

# Ceramic Bandpass Filter

50Ω 2400 to 2500 MHz

## BPGE-252R+



Generic photo used for illustration purposes only

CASE STYLE: GE0805C-3

### Features

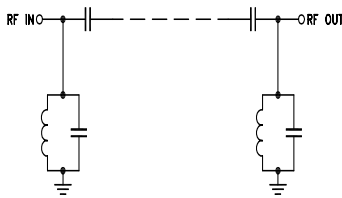
- Miniature size 0805 (0.079" [2.0mm] x 0.049" [1.25mm] x 0.037" [0.95mm])
- High rejection
- Low cost
- Aqueous washable

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

### Applications

- ISM Band
- WLAN
- Bluetooth
- Zigbee

### Functional Schematic



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

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit	
Pass Band	Center Frequency	—	—	2450	—	dB	
	Insertion Loss	F2 - F4	2400 - 2500	—	1.3	1.8	dB
	VSWR	F2 - F4	2400 - 2500	—	—	2	:1
Stop Band, Lower	Rejection	DC - F1	1200 - 1300	25	42	—	dB
		F3	2000	10	14	—	dB
Stop Band, Upper	Rejection	F4	3000	12	18	—	dB
		F5 - F6	3600 - 3800	30	43	—	dB
		F7 - F8	4800 - 5000	32	37	—	dB

1. Tested on Evaluation Board TB-1022+.

### Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature <sup>2</sup>	-40°C to 100°C
RF Power Input <sup>3</sup>	2W at 25°C

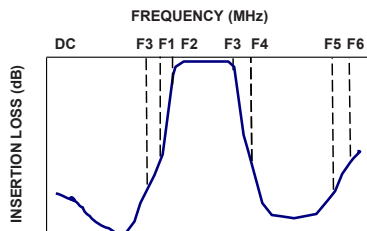
2. Refer to product storage temperature after installation

Suggestion for T&R unused product storage condition:

+5 ~ +35 °C, Humidity 45-75%RH, 12 month Max

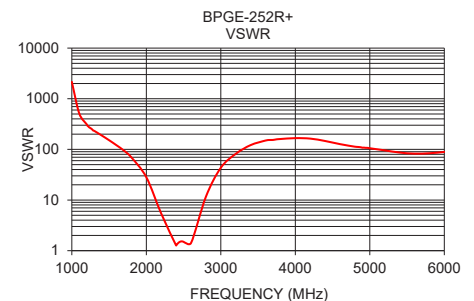
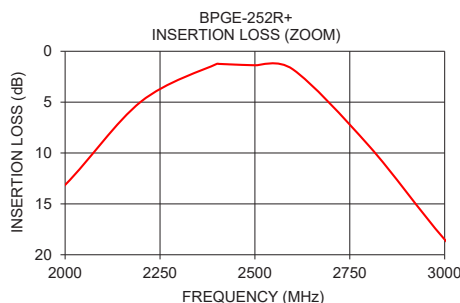
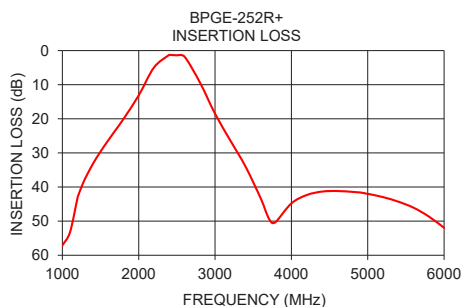
3. Derate linearly to 1W at 85°C

### Typical Frequency Response



### Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
1000	57.13	2151.27
1250	40.02	261.73
1500	29.61	151.83
2000	13.14	28.24
2400	1.23	1.27
2500	1.37	1.49
3000	18.50	43.41
3200	26.35	81.54
3200	26.35	81.54
3750	50.56	158.11
4000	44.80	166.76
4800	41.42	113.00
5000	41.99	105.25
5600	46.06	82.39
5800	48.64	83.85
6000	51.95	88.95



