

# Diplexer

50Ω      1 to 2500 MHz (1-1050, 1650-2500 MHz)

## Maximum Ratings

|                       |                |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C  |
| Storage Temperature*  | -55°C to 100°C |
| RF Power Input**      | 2W at 25°C     |

\* 12 months max

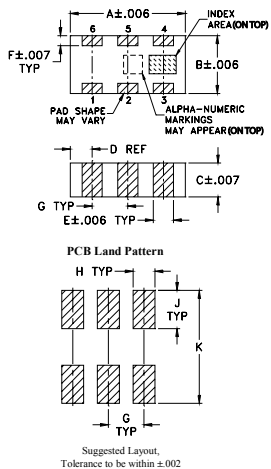
\*\* passband rating, derate linearly to 0.5W at 85°C ambient.

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

## Pin Connections

|                |       |
|----------------|-------|
| Low Pass Port  | 3     |
| High Pass Port | 1     |
| Common Port    | 5     |
| Ground         | 2,4,6 |

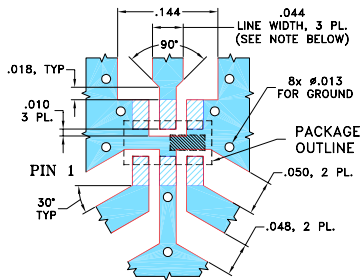
## Outline Drawing



### Outline Dimensions ( inch )

|      |      |      |      |      |       |
|------|------|------|------|------|-------|
| A    | B    | C    | D    | E    | F     |
| 126  | .063 | .035 | .024 | .022 | .011  |
| 3.20 | 1.60 | 0.89 | 0.61 | 0.56 | 0.28  |
| G    | H    | J    | K    |      | wt    |
| .039 | .024 | .042 | .123 |      | grams |
| 0.99 | 0.61 | 1.07 | 3.12 |      | .020  |

**Demo Board MCL P/N: TB-706**  
**Suggested PCB Layout (PL-398)**



**NOTE:** 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020"  $\pm$  .0015". 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.

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 DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).

 DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

## 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.

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CASE STYLE: FV1206-1

## Features

- low insertion loss
- high rejection
- temperature stable
- miniature package

## Applications

- satellite systems
- communication systems
- multiband systems
- cellular
- GPS
- WCDMA

