

Differential Low Pass Filter

DLFCG-540+

100Ω DC to 540 MHz

The Big Deal

- Differential operation
- Fast roll off
- Small size, 0805
- Very wide stopband, up to 8360 MHz without re-entry



CASE STYLE: GE0805C-1

Product Overview

Mini-Circuits' DLFCG-540+ is an LTCC differential low pass filter with a passband from DC to 540 MHz. This model is ideal for applications requiring filtering of balanced signals on dual 50Ω lines such as DACs/ ADCs, systems with very low noise requirements and more. The filter provides low insertion loss in the passband, fast roll off in the transition, and a very wide stopband without re-entry up to 8360 MHz, making it suitable for use in wideband systems with many harmonics and spurious products. The unit comes housed in a tiny, rugged 0805 ceramic package, with wraparound terminations for excellent solderability.

Key Features

| Feature | Advantages |
|---|---|
| Differential filter | Allows filtering of balanced signals in a single, tiny component. Eliminates the need for binning and matching of separate discrete components. |
| Tiny size (0.08 x 0.05 x 0.03") | Saves space in dense circuit board layouts and minimizes the effects of parasitics. |
| Fast roll off | Provides sharp rejection at frequencies close to the passband. |
| Ultra-wide stopband | Provides excellent rejection over more than a decade of bandwidth, ideal for blocking harmonics in wideband test and measurement or communications systems. |
| Wrap-around terminations | Provides excellent solderability and easy visual inspection. |
| Wide operating temperature range, -55 to +100°C | Enables reliable performance in extreme environments. |



Differential

Low Pass Filter

100Ω

DC to 540 MHz

DLFCG-540+



CASE STYLE: GE0805C-1

Features

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

Applications

- Military Applications
- VHF/UHF transmitters/receivers
- Harmonic rejection
- A/D and D/A conversion

+RoHS Compliant

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

Electrical Specifications^(1,2) at 25°C

| Parameter | F# | Frequency (MHz) | Min. | Typ. | Max. | Unit | |
|-----------|----------------|-----------------|------------|------|------|------|----|
| Pass Band | Insertion Loss | DC-F1 | DC - 540 | — | 1.2 | 2.2 | dB |
| | Freq. Cut-Off | F2 | 590 | — | 3.0 | — | dB |
| | VSWR | DC-F1 | DC - 540 | — | 1.2 | — | :1 |
| Stop Band | Insertion Loss | F3-F4 | 720 - 8360 | 19 | 26 | — | dB |
| | | | 890 - 4560 | 26 | 31 | — | dB |
| | VSWR | F3-F4 | 720 - 8360 | — | 20 | — | :1 |

(1) In Application where DC voltage is present at either input or output ports, de-coupling capacitors are required.
 (2) Measured on Mini-Circuits Characterization Test Board TB-939+.

Maximum Ratings

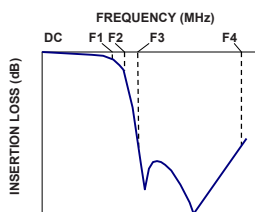
| | |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| RF Power Input | 1W Max. |

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

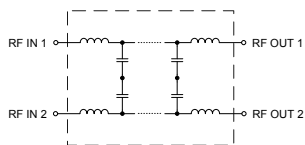
Typical Performance Data at 25°C

| Frequency (MHz) | Insertion Loss (dB) | VSWR (:1) |
|-----------------|---------------------|-----------|
| 25 | 0.13 | 1.02 |
| 50 | 0.16 | 1.05 |
| 100 | 0.21 | 1.11 |
| 150 | 0.27 | 1.15 |
| 200 | 0.33 | 1.18 |
| 250 | 0.39 | 1.18 |
| 300 | 0.44 | 1.14 |
| 400 | 0.59 | 1.04 |
| 500 | 0.97 | 1.13 |
| 540 | 1.35 | 1.18 |
| 720 | 36.83 | 26.82 |
| 1000 | 46.90 | 69.09 |
| 1500 | 30.18 | 97.20 |
| 2000 | 31.35 | 124.98 |
| 3000 | 48.91 | 143.98 |
| 4000 | 33.42 | 111.40 |
| 5000 | 28.46 | 116.79 |
| 6000 | 25.35 | 276.99 |
| 7000 | 23.27 | 145.65 |
| 8400 | 20.53 | 73.20 |