### 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)



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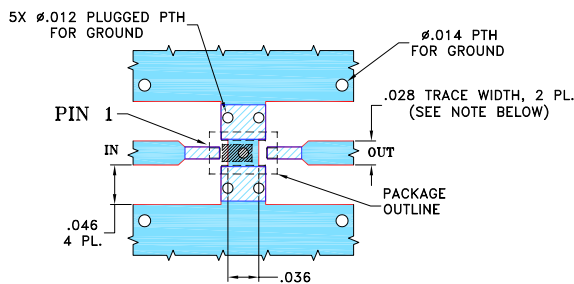
REV. A  
M151107  
ED-15034  
BPGE-252R+  
SL/CP  
200611  
Page 1 of 2

## Pad Connections

INPUT	1
OUTPUT	3
GROUND	2,4

## Product Marking: N/A

**Evaluation Board MCL P/N: TB-1022+**  
**Suggested PCB Layout (PL-547)**



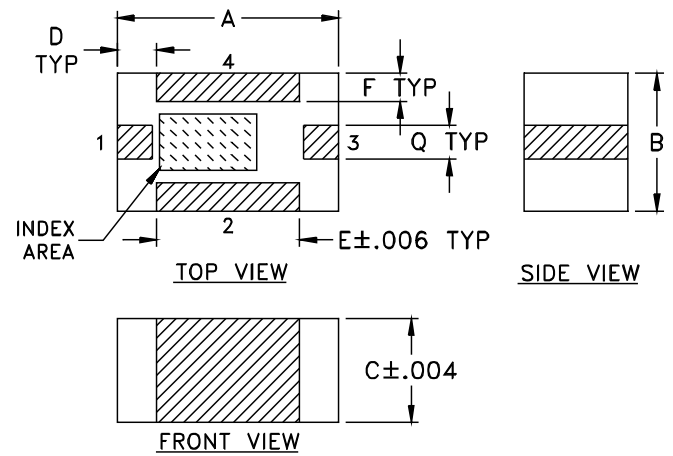
### NOTES:

- TRACE WIDTH IS SHOWN FOR FR4, GRADE IT-180TC (ITEQ CORP.) WITH DIELECTRIC THICKNESS  $.016 \pm .0015$ . COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP 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.

## Outline Drawing



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

A	B	C	D	E	F	Q	wt
.079	.049	.037	.014	.051	.010	.012	grams
2.01	1.24	0.94	0.36	1.30	0.25	0.30	.020

