LTCC SURFACE MOUNT

Band Pass Filter

BFCG-362+

50Ω 3.4 to 3.8 GHz

THE BIG DEAL

- Rugged, high-performance ceramic structure
- Compact 0805 footprint
- Robust 3 W continuous wave (CW) power handling

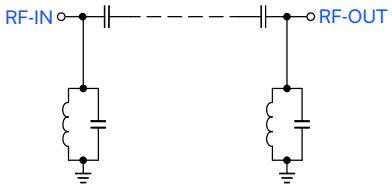


Generic photo used for illustration purposes only

APPLICATIONS

- WiMAX and LTE bands 42/43
- Mobile and fixed broadband access
- Enhanced mobile broadband (eMBB) for 5G

FUNCTIONAL DIAGRAM



PRODUCT OVERVIEW

Mini Circuits' BFCG-362+ band pass filter delivers high selectivity and low insertion loss across the 3.4–3.8 GHz band. A precision multilayer ceramic design ensures excellent stopband suppression and stable performance over −55 °C to +105 °C. The ultra compact 0805 package minimizes board footprint and parasitics, making it a robust, space-efficient solution for demanding RF applications.

ELECTRICAL SPECIFICATIONS[1,2,3] AT +25°C, Z_0 = 50Ω

Parameter		F#	Frequency (GHz)	Min.	Typ.	Max.	Units
	Center Frequency[4]	—	—	—	3.6	—	GHz
Passband	Insertion Loss	F10-F11	3.4 – 3.8	—	1.5	1.8	dB
	Return Loss	F10-F11	3.4 – 3.8	9.5	14.4	—	dB
Stopband, Lower	Rejection	F1-F2	0.5 – 2.17	—	38	—	dB
		F3-F4	0.88 – 0.96	—	40	—	
		F5-F6	1.71 – 1.785	—	38	—	
		F7-F8	2.3 – 2.63	—	30	—	
		F8-F9	2.63 – 2.7	—	25	—	
Stopband, Upper	Rejection	F12-F13	4.8 – 4.9	—	25	—	dB
		F13-F14	4.9 – 5.15	—	29	—	
		F14-F15	5.15 – 5.85	—	37	—	
		F16-F17	6.25 – 6.5	—	39	—	
		F18-F19	6.8 – 7.2	—	43	—	
		F19-F20	7.2 – 9	—	35	—	
		F21-F22	10.2– 10.8	—	32	—	

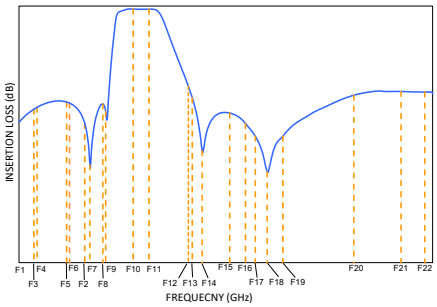
1. Tested in Evaluation Board P/N TB-BFCG-362C+. De-embedded to the device reference plane using TRL.
2. This filter is bi-directional RF1 and RF2 ports may be interchanged, see S-Parameters for actual performance.
3. This component should not be used as a DC-block. In applications where DC voltage and/or current is present at either the input or output ports, external DC blocking capacitors are required.
4. Typical variation ± 3%

ABSOLUTE MAXIMUM RATINGS[5]

Operating Temperature	-55 °C to +105 °C
Storage Temperature	-55 °C to +105 °C
Input Power[6]	3 W

5. Permanent damage may occur if any of these limits are exceeded.
6. Power rating applies only to signals within the passband. Power rating above +25°C operating temperature decreases linearly to 1.7 W at +105°C.

