

Surface Mount

# Diplexer

## RDP-272+

50Ω DC to 2700 MHz  
(DC-950, 1700-2700 MHz)



CASE STYLE: CK605

### The Big Deal

- Low insertion loss
- High isolation
- Miniature shielded package

### Product Overview

RDP-272+ is a low-pass + high-pass combination device. Low pass port is designed for DC to 950 MHz and high pass port is designed for 1700 to 2700 MHz. This diplexer can be used in satellite systems, vehicle tracking, communication test sets and other multiband radio systems.

### Key Features

| Feature                     | Advantages  |
|-----------------------------|---|
| Low passband insertion loss | Suitable for high performance application.              |
| Extended stopband rejection | Spurious rejection and avoids using additional filters. |
| Miniature shielded package  | Reduced interference with the surrounding components.   |

#### Notes

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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](http://www.minicircuits.com/MCLStore/terms.jsp)

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## RDP-272+

50Ω DC to 2700 MHz (DC-950, 1700-2700 MHz)

### Maximum Ratings

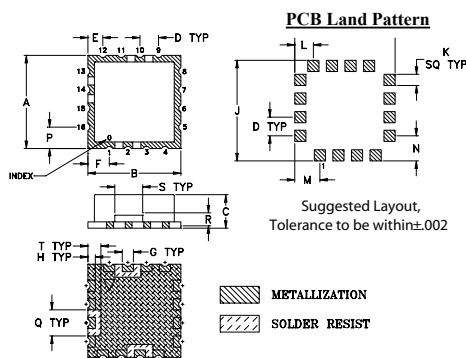
|                       |                |
|-----------------------|----------------|
| Operating Temperature | -40C to 85°C   |
| Storage Temperature   | -55°C to 100°C |
| RF Power Input        | 0.5W at 25°C   |

Permanent damage may occur if any of these limits are exceeded. These ratings are not intended for continuous normal operation

### Pin Connections

|                |                   |
|----------------|-------------------|
| HIGH PASS PORT | 14                |
| LOW PASS PORT  | 10                |
| COMMON PORT    | 2                 |
| GROUND         | 1,3-9,11-13,15,16 |

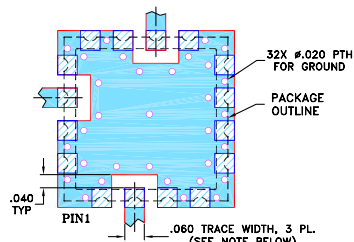
### Outline Drawing



### Outline Dimensions (inch)

| A    | B     | C     | D     | E     | F     | G     | H     | J     | K     |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| .500 | .500  | .180  | .100  | .080  | .115  | .060  | .040  | .540  | .060  |
| 12.7 | 12.7  | 4.572 | 2.54  | 2.032 | 2.921 | 1.524 | 1.016 | 13.72 | 1.524 |
| L    | M     | N     | P     | Q     | R     | S     | T     | Wt.   |       |
| .100 | .135  | .135  | .115  | .140  | .070  | .150  | .070  | grams |       |
| 2.54 | 3.429 | 3.429 | 2.921 | 3.556 | 1.778 | 3.81  | 1.778 | 1.0   |       |

### Demo Board MCL P/N: TB-10+ Suggested PCB Layout (PL-012)



- NOTES: 1. TRACE WIDTH IS SHOWN FOR FR4 WITH DIELECTRIC THICKNESS .030" ± .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

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### Features

- Low insertion loss
- 50Ω Impedance
- Combination of Low pass and High pass filters
- Miniature shielded package
- Aqueous washable

### Applications

- Satellite systems
- Vehicle tracking
- Multiband radio systems



CASE STYLE: CK605  
PRICE: \$9.95 ea. QTY (10)

