

Ceramic

# Low Pass Filter

50Ω DC<sup>1</sup> to 435 MHz

## Features

- Low loss, 0.9 dB typ.
- Small size 0805 (2.0 x 1.25 mm)
- Temperature stable
- LTCC construction

## Applications

- Automatic meter reading
- Harmonic Rejection
- VHF/UHF transmitters / receivers

# LFCG-42+



Generic photo used for illustration purposes only  
CASE STYLE: GE0805C-2

**+RoHS Compliant**

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



Available Tape and Reel at no extra cost

Reel Size	Devices/Reel
7"	20, 50, 100, 200, 500, 1000, 4000

## Electrical Specifications<sup>1,2</sup> at 25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	DC - F1	DC - 435	0.9	1.6	dB
	Freq. cut-off	F2	475	—	3.0	dB
	VSWR	DC - F1	DC - 435	—	1.5	:1
Stop Band	Rejection Loss	F3	625	20	40	—
		F4 - F5	650 - 2700	25	30	—
		F6	6000	—	30	—

<sup>1</sup> In Application where DC voltage is present at either input or output port, coupling capacitors are required.

<sup>2</sup> Measured on Mini-Circuits Characterization Test Board TB-800+

## Maximum Ratings

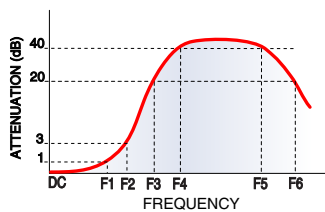
Operating Temperature	-55°C to +100°C
Storage Temperature	-55°C to +100°C
RF Power Input*	2W at 25°C

\*Passband rating, derate linearly to 1W at 100°C ambient  
Permanent damage may occur if any of these limits are exceeded.

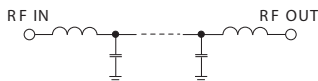
## Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
10	0.21	1.01
20	0.13	1.02
100	0.21	1.14
200	0.31	1.15
300	0.42	1.10
435	0.89	1.25
475	1.68	1.64
625	43.44	53.03
650	34.41	60.85
800	32.18	97.11
1000	44.53	115.78
1500	42.44	131.39
2000	43.76	151.39
2700	55.08	158.07
4000	42.79	142.86
5000	37.13	98.40
6000	33.51	88.66

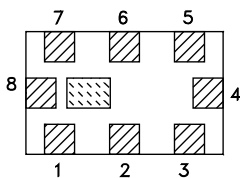
## Specification Definition



## Functional Schematic

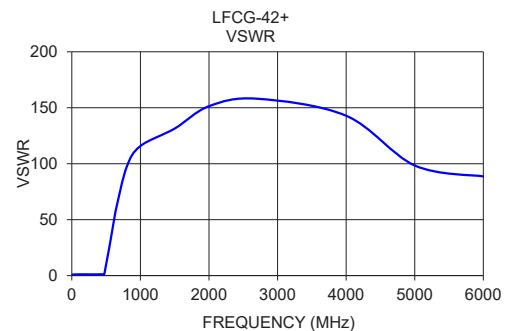
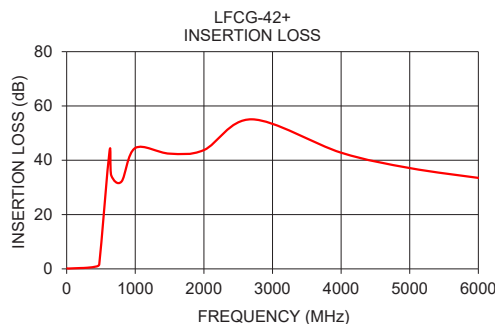