TYPICAL FREQUENCY RESPONSE



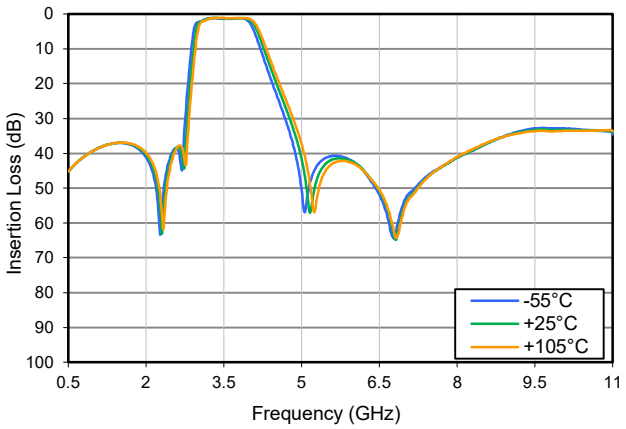
Band Pass Filter

BFCG-362+

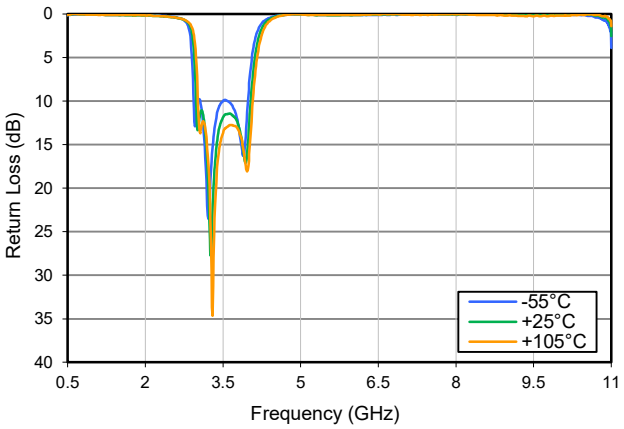
50Ω 3.4 to 3.8 GHz

TYPICAL PERFORMANCE GRAPHS

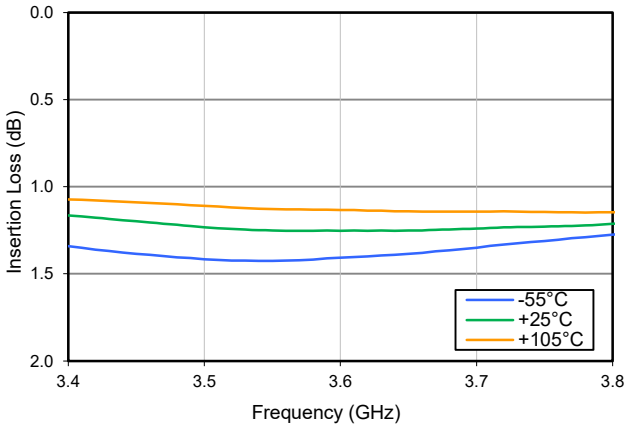
INSERTION LOSS



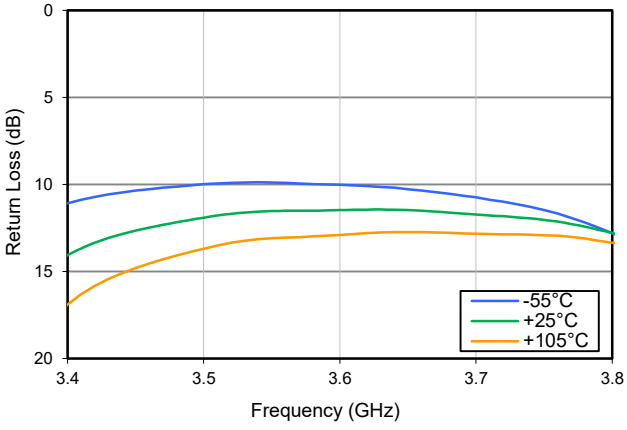
RETURN LOSS



INSERTION LOSS (PASSBAND)



RETURN LOSS (PASSBAND)



LTCC SURFACE MOUNT

Band Pass Filter

BFCG-362+

50Ω 3.4 to 3.8 GHz

FUNCTIONAL DIAGRAM

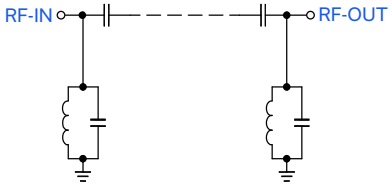
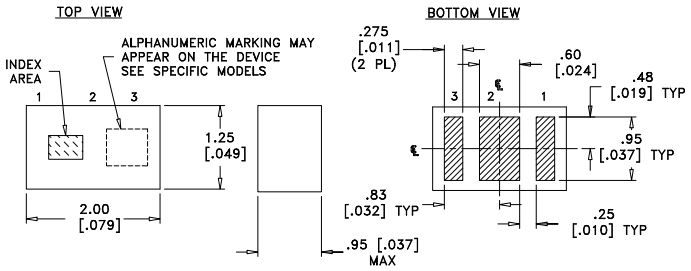


Figure 1. BFCG-362+ Functional Diagram

PAD DESCRIPTION

Function	Pad Number	Description
RF1[2]	1	Connects to RF Input Port
RF2[2]	3	Connects to RF Output Port
GROUND	2	Connects to Ground on PCB, (See drawing PL-853)

CASE STYLE DRAWING



Weight: .010 grams
Dimensions are in mm [inches]. Tolerances: 2 Pl.± 0.05 mm

PRODUCT MARKING*: N/A

*Marking may contain other features or characters for internal lot control.

