*Ceramic*

# Low Pass Filter

# LFCG-2500+

50Ω DC to 2500 MHz

*Generic photo used for illustration purposes only*

CASE STYLE: GE0805C-2

## The Big Deal

- Very good rejection, 50 dB typical
- Rugged, ceramic construction
- Tiny size, 0.079" x 0.049" x 0.037" (0805)
- Excellent power handling, 4.5W

## Product Overview

Mini-Circuits' LFCG-2500+ is an LTCC low pass filter with a passband from DC to 2500 MHz, supporting a variety of applications. This model provides 1.2 dB typical passband insertion loss and provides a very good stopband rejection due to strategically constructed layout with minimal interaction between components. It handles up to 4.5W RF input power and provides a wide operating temperature range from -55 to +125°C. Housed in a tiny 0805 ceramic form factor with wraparound terminations, the filter is ideal for dense PCB layouts and with minimal performance variation due to parasitics.

## Key Features

| Feature | Advantages |
|---|---|
| Ultra-wide stopband | The LTCC lowpass filter provides a very good stopband rejection until 10 GHz suitable for high end applications. |
| LTCC Construction | Provides repeatable performance in a rugged, ceramic package well suited for tough environments such as high humidity and temperature extremes. |
| Tiny size (0.079" x 0.049" x 0.037") | Saves space in dense circuit board layouts and minimizes the effects of parasitics. |
| High power handling, 4.5W | Supports a wide range of system power requirements. |
| Wrap-around terminations | Provides excellent solderability and easy visual inspection |

Notes
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**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.
**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

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## LFCG-2500+

50Ω DC to 2500 MHz

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CASE STYLE: GE0805C-2

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

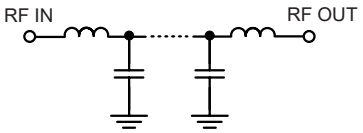
### Features

- Low loss, 1.2 dB typical
- High rejection 50 dB typical
- Excellent power handling, 4.5W
- Extremely small size 0805 (2.0 mm x 1.25 mm)
- Temperature stable
- LTCC construction

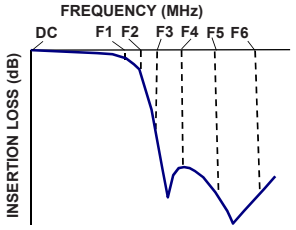
### Applications

- Harmonic Rejection
- VHF/UHF transmitters / receivers
- Military radar applications
- Test and measurement
- Telecommunications & broadband wireless applications

### Functional Schematic




### Typical Frequency Response




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

| Parameter | | F# | Frequency (MHz) | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| Pass Band | Insertion Loss | DC-F1 | DC-2500 | — | 1.2 | 2.2 | dB |
| | Freq. Cut-Off | F2 | 2870 | — | 3.0 | — | dB |
| | Return Loss | DC-F1 | DC-2500 | — | 16 | — | dB |
| Stop Band | Rejection Loss | F3-F4 | 3500-4000 | 20 | 33 | — | dB |
| | | F4-F5 | 4000-7000 | 35 | 45 | — | dB |
| | | F5-F6 | 7000-10000 | — | 30 | — | dB |

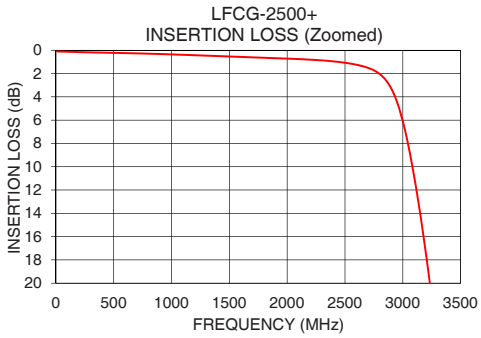
1 DC de-coupling capacitors are required in Applications where DC voltage and/or current is present at either input or output ports. Please contact Mini-Circuits for alternatives if DC pass from IN-OUT is required.
2 Measured on Mini-Circuits Characterization Test Board TB-799+

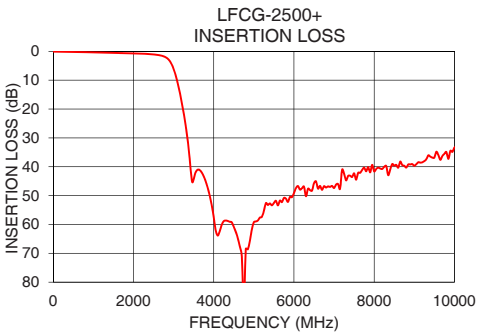
| Maximum Ratings | |
|---|---|
| Operating Temperature | -55°C to 125°C |
| Storage Temperature | -55°C to 125°C |
| RF Power Input* | 4.5 W max.@25°C |

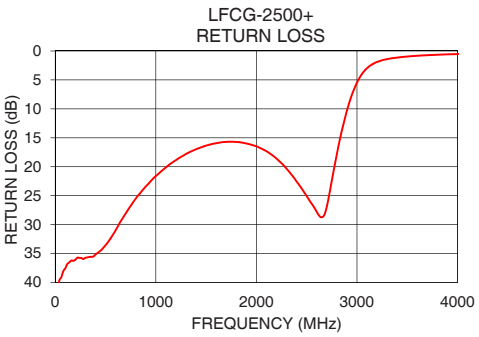
*Passband rating, derate linearly to 1W at 125°C ambient
Permanent damage may occur if any of these limits are exceeded.

