*Surface Mount*

# Bandpass Filter

## BPF-A535+

50Ω 460 to 610 MHz


*Generic photo used for illustration purposes only*

CASE STYLE: HQ1157

## The Big Deal

- Sharp roll-off
- Low passband IL
- Miniature shielded package

## Product Overview

The BPF-A535+ is a 50Ω bandpass filter in a shielded package (size of 0.365" x 1.360" x 0.35") fabricated using SMT technology. Covering 535 MHz ± 75 MHz band width, these units offer good matching within the passband and low IL in the passband. This unit uses a miniature high Q capacitors and wire welded inductors for high reliability. In addition It has consistent performance across temperature.

## Key Features

| Feature | Advantages |
|---|---|
| Good VSWR, 1.25:1 typical over passband | Good return loss over the passband which provides better impedance matching when cascaded with other devices. |
| Sharp roll-off | Sharp roll-off helps in adjacent channel rejection and hence increased selectivity. |
| Shielded case | Reduced interference with the surrounding components. |

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# Bandpass Filter

## BPF-A535+

50Ω 460 to 610 MHz


*Generic photo used for illustration purposes only*

CASE STYLE: HQ1157

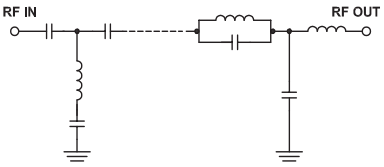
### Features

- Sharp roll-off
- Low passband IL
- Shielded case

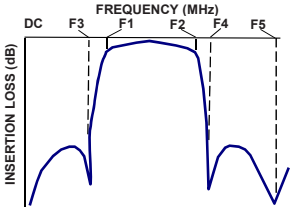
### Applications

- Biomedical telemetry devices
- Wireless microphones
- Television broadcasting

### Functional Schematic




### Typical Frequency Response




***+RoHS Compliant***

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

### Electrical Specifications at 25°C

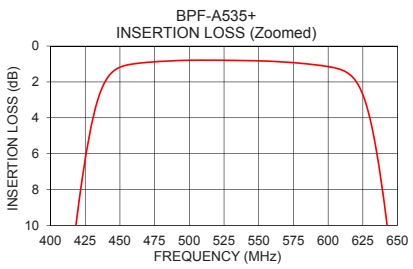
| Parameter | | F# | Frequency (MHz) | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| Pass Band | Center Frequency | — | — | — | 535 | — | MHz |
| | Insertion Loss | F1-F2 | 460 - 610 | — | 1.3 | 2.0 | dB |
| | VSWR | F1-F2 | 460 - 610 | — | 1.25 | 1.5 | :1 |
| Stop Band, Lower | Insertion Loss | DC-F3 | DC - 380 | 30 | 40 | — | dB |
| | VSWR | DC-F3 | DC - 380 | — | 20 | — | :1 |
| Stop Band, Upper | Insertion Loss | F4-F5 | 700 - 1600 | 20 | 30 | — | dB |
| | VSWR | F4-F5 | 700 - 1600 | — | 20 | — | :1 |

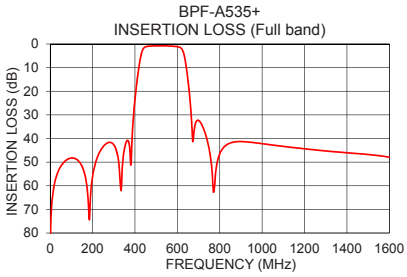
| Maximum Ratings | |
|---|---|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| RF Power Input | 0.5 W Max. |

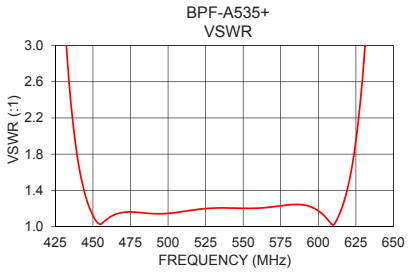
Permanent damage may occur if any of these limits are exceeded.

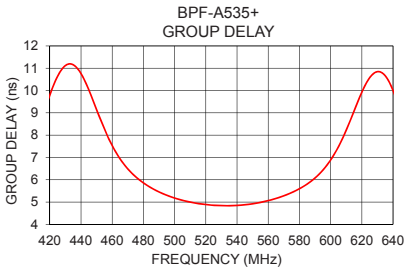
### Typical Performance Data at 25°C

| Frequency (MHz) | Insertion Loss (dB) | VSWR (:1) | Frequency (MHz) | Group Delay (nsec) |
|---|---|---|---|---|
| 1.0 | 84.13 | 566.36 | 460 | 7.53 |
| 50.0 | 51.74 | 1151.52 | 470 | 6.49 |
| 100.0 | 48.26 | 933.46 | 480 | 5.86 |
| 380.0 | 51.11 | 41.88 | 490 | 5.45 |
| 392.5 | 30.98 | 32.72 | 500 | 5.18 |
| 395.0 | 28.19 | 30.71 | 510 | 5.00 |
| 402.5 | 21.26 | 24.46 | 520 | 4.89 |
| 432.5 | 3.41 | 2.95 | 525 | 4.86 |
| 437.5 | 2.27 | 2.03 | 530 | 4.84 |
| 460.0 | 0.99 | 1.09 | 535 | 4.84 |
| 535.0 | 0.80 | 1.21 | 540 | 4.85 |
| 610.0 | 1.34 | 1.02 | 550 | 4.92 |
| 625.0 | 2.71 | 1.94 | 560 | 5.07 |
| 630.0 | 3.99 | 2.76 | 570 | 5.28 |
| 655.0 | 19.19 | 10.96 | 580 | 5.60 |
| 665.0 | 29.64 | 12.86 | 590 | 6.08 |
| 700.0 | 32.35 | 15.96 | 595 | 6.43 |
| 1000.0 | 42.19 | 32.63 | 600 | 6.88 |
| 1300.0 | 45.28 | 27.29 | 605 | 7.48 |
| 1600.0 | 47.92 | 28.53 | 610 | 8.22 |