SUGGESTED PCB LAYOUT: PL-853

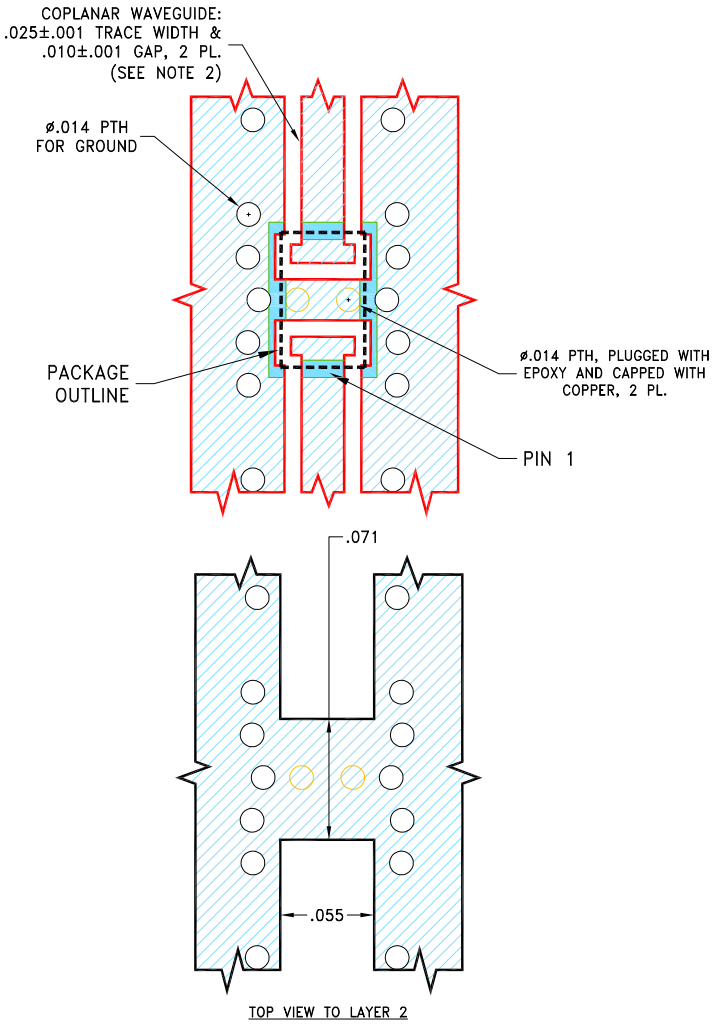


Figure 2. Suggested PCB Layout

Band Pass Filter

BFCG-362+

50Ω 3.4 to 3.8 GHz

ADDITIONAL DETAILED INFORMATION IS AVAILABLE ON OUR DASHBOARD CLICK HERE

Performance Data & Graphs	Data Graphs S-Parameter (S2P Files) Data Set (.zip file) De-embedded to device pads
Case Style	GE0805C-20 Lead Finish: Tin over Nickel Plating
RoHS/REACH Status	Compliant
Tape and Reel	F74
Suggested Layout for PCB Design	PL-853
Evaluation Board	TB-BFCG-362C+ Gerber File
Environmental Rating	ENV-159

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-Circuits' 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/terms/viewterm.html