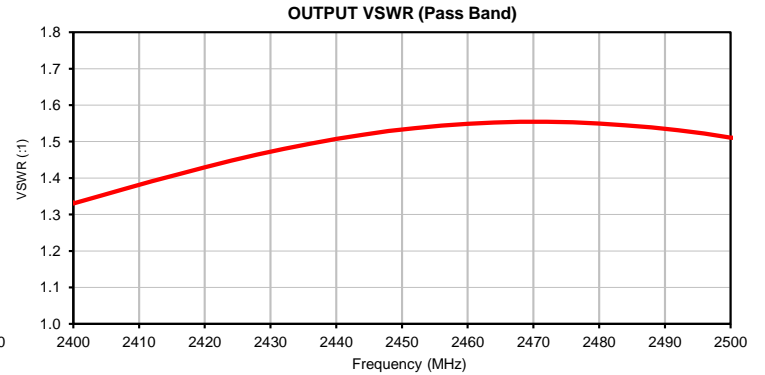
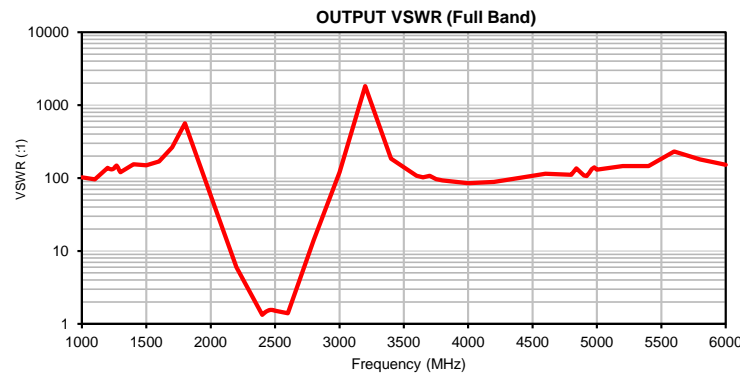
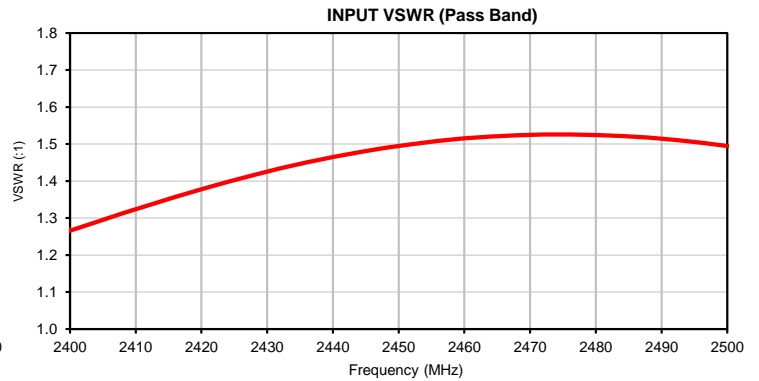
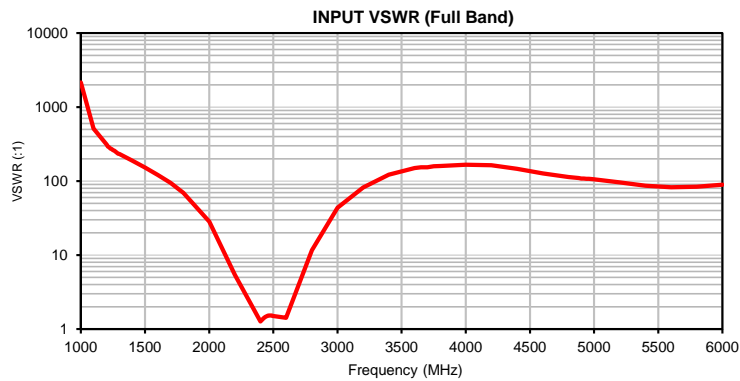
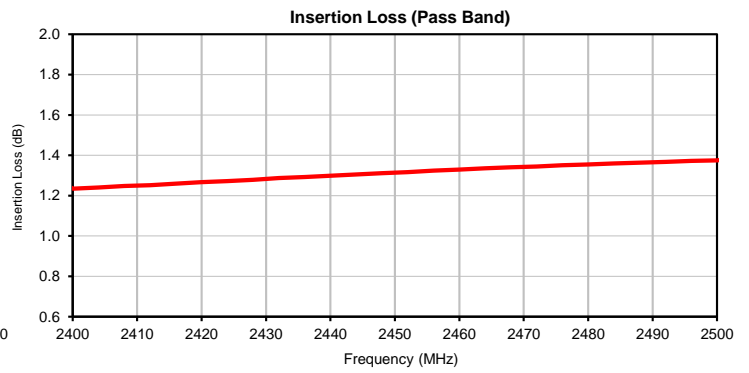
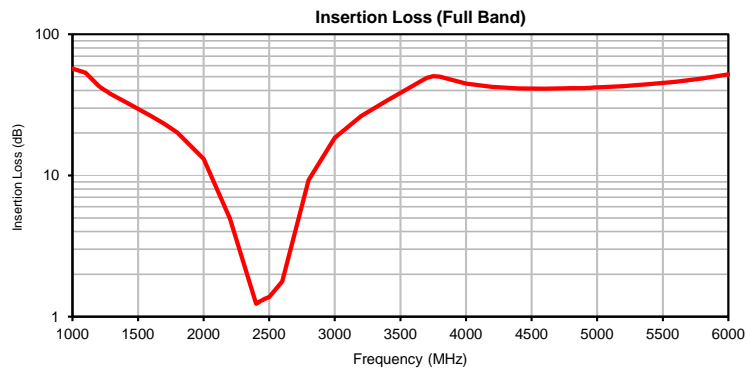
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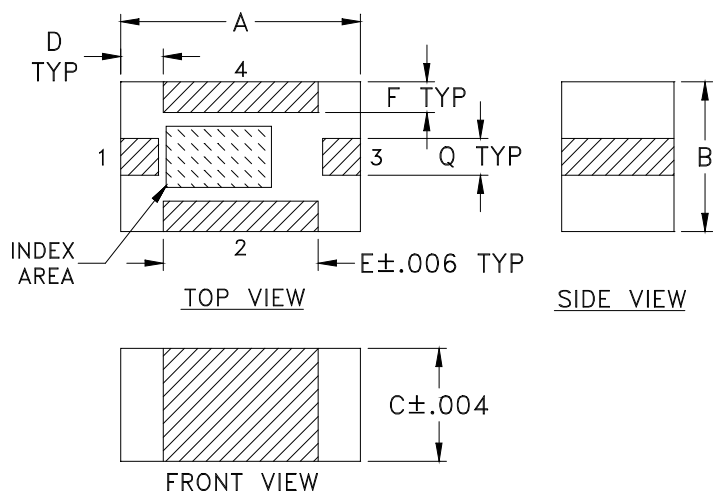
*Typical Performance Data*

FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT VSWR (:1)	OUTPUT VSWR (:1)
1000	57.13	2151.27	102.35
1100	53.26	510.31	95.79
1200	43.01	312.42	137.71
1210	42.38	292.63	134.70
1220	41.74	286.08	132.06
1230	41.15	274.53	131.32
1240	40.55	269.46	132.58
1250	40.02	261.73	135.69
1260	39.45	257.66	143.16
1270	38.91	249.99	147.83
1280	38.40	241.66	140.38
1290	37.91	234.02	127.78
1300	37.42	232.54	120.06
1400	33.20	188.77	154.95
1500	29.61	151.83	149.52
1600	26.34	120.64	168.41
1700	23.21	94.59	263.53
1800	20.05	69.37	562.59
2000	13.14	28.24	57.01
2200	4.95	5.40	5.97
2400	1.23	1.27	1.33
2404	1.24	1.29	1.35
2408	1.25	1.31	1.37
2412	1.25	1.33	1.39
2416	1.26	1.36	1.41
2420	1.27	1.38	1.43
2424	1.27	1.40	1.45
2428	1.28	1.42	1.46
2432	1.29	1.43	1.48
2436	1.29	1.45	1.49
2440	1.30	1.46	1.51
2444	1.30	1.48	1.52
2448	1.31	1.49	1.53
2452	1.32	1.50	1.54
2456	1.32	1.51	1.54
2460	1.33	1.52	1.55
2464	1.34	1.52	1.55
2468	1.34	1.52	1.55
2472	1.34	1.53	1.55
2476	1.35	1.53	1.55
2480	1.35	1.52	1.55
2484	1.36	1.52	1.54
2488	1.36	1.52	1.54
2492	1.37	1.51	1.53
2496	1.37	1.50	1.52
2500	1.37	1.49	1.51
2600	1.78	1.42	1.39
2800	9.27	11.64	14.09
3000	18.50	43.41	119.81
3200	26.35	81.54	1823.41
3400	34.03	121.49	183.80
3600	43.41	149.54	107.28
3650	46.26	153.22	102.28
3700	49.05	153.55	106.93
3750	50.56	158.11	96.65
3800	50.15	160.25	92.57
4000	44.80	166.76	85.19
4200	42.36	163.25	88.35
4400	41.33	146.42	100.77
4600	41.16	126.99	114.21
4800	41.42	113.00	110.49
4840	41.49	111.76	135.77
4880	41.57	110.03	116.11
4900	41.58	108.04	107.95
4920	41.67	108.40	106.77
4940	41.73	107.40	117.01
4960	41.81	107.35	132.79
4980	41.95	106.72	140.32
5000	41.99	105.25	130.75
5200	42.96	95.67	145.73
5400	44.29	86.60	146.26
5600	46.06	82.39	232.27
5800	48.64	83.85	180.64
6000	51.95	88.95	152.58