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

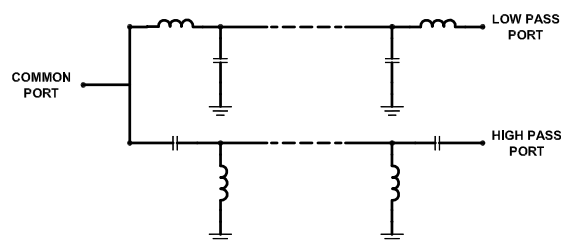
### Electrical Specifications at 25°C

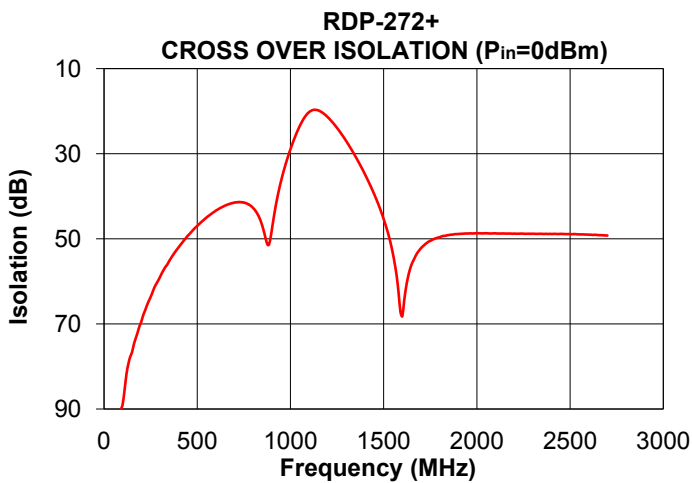
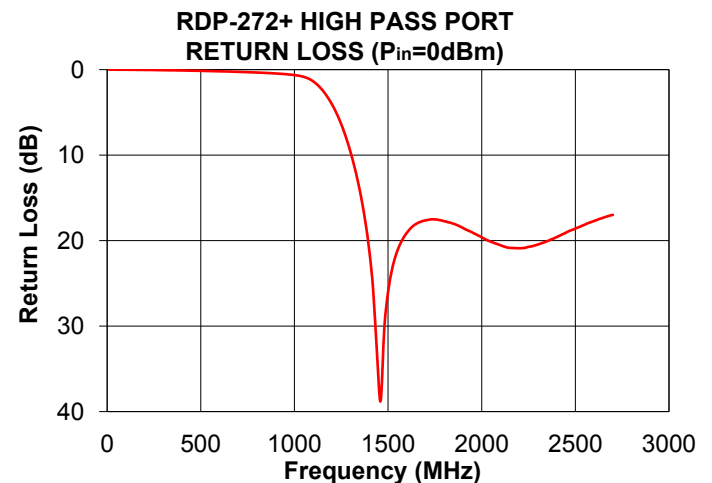
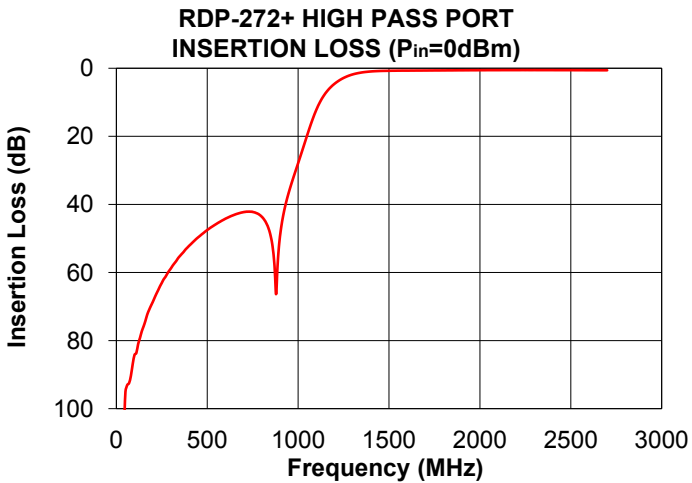
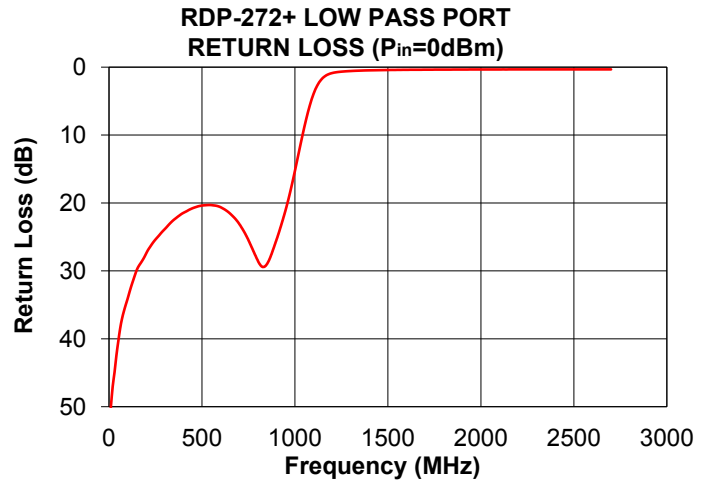
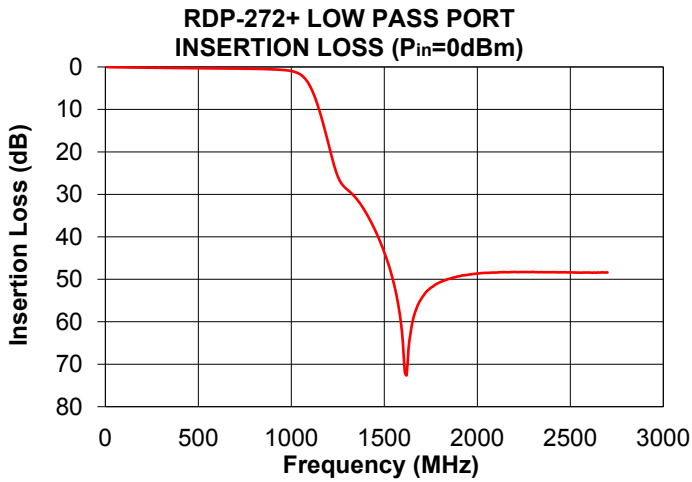
| Parameter           | Port           | Frequency (MHz) | Min.      | Typ. | Max. | Unit |    |
|---------------------|----------------|-----------------|-----------|------|------|------|----|
| Pass Band           | Insertion Loss | Low Pass        | DC-950    | -    | 0.7  | 2.5  | dB |
|                     |                | High Pass       | 1700-2700 | -    | 0.7  | 1.5  |    |
|                     | Return Loss    | Low Pass        | DC-950    | 12   | 18   | -    | dB |
|                     |                | High Pass       | 1700-2700 | 12   | 17   | -    |    |
| Common              |                | DC-950          | 12        | 20   | -    |      |    |
| Stop Band Isolation | Low Pass       | 1360-2700       | 20        | 31   | -    | dB   |    |
|                     |                | 1700-2700       | 36        | 48   | -    |      |    |
|                     | High Pass      | DC-980          | -         | 30   | -    | dB   |    |
| DC-950              | 20             | 35              | -         |      |      |      |    |