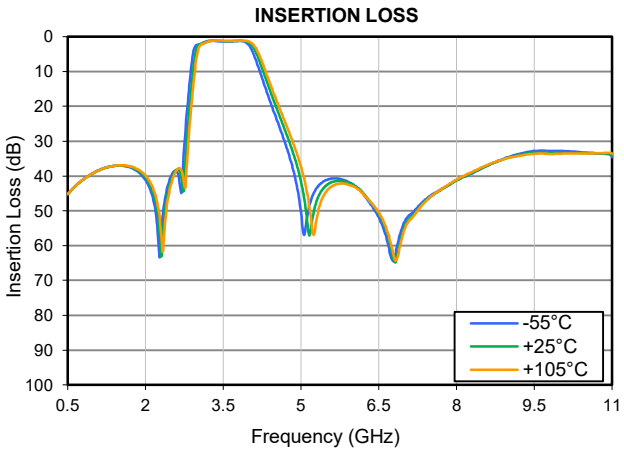
LTCC Bandpass Filter BFCG-362+

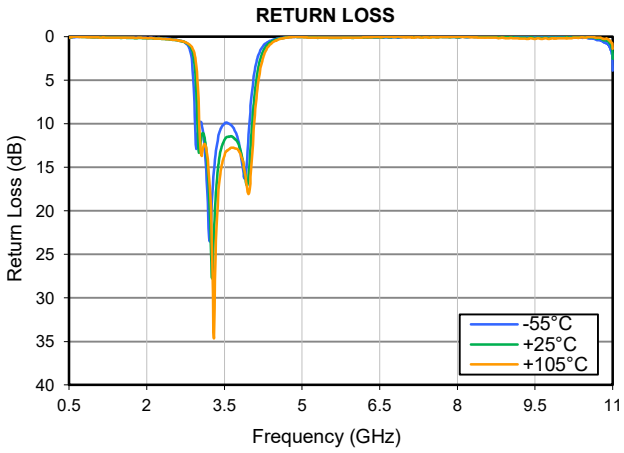
Typical Performance Data

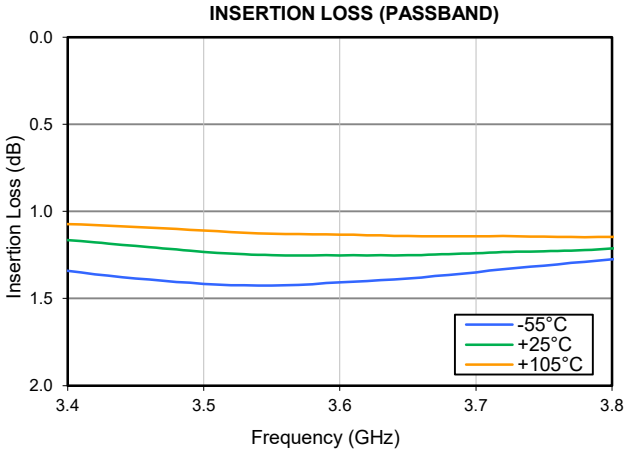
FREQUENCY (GHz)	INSERTION LOSS (dB)			RETURN LOSS (dB)		
	@-55°C	@+25°C	@+105°C	@-55°C	@+25°C	@+105°C
0.50	45.25	45.23	45.21	0.17	0.12	0.11
1.00	39.08	39.13	39.12	0.05	0.06	0.06
2.00	41.08	40.34	39.81	0.15	0.19	0.17
3.00	2.39	2.94	4.91	10.59	12.67	7.13
3.40	1.34	1.16	1.07	11.08	14.06	16.90
3.41	1.35	1.17	1.08	10.87	13.67	16.31
3.42	1.36	1.18	1.08	10.71	13.34	15.82
3.43	1.37	1.18	1.08	10.56	13.07	15.41
3.44	1.38	1.19	1.08	10.46	12.84	15.08
3.45	1.38	1.20	1.09	10.35	12.65	14.79
3.46	1.39	1.20	1.09	10.27	12.47	14.53
3.47	1.40	1.21	1.10	10.19	12.32	14.30
3.48	1.40	1.22	1.10	10.12	12.17	14.08
3.49	1.41	1.23	1.11	10.05	12.03	13.87
3.50	1.42	1.23	1.11	9.99	11.90	13.67
3.51	1.42	1.24	1.11	9.94	11.78	13.50
3.52	1.42	1.24	1.12	9.90	11.68	13.35
3.53	1.42	1.25	1.12	9.88	11.61	13.24
3.54	1.43	1.25	1.12	9.87	11.56	13.15
3.55	1.43	1.25	1.13	9.88	11.52	13.09
3.56	1.42	1.25	1.13	9.90	11.51	13.05
3.57	1.42	1.25	1.13	9.93	11.51	13.02
3.58	1.42	1.25	1.13	9.96	11.50	12.99
3.59	1.41	1.25	1.13	9.99	11.49	12.95
3.60	1.41	1.25	1.13	10.02	11.47	12.89
3.61	1.40	1.25	1.13	10.06	11.46	12.84
3.62	1.40	1.25	1.14	10.09	11.44	12.79
3.63	1.39	1.25	1.14	10.14	11.44	12.75
3.64	1.39	1.25	1.14	10.19	11.44	12.73
3.65	1.38	1.25	1.14	10.26	11.47	12.72
3.66	1.38	1.25	1.14	10.34	11.50	12.72
3.67	1.37	1.25	1.14	10.43	11.55	12.75
3.68	1.36	1.25	1.14	10.52	11.60	12.77
3.69	1.36	1.24	1.14	10.63	11.67	12.81
3.70	1.35	1.24	1.14	10.74	11.72	12.82
3.71	1.34	1.24	1.14	10.87	11.78	12.85
3.72	1.33	1.23	1.14	10.99	11.82	12.85
3.73	1.32	1.23	1.14	11.13	11.88	12.86
3.74	1.32	1.23	1.14	11.29	11.94	12.87
3.75	1.31	1.23	1.14	11.48	12.04	12.91
3.76	1.30	1.23	1.15	11.68	12.13	12.95
3.77	1.30	1.22	1.15	11.92	12.27	13.02
3.78	1.29	1.22	1.15	12.18	12.42	13.10
3.79	1.28	1.22	1.15	12.48	12.60	13.22
3.80	1.27	1.21	1.15	12.80	12.79	13.35
4.00	2.48	1.70	1.44	8.70	13.36	16.87
5.00	50.34	41.49	37.27	0.01	0.03	0.03
6.00	42.38	42.51	42.91	0.13	0.13	0.11
7.00	53.08	54.54	55.27	0.02	0.02	0.06
8.00	41.26	41.23	41.05	0.08	0.07	0.04
9.00	34.60	34.77	34.84	0.02	0.07	0.18
10.00	32.89	33.28	33.57	0.00	0.11	0.19
11.00	34.67	34.16	33.61	3.89	2.52	1.41