## Top View

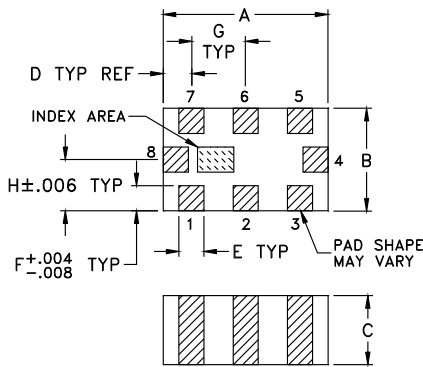


## Pad Connections

Input	8
Output	4
Ground	1,3,5,7
Isolate (Do not ground)	2,6



## Outline Drawing



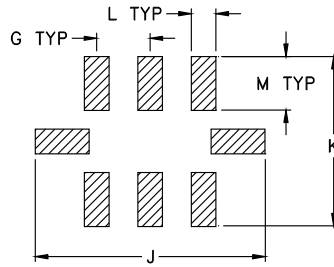
### Pad Connections

Input	8
Output	4
Ground	1,3,5,7
Isolate (Do not ground)	2,6

## Outline Dimensions (inch/mm)

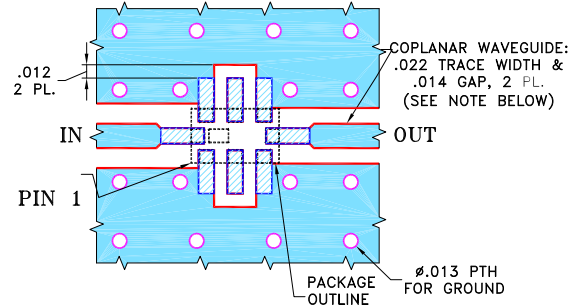
A	B	C	D	E	F	G
.079	.049	.037	.014	.012	.012	.026
2.01	1.24	0.94	0.36	0.30	0.30	0.66
H	J	K	L	M		wt
.025	.134	.104	0.014	.039		grams
0.64	3.40	2.64	0.36	0.99		.008

## PCB Land Pattern



Suggested Layout,  
Tolerance to be within .002

## Demo Board MCL P/N: TB-800+ Suggested PCB Layout (PL-427)



### NOTES:

1. COPLANAR WAVEGUIDE IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS  $.010" \pm .001"$ , 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.

## Additional 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.
- 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)

# Ceramic Low Pass Filter

# LFCG-42+

## Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	VSWR (:1)
10.0	0.21	1.01
20.0	0.13	1.02
50.0	0.15	1.05
100.0	0.21	1.14
150.0	0.26	1.18
200.0	0.31	1.15
250.0	0.35	1.07
300.0	0.42	1.10
350.0	0.56	1.29
400.0	0.75	1.39
435.0	0.89	1.25
475.0	1.68	1.64
500.0	3.86	3.45
550.0	13.88	17.81
600.0	29.84	42.25
625.0	43.44	53.03
650.0	34.41	60.85
700.0	30.44	76.99
750.0	30.69	88.68
800.0	32.18	97.11
850.0	34.35	108.28
900.0	37.03	111.46
950.0	40.28	122.12
1000.0	44.53	115.78
1050.0	50.84	128.33
1100.0	63.92	126.75
1200.0	49.53	134.72
1300.0	45.06	137.09
1400.0	43.26	133.62
1500.0	42.44	131.39
1600.0	42.23	138.47
1700.0	42.29	141.35
1800.0	42.58	149.10
1900.0	43.11	148.90
2000.0	43.76	151.39
2100.0	44.64	147.94
2200.0	45.70	144.76
2300.0	46.87	156.65
2400.0	48.24	157.93
2500.0	49.97	168.55
2600.0	52.10	165.61
2700.0	55.08	158.07
2800.0	59.65	161.07
2900.0	69.35	150.79
3000.0	67.77	158.80
3100.0	59.47	159.65
3200.0	55.25	160.69
3300.0	52.18	162.17
3400.0	50.09	149.27
3500.0	48.32	153.93
4000.0	42.79	142.86
4500.0	39.50	119.29
5000.0	37.13	98.40
5500.0	34.98	98.07
6000.0	33.51	88.66



