

Ceramic

# Bandpass Filter

## BPJC-542R+

50Ω      4900 to 5900 MHz

### The Big Deal

- Passband optimized for high band Wi-Fi
- Tiny size, 0603
- High rejection, 40 dB in lower stopband; 34 dB in upper stopband
- Low cost



CASE STYLE: JC0603C-1

### Product Overview

Mini-Circuits' BPJC-542R+ is an LTCC bandpass filter with a passband from 4900 to 5900 MHz, optimized for use in Wi-Fi high-band applications. This model provides 1.0 dB passband insertion loss, 40 dB lower stopband rejection and 34 dB upper stopband rejection. The filter is capable of handling up to 1W RF input power and provides a wide operating temperature range from -55 to +100°C. Utilizing LTCC construction, the unit is fabricated in a tiny ceramic monolith (0.08 x 0.05 x 0.02") with excellent repeatability and low cost, suitable for volume production.

### Key Features

Feature	Advantages
Passband optimized for high band Wi-Fi.	Optimized for the 4900 to 5900 MHz passband, this model is ideal for cleaning signal in high band Wi-Fi applications.
Tiny size (0.06 x 0.04 x 0.02")	Minimizes performance variations due to parasitics and saves space in dense circuit board layouts.
High stopband rejection	Effective suppression of unwanted out-of-band spurs over a wide stopband range results in better receiver sensitivity and dynamic range.
Wraparound terminations	Excellent solderability and easy visual inspection.
Wide operating temperature range, -55 to +100°C	Reliable performance in extreme environments.



Ceramic

# Bandpass Filter

50Ω 4900 to 5900 MHz

BPJC-542R+



CASE STYLE: JC0603C-1

**+RoHS Compliant**

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

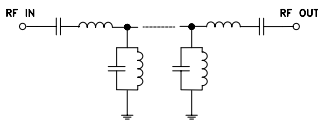
## Features

- High Rejection.
- miniature size 0603 (1.6x0.8mm)
- LTCC construction
- low cost
- aqueous washable

## Applications

- ISM Band
- WLAN
- Bluetooth
- Zigbee

### Functional Schematic



## Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit	
<b>Pass Band</b>	Center Frequency	—	5400	—	MHz	
	Insertion Loss	4900 – 5900	1.0	1.5	dB	
	VSWR	4900 – 5900	—	1.4	2	:1
<b>Stop Band, Lower</b>	Rejection	DC – 2700	29	40	—	dB
<b>Stop Band, Upper</b>	Rejection	9800 - 12000	30	34	—	dB

1. Tested on Evaluation Board TB-BPJC-542R+

## Maximum Ratings

Operating Temperature	-55°C to +100°C
Storage Temperature*	-55°C to +100°C
RF Power Input	1W

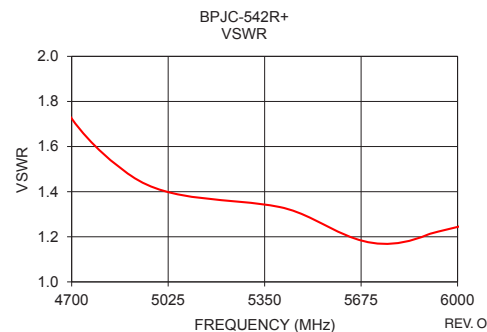
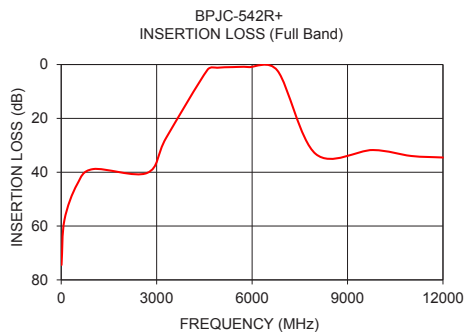
\* Refer to product storage temperature after installation  
Suggestion for T&R unused product storage condition:  
+5 ~ +35 °C, Humidity 45~75%RH, 12 month Max

## Typical Performance Data at 25°C

Frequency (GHz)	Insertion Loss (dB)	VSWR (:1)
10	74.45	252.64
100	57.82	226.98
500	44.50	128.68
1000	38.84	96.27
2700	40.27	65.23
3300	27.22	41.86
4600	1.93	2.07
4900	1.19	1.47
5400	0.95	1.33
5900	0.95	1.21
6800	2.30	2.10
8000	33.22	15.80
9800	31.76	29.52
11000	33.96	34.59
12000	34.54	38.23

### Pad Connections

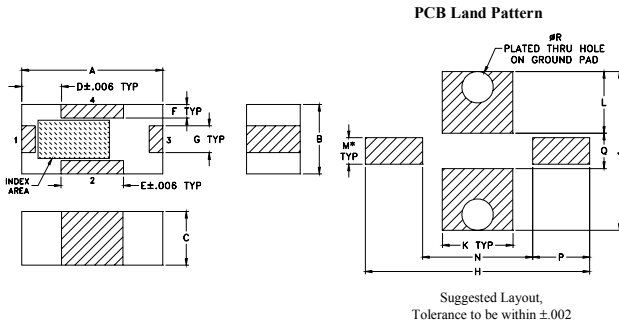
Input	1
Output	3
Ground	2,4



# Bandpass Filter

# BPJC-542R+

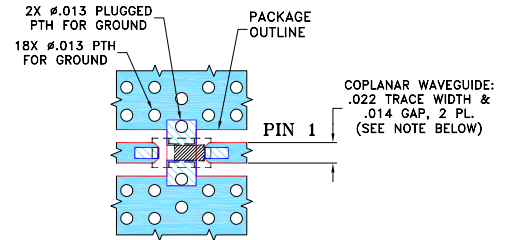
## Outline Drawing



### Pad Connections

Input	1
Output	3
Ground	2,4

## Evaluation Board MCL P/N: TB-BPJC-542R+ Suggested PCB Layout (PL-412)



### NOTES:

- TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS  $.010 \pm .001$ ". 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 ( $\frac{\text{inch}}{\text{mm}}$ )

A	B	C	D	E	F	G	H	J
.063	.031	.024	.018	.028	.006	.012	.100	.071
1.60	0.79	0.61	0.46	0.71	0.15	0.30	2.54	1.80
K	L	M	N	P	Q	R	wt	
.032	.028	.012	.049	.026	.016	.014	grams	
0.81	0.71	0.30	1.24	0.66	0.41	0.36	0.005	

### 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- 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](http://www.minicircuits.com/MCLStore/terms.jsp)

