



LUMPED LC SURFACE MOUNT

High Pass Filter

RHP-27+

Mini-Circuits

50Ω

50 to 2000 MHz

KEY FEATURES

- Low Insertion Loss, 0.6 dB Typ.
- High Rejection 80 dB Typ.
- Miniature Shielded Case
- Aqueous Washable



Generic photo used for illustration purposes only

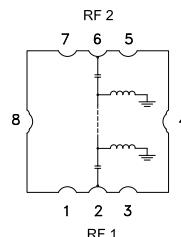
APPLICATIONS

- Transmitters / Receivers
- Sub-Harmonic Rejection
- Military Communications

PRODUCT OVERVIEW

RHP-27+ is a 50Ω high pass filter fabricated using SMT technology. It covers 50-2000 MHz and is built with high-Q capacitors and inductors for superior performance. It has repeatable performance across lots and consistent performance across temperatures. The filter comes with a shielded case in a miniature package with 0.35" SQ. It is ideal for circuit board layouts.

FUNCTIONAL DIAGRAM



ELECTRICAL SPECIFICATIONS^{1,2,3} AT +25°C

| Parameter | | F# | Frequency (MHz) | Min. | Typ. | Max. | Units |
|-----------|----------------|-------|-----------------|------|------|------|-------|
| Passband | Insertion Loss | F3-F4 | 50 - 2000 | — | 0.6 | 1 | dB |
| | Return Loss | F4-F5 | 50 - 2000 | 10 | 20 | — | dB |
| Stopband | Rejection | DC-F1 | DC - 10 | 60 | 80 | — | dB |
| | | F1-F2 | 10 - 18 | 20 | 30 | — | dB |
| | Freq. Cut-Off | Fc | 27 | — | 3 | — | dB |

1. Tested in Evaluation Board P/N TB-RHP-27+.

2. This filter is bi-directional RF1 and RF2 ports may be interchanged, see S-Parameters for actual performance.

3. This component should not be used as a DC block. In applications where DC voltage and/or current is present at either the input or output ports, external DC blocking capacitors are required.

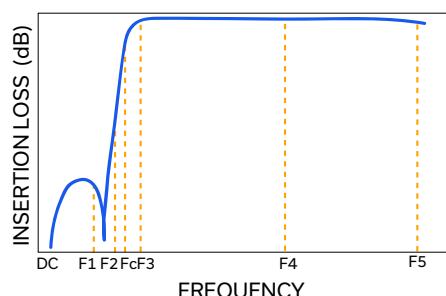
ABSOLUTE MAXIMUM RATINGS⁴

| Parameter | Ratings |
|--------------------------|-----------------|
| Operating Temperature | -40°C to +85°C |
| Storage Temperature | -55°C to +100°C |
| Input Power ⁵ | 1 W |

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

5. Power rating applies only to signals within the passband.

TYPICAL FREQUENCY RESPONSE AT +25°C



REV. OR
ECO-024893
RHP-27+
EDU5070
URJ
250318

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LUMPED LC SURFACE MOUNT

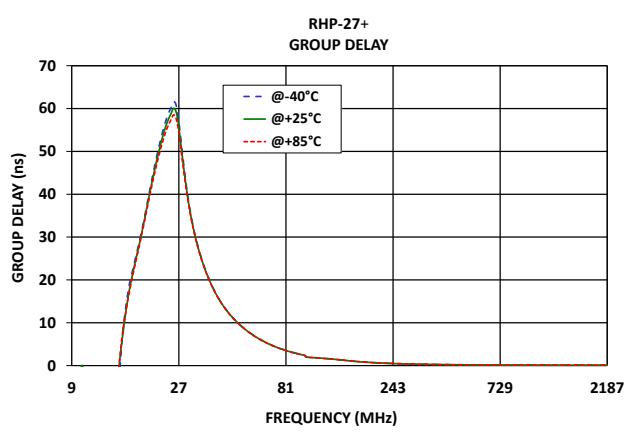
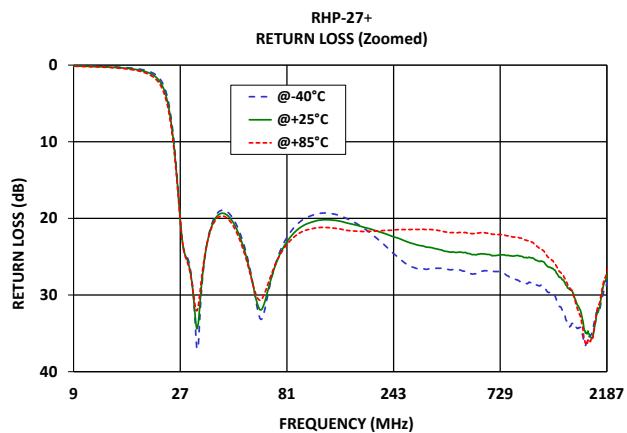
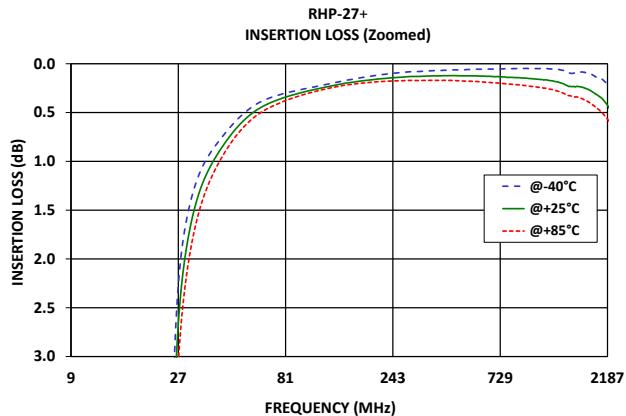
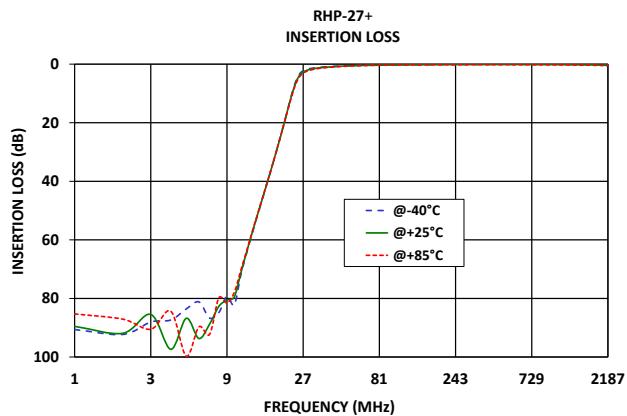
High Pass Filter

