CERAMIC

Bandpass Filter & Balun BBFCG2-352+

50Ω 3150 to 3850 MHz

THE BIG DEAL

- Tiny size, (0805)
- Compact design includes Balun & Filter in one package
- Low cost
- Temperature stable
- Hermetically sealed



Generic photo used for illustration purposes only

CASE STYLE: GE0805C-15

+RoHS Compliant
The +Suffix identifies RoHS Compliance.
See our website for methodologies and qualifications

APPLICATIONS

- Telecommunications
- 5G sub 6GHz

PRODUCT OVERVIEW

Mini-Circuits' BBFCG2-352+ is a tiny ceramic RF balun filter with an impedance ratio of 1:2, covering a variety of wireless communications applications from 3150 to 3850 MHz. This model provides low insertion loss, low phase unbalance (relative to 180°), low amplitude unbalance. Fabricated using LTCC technology, the unit comes housed in a tiny, rugged ceramic package (0.079" x 0.049" x 0.037") suitable for harsh operating environments.

KEY FEATURES

Feature	Advantages
Compact Design	Integrates filter and balun in one tiny package
Tiny size, 0805	Accommodates tight space requirements for dense PCB layouts.
LTCC construction	LTCC process enables tiny size and low cost, suitable for high-volume production. Rugged ceramic package provides excellent reliability in harsh operating environments.

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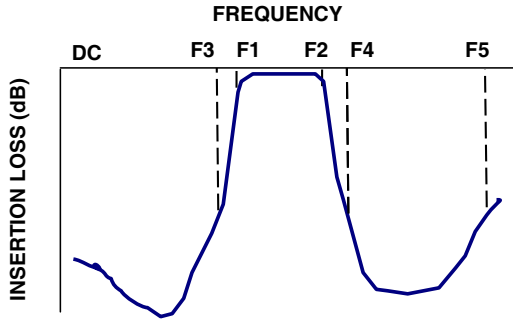
ELECTRICAL SPECIFICATIONS AT 25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Units
Impendance Ratio		—	—		2		
Insertion Loss		F1-F2	3150 - 3850	—	—	3.4	dB
Return Loss	Unbalanced Port	F1-F2	3150 - 3850	8.5	—	—	dB
	Balanced Port	F1-F2	3150 - 3850	8.5	—	—	
Stopband Rejection		DC-F3	DC - 2598	27	—	—	dB
			2598 - 2698	21	—	—	
		F4-F5	7946 - 9698	27	—	—	
Amplitude Unbalance ±		F1-F2	3150 - 3850	-1.5	—	1.5	dB
Phase Unbalance		F1-F2	3150 - 3850	-13	—	13	Degree

MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-55°C to 125°C
Storage Temperature	-55°C to 125°C
RF Power Input	0.5W at 25°C

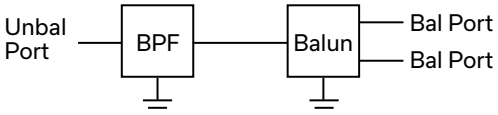
TYPICAL FREQUENCY RESPONSE



DC INTERFACE TABLE

Unbalance Port - GND	DC short
Unbalance Port - Balance Ports	DC open
Balance port - GND	DC open
Balance port-Balance Port	DC short

FUNCTIONAL SCHEMATIC



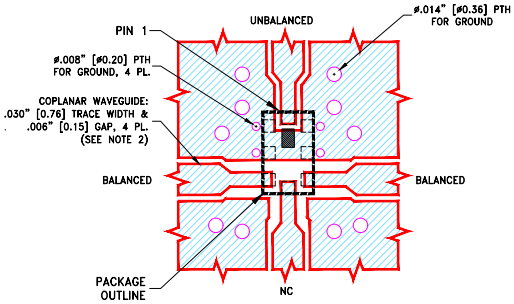
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PAD CONNECTIONS

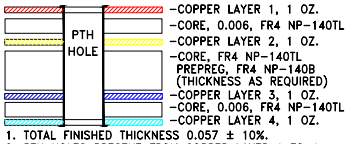
UNBALANCED PORT	1
BALANCED PORT	4,6
GROUND	2,3,7,8
NOT CONNECT OR GND	5

PRODUCT MARKING: N/A

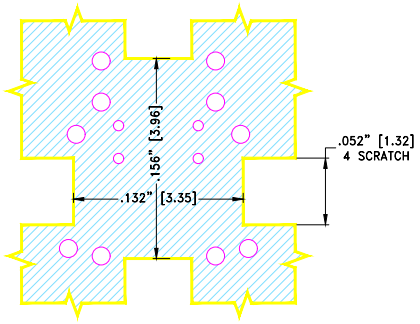
DEMO BOARD MCL P/N: TB-BBFCG2-352+
SUGGESTED PCB LAYOUT (PL-724)