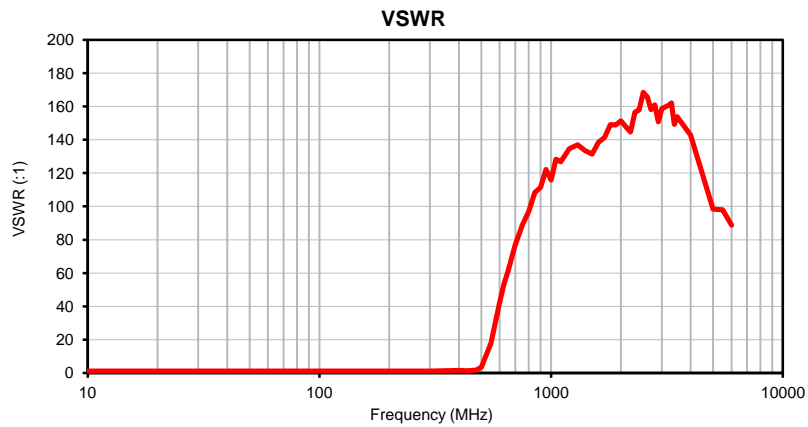
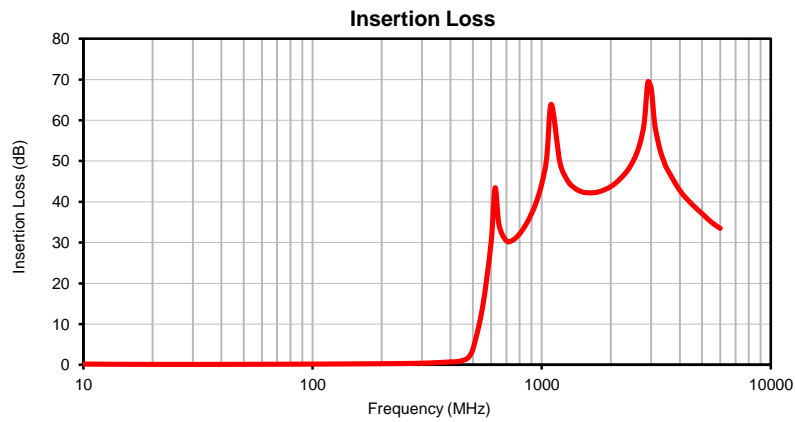
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 • Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site  
 The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

REV. OR  
 LFCG-42+  
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# Ceramic Low Pass Filter

## Typical Performance Curves

# LFCG-42+



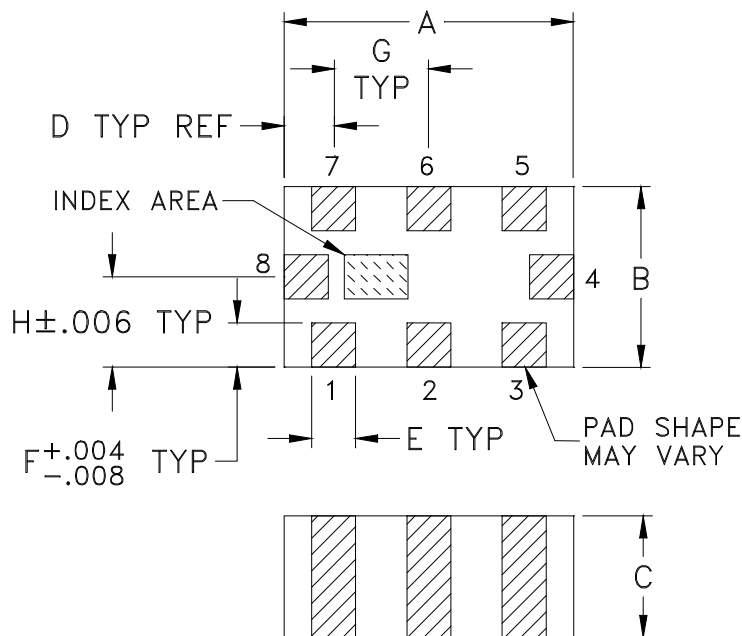
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The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: [www.minicircuits.com](http://www.minicircuits.com)