### Typical Performance Data at 25°C

| Frequency (MHz) | Insertion Loss (dB) | Return Loss (dB) |
|---|---|---|
| 10 | 0.10 | 42.29 |
| 100 | 0.13 | 37.56 |
| 1000 | 0.35 | 21.60 |
| 1400 | 0.50 | 16.97 |
| 1800 | 0.65 | 15.72 |
| 2020 | 0.73 | 16.62 |
| 2500 | 1.07 | 25.08 |
| 2870 | 2.78 | 12.28 |
| 2885 | 3.01 | 11.26 |
| 2950 | 4.43 | 7.55 |
| 3235 | 20.11 | 1.68 |
| 3345 | 30.23 | 1.27 |
| 3450 | 44.28 | 1.04 |
| 3700 | 41.97 | 0.73 |
| 4000 | 57.45 | 0.53 |
| 6000 | 49.13 | 0.28 |
| 7000 | 47.37 | 0.24 |
| 8500 | 39.63 | 0.35 |
| 9800 | 34.91 | 0.54 |
| 10000 | 33.37 | 0.61 |

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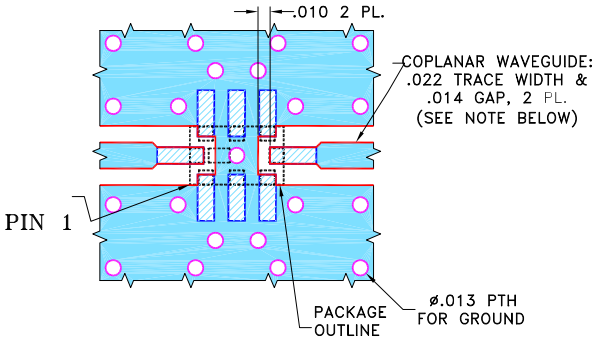
## Pad Connections

| | |
|---|---|
| INPUT | 8 |
| OUTPUT | 4 |
| GROUND | 1,2,3,5,6,7 |

**Product Marking:** LH

***Demo Board MCL P/N: TB-799+***
***Suggested PCB Layout (PL-429)***



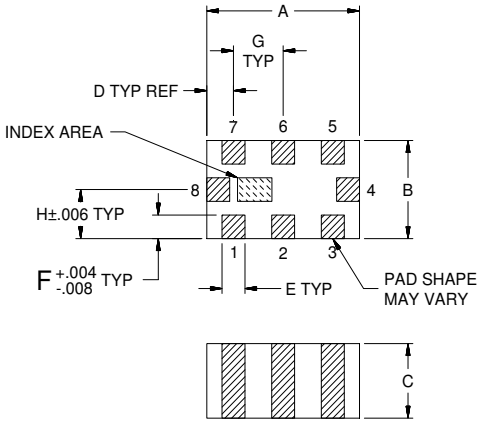

NOTES:

1. COPLANAR WAVEGUIDE IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .010" ± .001". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP 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.

## Outline Drawing




## Outline Dimensions ( inch / mm )

| A | B | C | D | E | F | G | Wt. |
|---|---|---|---|---|---|---|---|
| **.079** | **.049** | **.037** | **.014** | **.012** | **.012** | **.026** | grams |
| 2.00 | 1.25 | 0.95 | 0.35 | 0.30 | 0.30 | 0.65 | .008 |