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50Ω

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TYPICAL PERFORMANCE GRAPHS





LUMPED LC SURFACE MOUNT

High Pass Filter

RHP-27+

50Ω

50 to 2000 MHz

FUNCTIONAL DIAGRAM

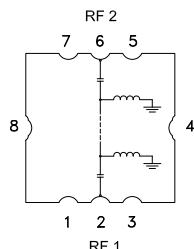
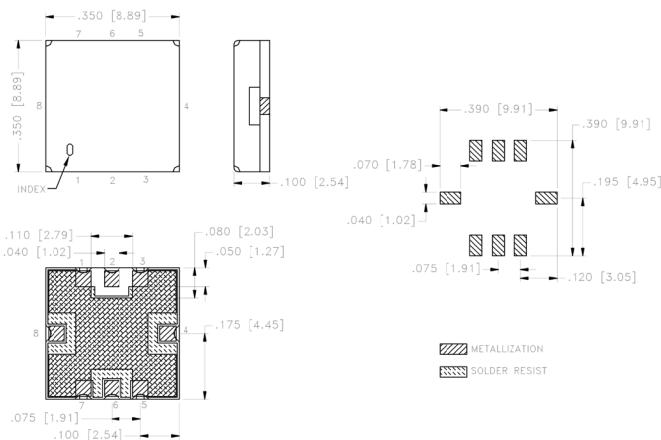


Figure 1. RHP-27+ Functional Diagram

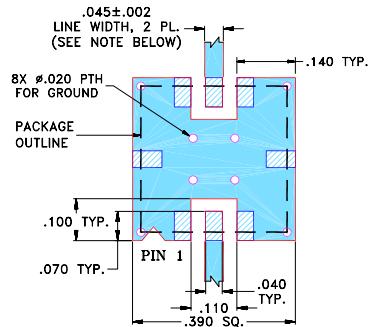
CASE STYLE DRAWING



PAD DESCRIPTION

| Function | Pad Number | Description |
|------------------|-------------|--|
| RF1 ² | 2 | Connects to RF Input Port |
| RF2 ² | 6 | Connects to RF Output Port |
| GROUND | 1,3,4,5,7,8 | Connects to Ground on PCB, (See drawing PL-176) |
| NC | — | No connection, not used internally. See drawing PL-176 for connection to PCB |

SUGGESTED PCB LAYOUT (PL-176)

SUGGESTED MOUNTING CONFIGURATION
FOR GP731 CASE STYLE, "qf" PIN CONNECTION.

- 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.

- [Light Blue Box] DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
[Hatched Box] DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Figure 2. Suggested PCB Layout PL-176

PRODUCT MARKING*: RHP-27

*Marking may contain other features or characters for internal lot control.



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High Pass Filter

RHP-27+

Mini-Circuits

50Ω

50 to 2000 MHz

ADDITIONAL DETAILED INFORMATION IS AVAILABLE ON OUR DASHBOARD.

[CLICK HERE](#)

| | |
|---------------------------------|---|
| Performance Data and Graphs | Data Graphs S-Parameter (S2P Files) Data Set (.zip file) De-embedded to device pads |
| Case Style | GP731 Lead Finish: Gold over Nickel |
| RoHS Status | Compliant |
| Tape and Reel | TR-F78 |
| Suggested Layout for PCB Design | PL-176 |
| Evaluation Board | TB-RHP-27+ |
| | Gerber File |
| Environmental Rating | ENV03T2 |

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-Circuits' 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/terms/viewterm.html