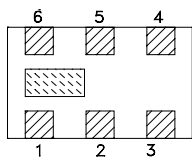
Specification Definition



Functional Schematic

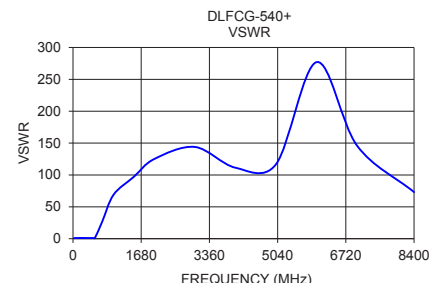
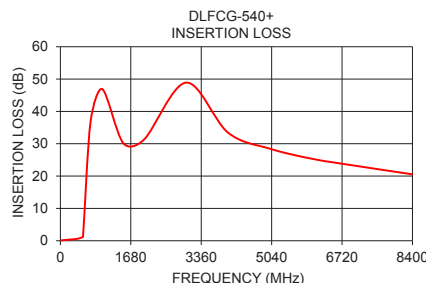


Top View

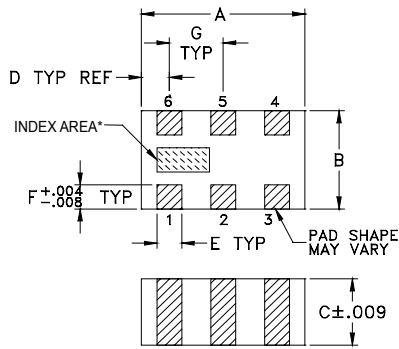


Pad Connections

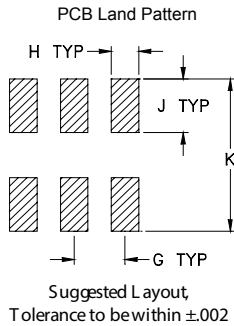
| | |
|------------------|------|
| RF IN1, RF IN2 | 1, 6 |
| RF OUT1, RF OUT2 | 3, 4 |
| NO CONNECTION | 2, 5 |



Outline Drawing



*Shape of index marking may vary



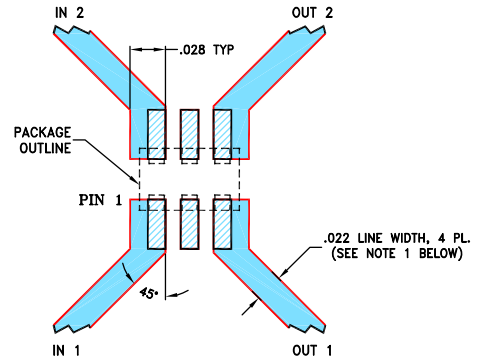
Pad Connections

| | |
|------------------|------|
| RF IN1, RF IN2 | 1, 6 |
| RF OUT1, RF OUT2 | 3, 4 |
| NO CONNECTION | 2, 5 |

Outline Dimensions ($\frac{\text{inch}}{\text{mm}}$)

| | | | | | |
|------|------|------|------|------|-------|
| A | B | C | D | E | F |
| .079 | .049 | .033 | .014 | .012 | .012 |
| 2.01 | 1.24 | 0.84 | 0.36 | 0.30 | 0.30 |
| G | H | J | K | | wt |
| .026 | .014 | .039 | .110 | | grams |
| 0.66 | 0.36 | 1.00 | 2.80 | | .008 |

Demo Board MCL P/N: TB-939+ Suggested PCB Layout (PL-516)



NOTES:

- TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .010" ± .001"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
- 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

Additional Notes

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- 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

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Mini-Circuits:](#)

[DLFCG-540+](#)