*Note: Please refer to case style drawing for details*

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*Typical Performance Data*

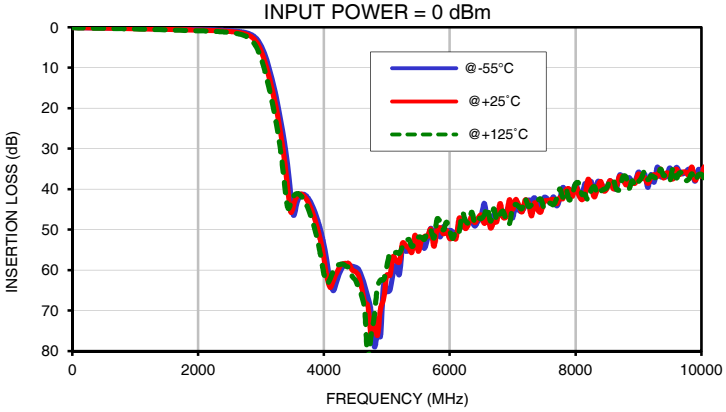
| FREQ. | INSERTION LOSS | | | INPUT RETURN LOSS | | | OUTPUT RETURN LOSS | | |
|---|---|---|---|---|---|---|---|---|---|
| (MHz) | (dB) | | | (dB) | | | (dB) | | |
| | @-55°C | @+25˚C | @+125˚C | @-55°C | @+25˚C | @+125˚C | @-55°C | @+25˚C | @+125˚C |
| 10 | 0.08 | 0.10 | 0.11 | 48.24 | 44.02 | 41.77 | 46.11 | 43.78 | 41.80 |
| 40 | 0.08 | 0.10 | 0.12 | 44.06 | 41.04 | 39.33 | 43.97 | 41.15 | 39.27 |
| 100 | 0.10 | 0.12 | 0.14 | 40.37 | 38.02 | 36.89 | 38.49 | 36.59 | 35.70 |
| 160 | 0.11 | 0.14 | 0.17 | 37.45 | 36.49 | 35.73 | 35.22 | 34.35 | 33.68 |
| 220 | 0.12 | 0.16 | 0.19 | 35.54 | 35.75 | 35.78 | 32.77 | 32.56 | 32.27 |
| 280 | 0.13 | 0.17 | 0.21 | 34.54 | 35.52 | 36.19 | 30.81 | 30.85 | 30.76 |
| 340 | 0.14 | 0.18 | 0.23 | 33.92 | 35.14 | 36.63 | 29.49 | 29.45 | 29.41 |
| 400 | 0.14 | 0.20 | 0.24 | 33.40 | 34.75 | 36.61 | 28.26 | 28.11 | 27.98 |
| 460 | 0.15 | 0.21 | 0.26 | 32.54 | 33.99 | 36.15 | 27.15 | 26.94 | 26.83 |
| 520 | 0.16 | 0.22 | 0.27 | 31.07 | 32.66 | 34.66 | 25.94 | 25.75 | 25.65 |
| 580 | 0.17 | 0.23 | 0.29 | 29.68 | 31.22 | 32.93 | 24.88 | 24.76 | 24.66 |
| 640 | 0.18 | 0.25 | 0.31 | 28.34 | 29.65 | 31.02 | 23.84 | 23.72 | 23.65 |
| 700 | 0.19 | 0.26 | 0.32 | 27.07 | 28.12 | 29.23 | 22.96 | 22.84 | 22.78 |
| 760 | 0.20 | 0.27 | 0.34 | 25.82 | 26.62 | 27.52 | 22.07 | 21.93 | 21.88 |
| 820 | 0.22 | 0.29 | 0.36 | 24.63 | 25.30 | 26.02 | 21.26 | 21.15 | 21.08 |
| 880 | 0.23 | 0.30 | 0.38 | 23.40 | 24.00 | 24.58 | 20.49 | 20.38 | 20.31 |
| 940 | 0.24 | 0.32 | 0.40 | 22.35 | 22.88 | 23.35 | 19.81 | 19.70 | 19.63 |
| 1000 | 0.26 | 0.34 | 0.42 | 21.37 | 21.81 | 22.20 | 19.16 | 19.03 | 18.96 |
| 1060 | 0.27 | 0.36 | 0.44 | 20.52 | 20.88 | 21.21 | 18.60 | 18.47 | 18.37 |
| 1120 | 0.29 | 0.38 | 0.47 | 19.70 | 20.00 | 20.29 | 18.05 | 17.91 | 17.81 |
| 1180 | 0.31 | 0.40 | 0.49 | 18.99 | 19.25 | 19.51 | 17.56 | 17.42 | 17.32 |
| 1240 | 0.33 | 0.42 | 0.52 | 18.30 | 18.54 | 18.76 | 17.10 | 16.96 | 16.86 |
| 1300 | 0.35 | 0.44 | 0.54 | 17.71 | 17.94 | 18.14 | 16.71 | 16.58 | 16.47 |
| 1360 | 0.37 | 0.47 | 0.57 | 17.18 | 17.38 | 17.57 | 16.35 | 16.22 | 16.10 |
| 2000 | 0.57 | 0.70 | 0.86 | 15.95 | 16.19 | 16.33 | 16.07 | 16.09 | 16.00 |
| 2500 | 0.84 | 1.04 | 1.29 | 23.52 | 24.17 | 26.08 | 20.81 | 20.74 | 21.04 |
| 2870 | 2.02 | 2.64 | 3.56 | 14.55 | 12.71 | 10.73 | 12.01 | 10.42 | 8.79 |