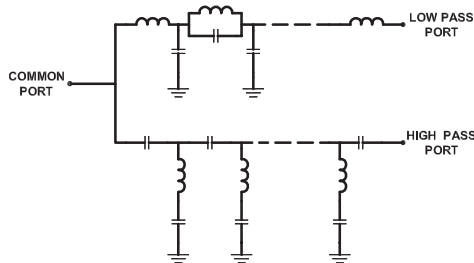
### Electrical Specifications at 25°C

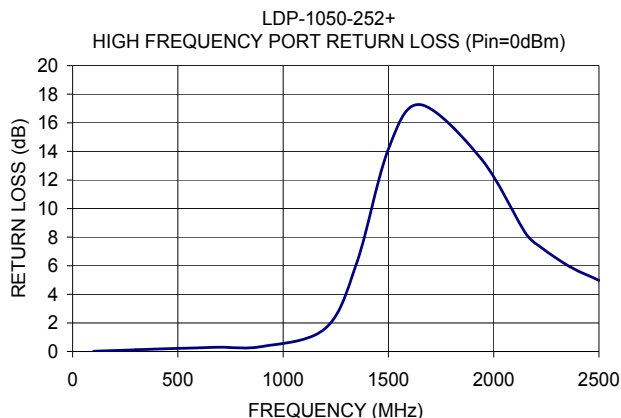
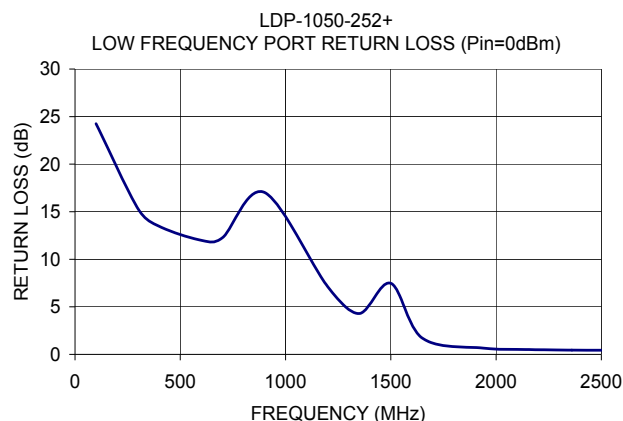
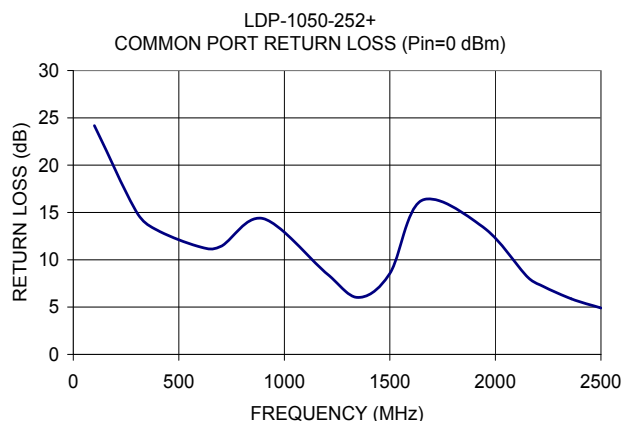
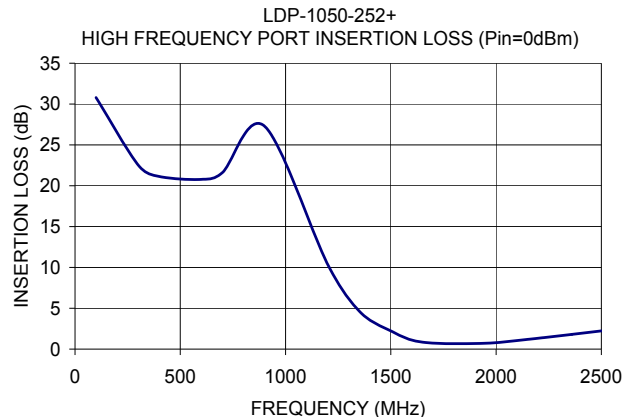
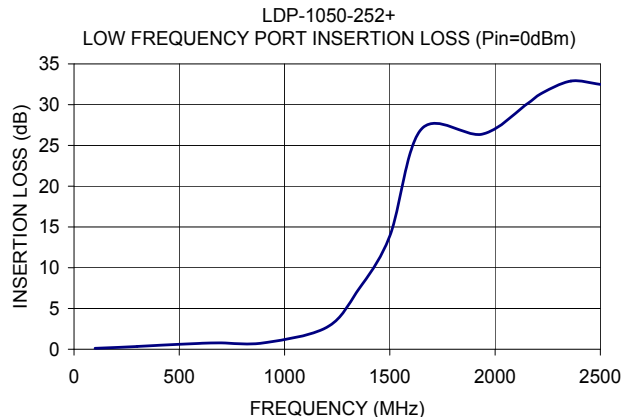
| Parameter           |                | Port      | Frequency (MHz) | Min. | Typ. | Max. | Unit |
|---------------------|----------------|-----------|-----------------|------|------|------|------|
| Pass Band           | Insertion Loss | Low Pass  | 1 - 1050        | —    | 0.6  | 1.5  | dB   |
|                     |                | High Pass | 1650 - 2150     | —    | 1.0  | 1.8  |      |
|                     |                |           | 2150 - 2500     | —    | 2.0  | 2.9  |      |
|                     | Return Loss    | Low Pass  | 1 - 1050        | 10   | 15   | —    | dB   |
|                     |                | High Pass | 1650 - 2150     | 6    | 12   | —    |      |
|                     |                |           | 2150 - 2500     | —    | 8    | —    |      |
|                     |                | Common    | 1 - 1050        | 11   | 14   | —    |      |
|                     |                |           | 1650 - 2150     | 6    | 17   | —    |      |
|                     |                |           | 2150 - 2500     | —    | 8    | —    |      |
| Stop Band Isolation |                | High Pass | 1 - 200         | 20   | 32   | —    | dB   |
|                     |                |           | 200 - 800       | 18   | 21   | —    |      |
|                     |                |           | 800 - 1050      | 20   | 25   | —    |      |
|                     |                | Low Pass  | 1650 - 2500     | 18   | 31   | —    | dB   |

### Typical Performance Data at 25°C

| Frequency<br>(MHz) | Insertion Loss<br>(dB) |                |             | Return Loss<br>(dB) |                |
|--------------------|------------------------|----------------|-------------|---------------------|----------------|
|                    | Low Pass Port          | High Pass Port | Common Port | Low Pass Port       | High Pass Port |
| 100.0              | 0.11                   | 30.80          | 24.17       | 24.26               | 0.02           |
| 300.0              | 0.35                   | 22.54          | 15.04       | 15.29               | 0.12           |
| 400.0              | 0.49                   | 21.14          | 13.10       | 13.47               | 0.17           |
| 600.0              | 0.72                   | 20.78          | 11.37       | 12.00               | 0.26           |
| 700.0              | 0.78                   | 21.60          | 11.43       | 12.26               | 0.30           |
| 900.0              | 0.78                   | 27.30          | 14.35       | 17.03               | 0.35           |
| 1200.0             | 2.68                   | 10.37          | 8.55        | 7.12                | 1.62           |
| 1350.0             | 7.27                   | 4.66           | 6.02        | 4.30                | 6.21           |
| 1500.0             | 13.90                  | 2.23           | 8.55        | 7.48                | 14.17          |
| 1650.0             | 27.00                  | 0.86           | 16.26       | 1.70                | 17.27          |
| 1940.0             | 26.39                  | 0.71           | 13.48       | 0.65                | 13.49          |
| 2150.0             | 30.06                  | 1.19           | 8.22        | 0.51                | 8.31           |
| 2220.0             | 31.38                  | 1.39           | 7.26        | 0.48                | 7.34           |
| 2360.0             | 32.90                  | 1.81           | 5.87        | 0.45                | 5.95           |
| 2500.0             | 32.48                  | 2.23           | 4.90        | 0.44                | 4.98           |

### Functional Schematic





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