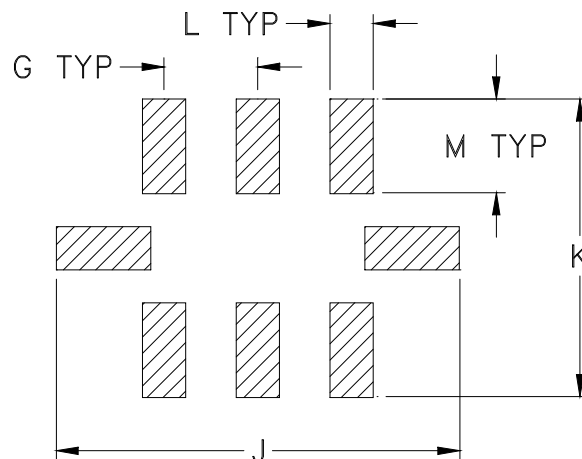
IF/RF MICROWAVE COMPONENTS

REV. OR  
LFCG-42+  
10/29/2014  
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### Outline Dimensions



### PCB Land Pattern



Suggested Layout,  
Tolerance to be within  $\pm .002$

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.  $\pm .01$ ; 3 Pl.  $\pm .005$

### 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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RF/IF MICROWAVE COMPONENTS

# 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	

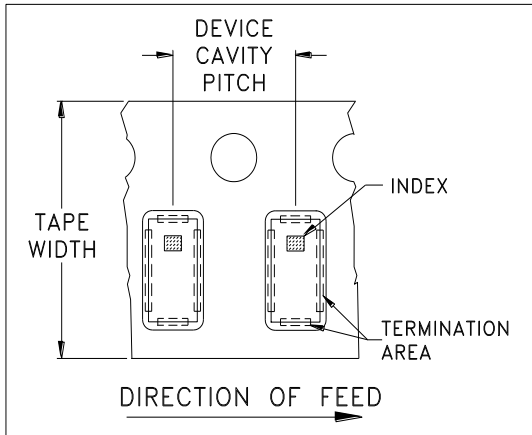


ILLUSTRATION 2

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	
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
			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](http://www.minicircuits.com/pages/pdfs/tape.pdf)