Surface mount High Pass Filter

RHP-27+

Typical Performance Data

| FREQ. (MHz) | INSERTION LOSS (dB) | | | INPUT RETURN LOSS (dB) | | | OUTPUT RETURN LOSS (dB) | | |
|----------------|------------------------|--------|--------|---------------------------|--------|--------|----------------------------|--------|--------|
| | @-40°C | @+25°C | @+85°C | @-40°C | @+25°C | @+85°C | @-40°C | @+25°C | @+85°C |
| | 90.61 | 89.53 | 85.28 | 0.05 | 0.05 | 0.05 | 0.06 | 0.06 | 0.06 |
| 5 | 83.62 | 86.79 | 99.71 | 0.06 | 0.07 | 0.07 | 0.06 | 0.06 | 0.07 |
| 10 | 82.20 | 79.51 | 77.91 | 0.13 | 0.15 | 0.18 | 0.13 | 0.16 | 0.19 |
| 18 | 31.36 | 31.33 | 31.29 | 0.56 | 0.69 | 0.83 | 0.59 | 0.73 | 0.89 |
| 26 | 2.96 | 3.41 | 3.86 | 13.74 | 14.17 | 14.57 | 16.12 | 16.94 | 17.69 |
| 27 | 2.27 | 2.67 | 3.07 | 20.00 | 20.11 | 20.24 | 29.43 | 30.85 | 31.54 |
| 28 | 1.90 | 2.24 | 2.59 | 24.07 | 24.12 | 24.21 | 29.42 | 29.24 | 28.93 |
| 29 | 1.67 | 1.97 | 2.27 | 25.05 | 25.38 | 25.66 | 24.17 | 24.19 | 24.19 |
| 30 | 1.50 | 1.76 | 2.03 | 26.73 | 27.11 | 27.31 | 23.37 | 23.30 | 23.20 |
| 31 | 1.36 | 1.60 | 1.84 | 30.50 | 30.51 | 30.04 | 23.91 | 23.62 | 23.35 |
| 33 | 1.17 | 1.36 | 1.56 | 33.16 | 31.50 | 29.92 | 24.47 | 23.94 | 23.47 |
| 35 | 1.03 | 1.20 | 1.36 | 24.51 | 24.47 | 24.33 | 22.30 | 22.16 | 22.00 |
| 36 | 0.98 | 1.13 | 1.29 | 22.49 | 22.61 | 22.67 | 21.17 | 21.19 | 21.18 |
| 37 | 0.93 | 1.08 | 1.22 | 21.12 | 21.34 | 21.50 | 20.27 | 20.41 | 20.51 |
| 38 | 0.89 | 1.03 | 1.16 | 20.18 | 20.46 | 20.69 | 19.62 | 19.84 | 20.02 |
| 39 | 0.86 | 0.98 | 1.10 | 19.56 | 19.89 | 20.17 | 19.18 | 19.45 | 19.70 |
| 40 | 0.82 | 0.94 | 1.05 | 19.18 | 19.53 | 19.85 | 18.90 | 19.23 | 19.52 |
| 41 | 0.79 | 0.90 | 1.01 | 18.98 | 19.37 | 19.70 | 18.78 | 19.14 | 19.48 |
| 50 | 0.56 | 0.64 | 0.71 | 21.96 | 22.47 | 22.93 | 22.02 | 22.62 | 23.28 |
| 100 | 0.25 | 0.28 | 0.31 | 19.84 | 20.68 | 21.49 | 19.94 | 20.79 | 21.61 |
| 200 | 0.12 | 0.16 | 0.19 | 22.37 | 21.56 | 21.67 | 22.47 | 21.66 | 21.76 |
| 300 | 0.08 | 0.13 | 0.17 | 26.41 | 23.33 | 21.43 | 26.60 | 23.40 | 21.47 |
| 400 | 0.07 | 0.12 | 0.17 | 26.51 | 24.14 | 21.65 | 26.56 | 24.21 | 21.69 |
| 440 | 0.06 | 0.12 | 0.17 | 26.71 | 24.40 | 21.86 | 26.65 | 24.46 | 21.92 |
| 460 | 0.06 | 0.12 | 0.17 | 26.77 | 24.45 | 21.89 | 26.61 | 24.44 | 21.92 |
| 480 | 0.06 | 0.12 | 0.17 | 26.73 | 24.39 | 21.83 | 26.62 | 24.43 | 21.90 |
| 500 | 0.06 | 0.12 | 0.18 | 26.90 | 24.46 | 21.86 | 26.72 | 24.46 | 21.89 |
| 520 | 0.06 | 0.12 | 0.18 | 27.09 | 24.57 | 21.92 | 26.90 | 24.53 | 21.95 |
| 540 | 0.06 | 0.12 | 0.18 | 27.24 | 24.69 | 21.98 | 27.01 | 24.59 | 21.97 |
| 560 | 0.06 | 0.12 | 0.18 | 27.22 | 24.72 | 21.97 | 27.01 | 24.63 | 21.96 |
| 580 | 0.06 | 0.12 | 0.18 | 27.07 | 24.66 | 21.91 | 26.93 | 24.62 | 21.90 |
| 600 | 0.06 | 0.13 | 0.19 | 26.88 | 24.61 | 21.85 | 26.79 | 24.56 | 21.85 |
| 620 | 0.06 | 0.13 | 0.19 | 26.81 | 24.63 | 21.87 | 26.70 | 24.55 | 21.84 |
| 640 | 0.06 | 0.13 | 0.19 | 26.82 | 24.70 | 21.92 | 26.64 | 24.59 | 21.84 |
| 660 | 0.06 | 0.13 | 0.19 | 26.85 | 24.76 | 21.97 | 26.64 | 24.64 | 21.88 |
| 680 | 0.05 | 0.13 | 0.20 | 26.92 | 24.85 | 22.07 | 26.73 | 24.72 | 21.96 |
| 700 | 0.05 | 0.13 | 0.20 | 26.92 | 24.84 | 22.10 | 26.64 | 24.62 | 21.94 |
| 720 | 0.05 | 0.13 | 0.20 | 26.93 | 24.78 | 22.10 | 26.65 | 24.61 | 21.95 |
| 740 | 0.05 | 0.13 | 0.20 | 27.02 | 24.76 | 22.11 | 26.78 | 24.64 | 22.00 |
| 760 | 0.05 | 0.14 | 0.20 | 27.17 | 24.76 | 22.16 | 26.88 | 24.61 | 22.04 |
| 780 | 0.05 | 0.14 | 0.21 | 27.44 | 24.85 | 22.27 | 27.13 | 24.69 | 22.16 |
| 800 | 0.05 | 0.14 | 0.21 | 27.63 | 24.86 | 22.33 | 27.32 | 24.75 | 22.24 |
| 820 | 0.05 | 0.14 | 0.21 | 27.82 | 24.90 | 22.39 | 27.36 | 24.72 | 22.25 |
| 840 | 0.05 | 0.14 | 0.21 | 27.95 | 24.91 | 22.44 | 27.34 | 24.64 | 22.23 |
| 860 | 0.05 | 0.14 | 0.21 | 27.99 | 24.86 | 22.45 | 27.43 | 24.63 | 22.29 |
| 880 | 0.05 | 0.14 | 0.22 | 28.09 | 24.86 | 22.49 | 27.56 | 24.70 | 22.37 |
| 900 | 0.05 | 0.14 | 0.22 | 28.23 | 24.93 | 22.56 | 27.69 | 24.77 | 22.44 |
| 950 | 0.05 | 0.15 | 0.22 | 28.48 | 25.10 | 22.83 | 27.90 | 24.91 | 22.71 |
| 980 | 0.05 | 0.15 | 0.23 | 28.32 | 25.05 | 22.89 | 27.74 | 24.85 | 22.73 |
| 1000 | 0.05 | 0.15 | 0.23 | 28.39 | 25.14 | 23.03 | 27.78 | 24.88 | 22.84 |
| 1100 | 0.05 | 0.16 | 0.24 | 28.79 | 25.61 | 23.95 | 28.05 | 25.32 | 23.69 |
| 1200 | 0.05 | 0.17 | 0.26 | 29.67 | 26.35 | 25.12 | 28.51 | 25.91 | 24.65 |
| 1300 | 0.06 | 0.18 | 0.28 | 30.60 | 27.11 | 26.24 | 29.12 | 26.35 | 25.38 |
| 1400 | 0.07 | 0.21 | 0.30 | 32.12 | 28.08 | 27.52 | 30.06 | 26.98 | 26.23 |
| 1500 | 0.10 | 0.23 | 0.33 | 34.04 | 29.31 | 29.13 | 29.79 | 27.29 | 26.77 |
| 1600 | 0.09 | 0.23 | 0.34 | 34.25 | 31.01 | 31.42 | 30.21 | 28.17 | 27.56 |
| 1700 | 0.08 | 0.24 | 0.36 | 35.17 | 33.17 | 34.17 | 31.15 | 28.90 | 27.91 |
| 1800 | 0.10 | 0.26 | 0.39 | 35.46 | 34.69 | 35.86 | 30.65 | 28.62 | 27.34 |
| 1900 | 0.12 | 0.30 | 0.43 | 34.33 | 35.21 | 35.06 | 28.06 | 27.01 | 25.78 |
| 2000 | 0.14 | 0.33 | 0.47 | 32.34 | 32.21 | 31.64 | 26.52 | 25.57 | 24.47 |



