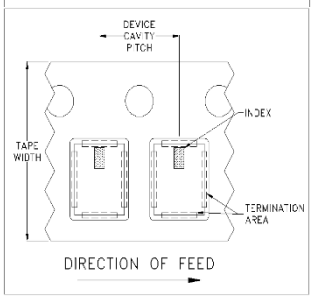


ILLUSTRATION 2

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

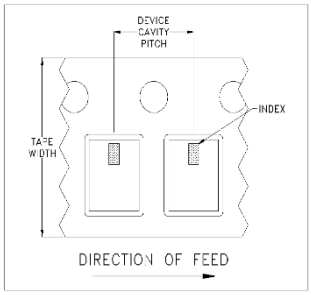


ILLUSTRATION 3

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.
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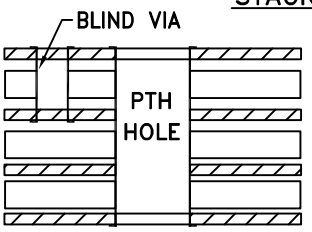
THIRD ANGLE PROJECTION

REVISIONS					
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	ECO-025395	NEW RELEASE	05/13/25	ITG	IL

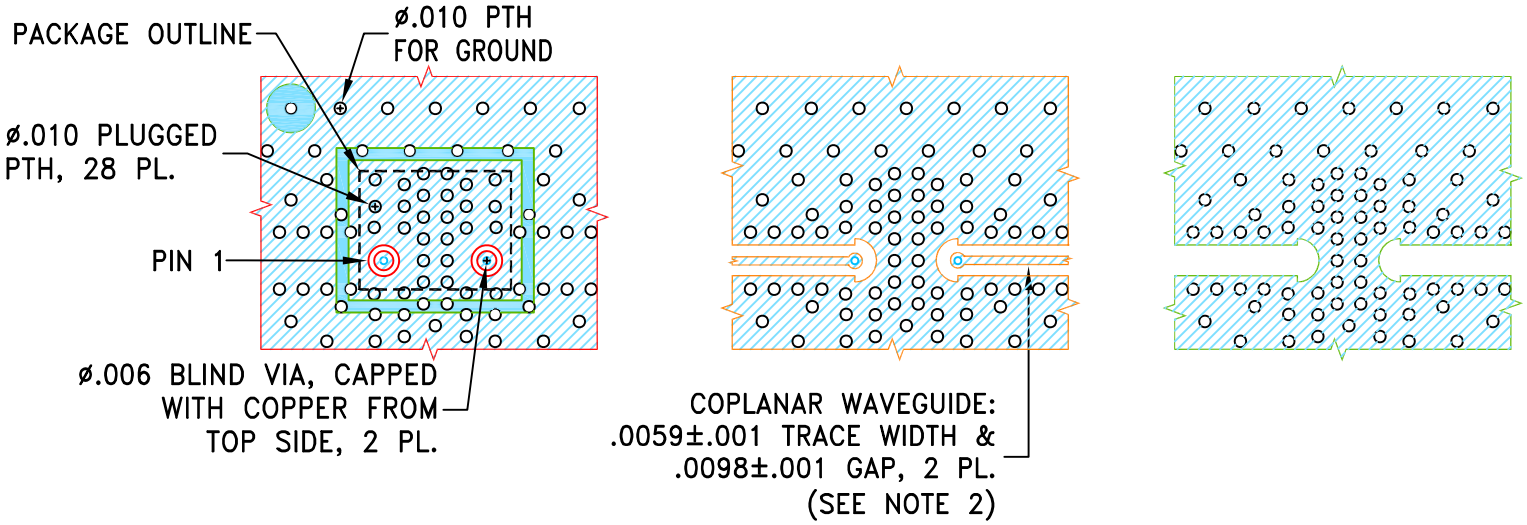
SUGGESTED MOUNTING CONFIGURATION FOR JV1210C-14 CASE STYLE

STACK-UP DIAGRAM



-COPPER LAYER 1, .5 OZ. + PLATING
-CORE, .0051 MEGTRON 6 R-5775(G), CLOTH STYLE:1080
-COPPER LAYER 2, .5 OZ. + PLATING.
-PREPREG, .0041 MEGTRON 6 R-5670(G)
-COPPER LAYER 3, .5 OZ.
-CORE, .0051 MEGTRON 6 R-5775(G), CLOTH STYLE:1080
-COPPER LAYER 4, .5 OZ. + PLATING

1. TOTAL FINISHED THICKNESS 0.0228±.004.
2. BLIND VIA PRESENT FROM COPPER LAYER 1 TO COPPER LAYER 2.
3. PTH PRESENT FROM COPPER LAYER 1 TO COPPER LAYER 4.
4. PLUGGED PTH ARE PLUGGED WITH EPOXY AND CAPPED WITH COPPER FROM TOP SIDE.
5. L4 IS CONTINUOUS GROUND PLANE.



TOP VIEW | LAYER 2 | LAYER 3

NOTES:

1. PCB IS MULTILAYER PCB, SEE STACK-UP DIAGRAM.
2. TRACE WIDTH & GAP ARE SHOWN FOR .0051 MEGTRON-6 R5775(G), CLOTH STYLE:1080, COPPER: 1/2 OZ. EACH LAYER. FOR OTHER MATERIALS TRACE WIDTH & GAP MAY NEED TO BE MODIFIED.

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	05/13/25
TOLERANCES ON:	CHECKED	GF	05/13/25
2 PL DECIMALS ±	APPROVED	IL	05/13/25
3 PL DECIMALS ± .005			
ANGLES ±			
FRACTIONS ±			

Mini-Circuits®

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

Mini-Circuits® 13 Neptune Avenue Brooklyn NY 11235

PL, JV1210C-14, BFCV

SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-822	OR

FILE:	SCALE:	SHEET:
98PL822	6:1	1 OF 1

Mini-Circuits

Environmental Specifications ENV06T10

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
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
Solder Reflow Heat	Sn-Pb Eutectic Process 225°C peak Pb-Free Process 245° - 250°C peak	J-STD-020C, Table 4-1, 4-2 and 5-2, Figure 5-1
Solderability	10X Magnification	J-STD-002, Test B,B1, 95% Coverage
Thermal Shock	-55° to +125°C, 15 min dwell,250 cycles	MIL-STD-202, Method 107
Bend Test	1mm, deflection for 5 seconds Span of bending: 2.75"	--
High Temp Storage	125°C to 1000 Hrs	---