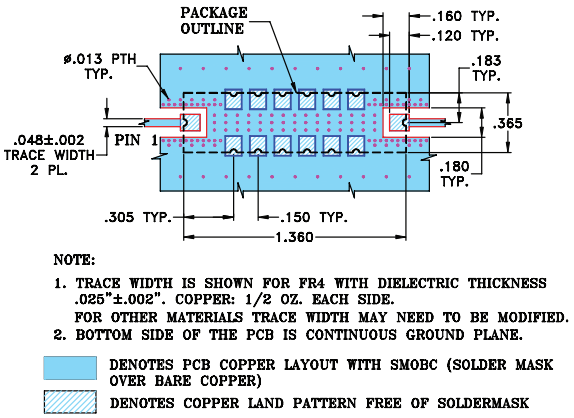

Notes

**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 | 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)***



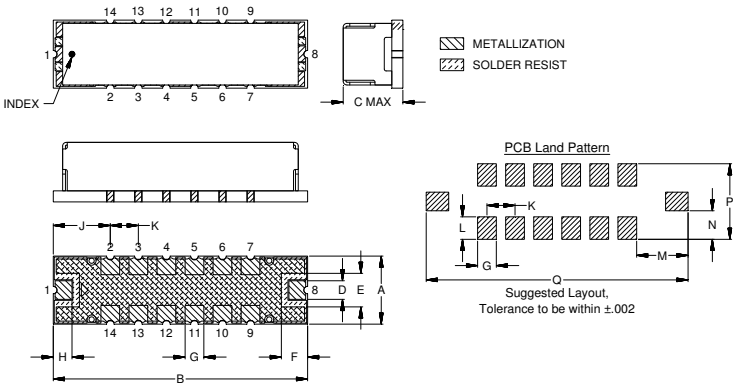

NOTE:

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 SOLDERMASK

## Outline Drawing




## Outline Dimensions ( inch / mm )

| 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*

# Surface Mount Band Pass Filter BPF-A535+

*Typical Performance Data*

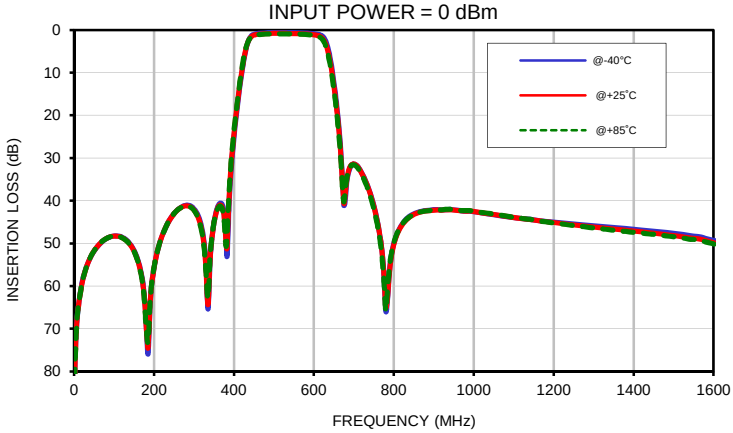
| FREQ. | INSERTION LOSS | | | INPUT RETURN LOSS | | | OUTPUT RETURN LOSS | | |
|---|---|---|---|---|---|---|---|---|---|
| (MHz) | (dB) | | | (dB) | | | (dB) | | |
| | @-40°C | @+25°C | @+85°C | @-40°C | @+25°C | @+85°C | @-40°C | @+25°C | @+85°C |
| 1.0 | 84.44 | 85.44 | 84.36 | 0.10 | 0.10 | 0.10 | 0.05 | 0.05 | 0.05 |
| 5.0 | 71.17 | 71.24 | 71.18 | 0.17 | 0.17 | 0.17 | 0.03 | 0.04 | 0.04 |
| 10.0 | 65.01 | 65.20 | 65.08 | 0.17 | 0.17 | 0.17 | 0.05 | 0.05 | 0.05 |
| 50.0 | 51.84 | 51.74 | 51.75 | 0.09 | 0.11 | 0.10 | 0.05 | 0.07 | 0.07 |
| 100.0 | 48.28 | 48.33 | 48.27 | 0.06 | 0.08 | 0.08 | 0.12 | 0.18 | 0.20 |
| 150.0 | 51.64 | 51.82 | 51.90 | 0.04 | 0.08 | 0.08 | 0.24 | 0.32 | 0.36 |
| 200.0 | 55.80 | 55.68 | 55.60 | 0.05 | 0.09 | 0.10 | 0.32 | 0.41 | 0.45 |
| 250.0 | 43.01 | 43.04 | 43.02 | 0.08 | 0.12 | 0.13 | 0.31 | 0.43 | 0.48 |
| 300.0 | 41.87 | 42.14 | 42.26 | 0.13 | 0.18 | 0.19 | 0.34 | 0.47 | 0.54 |
| 380.0 | 47.90 | 49.66 | 50.62 | 0.33 | 0.41 | 0.44 | 0.74 | 0.94 | 1.04 |
| 390.0 | 36.87 | 35.40 | 34.48 | 0.39 | 0.49 | 0.53 | 0.80 | 1.03 | 1.14 |
| 392.5 | 33.25 | 32.06 | 31.30 | 0.41 | 0.52 | 0.56 | 0.82 | 1.05 | 1.17 |
| 395.0 | 30.19 | 29.18 | 28.52 | 0.44 | 0.55 | 0.59 | 0.84 | 1.08 | 1.21 |
| 402.5 | 22.80 | 22.04 | 21.51 | 0.54 | 0.68 | 0.75 | 0.92 | 1.19 | 1.34 |
| 405.0 | 20.69 | 19.97 | 19.46 | 0.59 | 0.75 | 0.83 | 0.96 | 1.24 | 1.41 |
| 430.0 | 4.52 | 4.37 | 4.18 | 3.99 | 4.72 | 5.30 | 4.09 | 4.91 | 5.56 |
| 432.5 | 3.57 | 3.52 | 3.39 | 5.14 | 5.98 | 6.66 | 5.18 | 6.10 | 6.83 |
| 437.5 | 2.21 | 2.31 | 2.30 | 8.33 | 9.33 | 10.20 | 8.21 | 9.25 | 10.11 |
| 450.0 | 0.98 | 1.20 | 1.29 | 24.41 | 25.50 | 27.05 | 22.74 | 23.06 | 23.42 |
| 460.0 | 0.81 | 1.01 | 1.10 | 24.79 | 26.88 | 28.01 | 27.30 | 29.71 | 30.22 |
| 535.0 | 0.61 | 0.81 | 0.90 | 21.84 | 21.43 | 21.29 | 22.35 | 22.31 | 22.71 |
| 610.0 | 0.99 | 1.28 | 1.46 | 33.48 | 30.35 | 27.61 | 30.32 | 26.97 | 24.52 |
| 625.0 | 1.82 | 2.36 | 2.75 | 12.16 | 10.94 | 10.05 | 11.46 | 10.35 | 9.42 |
| 630.0 | 2.68 | 3.35 | 3.87 | 8.29 | 7.64 | 7.06 | 7.71 | 7.10 | 6.48 |
| 632.5 | 3.31 | 4.05 | 4.65 | 6.77 | 6.33 | 5.90 | 6.23 | 5.81 | 5.33 |
| 655.0 | 15.98 | 16.85 | 17.72 | 1.53 | 1.78 | 1.92 | 1.05 | 1.22 | 1.27 |
| 660.0 | 20.26 | 21.15 | 22.07 | 1.32 | 1.59 | 1.74 | 0.85 | 1.02 | 1.08 |