| 2885 | 2.18 | 2.86 | 3.86 | 13.40 | 11.66 | 9.84 | 11.16 | 9.64 | 8.12 |
| 2900 | 2.36 | 3.11 | 4.20 | 12.32 | 10.68 | 9.02 | 10.33 | 8.88 | 7.48 |
| 2950 | 3.19 | 4.21 | 5.66 | 9.10 | 7.82 | 6.65 | 7.78 | 6.64 | 5.66 |
| 3000 | 4.46 | 5.81 | 7.65 | 6.55 | 5.65 | 4.92 | 5.72 | 4.94 | 4.37 |
| 3100 | 8.52 | 10.55 | 13.10 | 3.34 | 3.05 | 2.92 | 3.19 | 3.01 | 3.03 |
| 3235 | 16.76 | 19.57 | 23.08 | 1.63 | 1.71 | 1.86 | 2.10 | 2.30 | 2.64 |
| 3345 | 25.59 | 29.44 | 34.53 | 1.12 | 1.27 | 1.48 | 1.93 | 2.22 | 2.62 |
| 3500 | 45.39 | 45.08 | 42.30 | 0.79 | 0.96 | 1.17 | 1.84 | 2.14 | 2.50 |
| 3700 | 41.42 | 41.98 | 43.13 | 0.56 | 0.73 | 0.93 | 1.57 | 1.81 | 2.06 |
| 4000 | 53.63 | 57.05 | 60.95 | 0.37 | 0.53 | 0.70 | 1.03 | 1.19 | 1.36 |
| 5350 | 55.18 | 54.60 | 52.43 | 0.09 | 0.20 | 0.29 | 0.24 | 0.35 | 0.48 |
| 5500 | 54.82 | 55.34 | 51.91 | 0.08 | 0.18 | 0.28 | 0.22 | 0.33 | 0.47 |
| 5650 | 52.15 | 51.61 | 50.24 | 0.07 | 0.17 | 0.27 | 0.21 | 0.32 | 0.47 |
| 5800 | 49.79 | 49.96 | 47.39 | 0.06 | 0.17 | 0.28 | 0.19 | 0.31 | 0.48 |
| 5950 | 50.90 | 50.20 | 48.16 | 0.05 | 0.16 | 0.27 | 0.16 | 0.29 | 0.45 |
| 6100 | 51.40 | 52.22 | 49.92 | 0.04 | 0.15 | 0.27 | 0.15 | 0.27 | 0.45 |
| 6250 | 49.47 | 49.73 | 47.74 | 0.04 | 0.15 | 0.28 | 0.14 | 0.27 | 0.46 |
| 6400 | 49.13 | 48.28 | 48.32 | 0.03 | 0.16 | 0.29 | 0.12 | 0.27 | 0.47 |
| 6550 | 43.51 | 48.46 | 46.39 | 0.04 | 0.16 | 0.30 | 0.13 | 0.26 | 0.46 |
| 6600 | 47.51 | 46.90 | 44.53 | 0.02 | 0.15 | 0.31 | 0.10 | 0.25 | 0.47 |
| 6850 | 46.60 | 46.98 | 45.48 | 0.02 | 0.17 | 0.33 | 0.08 | 0.24 | 0.47 |
| 7000 | 47.12 | 45.01 | 44.43 | 0.03 | 0.18 | 0.37 | 0.06 | 0.23 | 0.47 |
| 7150 | 45.38 | 45.63 | 44.79 | 0.04 | 0.19 | 0.40 | 0.06 | 0.23 | 0.47 |
| 7300 | 42.79 | 46.59 | 43.93 | 0.06 | 0.20 | 0.41 | 0.06 | 0.21 | 0.47 |
| 7450 | 44.13 | 45.61 | 42.51 | 0.05 | 0.20 | 0.45 | 0.04 | 0.21 | 0.47 |
| 7600 | 43.46 | 42.65 | 43.48 | 0.05 | 0.23 | 0.49 | 0.02 | 0.21 | 0.47 |
| 7750 | 42.52 | 42.11 | 39.95 | 0.07 | 0.25 | 0.54 | 0.02 | 0.21 | 0.49 |
| 7900 | 41.84 | 39.99 | 42.67 | 0.06 | 0.27 | 0.54 | 0.02 | 0.21 | 0.47 |
| 8050 | 40.58 | 41.37 | 38.52 | 0.08 | 0.26 | 0.58 | 0.03 | 0.19 | 0.48 |
| 8200 | 39.96 | 37.58 | 42.63 | 0.08 | 0.31 | 0.59 | 0.00 | 0.23 | 0.46 |
| 9000 | 35.79 | 36.27 | 38.19 | 0.14 | 0.41 | 0.75 | 0.04 | 0.24 | 0.45 |
| 9800 | 35.06 | 36.50 | 37.54 | 0.17 | 0.41 | 0.74 | 0.07 | 0.23 | 0.41 |
| 10000 | 35.64 | 36.70 | 36.31 | 0.13 | 0.40 | 0.77 | 0.07 | 0.23 | 0.42 |