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REV.OR

RHP-27+

250304

Page 1 of 2

IF/RF MICROWAVE COMPONENTS

Surface mount High Pass Filter

RHP-27+

Typical Performance Data

| FREQ. (MHz) | GROUP DELAY | | |
|----------------|-------------|--------|--------|
| | (nsec) | | |
| | @-40°C | @+25°C | @+85°C |
| 50 | 9.76 | 9.73 | 9.70 |
| 100 | 1.98 | 1.97 | 1.96 |
| 180 | 0.84 | 0.83 | 0.83 |
| 200 | 0.69 | 0.69 | 0.68 |
| 280 | 0.40 | 0.39 | 0.38 |
| 300 | 0.36 | 0.35 | 0.34 |
| 380 | 0.26 | 0.25 | 0.25 |
| 400 | 0.25 | 0.24 | 0.23 |
| 480 | 0.20 | 0.19 | 0.19 |
| 500 | 0.20 | 0.19 | 0.18 |
| 580 | 0.17 | 0.16 | 0.16 |
| 600 | 0.17 | 0.16 | 0.15 |
| 650 | 0.16 | 0.15 | 0.14 |
| 680 | 0.15 | 0.15 | 0.14 |
| 700 | 0.15 | 0.14 | 0.14 |
| 780 | 0.14 | 0.13 | 0.13 |
| 790 | 0.14 | 0.13 | 0.13 |
| 800 | 0.14 | 0.13 | 0.13 |
| 820 | 0.14 | 0.13 | 0.12 |
| 830 | 0.14 | 0.13 | 0.12 |
| 840 | 0.14 | 0.13 | 0.12 |
| 850 | 0.14 | 0.13 | 0.12 |
| 880 | 0.14 | 0.13 | 0.12 |
| 900 | 0.13 | 0.12 | 0.12 |
| 920 | 0.13 | 0.12 | 0.12 |
| 940 | 0.13 | 0.12 | 0.12 |
| 980 | 0.13 | 0.12 | 0.11 |
| 1000 | 0.13 | 0.12 | 0.11 |
| 1100 | 0.12 | 0.12 | 0.11 |
| 1200 | 0.12 | 0.11 | 0.11 |
| 1300 | 0.12 | 0.11 | 0.11 |
| 1400 | 0.12 | 0.11 | 0.10 |
| 1500 | 0.11 | 0.10 | 0.10 |
| 1600 | 0.12 | 0.11 | 0.10 |
| 1650 | 0.12 | 0.11 | 0.10 |
| 1700 | 0.12 | 0.11 | 0.10 |
| 1750 | 0.12 | 0.11 | 0.10 |
| 1800 | 0.12 | 0.11 | 0.10 |
| 1900 | 0.11 | 0.11 | 0.10 |
| 2000 | 0.12 | 0.11 | 0.10 |