| 665.0 | 25.37 | 26.34 | 27.37 | 1.19 | 1.47 | 1.63 | 0.72 | 0.90 | 0.96 |
| 667.5 | 28.45 | 29.49 | 30.62 | 1.14 | 1.42 | 1.59 | 0.68 | 0.85 | 0.92 |
| 670.0 | 32.11 | 33.24 | 34.45 | 1.10 | 1.38 | 1.55 | 0.64 | 0.81 | 0.88 |
| 700.0 | 31.40 | 31.40 | 31.58 | 0.83 | 1.11 | 1.25 | 0.43 | 0.58 | 0.64 |
| 725.0 | 34.42 | 34.52 | 34.90 | 0.69 | 0.95 | 1.06 | 0.34 | 0.48 | 0.54 |
| 750.0 | 41.20 | 41.33 | 41.91 | 0.60 | 0.83 | 0.92 | 0.27 | 0.42 | 0.48 |
| 775.0 | 56.85 | 56.77 | 58.49 | 0.55 | 0.75 | 0.82 | 0.23 | 0.37 | 0.44 |
| 800.0 | 50.01 | 50.28 | 49.84 | 0.51 | 0.69 | 0.75 | 0.20 | 0.34 | 0.41 |
| 825.0 | 44.90 | 45.11 | 45.02 | 0.49 | 0.65 | 0.71 | 0.17 | 0.32 | 0.38 |
| 850.0 | 43.06 | 43.24 | 43.23 | 0.48 | 0.62 | 0.68 | 0.15 | 0.30 | 0.37 |
| 870.0 | 42.43 | 42.58 | 42.56 | 0.47 | 0.61 | 0.66 | 0.13 | 0.29 | 0.36 |
| 900.0 | 42.12 | 42.25 | 42.17 | 0.46 | 0.60 | 0.66 | 0.12 | 0.28 | 0.35 |
| 920.0 | 42.16 | 42.22 | 42.17 | 0.45 | 0.59 | 0.66 | 0.11 | 0.28 | 0.35 |
| 950.0 | 42.13 | 42.17 | 42.07 | 0.43 | 0.59 | 0.66 | 0.09 | 0.27 | 0.34 |
| 980.0 | 42.44 | 42.46 | 42.35 | 0.42 | 0.59 | 0.68 | 0.08 | 0.27 | 0.34 |
| 1000.0 | 42.57 | 42.54 | 42.49 | 0.40 | 0.59 | 0.69 | 0.07 | 0.27 | 0.34 |
| 1050.0 | 43.28 | 43.21 | 43.14 | 0.37 | 0.59 | 0.72 | 0.06 | 0.27 | 0.34 |
| 1100.0 | 43.96 | 43.94 | 43.89 | 0.33 | 0.60 | 0.74 | 0.05 | 0.27 | 0.35 |
| 1150.0 | 44.48 | 44.50 | 44.50 | 0.30 | 0.60 | 0.75 | 0.05 | 0.28 | 0.36 |
| 1200.0 | 45.04 | 45.12 | 45.20 | 0.28 | 0.60 | 0.75 | 0.05 | 0.28 | 0.36 |
| 1250.0 | 45.46 | 45.67 | 45.81 | 0.26 | 0.59 | 0.74 | 0.05 | 0.29 | 0.37 |
| 1300.0 | 45.86 | 46.16 | 46.39 | 0.25 | 0.58 | 0.73 | 0.05 | 0.30 | 0.38 |
| 1320.0 | 46.07 | 46.38 | 46.59 | 0.25 | 0.58 | 0.72 | 0.05 | 0.30 | 0.38 |
| 1340.0 | 46.21 | 46.58 | 46.79 | 0.24 | 0.58 | 0.71 | 0.06 | 0.31 | 0.39 |
| 1360.0 | 46.36 | 46.75 | 46.99 | 0.24 | 0.57 | 0.70 | 0.05 | 0.31 | 0.39 |
| 1380.0 | 46.54 | 46.96 | 47.20 | 0.24 | 0.57 | 0.70 | 0.05 | 0.31 | 0.39 |
| 1400.0 | 46.71 | 47.10 | 47.39 | 0.24 | 0.57 | 0.69 | 0.05 | 0.31 | 0.39 |
| 1420.0 | 46.86 | 47.27 | 47.55 | 0.23 | 0.56 | 0.68 | 0.05 | 0.31 | 0.39 |
| 1440.0 | 47.03 | 47.53 | 47.82 | 0.23 | 0.56 | 0.68 | 0.05 | 0.31 | 0.40 |
| 1460.0 | 47.25 | 47.71 | 47.98 | 0.23 | 0.55 | 0.67 | 0.05 | 0.32 | 0.40 |
| 1500.0 | 47.65 | 48.15 | 48.43 | 0.23 | 0.55 | 0.66 | 0.06 | 0.32 | 0.40 |
| 1550.0 | 48.28 | 48.81 | 49.08 | 0.23 | 0.54 | 0.65 | 0.06 | 0.32 | 0.41 |
| 1600.0 | 49.28 | 49.81 | 50.13 | 0.23 | 0.53 | 0.64 | 0.07 | 0.33 | 0.41 |

