*Ceramic*

# Dual Low Pass Filter DLFCV-1000+

## 50Ω DC to 1000 MHz



CASE STYLE: JV1210C-1

## The Big Deal

- Low insertion loss
- Fast roll off
- Small size
- Dual filter in 1210 package

## Product Overview

DLFCV-1000+ is a dual low pass filter which can also operate as a balanced input /output low pass filter in LTCC package. This filter has faster roll and offers low insertion loss, low VSWR and high power handling.

## Key Features

| Feature | Advantages |
|---|---|
| Faster roll off | DLFCV-1000+ is a dual low pass filter in LTCC package with 7 sections hence the roll off is faster. |
| Power handling | Each filter can handle 8.5W power. |
| Dual filter | Dual Filter in 1210 package, LTCC construction. |

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## DLFCV-1000+

50Ω DC to 1000 MHz



CASE STYLE: JV1210C-1

### Maximum Ratings

| | |
|---|---|
| Operating Temperature | -40° to 85°C |
| Storage Temperature | -55°C to 100°C |
| RF Power Input* | 8.5W Max. at 25°C |

* Passband rating, derate linearly to 3.5W at 100°C ambient. Permanent damage may occur if any of these limits are exceeded.

### Pin Connections

| | |
|---|---|
| RF IN1, RF IN2 | 1, 6 |
| RF OUT1, RF OUT2 | 3, 4 |
| GROUND | 2, 5 |

### Features

- Low insertion loss
- Smal size
- Excellent return loss
- High rejection

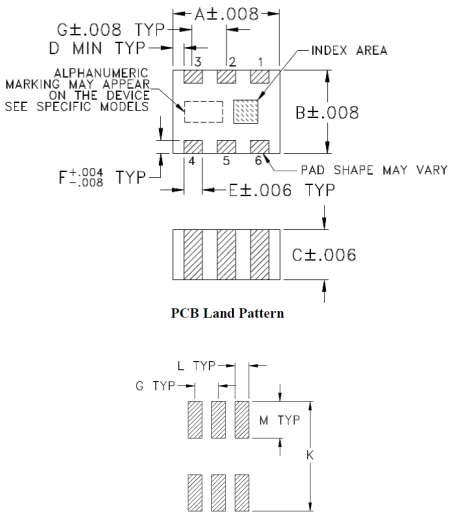
### Applications

- Military Applications
- VHF/UHF transmitters/receivers
- Harmonic rejection
- Output of the A/D convertor
- Test and Measurement

**+RoHS Compliant**

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

### Outline Drawing

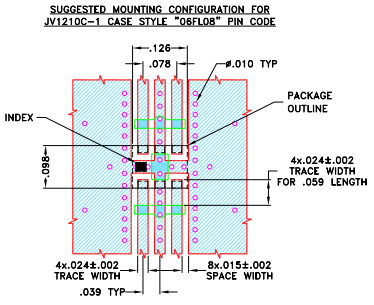



### Outline Dimensions (inch / mm)

| A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|
| .126 | .098 | .059 | .004 | .022 | .016 | .039 |
| 3.2 | 2.5 | 1.50 | .1 | .56 | .4 | 1.0 |

| H | J | K | L | M | WT.GRAMS |
|---|---|---|---|---|---|
| - | - | .177 | .024 | .059 | .03 |
| - | - | 4.5 | .6 | 1.5 | |

### *Demo Board MCL P/N: TB-867+*
### *Suggested PCB Layout (PL-483)*




NOTES:
1. TRACE WIDTH IS SHOWN FOR ROGERS (RO4350B) WITH DIELECTRIC THICKNESS .010"±.001". 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)

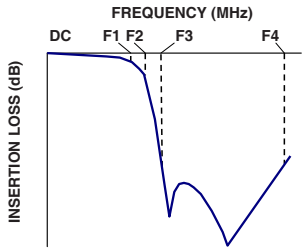
DENOTES COPPER LAND PATTERN FREE OF SOLDERMASK