*Typical Performance Data*

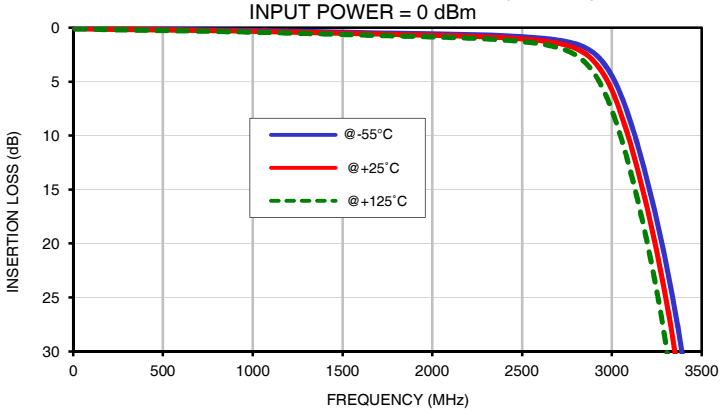
| FREQ. | GROUP DELAY | | |
|---|---|---|---|
| | (nsec) | | |
| (MHz) | @-55°C | @+25˚C | @+125˚C |
| 10 | 0.22 | 0.22 | 0.27 |
| 80 | 0.21 | 0.21 | 0.23 |
| 140 | 0.20 | 0.20 | 0.21 |
| 200 | 0.20 | 0.20 | 0.21 |
| 260 | 0.20 | 0.20 | 0.21 |
| 320 | 0.20 | 0.20 | 0.21 |
| 380 | 0.20 | 0.20 | 0.21 |
| 440 | 0.20 | 0.20 | 0.21 |
| 500 | 0.20 | 0.20 | 0.21 |
| 560 | 0.20 | 0.20 | 0.21 |
| 620 | 0.20 | 0.21 | 0.21 |
| 680 | 0.21 | 0.21 | 0.21 |
| 740 | 0.21 | 0.21 | 0.21 |
| 800 | 0.21 | 0.21 | 0.22 |
| 860 | 0.21 | 0.21 | 0.22 |
| 920 | 0.21 | 0.21 | 0.22 |
| 980 | 0.21 | 0.22 | 0.22 |
| 1040 | 0.22 | 0.22 | 0.22 |
| 1100 | 0.22 | 0.22 | 0.23 |
| 1160 | 0.22 | 0.23 | 0.23 |
| 1220 | 0.23 | 0.23 | 0.23 |
| 1280 | 0.23 | 0.23 | 0.24 |
| 1340 | 0.23 | 0.24 | 0.24 |
| 1400 | 0.24 | 0.24 | 0.25 |
| 1460 | 0.24 | 0.24 | 0.25 |
| 1520 | 0.25 | 0.25 | 0.26 |
| 1580 | 0.25 | 0.25 | 0.26 |
| 1640 | 0.26 | 0.26 | 0.27 |
| 1700 | 0.26 | 0.27 | 0.27 |
| 1760 | 0.27 | 0.27 | 0.28 |
| 1820 | 0.28 | 0.28 | 0.29 |
| 1880 | 0.29 | 0.29 | 0.30 |
| 1940 | 0.30 | 0.30 | 0.31 |
| 2000 | 0.31 | 0.31 | 0.32 |
| 2060 | 0.32 | 0.33 | 0.34 |
| 2120 | 0.33 | 0.34 | 0.35 |
| 2180 | 0.35 | 0.35 | 0.37 |
| 2240 | 0.36 | 0.37 | 0.39 |
| 2300 | 0.38 | 0.39 | 0.41 |
| 2400 | 0.41 | 0.42 | 0.44 |
| 2500 | 0.46 | 0.48 | 0.51 |