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IF/RF MICROWAVE COMPONENTS



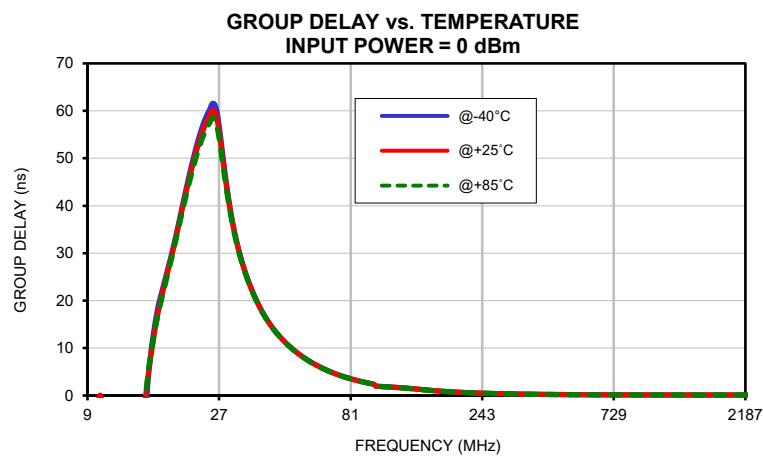
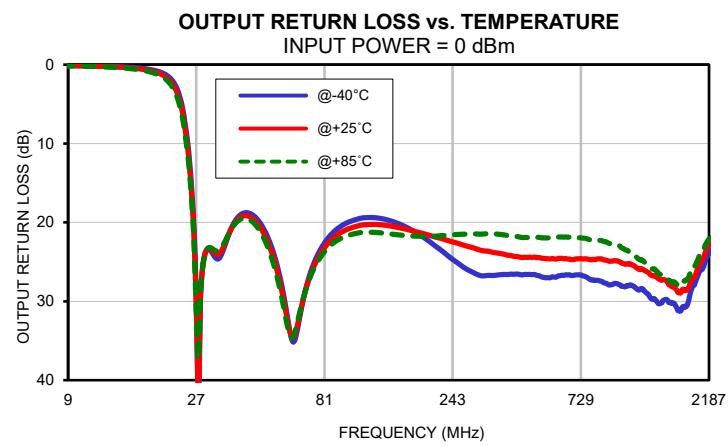
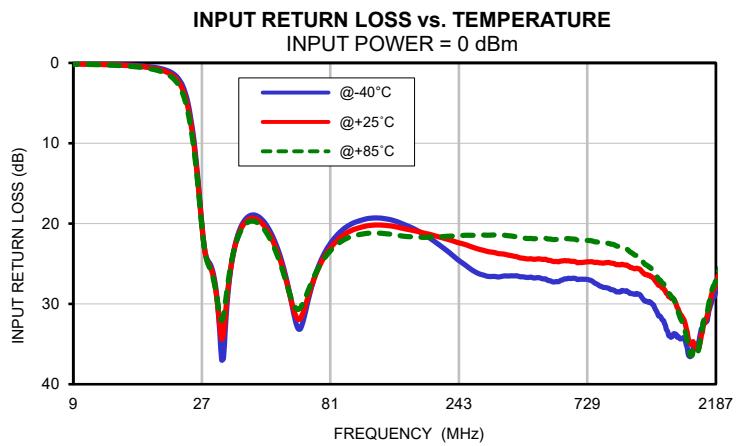
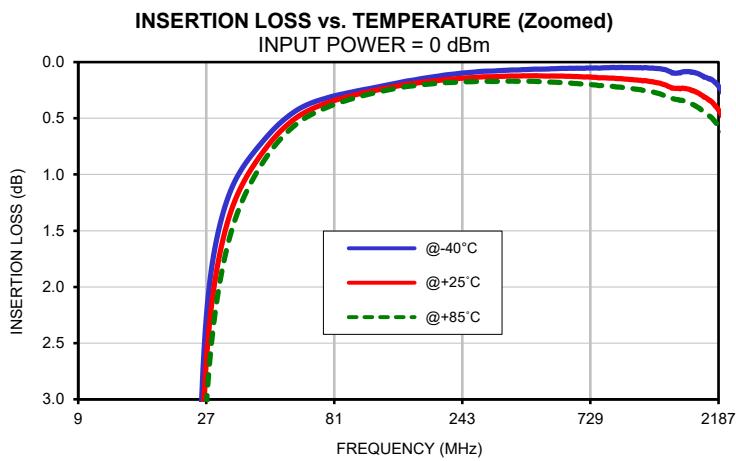
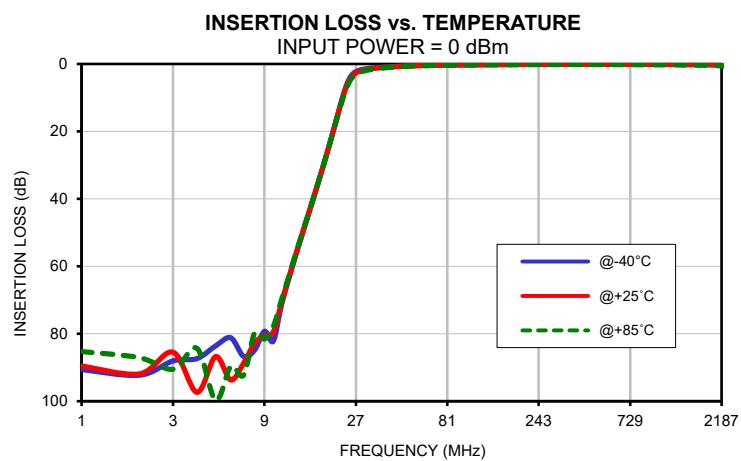
REV. OR
RHP-27+
250304

Page 2 of 2

Surface mount High Pass Filter

RHP-27+

Typical Performance Curves

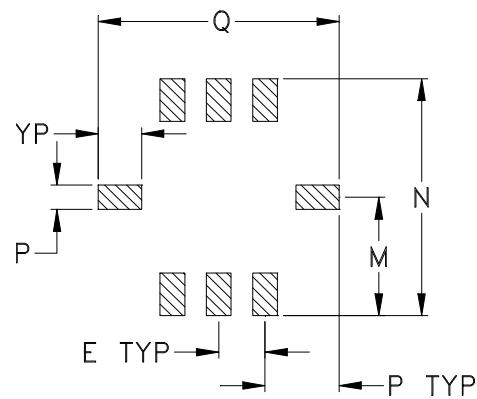
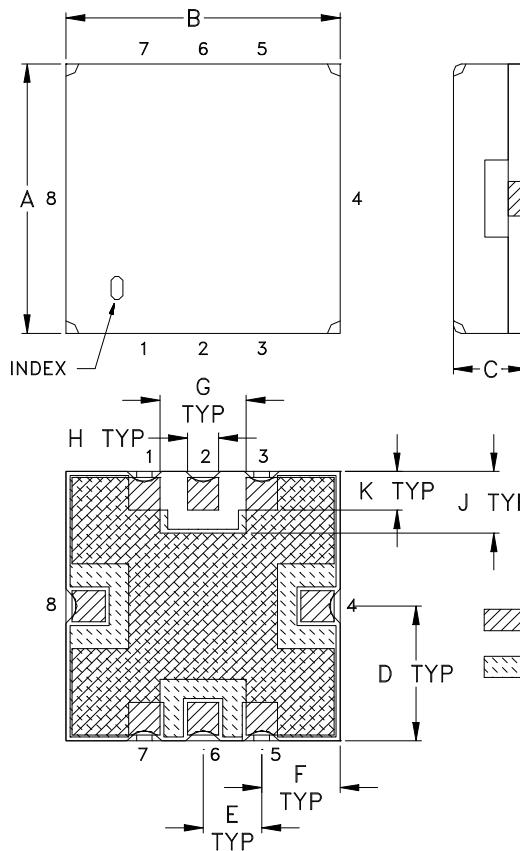


Case Style

GP

Outline Dimensions

GP731



| CASE # | A | B | C | D | E | F | G | H | J | K | L | M |
|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| GP731 | .350 (8.89) | .350 (8.89) | .100 (2.54) | .175 (4.45) | .075 (1.91) | .100 (2.54) | .110 (2.79) | .040 (1.02) | .080 (2.03) | .050 (1.27) | .040 (1.02) | .195 (4.95) |

| CASE # | N | P | Q | R | WT. GRAM | |
|--------|----------------|----------------|----------------|----------------|----------|--------------|
| GP731 | .390 (9.91) | .120 (3.05) | .390 (9.91) | .070 (1.78) | .4 | +0.3 -0.0 |

Dimensions are in inches (mm). Tolerances: 2 Pl. $\pm .03$; 3Pl. $\pm .015$

Notes:

1. Case material: Nickel-Silver alloy.
2. Base: Printed wiring laminate.
3. Termination finish:

For RoHS Case Styles: 3-5 μ inch (.08-.13 microns) Gold over 120-240 μ inch (3.05-6.10 microns) Nickel plate.
For RoHS-5 Case Styles: Tin-Lead plate.

