

## Engineering Development Model

# Band Pass Filter

# RBP-EDU0953

## Surface Mount

### Important Note

This model has been designed, built and tested in our engineering department. Performance data represents model capability. At present it is a non-catalog model. On request, we can supply a final specification sheet, part number and price/delivery information.



Please click "Back", and then click "Contact Us" for Applications support.

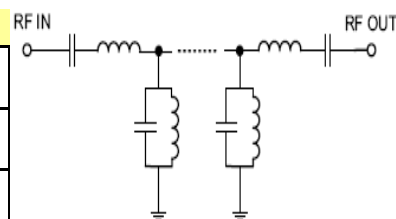
**CASE STYLE : GP731**

### ELECTRICAL SPECIFICATIONS 50Ω @ +25°C

| Parameter                 | Min. | Typ. | Max. | Units |
|---------------------------|------|------|------|-------|
| Passband<br>(Loss < 2 dB) | 175  |      | 225  | MHz   |
| Centre frequency          |      | 200  |      | MHz   |
| Low Band (Loss > 40 dB)   | DC   |      | 95   | MHz   |
| Low Band (Loss > 20 dB)   | 95   |      | 120  | MHz   |
| High Band (Loss > 20 dB)  | 320  |      | 420  | MHz   |
| High Band (Loss > 40 dB)  | 420  |      | 2000 | MHz   |
| Passband VSWR             |      | 1.3  |      | (:1)  |
| Stopband VSWR             |      | 20   |      | (:1)  |

### Functional Schematic

| MAXIMUM RATINGS       |                |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C  |
| Storage Temperature   | -55°C to 100°C |
| RF Power Input        | 0.5 W          |



### PIN CONNECTIONS

|               |             |
|---------------|-------------|
| Input         | 2           |
| Output        | 6           |
| Not Connected | -           |
| Case Ground   | 1,3,4,5,7,8 |