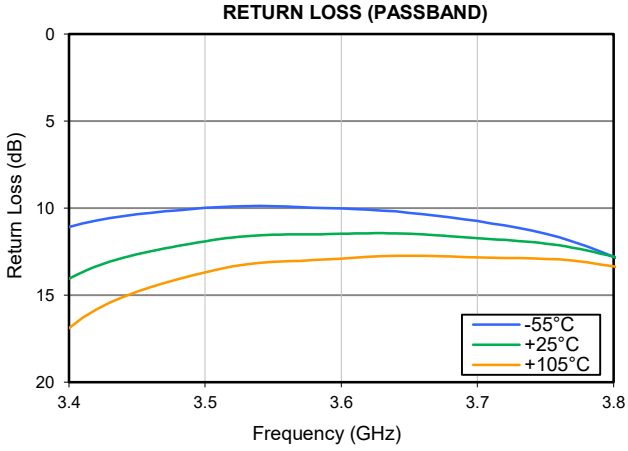
LTCC High pass Filter BFCG-362+

Typical Performance Data







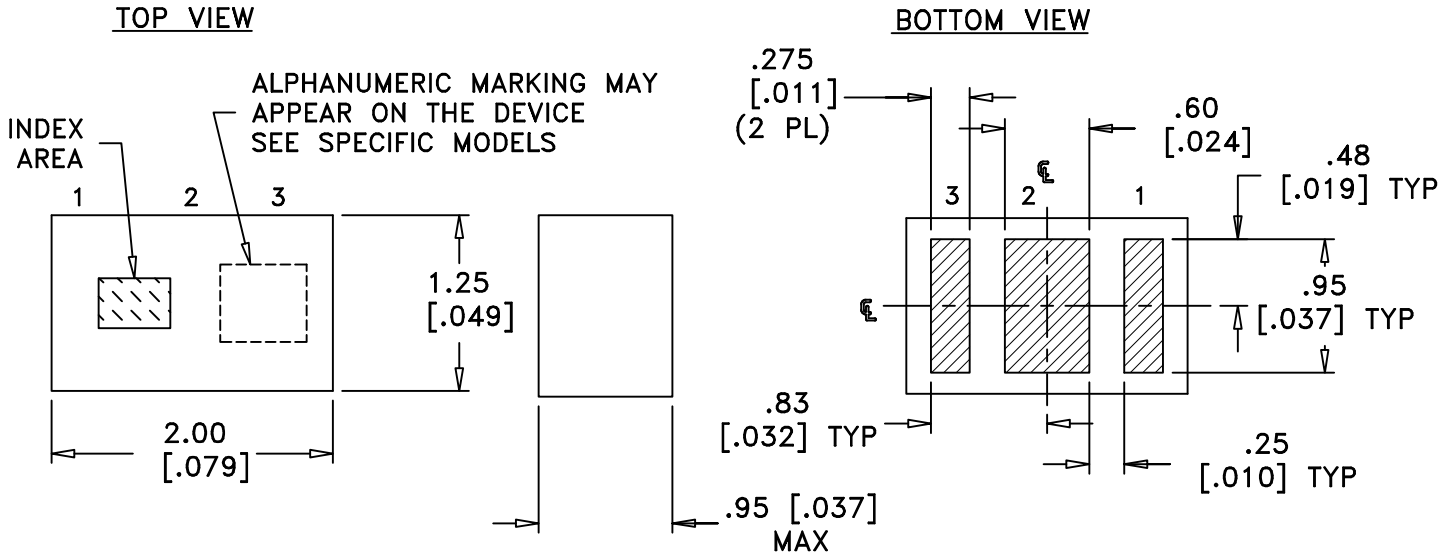


Case Style

GE

Outline Dimensions

GE0805C-20



Weight: .010 grams

Dimensions are in mm[inches]. Tolerances: 2 Pl.±0.05mm

Notes:

1. **Open style, ceramic base.**
2. **Termination finish:Tin plate over Nickel plate.**
3. **Pad tolerance is non-cumulative. Minimum spacing between each pad is 0.1mm.**

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Tape & Reel Packaging TR-F74

DEVICE ORIENTATION IN T&R

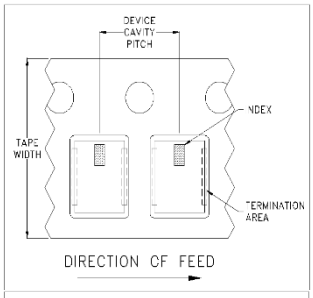


ILLUSTRATION 1

Applicable Case Styles
GE0805C-1
GE0805C-1AP
JV1210C-1
GU2939

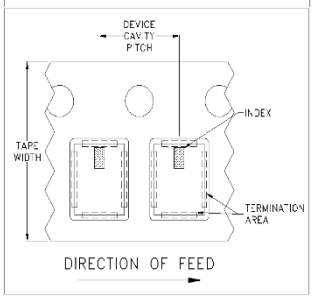


ILLUSTRATION 2

Applicable Case Styles
JV1210C
JV1210C-2
JV1210C-3
JV1210C-4
JV1210C-5
JV1210C-6
JV1210C-11