*Typical Performance Data*

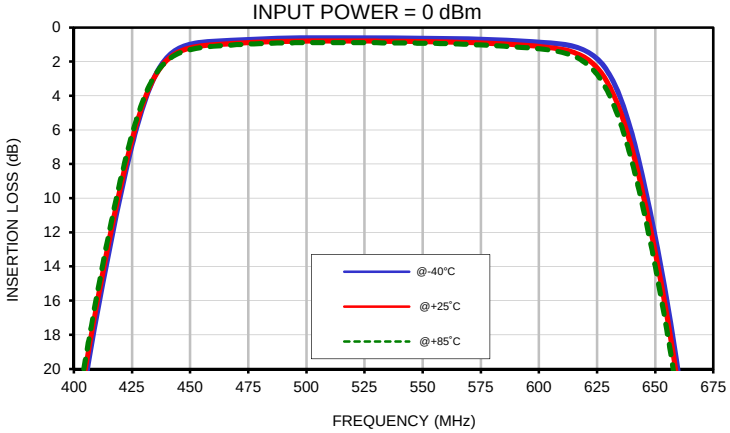
| FREQ. (MHz) | GROUP DELAY (ns) | | |
|---|---|---|---|
| | @-40°C | @+25°C | @+85°C |
| 460.0 | 7.74 | 7.58 | 7.48 |
| 462.5 | 7.39 | 7.26 | 7.17 |
| 465.0 | 7.08 | 6.97 | 6.90 |
| 467.5 | 6.81 | 6.72 | 6.66 |
| 470.0 | 6.58 | 6.51 | 6.46 |
| 472.5 | 6.38 | 6.32 | 6.27 |
| 475.0 | 6.21 | 6.15 | 6.11 |
| 477.5 | 6.05 | 6.00 | 5.97 |
| 480.0 | 5.92 | 5.87 | 5.84 |
| 482.5 | 5.79 | 5.75 | 5.72 |
| 485.0 | 5.68 | 5.64 | 5.62 |
| 487.5 | 5.58 | 5.55 | 5.52 |
| 490.0 | 5.49 | 5.46 | 5.44 |
| 492.5 | 5.41 | 5.38 | 5.36 |
| 495.0 | 5.34 | 5.30 | 5.29 |
| 497.5 | 5.27 | 5.24 | 5.22 |
| 500.0 | 5.20 | 5.17 | 5.16 |
| 502.5 | 5.15 | 5.12 | 5.10 |
| 505.0 | 5.09 | 5.06 | 5.05 |
| 507.5 | 5.04 | 5.02 | 5.01 |
| 510.0 | 5.00 | 4.98 | 4.97 |
| 512.5 | 4.96 | 4.94 | 4.93 |
| 515.0 | 4.92 | 4.90 | 4.90 |
| 517.5 | 4.89 | 4.87 | 4.87 |
| 520.0 | 4.86 | 4.85 | 4.85 |
| 522.5 | 4.84 | 4.83 | 4.83 |
| 525.0 | 4.82 | 4.81 | 4.82 |
| 527.5 | 4.81 | 4.80 | 4.80 |
| 530.0 | 4.80 | 4.79 | 4.80 |
| 532.5 | 4.79 | 4.78 | 4.79 |
| 535.0 | 4.79 | 4.78 | 4.79 |
| 537.5 | 4.79 | 4.79 | 4.80 |
| 540.0 | 4.79 | 4.79 | 4.81 |
| 542.5 | 4.80 | 4.80 | 4.82 |
| 545.0 | 4.82 | 4.82 | 4.84 |
| 547.5 | 4.83 | 4.83 | 4.85 |
| 550.0 | 4.85 | 4.86 | 4.88 |
| 552.5 | 4.88 | 4.88 | 4.90 |
| 555.0 | 4.91 | 4.91 | 4.93 |
| 557.5 | 4.94 | 4.95 | 4.97 |
| 560.0 | 4.98 | 4.98 | 5.01 |
| 562.5 | 5.02 | 5.02 | 5.05 |
| 565.0 | 5.06 | 5.07 | 5.10 |
| 567.5 | 5.11 | 5.12 | 5.15 |
| 570.0 | 5.17 | 5.18 | 5.21 |
| 572.5 | 5.23 | 5.24 | 5.27 |
| 575.0 | 5.29 | 5.31 | 5.34 |
| 577.5 | 5.36 | 5.39 | 5.42 |
| 580.0 | 5.45 | 5.47 | 5.51 |
| 582.5 | 5.53 | 5.56 | 5.60 |
| 585.0 | 5.63 | 5.66 | 5.71 |
| 587.5 | 5.74 | 5.78 | 5.83 |
| 590.0 | 5.86 | 5.91 | 5.97 |
| 592.5 | 6.00 | 6.05 | 6.12 |
| 595.0 | 6.16 | 6.22 | 6.30 |
| 597.5 | 6.33 | 6.40 | 6.50 |
| 600.0 | 6.53 | 6.61 | 6.72 |
| 602.5 | 6.76 | 6.85 | 6.97 |
| 605.0 | 7.03 | 7.13 | 7.26 |
| 610.0 | 7.66 | 7.77 | 7.92 |

## *Typical Performance Curves*

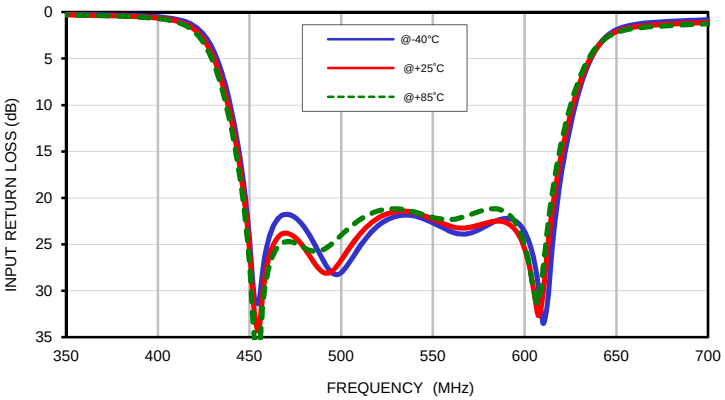
**INSERTION LOSS vs. TEMPERATURE**
INPUT POWER = 0 dBm