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RF/IF MICROWAVE COMPONENTS

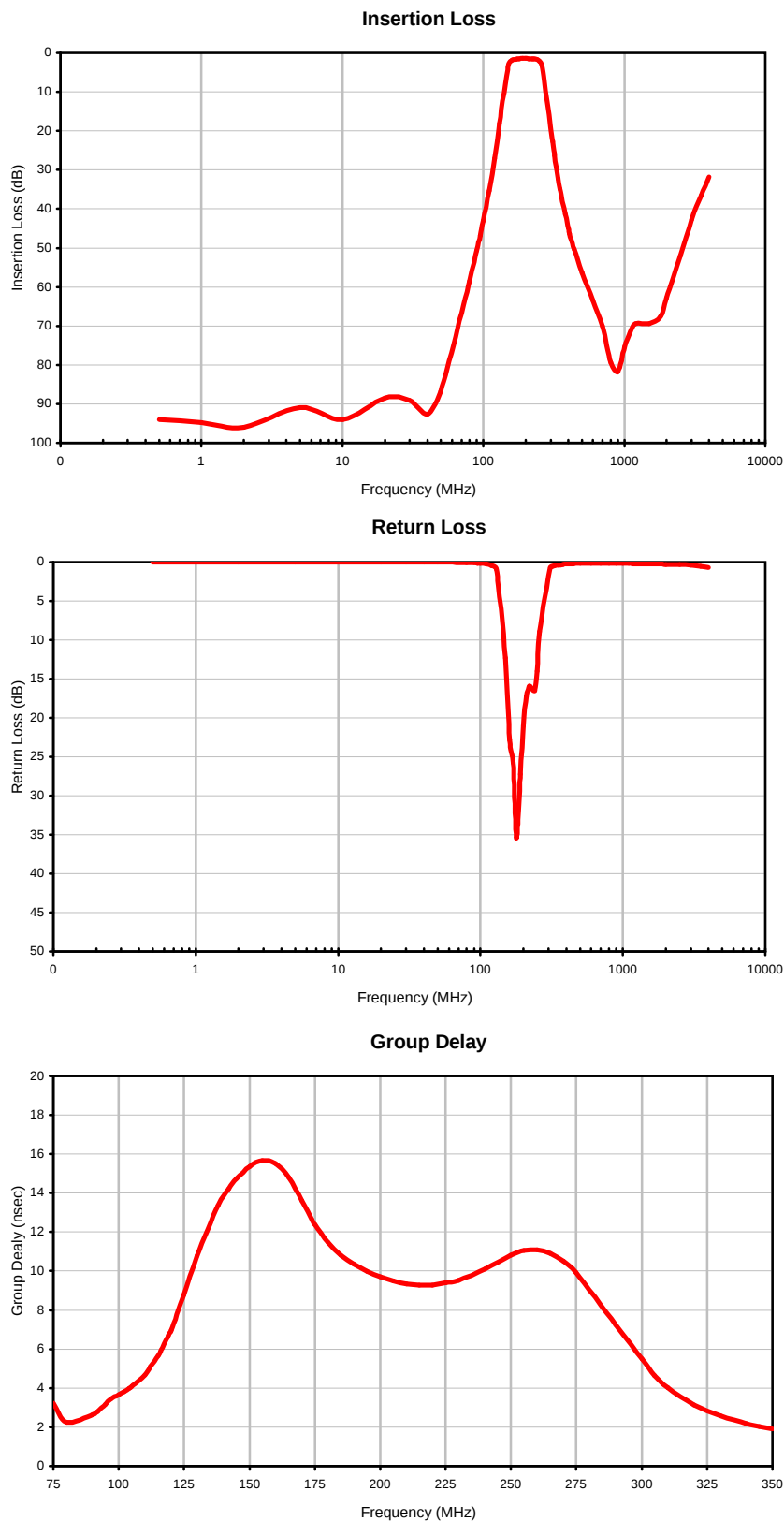


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## Typical Performance Data

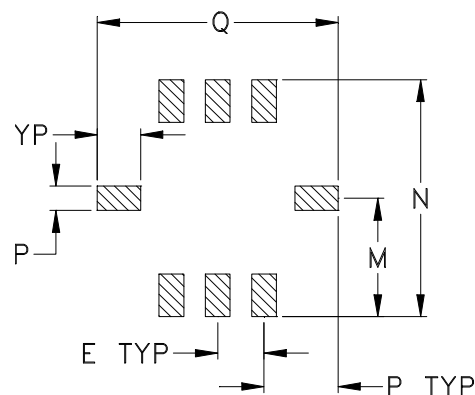
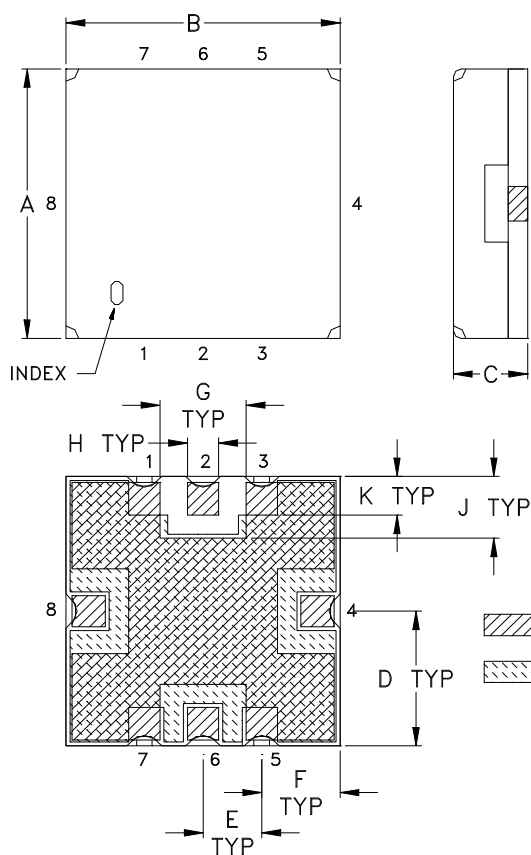
| FREQUENCY<br>(MHz) | INSERTION<br>LOSS<br>(dB) | RETURN<br>LOSS<br>(dB) | FREQUENCY<br>(MHz) | GROUP<br>DELAY<br>(nsec) |
|--------------------|---------------------------|------------------------|--------------------|--------------------------|
| 0.5                | 94.06                     | 0.00                   | 75.0               | 3.21                     |
| 1.0                | 94.70                     | 0.00                   | 80.0               | 2.24                     |
| 2.0                | 95.98                     | 0.00                   | 90.0               | 2.63                     |
| 5.0                | 90.96                     | 0.00                   | 92.0               | 2.78                     |
| 10.0               | 94.08                     | 0.01                   | 95.0               | 3.17                     |
| 20.0               | 88.51                     | 0.00                   | 97.0               | 3.44                     |
| 30.0               | 89.15                     | 0.01                   | 100.0              | 3.65                     |
| 40.0               | 92.69                     | 0.01                   | 102.0              | 3.82                     |
| 50.0               | 86.74                     | 0.02                   | 104.0              | 4.01                     |
| 80.0               | 58.46                     | 0.07                   | 105.0              | 4.09                     |
| 90.0               | 50.76                     | 0.10                   | 110.0              | 4.68                     |
| 95.0               | 46.88                     | 0.13                   | 112.0              | 5.09                     |
| 100.0              | 43.06                     | 0.16                   | 115.0              | 5.66                     |
| 110.0              | 35.25                     | 0.26                   | 116.0              | 5.88                     |
| 120.0              | 27.05                     | 0.44                   | 119.0              | 6.69                     |
| 130.0              | 18.19                     | 0.90                   | 120.0              | 6.99                     |
| 150.0              | 3.05                      | 12.29                  | 125.0              | 8.79                     |
| 160.0              | 1.91                      | 22.87                  | 130.0              | 10.79                    |
| 170.0              | 1.62                      | 25.73                  | 138.0              | 13.35                    |
| 175.0              | 1.53                      | 31.58                  | 142.0              | 14.22                    |
| 180.0              | 1.47                      | 35.34                  | 145.0              | 14.74                    |
| 190.0              | 1.40                      | 27.21                  | 150.0              | 15.38                    |
| 200.0              | 1.40                      | 20.98                  | 155.0              | 15.65                    |
| 210.0              | 1.47                      | 17.25                  | 160.0              | 15.50                    |
| 220.0              | 1.53                      | 15.96                  | 165.0              | 14.80                    |