### Typical Performance Data at 25°C

| FREQUENCY (MHz) | INSERTION LOSS (dB) |                |             | RETURN LOSS (dB) |                |
|-----------------|---------------------|----------------|-------------|------------------|----------------|
|                 | Low Pass Port       | High Pass Port | Common Port | Low Pass Port    | High Pass Port |
| 10              | 0.03                | 102.79         | 48.98       | 50.10            | 0.00           |
| 30              | 0.06                | 104.68         | 43.87       | 44.92            | 0.00           |
| 120             | 0.12                | 81.00          | 30.90       | 32.24            | 0.02           |
| 360             | 0.24                | 54.54          | 21.45       | 22.24            | 0.08           |
| 858             | 0.50                | 51.81          | 29.28       | 28.58            | 0.40           |
| 950             | 0.69                | 36.22          | 22.33       | 21.02            | 0.53           |
| 980             | 0.82                | 31.11          | 19.06       | 17.73            | 0.59           |
| 1020            | 1.19                | 24.62          | 13.78       | 12.67            | 0.70           |
| 1080            | 3.09                | 14.94          | 6.79        | 5.63             | 1.10           |
| 1120            | 6.38                | 9.96           | 4.28        | 2.71             | 1.72           |
| 1140            | 8.79                | 8.14           | 3.78        | 1.88             | 2.16           |
| 1200            | 18.17               | 4.57           | 4.36        | 0.87             | 4.04           |
| 1220            | 21.58               | 3.79           | 5.01        | 0.76             | 4.88           |
| 1360            | 31.58               | 1.16           | 14.42       | 0.50             | 15.38          |
| 1480            | 41.41               | 0.76           | 33.54       | 0.43             | 30.23          |
| 1550            | 50.81               | 0.70           | 22.97       | 0.40             | 21.17          |
| 1620            | 72.56               | 0.68           | 19.66       | 0.38             | 18.57          |
| 1700            | 54.49               | 0.66           | 18.29       | 0.37             | 17.63          |
| 1850            | 49.88               | 0.62           | 18.09       | 0.35             | 18.03          |
| 2000            | 48.64               | 0.57           | 18.82       | 0.34             | 19.62          |
| 2450            | 48.35               | 0.56           | 17.23       | 0.33             | 19.06          |
| 2700            | 48.38               | 0.59           | 15.66       | 0.33             | 16.99          |

### Functional Schematic





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