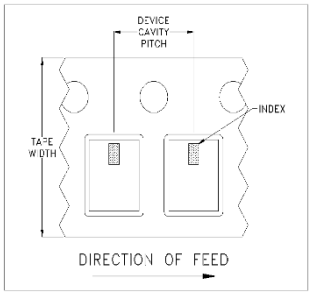


ILLUSTRATION 3

Applicable Case Styles
JC0603C-8
JC0603C-9
JV1210C-7
JV1210C-8
JV1210C-9
JV1210C-10
JV1210C-13
GE0805C-13
GE0805C-19
GE0805C-20

Tape Width, mm	Device Cavity Pitch, mm	Real Size, inches	Devices per Reel	
8	4	7	Small quantity standards **(see note)**	20
				50
				100
				200
				500
				1000
			Standard	2000
				4000

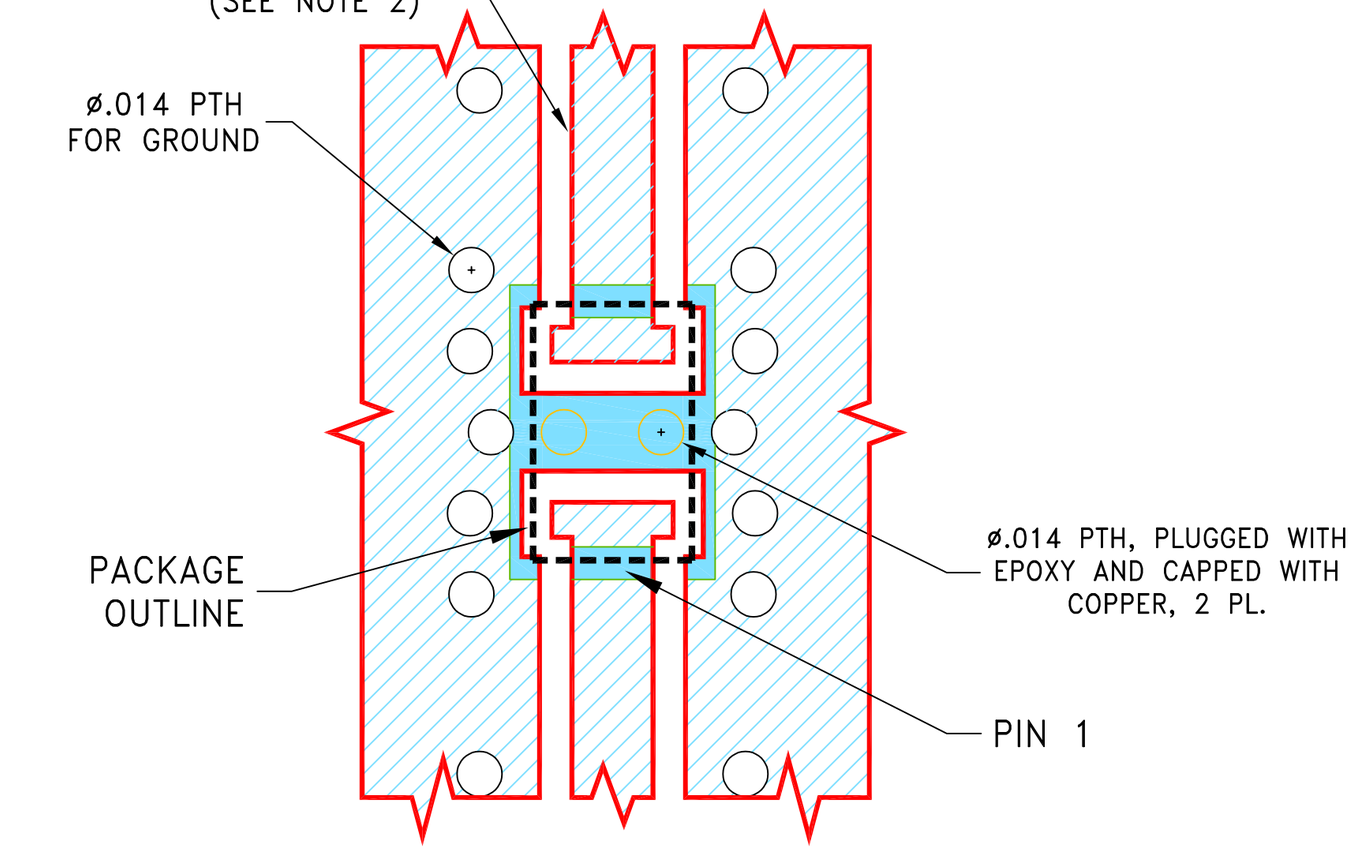
Note: Small reel availability varies by model. Refer to pricing and availability on individual model dashboard.

