

Surface Mount Bandpass Filter

BPF-A1600+

50Ω 1400 to 1800 MHz



Generic photo used for illustration purposes only
CASE STYLE: HQ1157

The Big Deal

- Wide bandwidth
- Better rejection
- Miniature shielded package

Product Overview

The BPF-A1600+ is a 50Ω bandpass filter fabricated using SMT technology. This bandpass filter covers from 1400-1800 MHz. This filter is built with high Q capacitors and air-coil inductors for superior performance. This filter is developed for square kilometer array telescope systems for radio astronomy. It has repeatable performance across lots and consistent performance across temperature.

Key Features

| Feature | Advantages |
|--------------------|--|
| Low insertion loss | Can be used in high performance applications such as radio astronomy. |
| Good rejection | This enables the filter to attenuate spurious signals and reject harmonics for broad frequency band. |
| Shielded case | Reduced interference with and from the surrounding components. |

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



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Features

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Applications

- Radio telescope applications
- Public cellular networks (GSM)
- International mobile telecommunication
- Weather instruments / Radar / Satellite

Electrical Specifications at 25°C

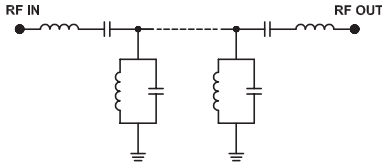
| Parameter | F# | Frequency (MHz) | Min. | Typ. | Max. | Unit | |
|------------------|------------------|-----------------|-----------|------|------|------|----|
| Pass Band | Center Frequency | — | — | 1600 | — | MHz | |
| | Insertion Loss | F1-F2 | 1400-1800 | — | 3.0 | 4.0 | dB |
| | VSWR | F1-F2 | 1400-1800 | — | 1.5 | 1.9 | :1 |
| Stop Band, Lower | Insertion Loss | DC-F3 | DC-1220 | 20 | 30 | — | dB |
| | VSWR | DC-F3 | DC-1220 | — | 11 | — | :1 |
| Stop Band, Upper | Insertion Loss | F4-F5 | 1980-3300 | 20 | 30 | — | dB |
| | VSWR | F4-F5 | 1980-3300 | — | 5.0 | — | :1 |

Maximum Ratings

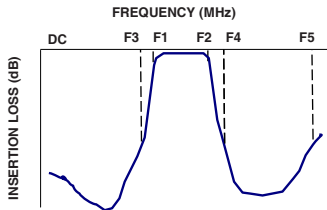
| | |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| RF Power Input | 1 W |

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

Functional Schematic



Typical Frequency Response

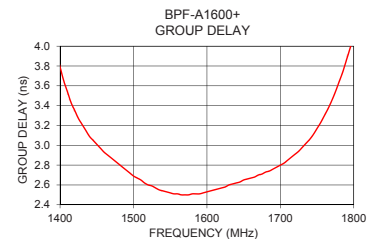
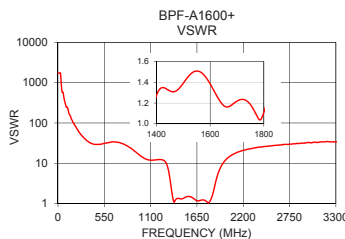
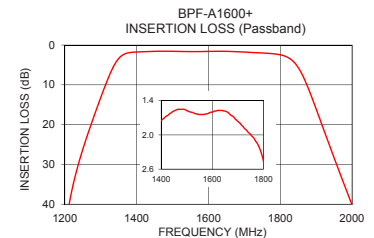
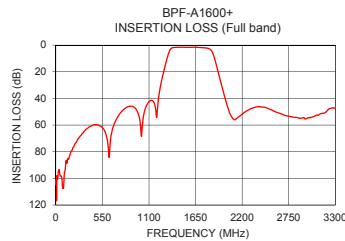


