Surface Mount

Bandpass Filter

RBP-140+

50Ω 130 to 150 MHz

Generic photo used for illustration purposes only
CASE STYLE: GP731

The Big Deal

- Good VSWR, 1.35:1 typical
- High rejection, 40 dB typical
- Linear phase
- Symmetrical band pass response
- Small size 0.35" x 0.35" x 0.10"

Product Overview

The RBP-140+ is a narrow-band bandpass filter in a small shielded package (size of 0.35" x 0.35" x .10") fabricated using SMT technology. The RBP-140+ offers a symmetrical bandpass and linear phase characteristics. In addition it has repeatable performance across production lots and consistent performance across temperature.

Key Features

Feature	Advantages
Small size, 0.35” x 0.35” x 0.10”	The unique surface mount package enables the RBP-140+ to be used in compact designs.
More than 40 dB rejection up to 3000MHz	This enables the filter to attenuate spurious signals and reject harmonics for broad band of frequency.
Symmetrical band pass response	Uniform passband insertion loss.
Minimal phase deviation over attenuation range, ± 7deg typical at Fc ±15 MHz	Can provide low signal distortion over the attenuation range
Good VSWR, 1.35:1 typical in Passband	The RBP-140+ has very good return loss for a narrow bandwidth which provides good matching when used with other devices.

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Features

- High rejection, 40dB typical
- Linear phase, up to ±7deg typical over Fc ±15MHz
- Good VSWR, 1.35:1 typical in passband
- Small size 0.35" x 0.35" x 0.1"
- Shielded case
- Aqueous washable

Applications

- Mobile application
- Space research
- Defence system
- Satellite

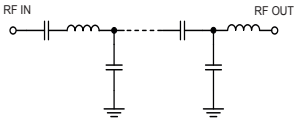
Electrical Specifications at 25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Center Frequency	Fc			140		MHz
	Insertion Loss	F1-F2	130-150		2.6	3.5	dB
	VSWR	F1-F2	130-150		1.35	1.7	:1
Stop Band, Lower	Insertion Loss	DC-F3	DC-100	20	29		dB
	VSWR	DC-F3	DC-100		25		:1
Stop Band, Upper	Insertion Loss	F4-F5	178-3000	20	27		dB
	VSWR	F4-F5	178-3000		13		:1
Maximum Deviation from Linear Phase		Fc ±15MHz	125-155		±9	±14	deg

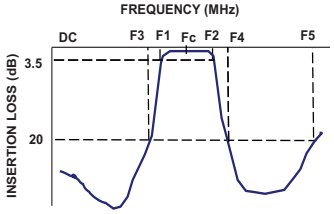
Maximum Ratings	
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	0.3W max.

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

Functional Schematic



Typical Frequency Response



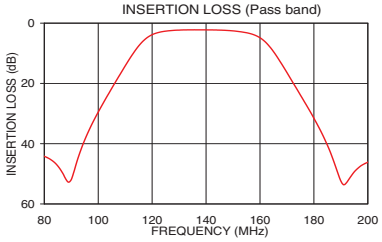
Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Deviation from Linear Phase (deg)
1	81.53	7360.92	125.00	3.42
60	44.27	579.06	126.00	2.16
100	29.51	31.03	128.00	0.35
109	15.66	10.56	130.00	-0.73
114	8.73	4.20	132.00	-1.24
120	3.83	1.44	134.24	-0.97
125	2.66	1.16	134.44	-0.93
130	2.31	1.22	136.24	-0.62
140	2.23	1.34	138.24	-0.12
150	2.57	1.11	140.00	0.29
161	5.47	2.56	142.24	0.96
166	10.71	6.05	144.24	1.24
178	28.39	22.29	146.04	1.21
180	31.55	25.19	146.84	1.11
182	34.88	28.03	147.04	1.08
190	52.41	40.41	148.00	0.54
200	46.17	57.91	150.00	-0.30
600	85.00	289.53	151.00	-0.91
2200	65.48	31.60	153.00	-2.68
3000	55.39	26.33	155.00	-5.42

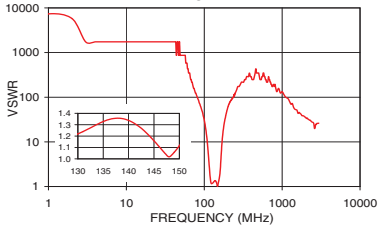
+RoHS Compliant
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

RBP-140+
INSERTION LOSS (Full band)

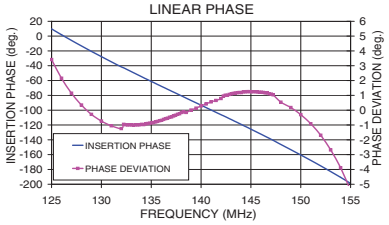
RBP-140+
INSERTION LOSS (Pass band)



RBP-140+
VSWR



RBP-140+
INSERTION PHASE & DEVIATION FROM LINEAR PHASE

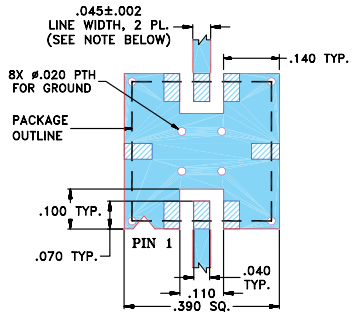


Notes
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's 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

Pad Connections

INPUT	2
OUTPUT	6
GROUND	1,3,4,5,7,8

Demo Board MCL P/N: TB-332
Suggested PCB Layout (PL-176)

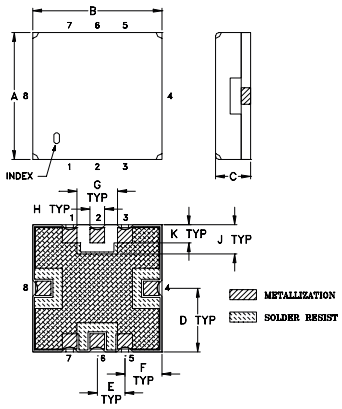


NOTES: 1. TRACE WIDTH IS SHOWN FOR FR4 WITH DIELECTRIC THICKNESS .025" ± .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

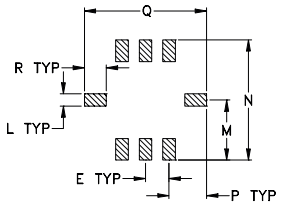
DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Outline Drawing



PCB Land Pattern



Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H	J
.350	.350	.100	.175	.075	.100	.110	.040	.080
8.89	8.89	2.54	4.45	1.91	2.54	2.79	1.02	2.03

K	L	M	N	P	Q	R	wt
.050	.040	.195	.390	.120	.390	.070	grams
1.27	1.02	4.95	9.91	3.05	9.91	1.78	0.25

Note: Please refer to case style drawing for details