### Electrical Specifications[1,2] at 25°C

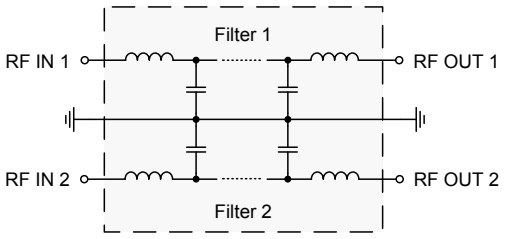
| Parameter | | F# | Frequency (MHz) | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| Pass Band | Insertion Loss | DC-F1 | DC-1000 | — | 1.2 | 2.2 | dB |
| | Freq. Cut-Off | F2 | 1280 | — | 3.0 | — | dB |
| | Amp Unbalance | DC-F1 | DC-1000 | — | 0.1 | — | dB |
| | Pha Unbalance | DC-F1 | DC-1000 | — | 3 | — | deg |
| | VSWR | DC-F1 | DC-1000 | — | 1.4 | — | :1 |
| Stop Band | Insertion Loss | F3-F4 | 1700-5000 | 24 | 27 | — | dB |
| | Cross Over Isolation | F3-F4 | 1700-5000 | — | 27 | — | dB |
| | VSWR | F3-F4 | 1700-5000 | — | 20 | — | :1 |

*(1) In Application where DC voltage is present at either input or output ports, coupling capacitors are required.*
*(2) Measured on Mini-Circuits Characterization Test Board TB-867+.*