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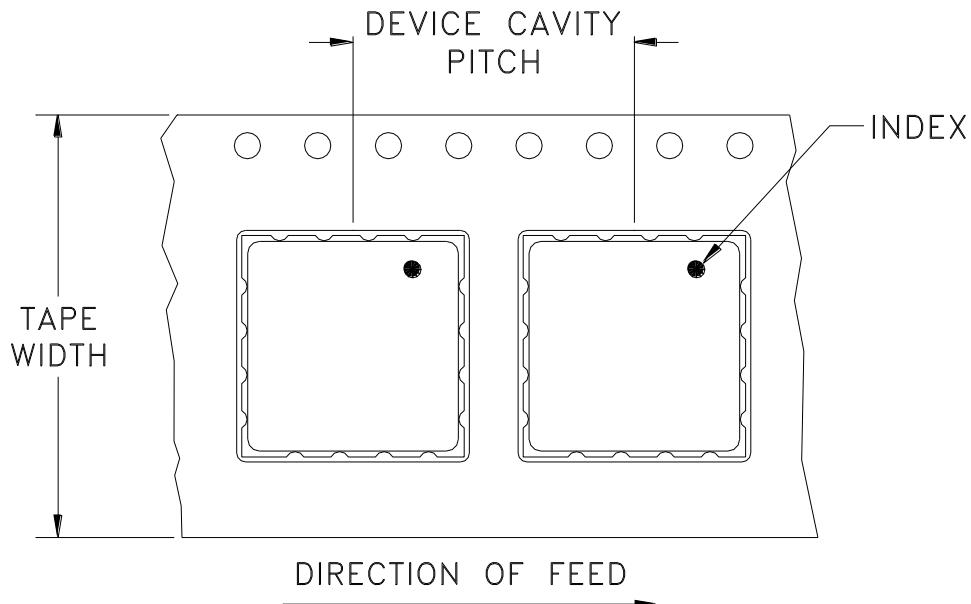


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RF/I/F MICROWAVE COMPONENTS

Tape & Reel Packaging TR-F78

DEVICE ORIENTATION IN T&R



| Tape Width, mm | Device Cavity Pitch, mm | Reel Size, inches | Devices per Reel see note |
|-------------------|----------------------------|----------------------|------------------------------|
| 16 | 12 | 7 | 10 |
| | | | 20 |
| | | | 50 |
| | | | 100 |
| | | | 200 |
| | | 13 | 500, 1000 |

Note: Please consult individual model data sheet to determine device per reel availability.

Mini-Circuits carrier tape materials provide protection from ESD (Electro-Static Discharge) during handling and transportation. Tapes are static dissipative and comply with industry standards EIA-481/EIA-541.

Go to: www.minicircuits.com/pages/pdfs/tape.pdf



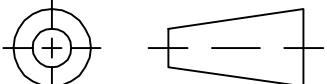
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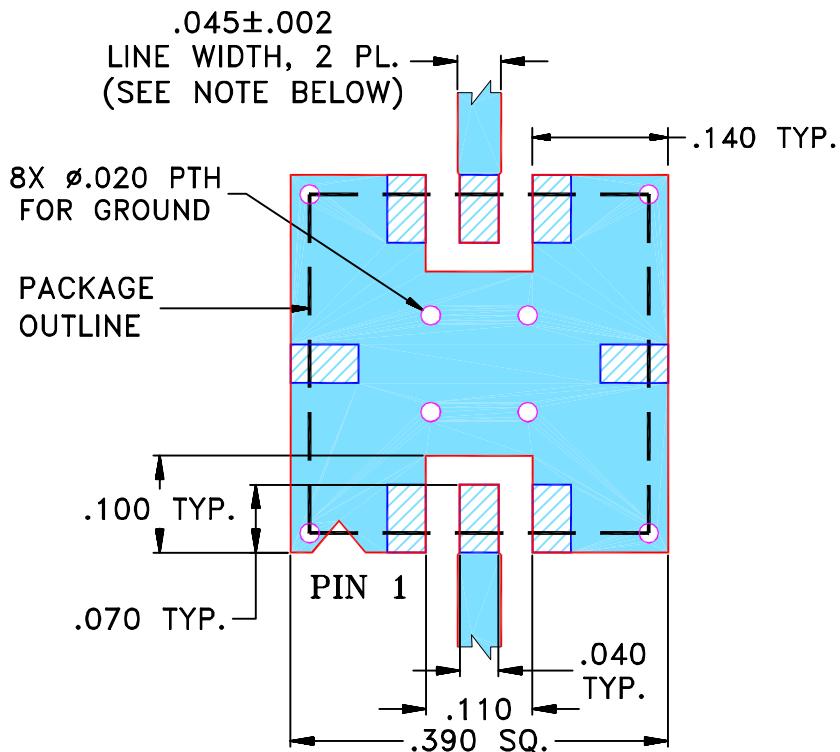
THIRD ANGLE PROJECTION



REVISI

| REV | ECN No. | DESCRIPTION | DATE | DR | AUTH |
|-----|---------|--------------------------------------|----------|-----|------|
| OR | R59289 | NEW RELEASE (FROM RAVON) | 02/05 | DK | HH |
| A | M101151 | ADDED "RBP" & CORRECTED PIN | 10/10/05 | MMG | DJ |
| | | CONNECTION TO DESCRIPTION OF PL-DWG. | | | |
| B | M102713 | UPDATED NOTES, ADDED "...WITH SMOBC" | 01/20/06 | GT | IL |

SUGGESTED MOUNTING CONFIGURATION
FOR GP731 CASE STYLE, "qf" PIN CONNECTION.