| 225.0              | 1.56                      | 16.10                  | 170.0              | 13.61                    |
| 230.0              | 1.59                      | 16.24                  | 174.0              | 12.62                    |
| 240.0              | 1.73                      | 16.44                  | 175.0              | 12.39                    |
| 250.0              | 2.09                      | 13.97                  | 180.0              | 11.47                    |
| 260.0              | 3.19                      | 8.94                   | 185.0              | 10.81                    |
| 310.0              | 22.71                     | 0.69                   | 190.0              | 10.34                    |
| 320.0              | 26.22                     | 0.57                   | 195.0              | 9.97                     |
| 330.0              | 29.38                     | 0.48                   | 200.0              | 9.70                     |
| 340.0              | 32.24                     | 0.41                   | 205.0              | 9.48                     |
| 350.0              | 34.83                     | 0.37                   | 210.0              | 9.35                     |
| 380.0              | 41.32                     | 0.28                   | 215.0              | 9.28                     |
| 400.0              | 44.90                     | 0.24                   | 220.0              | 9.29                     |
| 410.0              | 46.43                     | 0.23                   | 225.0              | 9.40                     |
| 420.0              | 47.94                     | 0.22                   | 230.0              | 9.52                     |
| 440.0              | 50.39                     | 0.19                   | 240.0              | 10.10                    |
| 500.0              | 56.44                     | 0.16                   | 250.0              | 10.83                    |
| 600.0              | 63.45                     | 0.15                   | 255.0              | 11.05                    |
| 700.0              | 70.06                     | 0.14                   | 260.0              | 11.08                    |
| 800.0              | 79.36                     | 0.15                   | 265.0              | 10.90                    |
| 900.0              | 81.69                     | 0.17                   | 270.0              | 10.51                    |
| 1000.0             | 75.35                     | 0.17                   | 275.0              | 9.93                     |
| 1100.0             | 71.81                     | 0.19                   | 290.0              | 7.24                     |
| 1200.0             | 69.43                     | 0.21                   | 300.0              | 5.51                     |
| 1500.0             | 69.38                     | 0.23                   | 305.0              | 4.64                     |
| 1800.0             | 67.61                     | 0.25                   | 310.0              | 4.02                     |
| 2000.0             | 62.83                     | 0.27                   | 320.0              | 3.14                     |
| 2500.0             | 52.12                     | 0.34                   | 330.0              | 2.57                     |
| 3000.0             | 42.71                     | 0.42                   | 340.0              | 2.17                     |
| 3500.0             | 36.53                     | 0.55                   | 345.0              | 2.03                     |
| 4000.0             | 31.74                     | 0.72                   | 350.0              | 1.90                     |