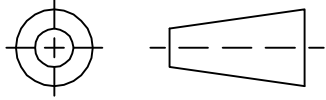
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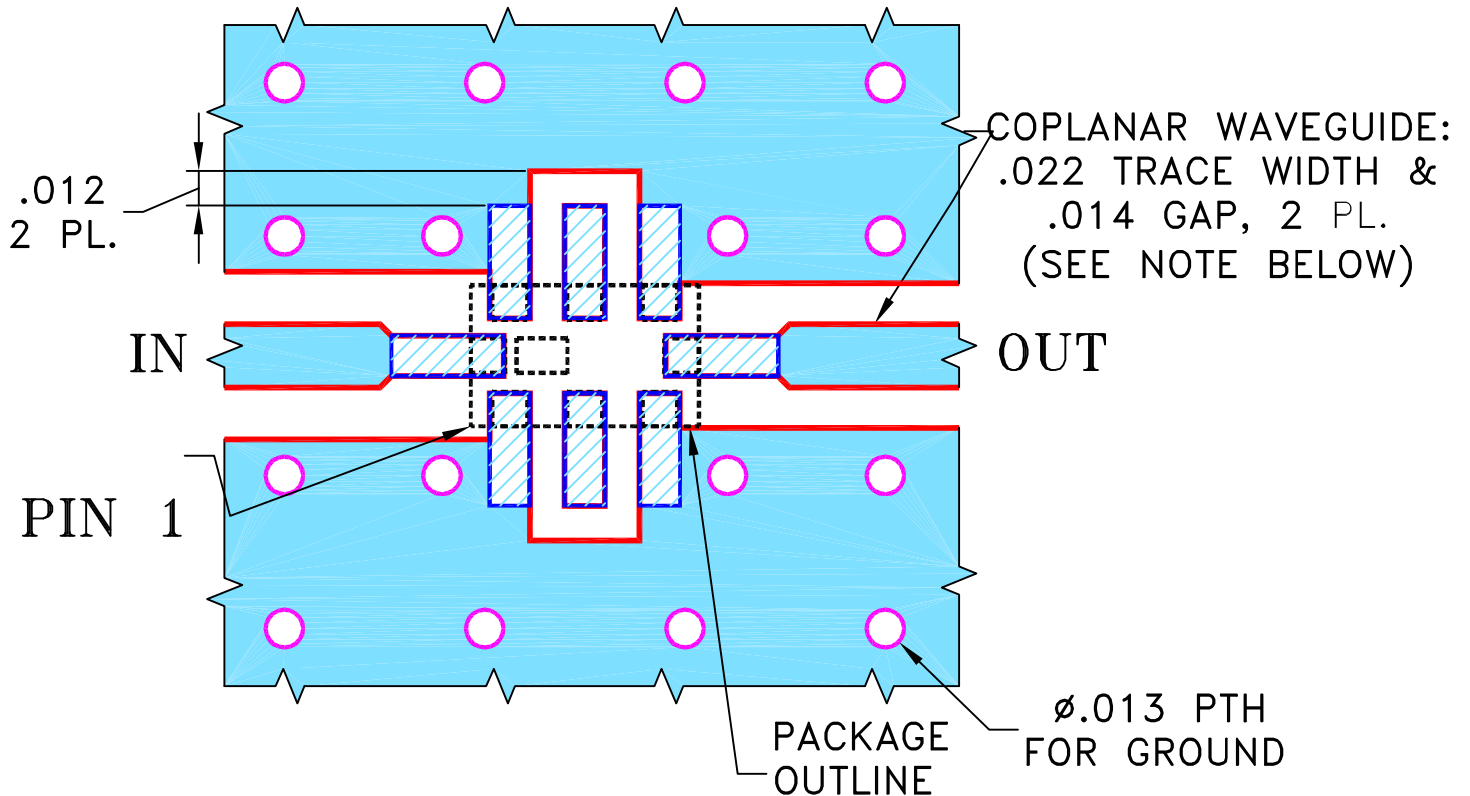
THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M148395	NEW RELEASE	10/03/14	GF	MY

**SUGGESTED MOUNTING CONFIGURATION  
FOR GE0805C-2 CASE STYLE, "08FL06" PIN CODE**



**NOTES:**

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2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

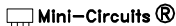
 DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).

 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	10/03/14
2 PL DECIMALS $\pm$	APPROVED MY	10/03/14
3 PL DECIMALS $\pm$ .005		
ANGLES $\pm$		
FRACTIONS $\pm$		