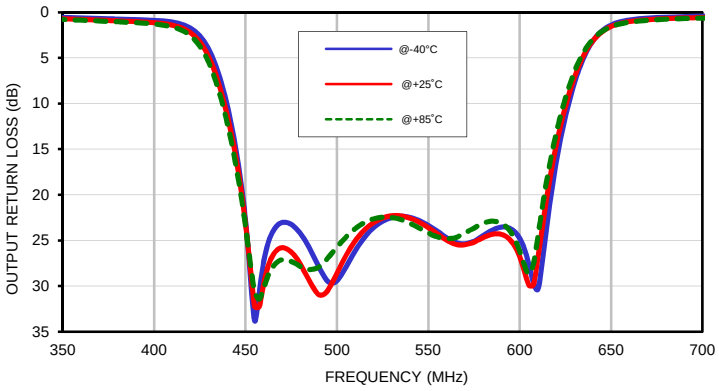

**INSERTION LOSS vs. TEMPERATURE (Zoomed)**
INPUT POWER = 0 dBm



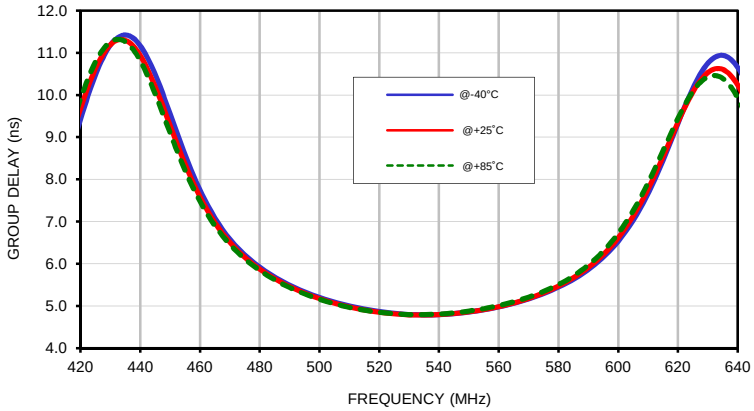

**INPUT RETURN LOSS vs. TEMPERATURE**
INPUT POWER = 0 dBm




**OUTPUT RETURN LOSS vs. TEMPERATURE**
INPUT POWER = 0 dBm



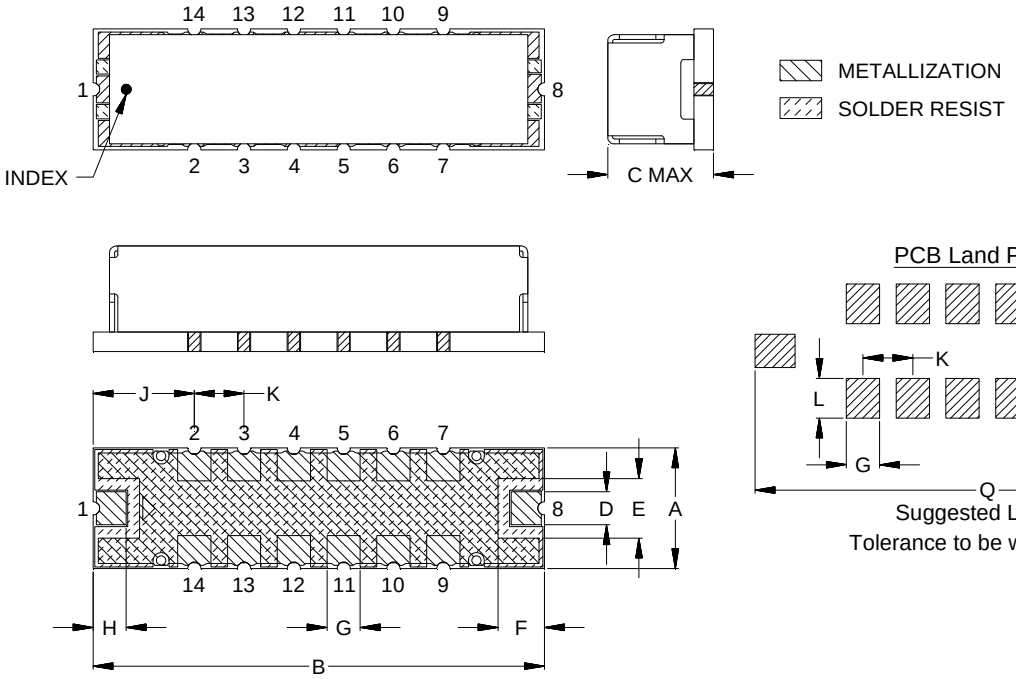

**GROUP DELAY vs. TEMPERATURE**
**INPUT POWER = 0 dBm**



# Case Style HQ

## Outline Dimensions

**HQ1157**




| CASE# | A | B | C | D | E | F | G | H | J | K | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HQ1157 | .365 (9.27) | 1.360 (34.54) | .350 (8.89) | .100 (2.54) | .180 (4.57) | .140 (3.56) | .100 (2.54) | .100 (2.54) | .305 (7.75) | .150 (3.81) | .120 (3.05) | .275 (6.99) |