NOTES: 1. TRACE WIDTH IS SHOWN FOR FR4 WITH DIELECTRIC THICKNESS .025" \pm .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

UNLESS OTHERWISE SPECIFIED

INITIALS

DATE

DIMENSIONS ARE IN INCHES

DRAWN DK (RAVON) 10 FEB 05

TOLERANCES ON:

CHECKED RZ (RAVON) 10 FEB 05

2 PL DECIMALS \pm

APPROVED HH (RAVON) 10 FEB 05

3 PL DECIMALS \pm .005ANGLES \pm FRACTIONS \pm 

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ASHEET1.DWG REV:A DATE:01/12/95



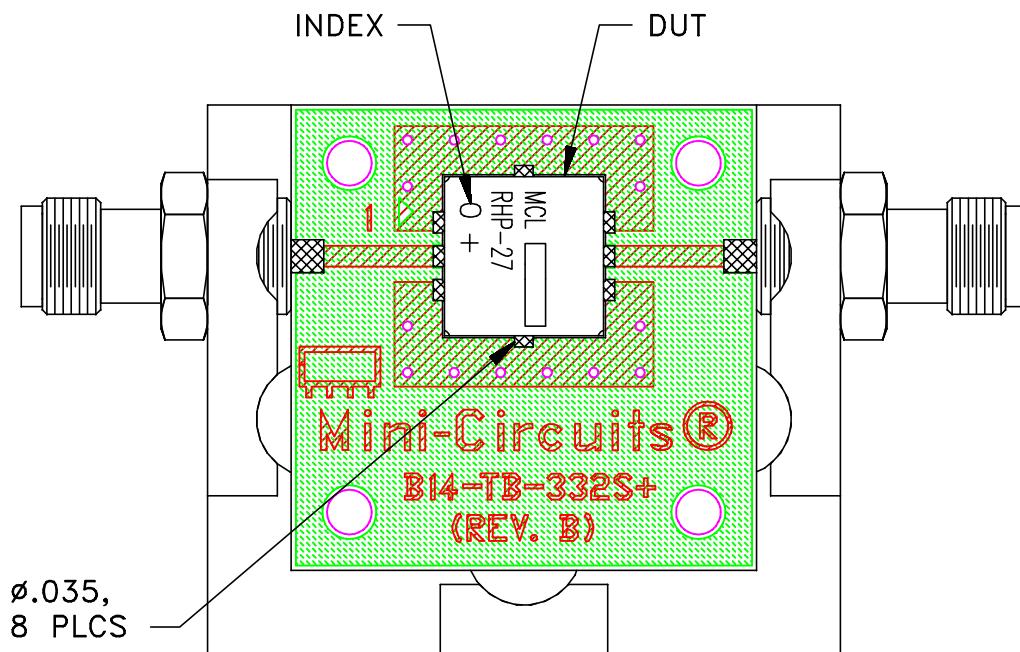
Mini-Circuits®

13 Neptune Avenue
Brooklyn NY 11235

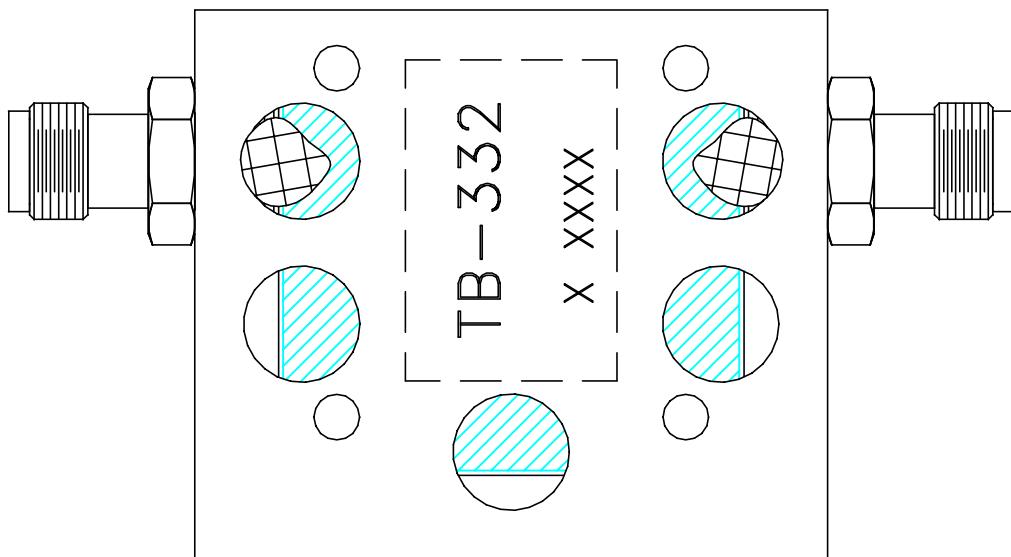
PL, qf, GP731, RBP, TB-332

| SIZE | CODE IDENT | DRAWING NO: | REV: |
|-------|------------|-------------|---------------|
| A | 15542 | 98-PL-176 | B |
| FILE: | 98PL176 | SCALE: 5:1 | SHEET: 1 OF 1 |

TOP VIEW



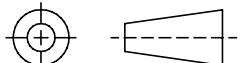
BOTTOM VIEW



NOTES:

1. DENOTES METALLIZATION.
2. DENOTES SOLDER MASK.
3. DENOTES SOLDER.

THIRD ANGLE PROJECTION



| OR | NPO-005046 | NEW RELEASE | FEB 25 | SPM | VR |
|----------------------------------|------------|-------------|--------|-----|------|
| REV | ECN No. | DESCRIPTION | DATE | DR | AUTH |
| REVISIONS | | | | | |
| BSHEETA1.DWG REV:A DATE:01/12/94 | | | | | |

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON:
2 PL DECIMALS \pm
3 PL DECIMALS \pm
ANGLES \pm
FRACTIONS \pm