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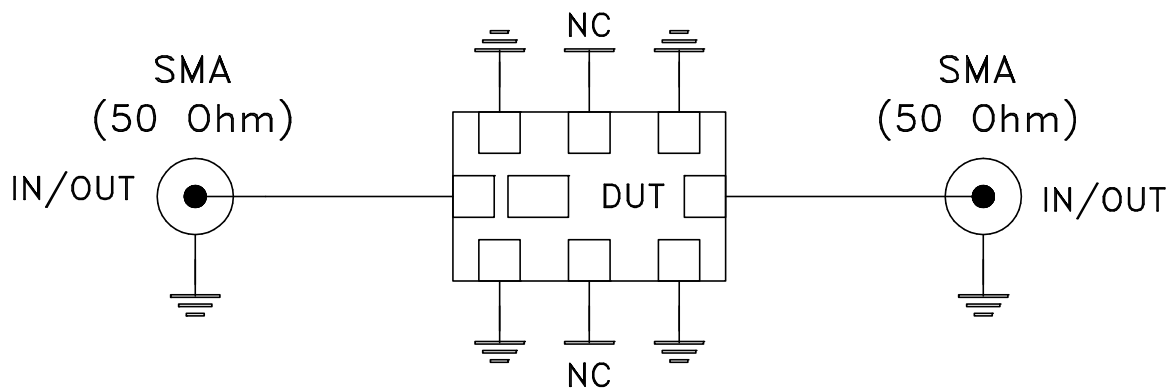
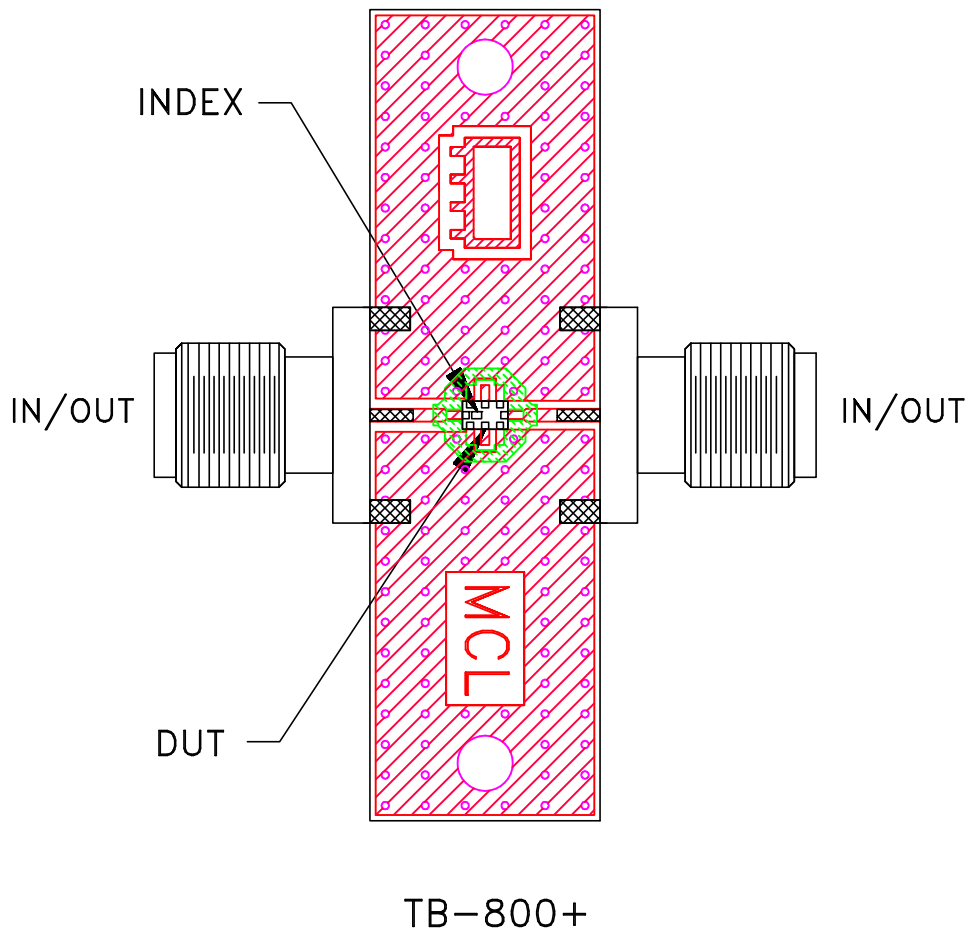
PL, 08FL06, GE0805C-2, TB-800+

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A	15542	98-PL-427	OR

FILE:	SCALE:	SHEET:
98PL427	15:1	1 OF 1


# Evaluation Board and Circuit



Schematic Diagram

## Notes:

1. 50 Ohm SMA Female connectors.
2. PCB Material: R04350 or equivalent,  
Dielectric Constant=3.5, Thickness=.010 inch.

 **Mini-Circuits®**

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 Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C 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 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