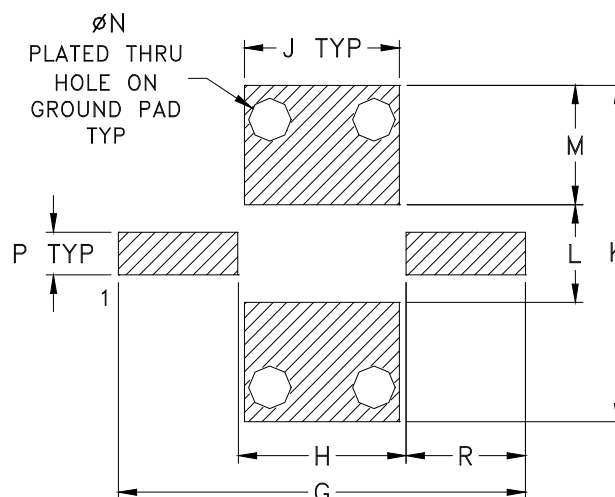
## Typical Performance Curves



### 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-3	.079 (2.00)	.049 (1.25)	.037 (0.95)	.014 (0.35)	.051 (1.30)	.010 (0.25)	.134 (3.40)	.055 (1.40)	.051 (1.30)	.110 (2.80)	.032 (0.80)

CASE #	M	N	P	Q	R	WT. GRAM
GE0805C-3	.039 (1.00)	.014 (0.35)	.014 (0.35)	.012 (0.30)	.039 (1.00)	.020

Dimensions are in inches (mm). Tolerances: 2Pl.  $\pm .01$ ; 3 Pl.  $\pm .005$

#### Notes:

- Open style, ceramic base.
- 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.



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RF/IF MICROWAVE COMPONENTS

# Tape & Reel Packaging TR-F114

## DEVICE ORIENTATION IN T&R

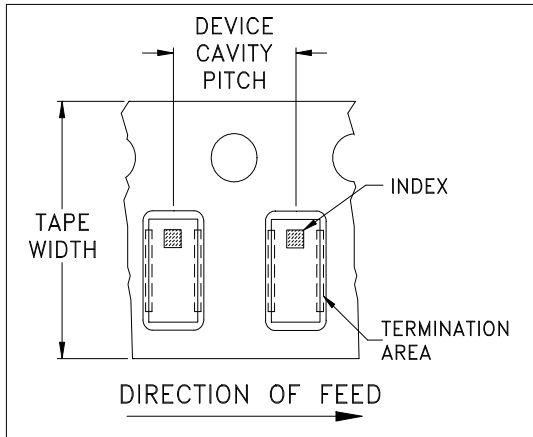


ILLUSTRATION 1

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

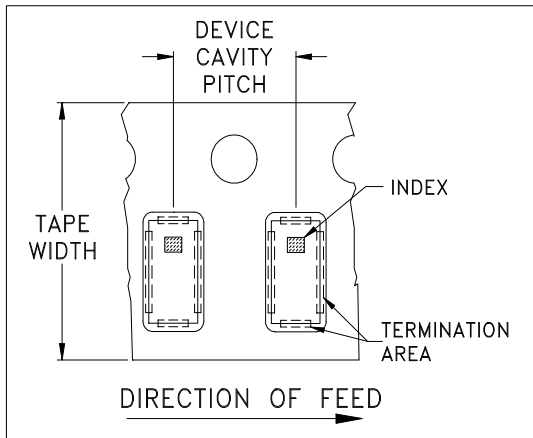


ILLUSTRATION 2

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	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.