### Typical Frequency Response



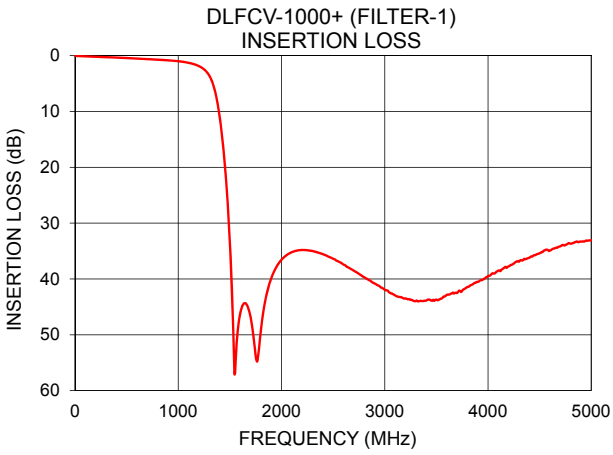

### Functional Schematic

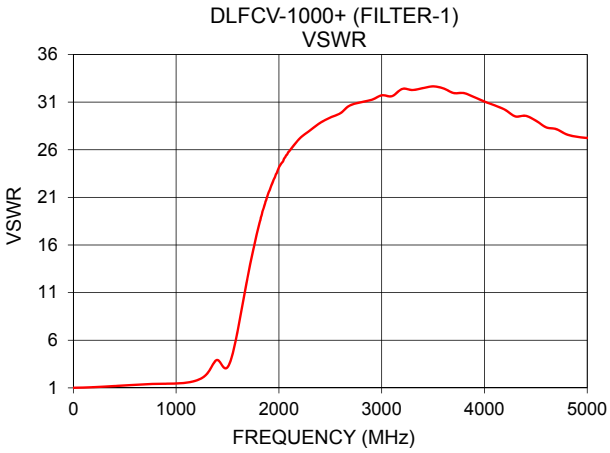


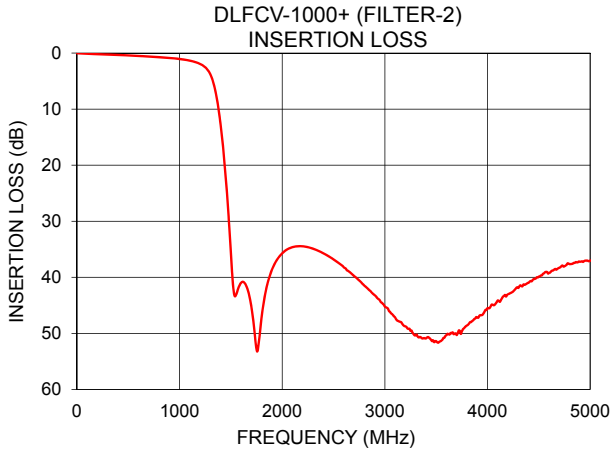

### Typical Performance Data at 25°C

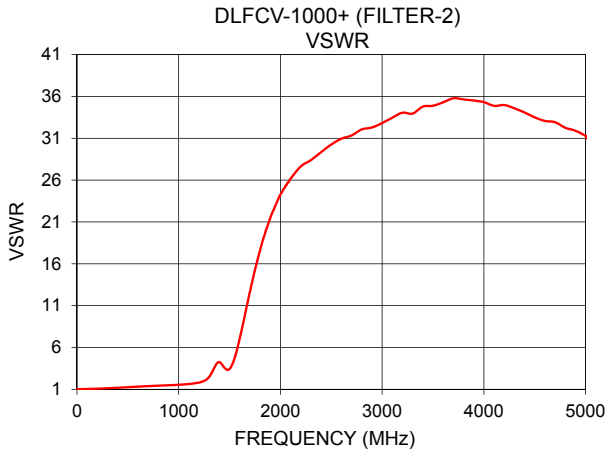
| Freq. | Insertion Loss Filter1 | Insertion Loss Filter2 | Cross Over Isolation | VSWR Filter1 | VSWR Filter2 | Freq. | Amp Unbal. | Phase Unbal. | Group Delay Filter1 | Group Delay Filter2 |
|---|---|---|---|---|---|---|---|---|---|---|
| (MHz) | (dB) | (dB) | (dB) | (:1) | (:1) | (MHz) | (dB) | (deg) | (ns) | (ns) |
| 1.0 | 0.03 | 0.03 | 86.58 | 1.01 | 1.01 | 1.0 | 0.01 | 0.01 | 0.56 | 0.57 |
| 30.0 | 0.07 | 0.07 | 56.46 | 1.01 | 1.01 | 40.0 | 0.01 | 0.02 | 0.58 | 0.58 |
| 100.0 | 0.13 | 0.12 | 45.96 | 1.04 | 1.03 | 60.0 | 0.01 | 0.05 | 0.58 | 0.58 |
| 250.0 | 0.24 | 0.23 | 38.21 | 1.10 | 1.10 | 100.0 | 0.01 | 0.09 | 0.58 | 0.58 |
| 500.0 | 0.43 | 0.42 | 33.11 | 1.25 | 1.25 | 140.0 | 0.00 | 0.16 | 0.58 | 0.58 |
| 1000.0 | 1.00 | 1.05 | 30.36 | 1.46 | 1.54 | 200.0 | 0.01 | 0.24 | 0.58 | 0.58 |
| 1280.0 | 3.02 | 3.16 | 36.44 | 2.26 | 2.24 | 260.0 | 0.01 | 0.34 | 0.58 | 0.58 |
| 1400.0 | 10.79 | 12.85 | 30.56 | 3.93 | 4.25 | 300.0 | 0.01 | 0.38 | 0.59 | 0.59 |
| 1450.0 | 19.29 | 22.21 | 32.88 | 3.32 | 3.57 | 340.0 | 0.01 | 0.44 | 0.59 | 0.59 |
| 1500.0 | 33.50 | 35.73 | 38.85 | 3.17 | 3.43 | 460.0 | 0.02 | 0.64 | 0.61 | 0.61 |
| 1600.0 | 46.20 | 40.97 | 59.38 | 7.08 | 7.08 | 480.0 | 0.02 | 0.69 | 0.61 | 0.61 |
| 1700.0 | 46.78 | 45.32 | 65.50 | 12.88 | 12.65 | 500.0 | 0.02 | 0.73 | 0.61 | 0.62 |
| 1760.0 | 54.70 | 53.12 | 64.01 | 15.97 | 15.76 | 540.0 | 0.02 | 0.82 | 0.62 | 0.63 |
| 1800.0 | 49.27 | 47.00 | 63.58 | 17.81 | 17.63 | 600.0 | 0.02 | 0.93 | 0.64 | 0.64 |
| 1900.0 | 39.91 | 38.63 | 62.98 | 21.53 | 21.49 | 660.0 | 0.03 | 1.06 | 0.66 | 0.66 |
| 2000.0 | 36.56 | 35.71 | 62.46 | 24.14 | 24.28 | 700.0 | 0.03 | 1.20 | 0.67 | 0.68 |
| 2100.0 | 35.21 | 34.62 | 61.91 | 25.84 | 26.18 | 740.0 | 0.03 | 1.31 | 0.69 | 0.70 |
| 2500.0 | 36.38 | 36.82 | 73.40 | 29.38 | 30.26 | 800.0 | 0.03 | 1.55 | 0.72 | 0.73 |
| 3000.0 | 41.95 | 45.22 | 49.35 | 31.71 | 32.81 | 840.0 | 0.03 | 1.77 | 0.75 | 0.76 |
| 3400.0 | 43.88 | 50.90 | 42.63 | 32.46 | 34.79 | 900.0 | 0.04 | 2.11 | 0.80 | 0.81 |
| 4000.0 | 39.49 | 45.49 | 36.75 | 31.05 | 35.32 | 960.0 | 0.06 | 2.48 | 0.86 | 0.87 |
| 5000.0 | 33.10 | 37.01 | 31.76 | 27.23 | 31.28 | 1000.0 | 0.07 | 2.81 | 0.90 | 0.91 |