STACK-UP DIAGRAM



1. TOTAL FINISHED THICKNESS 0.057 ± 10%.
2. PTH HOLES PRESENT FROM COPPER LAYER 1 TO 4.

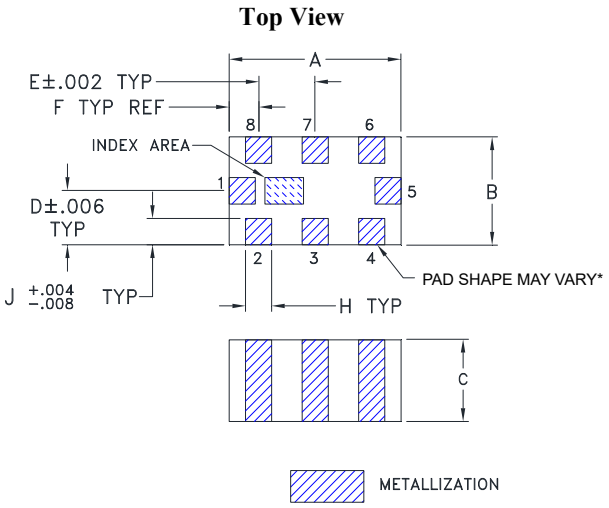


TOP VIEW TO LAYER 2

NOTES:
1. PCB IS MULTILAYER PCB, SEE STACK-UP DIAGRAM.
2. TRACE WIDTH & GAP PARAMETERS ARE SHOWN FOR FR4 NP-140TL WITH DIELECTRIC THICKNESS .006"±.0005"; COPPER: 1 OZ. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
3. COPPER LAYERS 3,4 OF THE PCB IS CONTINUOUS GROUND PLANES.

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

OUTLINE DRAWING



*During the manufacturing process, the pad shape may not be rectangular and may take on a more semi-circle shape. However, the pad dimensions reflect this, with the pad shape being within the specified lengths. The metallization compensates accordingly and so performance will not be affected. In addition, solderability will not be influenced by the pad shape.

OUTLINE DIMENSIONS (Inches / mm)

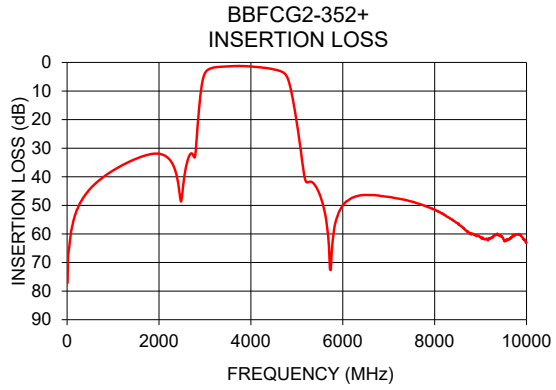
A	B	C	D	E	F	G	H	J	wt
.079	.049	.037	.025	.026	.014	.110	.012	.010	grams
2.00	1.25	0.95	0.63	0.65	0.35	2.80	0.30	0.25	.008

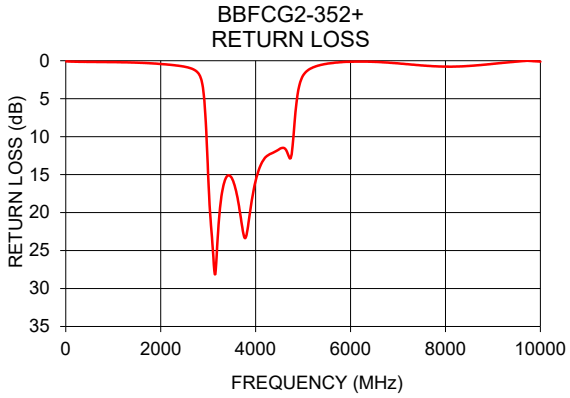
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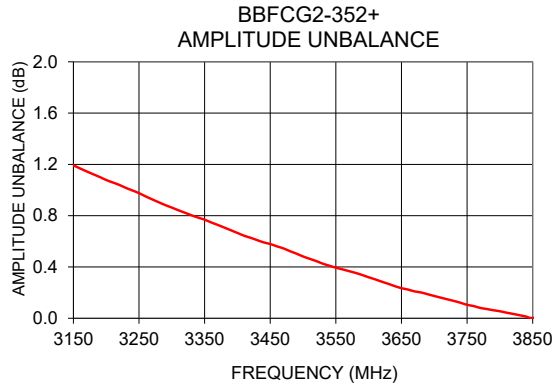
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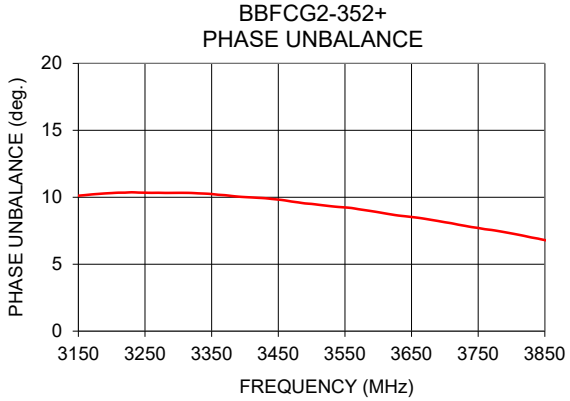
TYPICAL PERFORMANCE DATA

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	Amplitude Unbalance (dB)	Phase Unbalance (Deg.)
10	77.14	0.10	10.58	34.23
100	58.24	0.11	0.69	0.19
1000	37.80	0.18	1.65	2.02
2000	31.95	0.43	1.49	105.06
2598	35.86	0.93	1.99	25.93
2698	31.82	1.17	2.59	8.42
3150	1.95	28.12	1.19	10.12
3850	1.28	21.38	0.00	6.80
5000	21.15	1.95	2.79	2.22
7946	51.18	0.77	5.09	174.29
9698	60.58	0.02	0.11	174.76
10000	63.01	0.12	0.05	175.94









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