## *Typical Performance Curves*

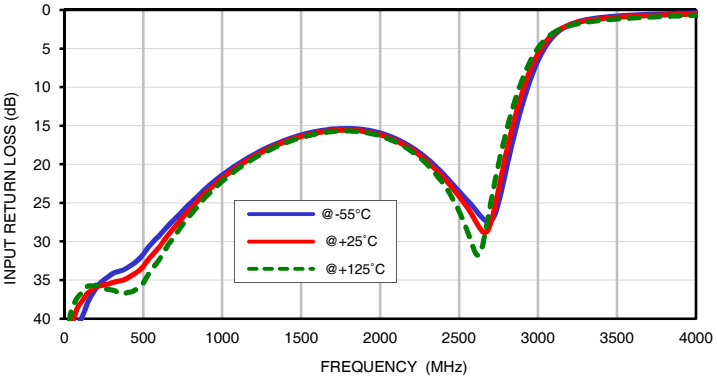
**INSERTION LOSS vs. TEMPERATURE**
INPUT POWER = 0 dBm



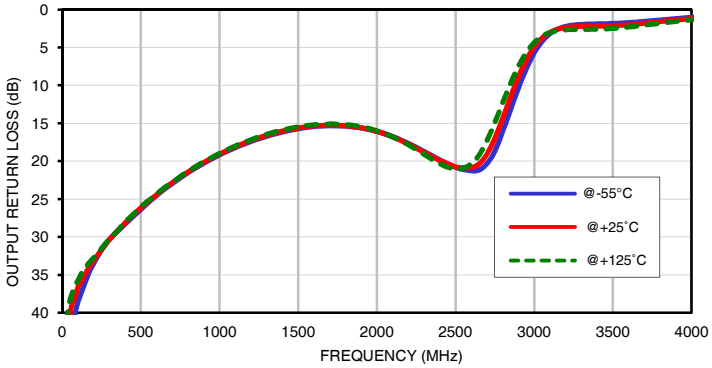

**INSERTION LOSS vs. TEMPERATURE (Zoomed)**
INPUT POWER = 0 dBm



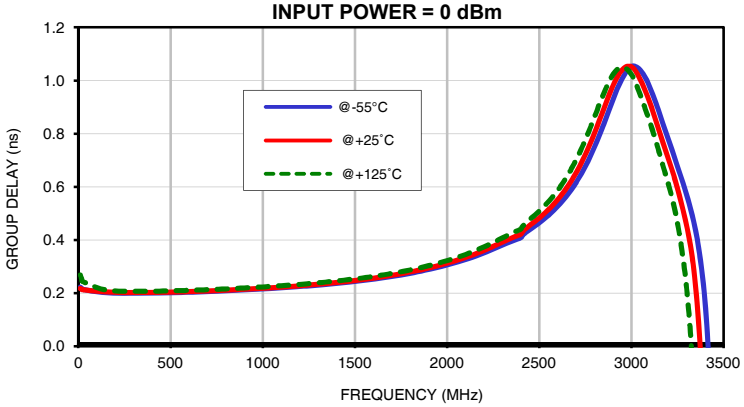

**INPUT RETURN LOSS vs. TEMPERATURE**
INPUT POWER = 0 dBm




**OUTPUT RETURN LOSS vs. TEMPERATURE**
INPUT POWER = 0 dBm

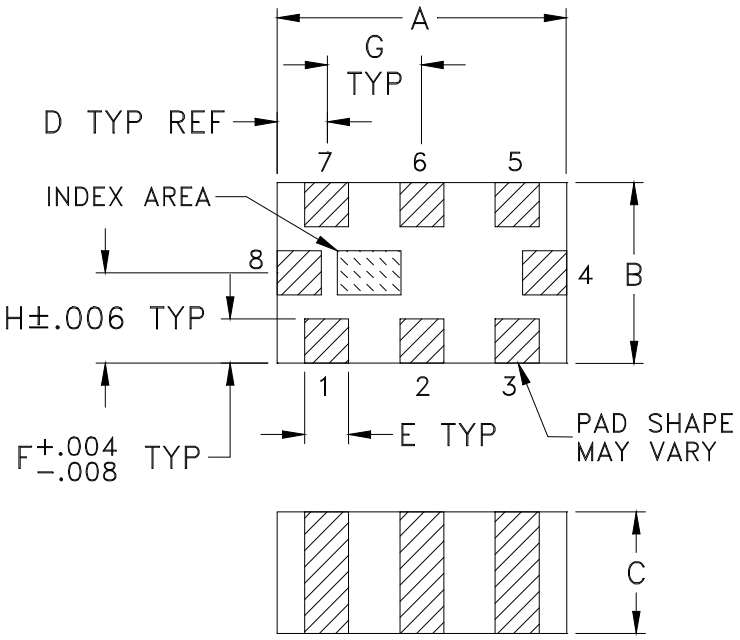



**GROUP DELAY vs. TEMPERATURE**
**INPUT POWER = 0 dBm**

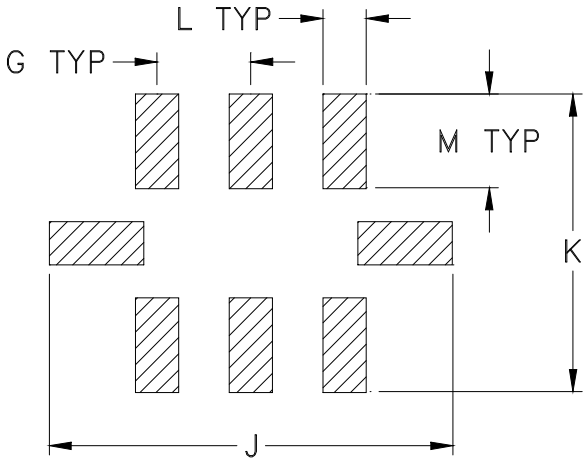


**GE0805C-2**

## Outline Dimensions




**PCB Land Pattern**




Suggested Layout,
Tolerance to be within ±.002

| CASE # | A | B | C | D | E | F | G | H | J | K | L |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GE0805C-2 | .079 (2.00) | .049 (1.25) | .037 (0.95) | .014 (0.35) | .012 (0.30) | .012 (0.30) | .026 (0.65) | .025 (0.63) | .134 (3.40) | .110 (2.80) | .014 (0.35) |

| CASE # | M | WT. GRAM |
|---|---|---|
| GE0805C-2 | .039 (1.00) | .008 |

**Dimensions are in inches (mm). Tolerances: 2Pl. ± .01; 3 Pl. ± .005**

### Notes:

1. Open style, ceramic base.
2. Termination finish: For RoHS Case Styles: Tin plate over Nickel plate. All models, (+) suffix.
   For RoHS-5 Case Styles: Tin-Lead plate over Nickel plate. All models, no (+) suffix.
3. Pad tolerance to be non-cumulative. Minimum spacing between each pad is .004 (0.1).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# Tape & Reel Packaging TR-F114

DEVICE ORIENTATION IN T&R

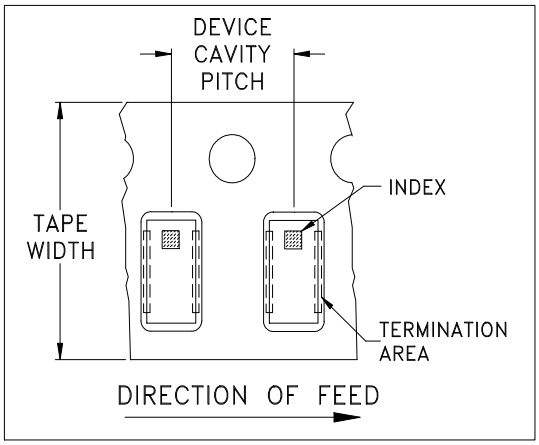


ILLUSTRATION 1

| Applicable Case Styles | |
|---|---|
| GE0805C | JC0603C |
| GE0805C-1 | JC0603C-4 |
| GE0805C-1AP | JC0603C-6 |
| GE0805C-7 | |
| GE0805C-9 | |
| GE0805C-10 | |
| GE0805C-11 | |
| GE0805C-12 | |

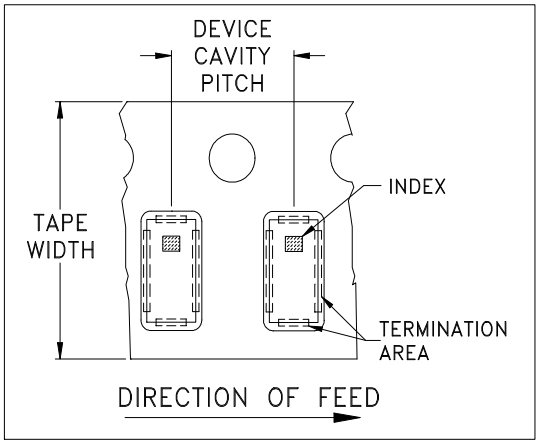


ILLUSTRATION 2

| Applicable Case Styles | |
|---|---|
| GE0805C-2 | JC0603C-1 |
| GE0805C-3 | JC0603C-2 |
| GE0805C-4 | JC0603C-3 |
| GE0805C-5 | JC0603C-5 |
| GE0805C-6 | JC0603C-7 |
| GE0805C-8 | JV1210C-1 |
| GE0805C-15 | |

| Tape Width, mm | Device Cavity Pitch, mm | Reel Size, inches | Devices per Reel | |
|---|---|---|---|---|
| 8 | 4 | 7 | Small quantity standards (see note) | 20 |
| | | | | 50 |
| | | | | 100 |
| | | | | 200 |
| | | | | 500 |
| | | | | 1000 |
| | | | Standard | 4000 |

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.