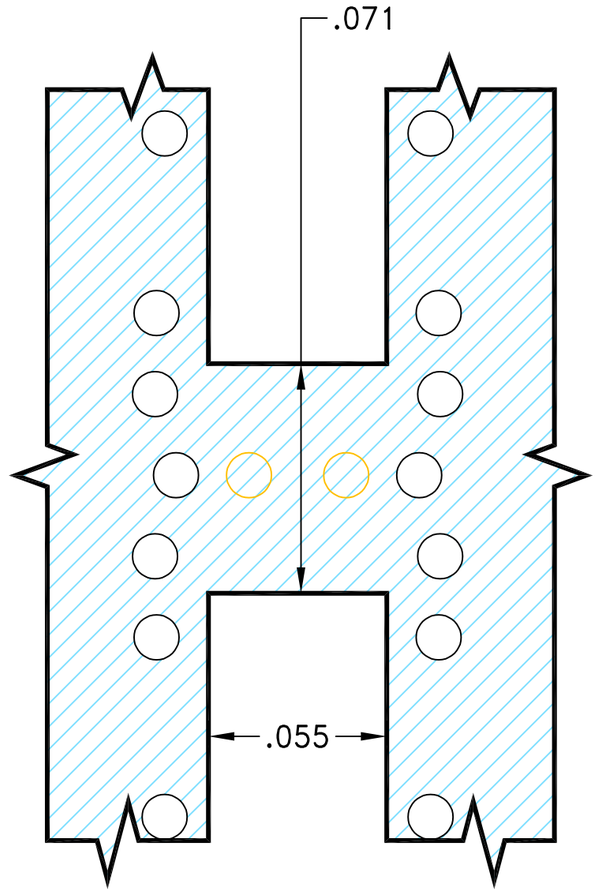
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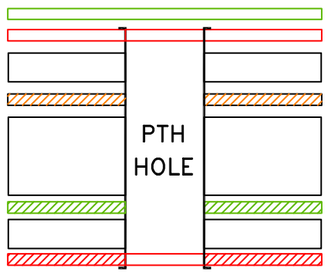
SUGGESTED MOUNTING CONFIGURATION FOR GE0805C-20 CASE STYLE





TOP VIEW TO LAYER 2

STACK-UP DIAGRAM



-SOLDER MASK (TOP-SLD)
-COPPER LAYER 1 (L1), 1 OZ.
-CORE FR4 IT-180A .006
-COPPER LAYER 2 (L2), 1 OZ.
-PREPREG IT-180A (1080H+2116) .008
-CORE FR4 IT-180A .020
-PREPREG IT-180A (2116+1080H) .008
-COPPER LAYER 3 (L3), 1 OZ.
-CORE FR4 IT-180A .006
-COPPER LAYER 4 (L4), 1 OZ.

1. TOTAL FINISHED THICKNESS 0.056±10% Ⓢ.
2. PTH PRESENT FROM COPPER LAYER 1 TO COPPER LAYER 4.

NOTES:

1. PCB IS MULTILAYER PCB, SEE STACK-UP DIAGRAM.
2. TRACE WIDTH & GAP PARAMETERS ARE SHOWN FOR FR4 IT-180A WITH COMBINED DIELECTRIC THICKNESS .043"; FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
3. COPPER LAYERS 3,4 OF THE PCB IS CONTINUOUS GROUND PLANES.

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

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

THIRD ANGLE PROJECTION

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
0R	ECO-028525	NEW RELEASE	12/18/26	ITG	IL

REVISIONS

UNLESS OTHERWISE SPECIFIED		INITIALS	DATE
DIMENSIONS ARE IN INCHES TOLERANCES ON: 2 PL DECIMALS ± .005 3 PL DECIMALS ± ANGLES ± 1° FRACTIONS ±	DRAWN	ITG	12/17/26
	CHECKED	NP	12/17/26
	APPROVED	IL	12/17/26