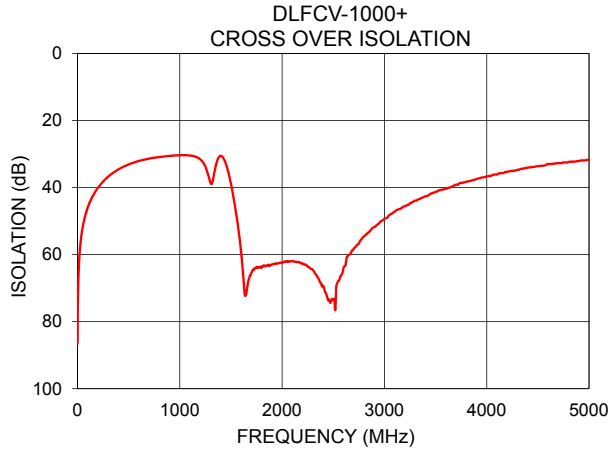
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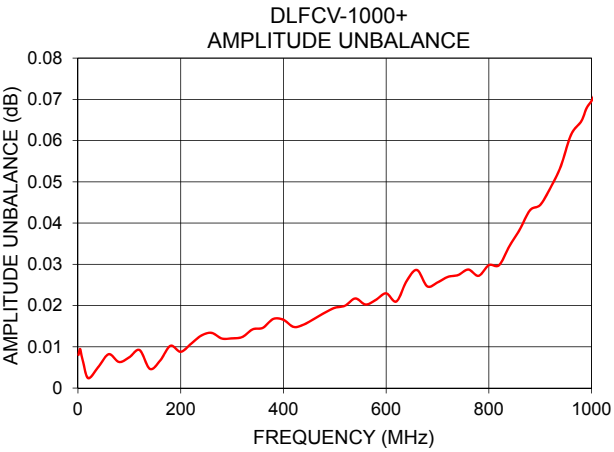


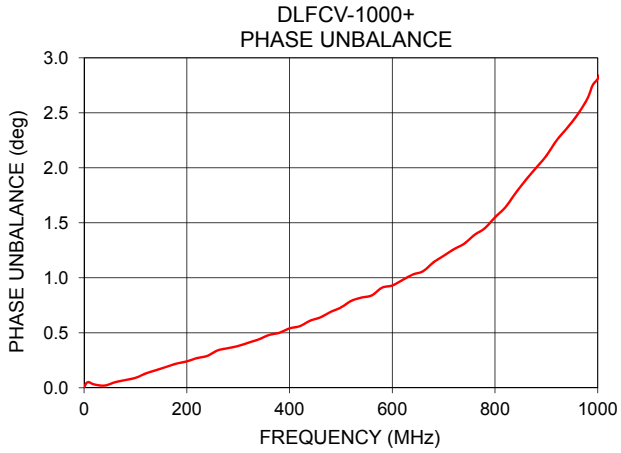



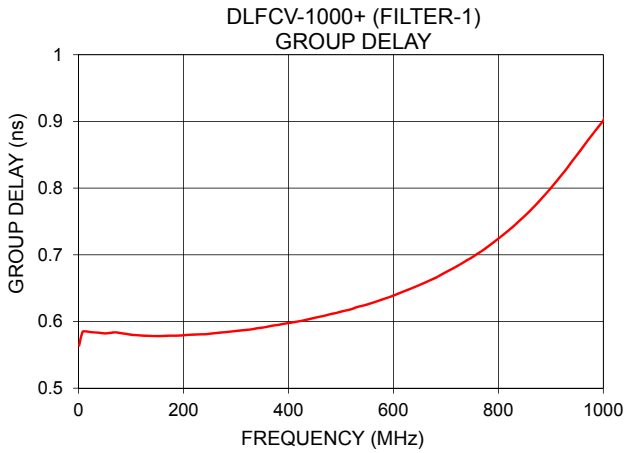



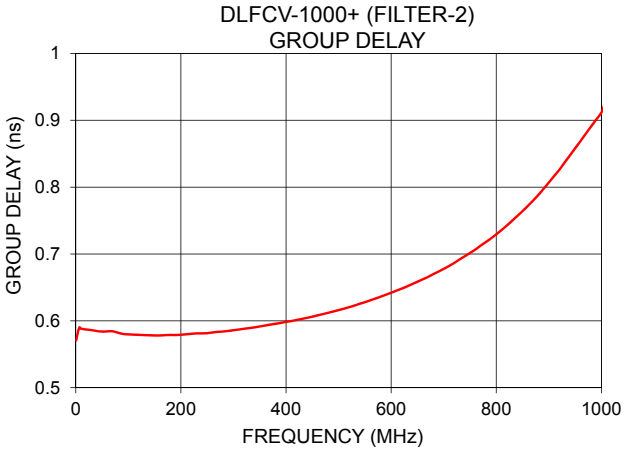




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