Go to: www.minicircuits.com/pages/pdfs/tape.pdf

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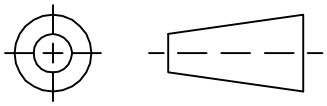
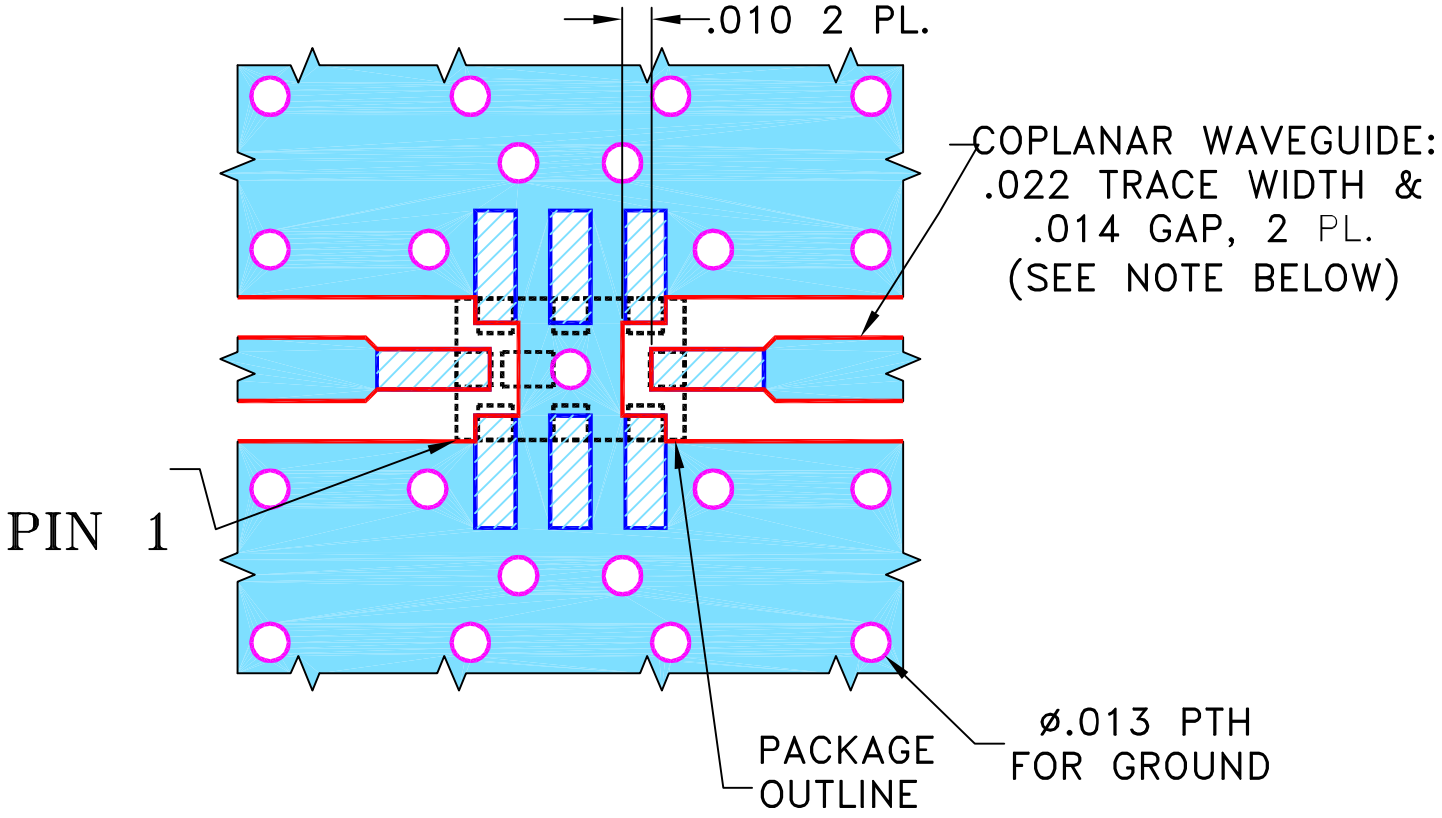
THIRD ANGLE PROJECTION



| REVISIONS | | | | | |
|---|---|---|---|---|---|
| REV | ECN No. | DESCRIPTION | DATE | DR | AUTH |
| OR | M148457 | NEW RELEASE | 10/14/14 | GF | MY |
| | | | | | |
| | | | | | |
| | | | | | |

## SUGGESTED MOUNTING CONFIGURATION FOR GE0805C-4 CASE STYLE, "08FL07" PIN CODE




NOTES:

1. COPLANAR WAVEGUIDE IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .010" ± .001". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP 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.

| UNLESS OTHERWISE SPECIFIED | | INITIALS | DATE |
|---|---|---|---|
| DIMENSIONS ARE IN INCHES | DRAWN | GF | 10/01/14 |
| TOLERANCES ON: | CHECKED | IL | 10/14/14 |
| 2 PL DECIMALS ± | APPROVED | MY | 10/14/14 |
| 3 PL DECIMALS ± .005 | | | |
| ANGLES ± | | | |
| FRACTIONS ± | | | |