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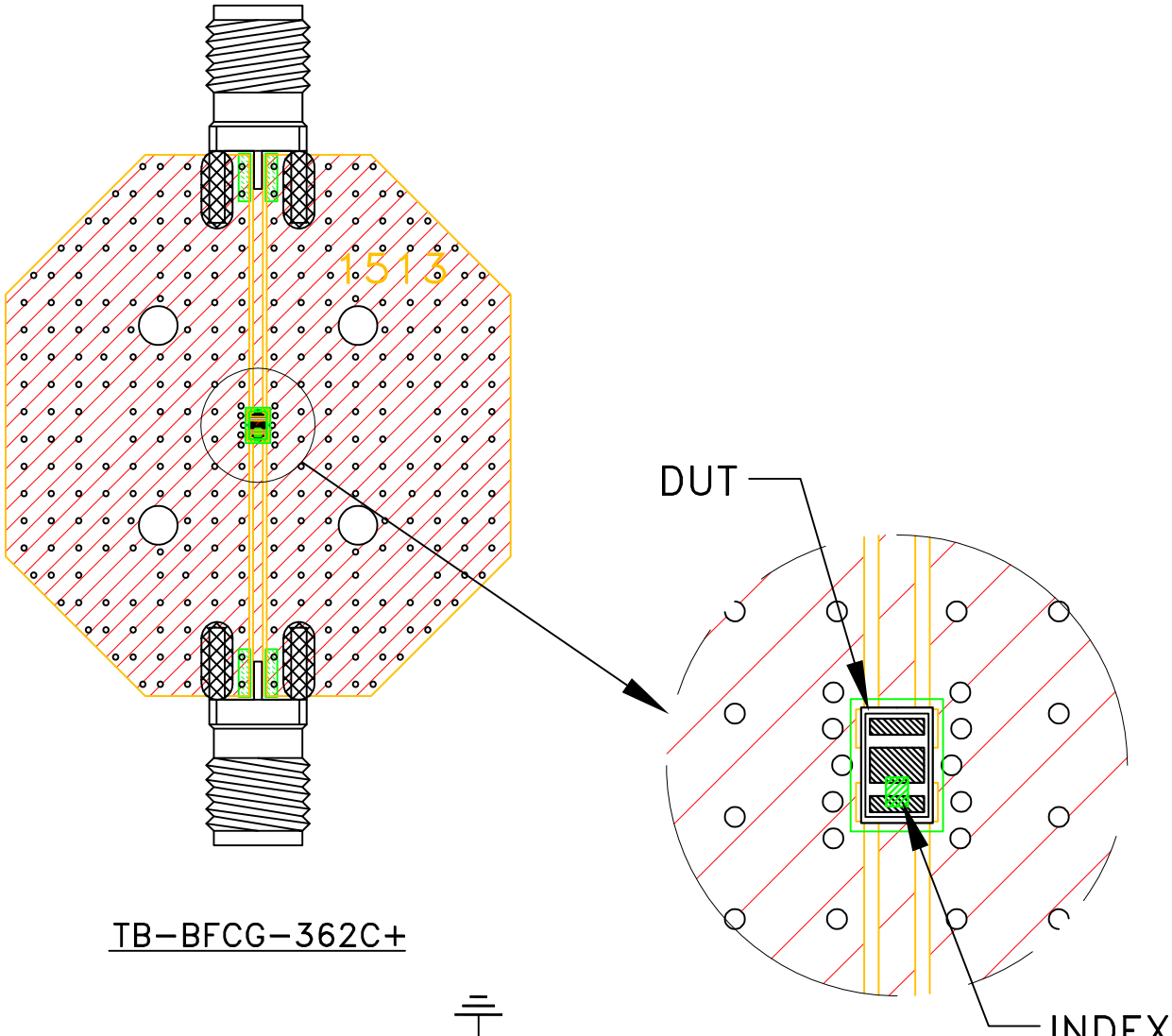
BSHEETA1.DWG REV:A DATE:01/12/94

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Brooklyn NY 11235

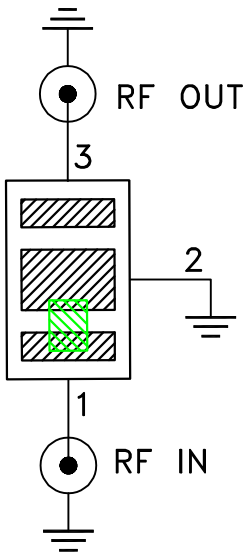
PL, GE0805C-20, TB-BFCG-362C+

SIZE	CODE IDENT	DRAWING NO:	REV:
B	15542	98-PL-853	0R
FILE: 98PL853	SCALE: 20:1	SHEET: 1 OF 1	

Evaluation Board and Circuit



TB-BFCG-362C+



Schematic Diagram

1. 50 Ohm SMA Female end Launch connectors.
2. PCB Material: FR4 IT-180A or equivalent,
   Dielectric Constant= XXXX Thickness=.053 inch.

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Mini-Circuits

Environmental Specifications **ENV159**

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°C to 105°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 105°C Ambient Environment	Individual Model Data Sheet
Humidity	90 to 95% RH, 1000 hours, 85 +/ -2°C	JESD22-A101
Solderability	10X Magnification	MIL-STD-883 Method 2003:> 95% coverage
Thermal Shock	-40° C to 125° C, dwell time 30 min, 100 cycles	JESD22-A104

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