| CASE# | N | P | Q | WT.GRAM |
|---|---|---|---|---|
| HQ1157 | .152 (3.87) | .405 (10.29) | 1.400 (35.56) | 4.0 |

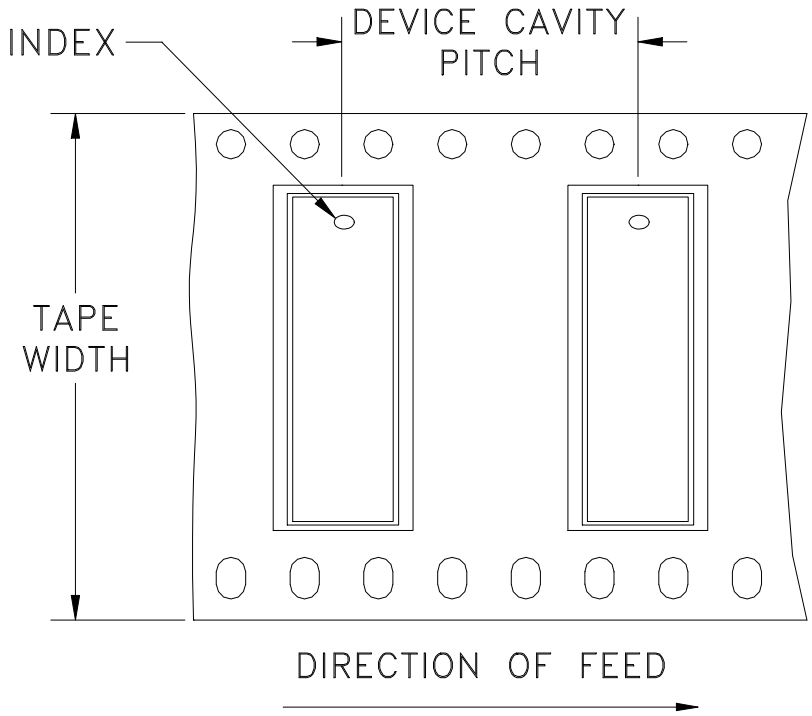
**Dimensions are in inches (mm). Tolerances: 2Pl. ± .03; 3Pl. ± .015**

### 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.

# Tape & Reel Packaging TR-F83

DEVICE ORIENTATION IN T&R




| Tape Width, mm | Device Cavity Pitch, mm | Reel Size, inches | Devices per Reel |
|---|---|---|---|
| 56 | 16 | 13 | 100 |

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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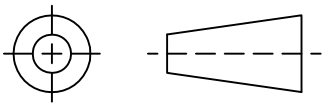
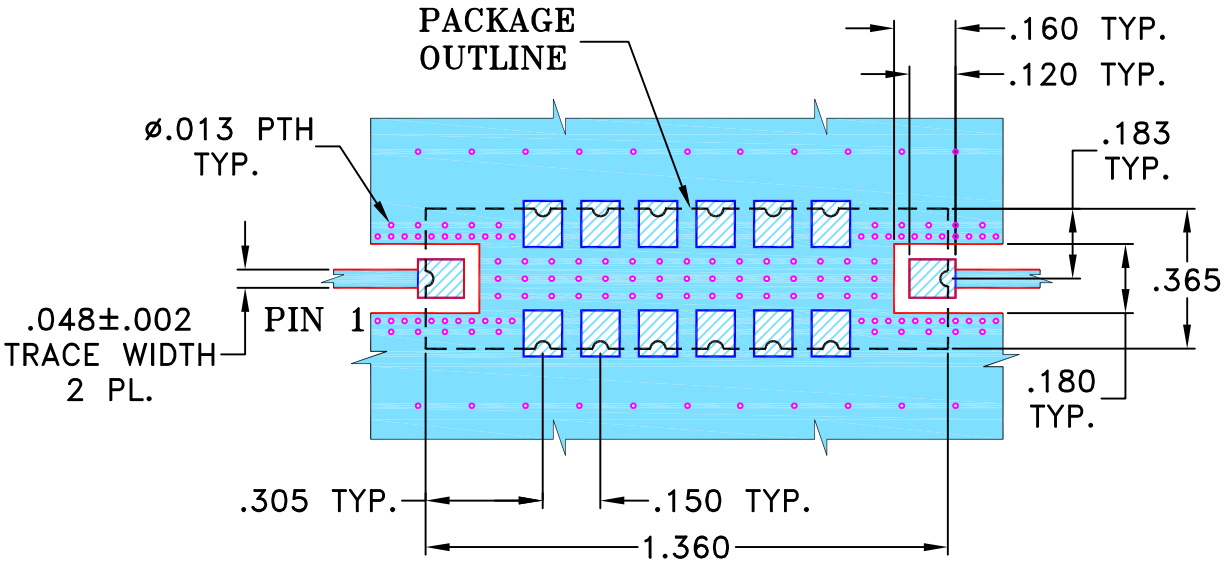
THIRD ANGLE PROJECTION



| REVISIONS | | | | | |
|---|---|---|---|---|---|
| REV | ECN No. | DESCRIPTION | DATE | DR | AUTH |
| OR | M101212 | NEW RELEASE (FROM RAVON) | 11/05 | DK | YB |
| A | M108938 | SWITCH HATCHES | 12/06 | DK | HH |
| B | M118075 | CHANGE LINE PLACES | 06/08 | HB | HH |
| C | M173459 | CORRECTED CASE STYLE & TB PART# | 03/27/19 | ITG | IL |

# SUGGESTED MOUNTING CONFIGURATION
# FOR HQ1157 CASE STYLE, rf PIN CONNECTION




NOTE:

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 SOLDERMASK

| UNLESS OTHERWISE SPECIFIED | | INITIALS | DATE |
|---|---|---|---|
| DIMENSIONS ARE IN INCHES | DRAWN | HB (RAVON) | 12 JUN 2008 |
| TOLERANCES ON: | CHECKED | RZ (RAVON) | 12 JUN 2008 |
| 2 PL DECIMALS ± | APPROVED | HH (RAVON) | 12 JUN 2008 |
| 3 PL DECIMALS ± .005 | | | |
| ANGLES ± | | | |
| FRACTIONS ± | | | |