Typical Performance Data at 25°C

| Frequency (MHz) | Insertion Loss (dB) | VSWR (:1) | Frequency (MHz) | Group Delay (nsec) |
|-----------------|---------------------|-----------|-----------------|--------------------|
| 1 | 102.63 | 1737.18 | 1400 | 3.79 |
| 750 | 51.91 | 31.60 | 1420 | 3.35 |
| 1220 | 36.36 | 12.35 | 1440 | 3.09 |
| 1280 | 18.19 | 10.50 | 1460 | 2.93 |
| 1315 | 9.62 | 6.26 | 1480 | 2.81 |
| 1340 | 4.67 | 2.92 | 1500 | 2.69 |
| 1370 | 2.12 | 1.21 | 1520 | 2.60 |
| 1400 | 1.75 | 1.27 | 1540 | 2.54 |
| 1500 | 1.57 | 1.39 | 1560 | 2.51 |
| 1600 | 1.60 | 1.38 | 1600 | 2.53 |
| 1700 | 1.76 | 1.22 | 1620 | 2.57 |
| 1800 | 2.45 | 1.11 | 1630 | 2.60 |
| 1845 | 5.02 | 1.96 | 1650 | 2.65 |
| 1875 | 10.23 | 3.61 | 1670 | 2.70 |
| 1930 | 23.49 | 7.83 | 1690 | 2.76 |
| 1980 | 35.53 | 11.38 | 1700 | 2.80 |
| 2200 | 51.78 | 20.95 | 1730 | 2.98 |
| 2760 | 53.52 | 29.96 | 1760 | 3.30 |
| 3010 | 54.45 | 32.18 | 1780 | 3.64 |
| 3300 | 47.40 | 34.07 | 1800 | 4.11 |

+RoHS Compliant

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



Notes

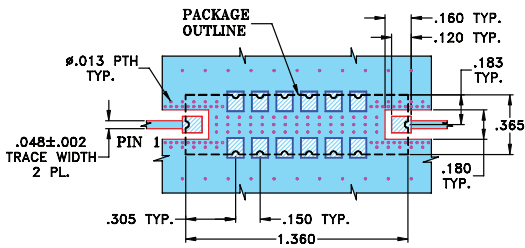
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Pad Connections

| | |
|--------|------------------------------|
| INPUT | 1 |
| OUTPUT | 8 |
| GROUND | 2,3,4,5,6,7,9,10,11,12,13,14 |

Demo Board MCL P/N: TB-363+
Suggested PCB Layout (PL-227)

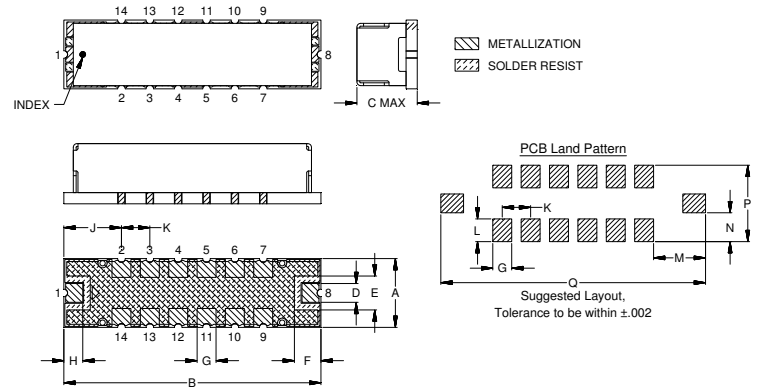


NOTE:

- 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.
- 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 SOLDERMASK

Outline Drawing



Outline Dimensions (inch)

| A | B | C | D | E | F | G | H |
|------|-------|------|------|------|-------|-------|-------|
| .365 | 1.360 | .35 | .100 | .180 | .140 | .100 | .100 |
| 9.27 | 34.54 | 8.89 | 2.54 | 4.57 | 3.56 | 2.54 | 2.54 |
| J | K | L | M | N | P | Q | Wt. |
| .305 | .150 | .120 | .275 | .152 | .405 | 1.400 | grams |
| 7.75 | 3.81 | 3.05 | 6.99 | 3.86 | 10.29 | 35.56 | 4.0 |

Note: Please refer to case style drawing for details

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