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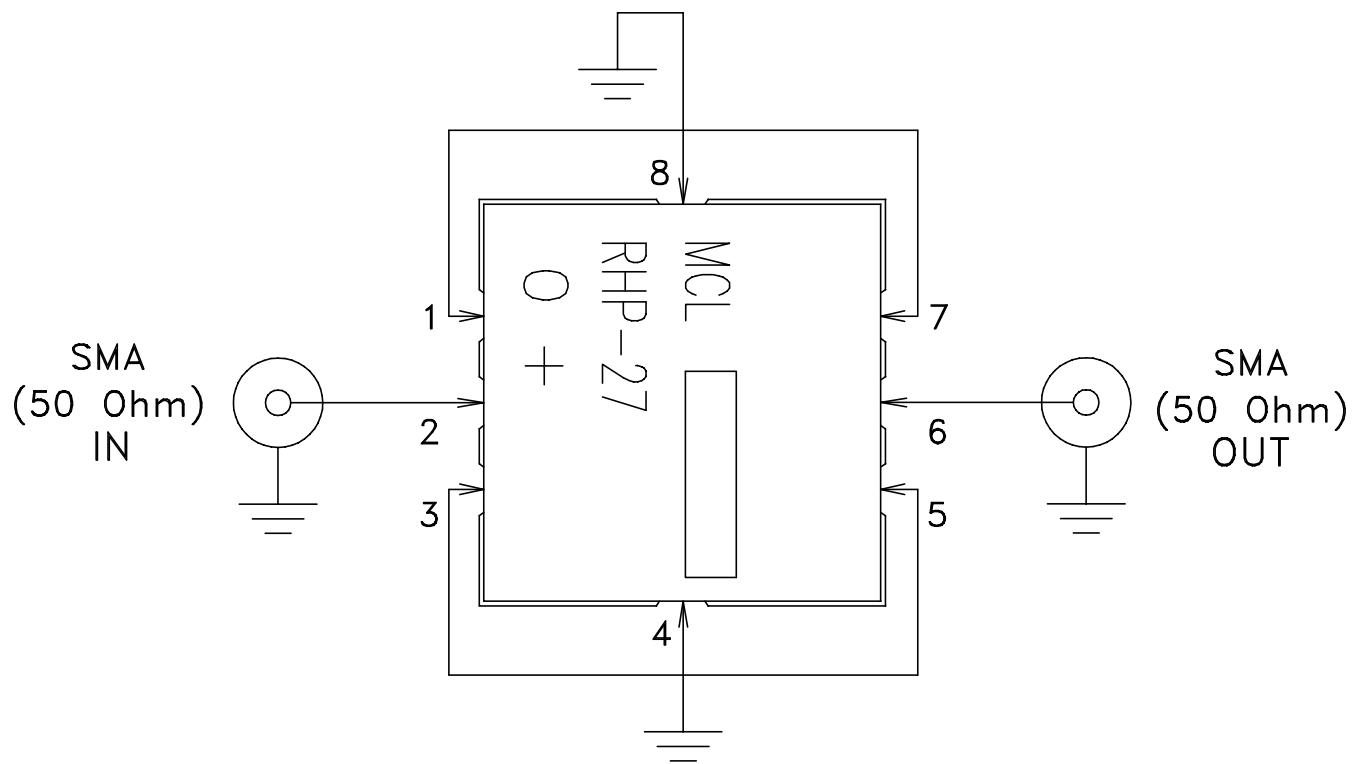
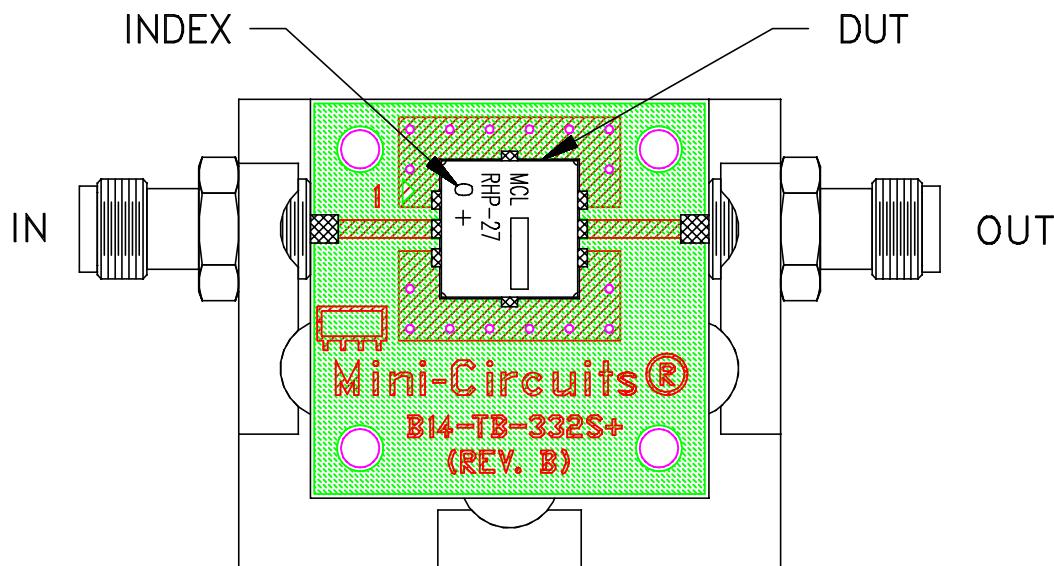
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Brooklyn NY 11235

EVAL BOARD FOR RHP-27+

| | | | |
|-------------------|---------------------|------------------------------|------------|
| SIZE B | CODE IDENT 15542 | DRAWING NO: TB-RHP-27-20+ | REV: OR |
| FILE: WTB-RHP-27+ | SCALE: 3:1 | SHEET: 1 OF 2 | |

Evaluation Board and Circuit

TB-RHP-27+



Schematic Diagram

Notes:

1. 50 Ohm SMA Female connectors.

2. PCB Material: FR4 or equivalent,
Dielectric Constant=4.7, Thickness=.025 ± .002 inch.

 Mini-Circuits®



Environmental Specifications

ENV03T2

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

| Specification | Test/Inspection Condition | Reference/Spec |
|--------------------------------|--|--|
| Operating Temperature | -40° to 85° C Ambient Environment | Individual Model Data Sheet |
| Storage Temperature | -55° to 100° C Ambient Environment | Individual Model Data Sheet |
| HAST | 130°C, 85% RH, 96 hours | JESD22-A110 |
| Humidity | 90 to 95% RH, 240 hours, 50°C | MIL-STD-202, Method 103, Condition A, Except 50°C and end-point electrical test done within 12 hours |
| Thermal Shock | -55° to 100°C, 100 cycles | MIL-STD-202, Method 107, Condition A-3, except +100°C |
| Solder Reflow Heat | Sn-Pb Eutectic Process: 225°C peak Pb-Free Process, 245°C peak | J-STD-020, Table 4-1, 4-2 and 5-2, Figure 5-1 |
| Solderability | 10X Magnification | J-STD-002, Para 4.2.5, Test S, 95% Coverage |
| Vibration (High Frequency) | 20g peak, 20-2000 Hz, 4 times in each of three axes (total 12) | MIL-STD-883, Method 2007.3, Condition A |
| Mechanical Shock | 50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes | MIL-STD-202, Method 213, Condition A |
| Marking Resistance to Solvents | Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + propylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C | MIL-STD-202, Method 215 |