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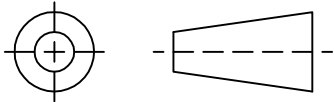
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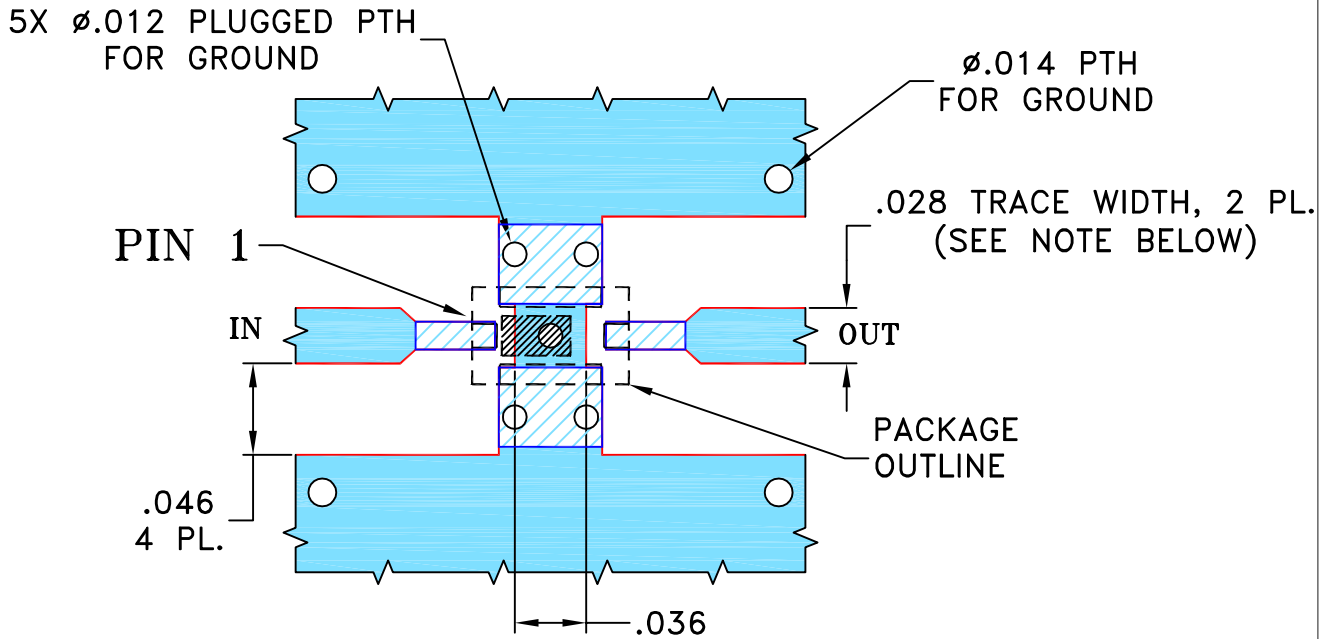
THIRD ANGLE PROJECTION



REVISIONS

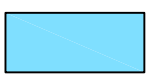
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OR	M168200	NEW RELEASE	05/31/18	NP	SL

SUGGESTED MOUNTING CONFIGURATION  
FOR GE0805C-3 CASE STYLE, "04FL01" PIN CODE

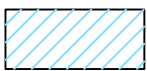


NOTES:

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- BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.



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



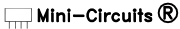
DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

UNLESS OTHERWISE SPECIFIED	INITIALS	DATE
DIMENSIONS ARE IN INCHES	DRAWN NP	05/30/18
TOLERANCES ON:	CHECKED GF	05/30/18
2 PL DECIMALS ±	APPROVED SL	05/31/18
3 PL DECIMALS ± .005		
ANGLES ±		
FRACTIONS ±		

