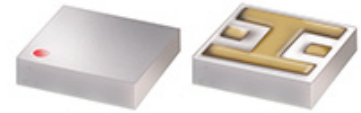


Ceramic

Bandpass Filter

BFTC-615+

50Ω 450 to 780 MHz



CASE STYLE: FR933-1

The Big Deal

- LTCC construction
- Temperature stable from -40°C to +85°C
- Small size (0.150 x 0.150 x 0.059")

Product Overview

The BFTC-615+ LTCC bandpass filter covers the 450 to 780 MHz passband with 25 dB upper/lower stopband rejection. This model handles up to 3W RF input power and provides a wide operating temperature range from -40 to +85°C. Utilizing LTCC multi-layer construction, the filter achieves excellent repeatability of performance and comes in a tiny ceramic package saving space in dense PCB layouts.

Key Features

Feature	Advantages
LTCC Construction	Provides a rugged package well suited for tough environments such as high humidity and temperature extremes.
Tiny size (0.150 x 0.150 x 0.059")	Saves space in dense circuit boards and minimizes the effects of parasitics.
Wide operating temperature range, -40 to +85°C	Enables reliable performance in extreme environments

Notes

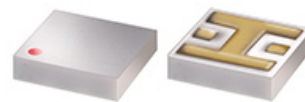
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Ceramic Bandpass Filter

50Ω 450 to 780 MHz

BFTC-615+



CASE STYLE: FR933-1

Features

- Good VSWR 1.5 typ. @ passband
- Small size
- Hermetically sealed
- Temperature stable
- LTCC construction

Applications

- Test and measurement
- Harmonic rejection
- Transmitters / Receivers

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

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit	
Pass Band	Center Frequency	—	—	615	—	MHz	
	Insertion Loss	F1-F2	450-780	—	4.8	6.0	dB
Stop Band, Lower	VSWR	F1-F2	450-780	—	1.5	—	:1
	Insertion Loss	F3-F4	1-320	25	35	—	dB
Stop Band, Upper	VSWR	F3-F4	1-320	—	16	—	:1
	Insertion Loss	F5-F6	970-2400	25	30	—	dB
Stop Band, Upper	VSWR	F5-F6	970-2400	—	10	—	:1

1. Measured on Mini-Circuits Characterization Test Board TB-233

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.

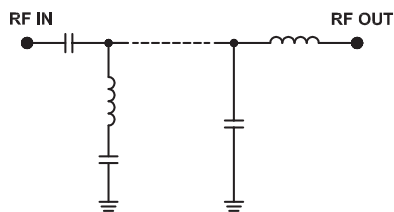
Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input*	3W max @ +25°C

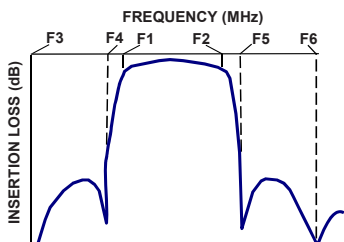
*Passband rating, derate linearly to 1.5W at 85°C ambient

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

Functional Schematic



Typical Frequency Response

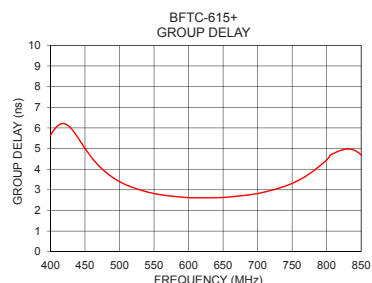
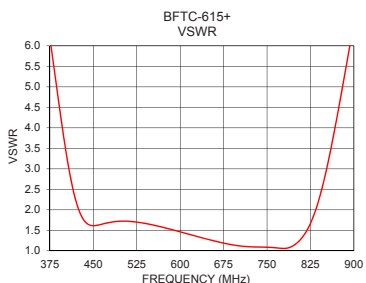
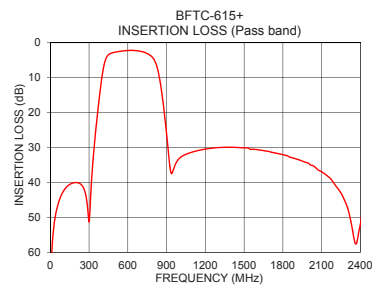
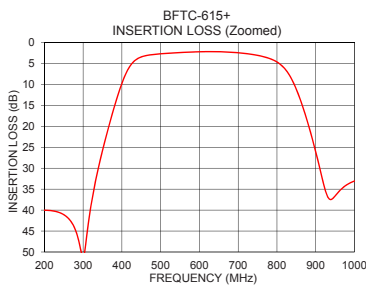


Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Group Delay (nsec)
1	80.53	5212.99	450	5.01
10	61.26	6241.66	460	4.55
100	42.60	105.12	470	4.17
290	47.86	13.75	480	3.85
320	39.10	11.04	490	3.60
340	29.67	9.37	500	3.40
360	22.17	7.62	510	3.23
370	18.74	6.67	550	2.82
450	3.43	1.61	570	2.72
615	2.18	1.40	580	2.68
780	3.78	1.06	600	2.62
800	4.64	1.17	615	2.61
850	11.14	2.82	620	2.62
880	19.29	4.97	650	2.63
920	33.64	8.18	680	2.73
970	34.66	12.30	700	2.82
1000	33.06	14.85	720	2.98
1500	30.11	55.18	740	3.18
2000	34.51	78.83	760	3.47
2400	51.98	88.43	780	3.89

+RoHS Compliant

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



Notes

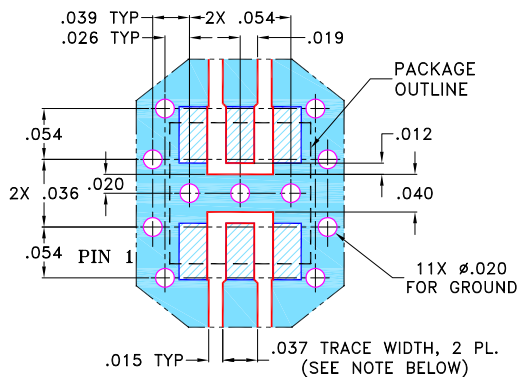
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Pad Connections

RF IN	2
RF OUT	5
GROUND	1,3,4,6

Demo Board MCL P/N: TB-233
Suggested PCB Layout (PL-112)

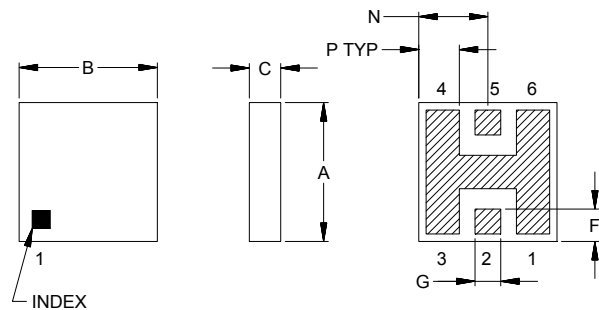


NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS $0.020" \pm 0.0015"$; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.

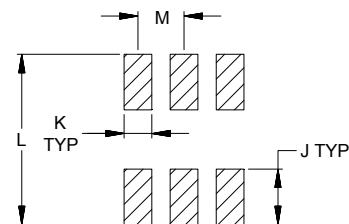
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

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

Outline Drawing



PCB Land Pattern



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

Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H
.150	.150	.059	--	--	.035	.028	--
3.81	3.81	1.50	--	--	.89	.71	--
J	K	L	M	N	P		Wt.
.060	.030	.184	.050	.075	.044		grams
1.52	.76	4.67	1.27	1.91	1.12		0.15

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