ASHEETA1.DWG REV:A DATE:01/12/95

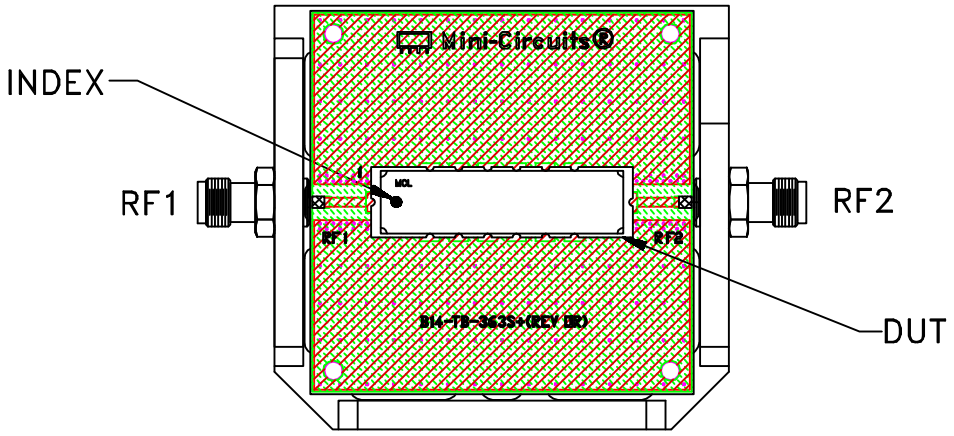
Mini-Circuits® 13 Neptune Avenue Brooklyn NY 11235

PL, rf, HQ1157, TB-363+, 50 OHM

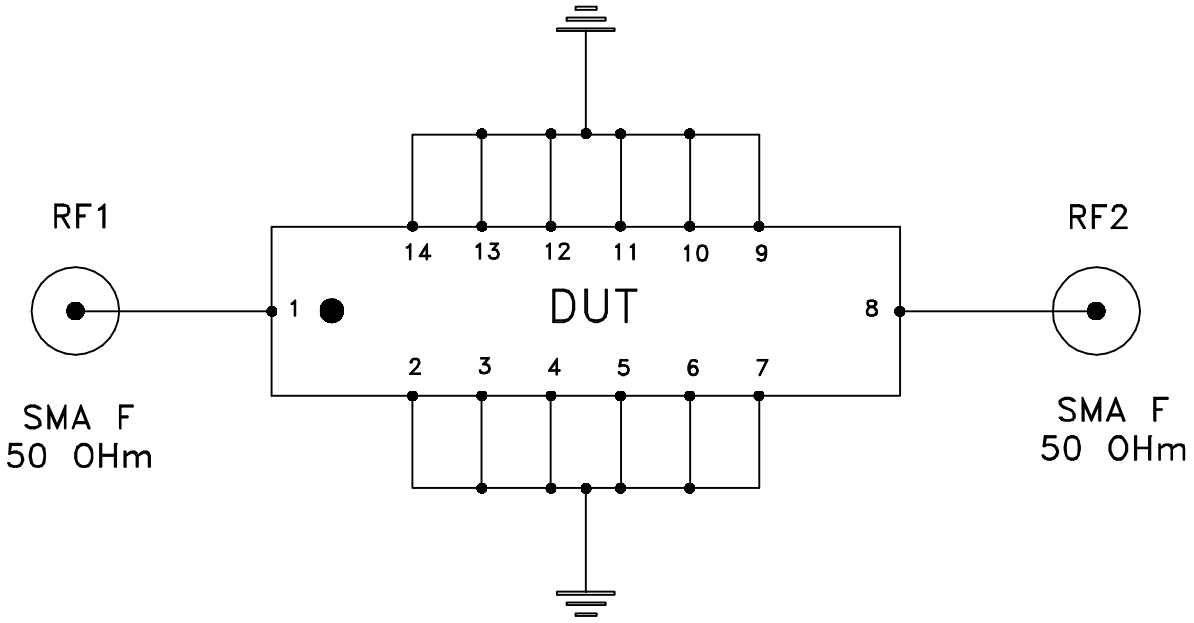
| SIZE | CODE IDENT | DRAWING NO: | REV: |
|---|---|---|---|
| A | 15542 | 98-PL-227 | C |

| FILE: | SCALE: | SHEET: |
|---|---|---|
| 98PL227 | 2:1 | 1 OF 1 |

# Evaluation Board and Circuit




TB-363+




Schematic Diagram

Notes:
1. 50 Ohm SMA Female connectors.
2. PCB Material: ROGERS R04350 or equivalent, Dielectric Constant=3.48, Thickness=.030 inch.

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# Environmental Specifications ENV02T1

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<br>Ambient Environment | Individual Model Data Sheet |
| Storage Temperature | -55° to 100° C<br>Ambient Environment | Individual Model Data Sheet |
| 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 Eutetic Process: 225°C peak<br>Pb-Free Process 245° - 250°C peak | J-STD-020, Table 4-1, 4-2 and 5-2, Figure 5-1 |
| Solderability | 10X Magnification | J-STD-002, 95% Coverage |
| Vibration (High Frequency) | 20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36) | MIL-STD-202, Method 204, Condition D |
| 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;<br>distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C | MIL-STD-202, Method 215 |