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ASHEETA1.DWG REV:A DATE:01/12/95

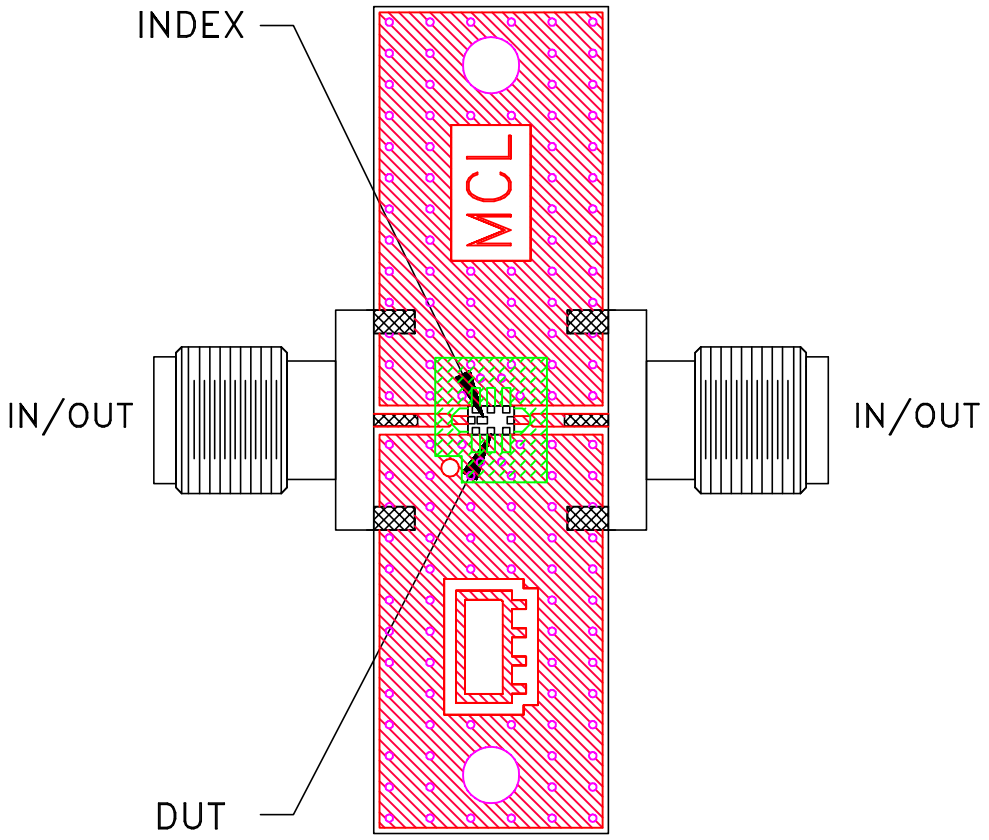
Mini-Circuits® 13 Neptune Avenue Brooklyn NY 11235

PL, 08FL07, GE0805C-4, TB-799+

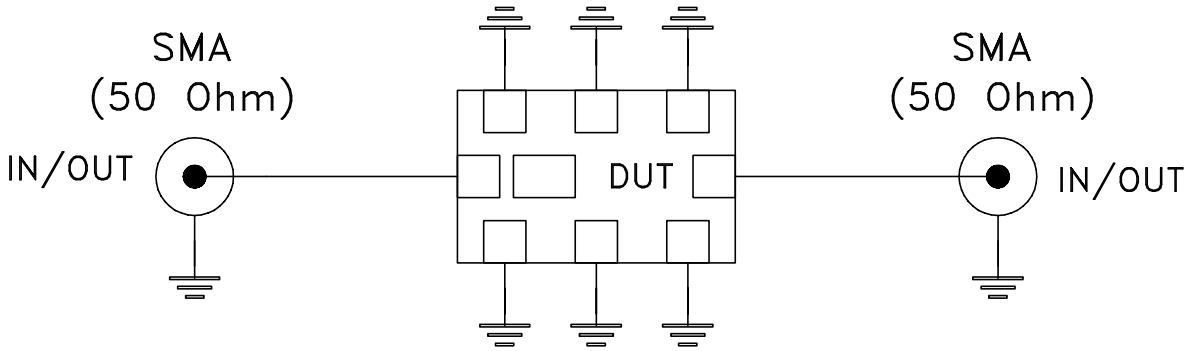
| SIZE | CODE IDENT | DRAWING NO: | REV: |
|---|---|---|---|
| A | 15542 | 98-PL-429 | OR |

| FILE: | SCALE: | SHEET: |
|---|---|---|
| 98PL429 | 15:1 | 1 OF 1 |

# Evaluation Board and Circuit




TB-799+




Schematic Diagram

Notes:

1. 50 Ohm SMA Female connectors.
2. PCB Material: RO4350 or equivalent,
   Dielectric Constant=3.5, Thickness=.010 inch.

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# Environmental Specifications ENV06

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 | -55° to 100°C<br>Ambient Environment | Individual Model Data Sheet |
| Storage Temperature | -55° to 100° C<br>Ambient Environment | Individual Model Data Sheet |
| 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 |
| Solder Reflow Heat | Sn-Pb Eutetic Process: 225°C peak<br>Pb-Free Process 245° - 250°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, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36) | MIL-STD-202, Method 204, Condition D |
| Mechanical Shock | 50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes | MIL-STD-202, Method 213, Condition A |


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