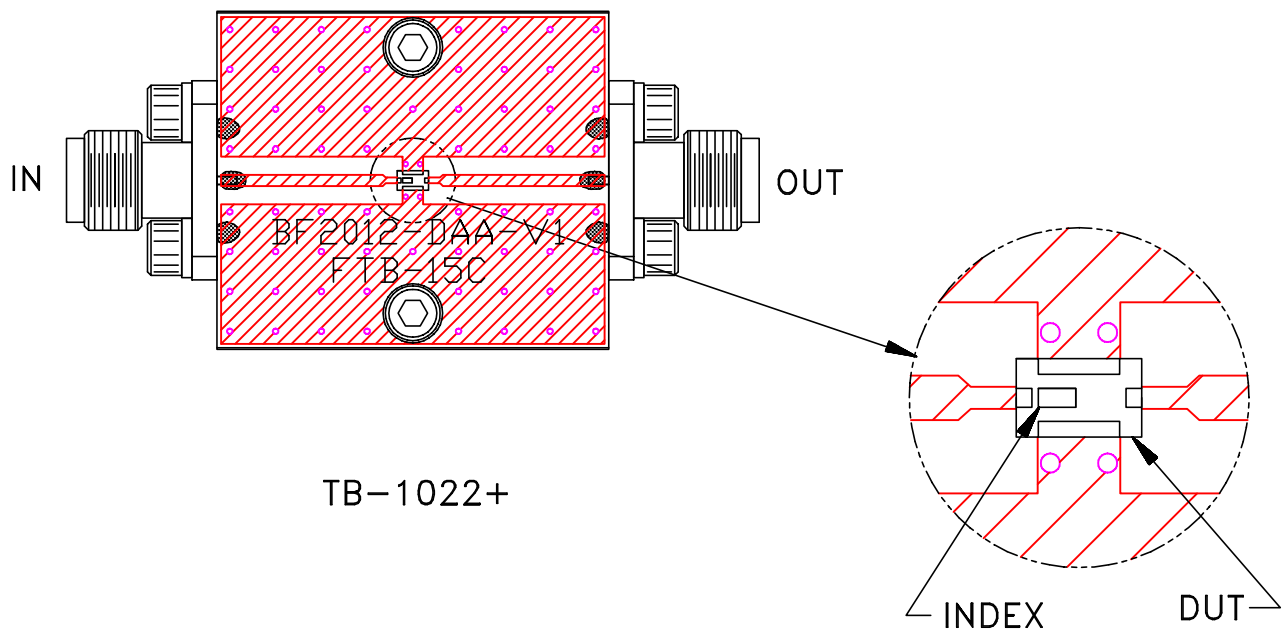
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PL, 04FL01, GE0805C-3, TB-1022+

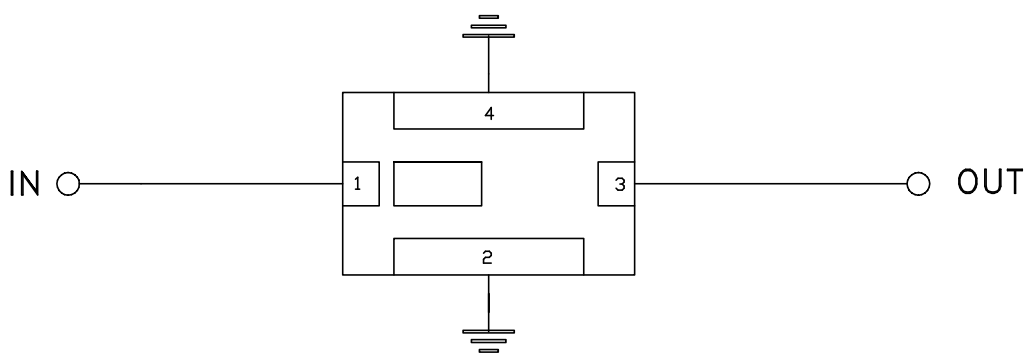
SIZE A	CODE IDENT 15542	DRAWING NO: 98-PL-547	REV: OR
FILE: 98PL547	SCALE: 10:1	SHEET: 1 OF 1	

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# Evaluation Board and Circuit



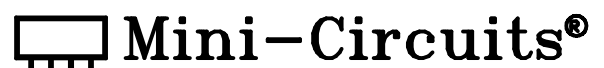
TB-1022+



Schematic Diagram

Notes:

- 1. 50 Ohm SMA Female connectors.
- 2. PCB Material: FR4 or equivalent, Dielectric Constant=4.5, Thickness=.016 inch.







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	-40° to 85° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-40° to 85° 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
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Solder Reflow Heat	Sn-Pb Eutectic Process: 225°C peak Pb-Free Process: 250°C peak	J-STD-020C, 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