## Typical Performance Curves



## Outline Dimensions

GP731



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

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

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

### Notes:

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

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



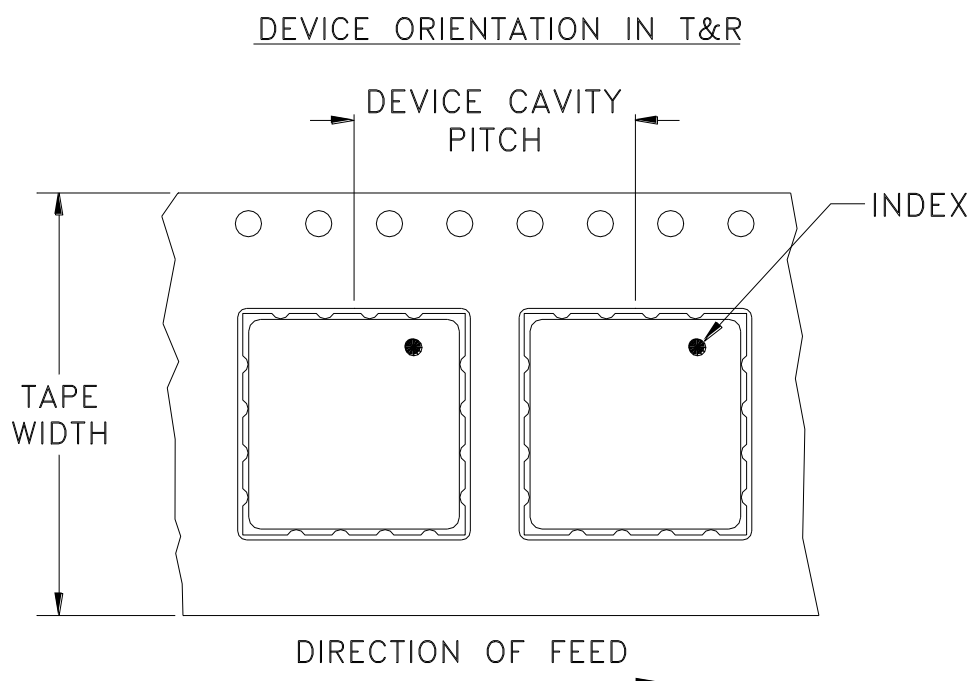
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RF/IF MICROWAVE COMPONENTS

# Tape & Reel Packaging TR-F78



| Tape Width,<br>mm | Device Cavity<br>Pitch, mm | Reel Size,<br>inches | Devices per Reel<br>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.

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Mini-Circuits ISO 9001 & ISO 14001 Certified



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                                                                          |
| 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<br>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;<br>distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C | MIL-STD-202, Method 215                                                                              |