

Bandpass Filter

50Ω 26 to 60 MHz

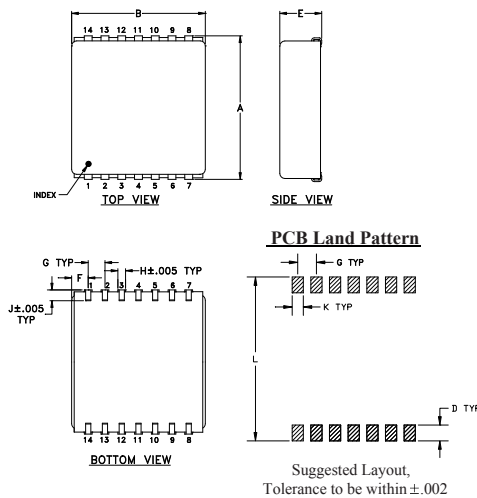
Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	0.5W
Permanent damage may occur if any of these limits are exceeded.	

Pin Connections

INPUT	2
OUTPUT	9
GROUND	1,3,4,5,6,7,8,10,11,12,13,14

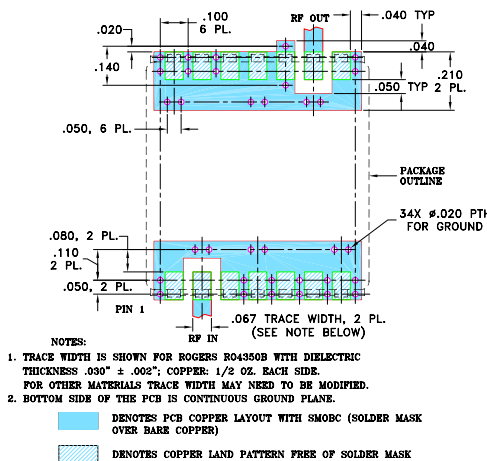
Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F
.870	.800	--	.100	.250	.100
22.09	20.32	--	2.54	6.35	2.54
G	H	J	K	L	wt.
.100	.047	.065	.065	.890	grams
2.54	1.19	1.65	1.65	22.60	4.0

Demo Board MCL P/N: TB-442+ Suggested PCB Layout(PL-269)



Features

- Low insertion loss, 0.3 typ @ passband
- Good VSWR, 1.2:1 typ @ passband
- High stopband rejection
- Aqueous washable

Applications

- Harmonic rejection
- Transmitters/receivers
- Military communications

JCBP-43+


CASE STYLE: BG291

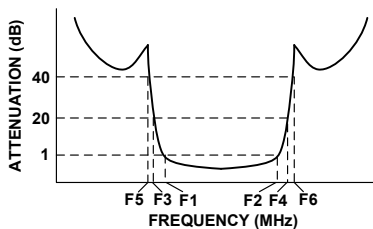
+RoHS Compliant

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

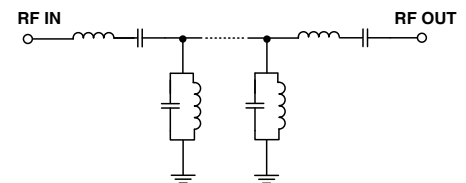
Bandpass Filter Electrical Specifications ($T_{AMB} = 25^\circ\text{C}$)

CENTER FREQ. (MHz)	PASSBAND (MHz) (Loss < 1dB) F1 - F2	STOPBANDS (MHz)				VSWR (:1)	
		Loss > 20dB		Loss > 40dB		Passband	Stopband
		F3	F4	F5	F6	Max.	Typ.
43	26 - 60	12.5	130	10	160 - 1500	1.6	20

Typical Frequency Response

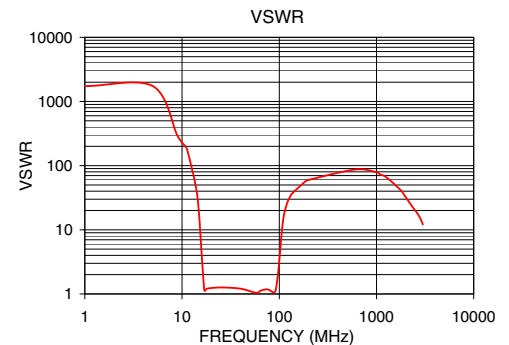
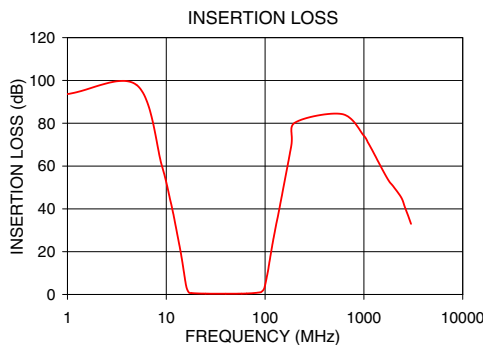


Functional Schematic



Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
5.0	97.92	1737.18
10.0	51.90	347.44
12.5	31.94	91.43
14.5	15.42	28.96
15.5	6.89	7.87
16.0	3.42	3.66
16.5	1.52	1.79
26.0	0.35	1.18
43.0	0.32	1.12
60.0	0.42	1.06
94.0	1.54	1.36
100.0	4.17	3.33
106.0	10.09	9.23
118.0	22.73	23.81
130.0	33.05	33.42
160.0	53.26	45.72
800.0	85.80	86.86
1500.0	59.08	54.29



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-Circuits' 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



Surface Mount Band Pass Filter

JCBP-43+

Typical Performance Data

FREQ. (MHz)	INSERTION LOSS (dB)			INPUT RETURN LOSS (dB)			OUTPUT RETURNLOSS (dB)		
	@ -40° C	@ +25° C	@ +85° C	@ -40° C	@ +25° C	@ +85° C	@ -40° C	@ +25° C	@ +85° C
0.5	94.81	100.63	96.72	0.00	0.00	0.00	0.00	0.00	0.00
1.0	99.67	92.41	93.53	0.00	0.00	0.00	0.00	0.01	0.01
2.0	105.22	98.30	95.88	0.01	0.00	0.01	0.00	0.01	0.00
3.0	104.17	103.16	107.21	0.00	0.01	0.02	0.01	0.01	0.01
4.0	89.10	91.75	98.20	0.02	0.03	0.02	0.03	0.02	0.02
5.0	93.45	106.76	98.25	0.03	0.03	0.02	0.01	0.02	0.01
6.0	91.80	92.18	90.42	0.02	0.02	0.03	0.01	0.01	0.01
7.0	79.96	82.54	82.21	0.01	0.01	0.02	0.01	0.00	0.00
8.0	70.86	70.27	70.16	0.02	0.03	0.03	0.01	0.01	0.01
9.0	61.33	60.70	60.84	0.04	0.04	0.04	0.02	0.03	0.03
10.0	52.55	52.36	52.25	0.04	0.05	0.06	0.02	0.04	0.05
11.0	44.57	44.35	44.20	0.05	0.06	0.07	0.06	0.07	0.09
12.0	36.72	36.50	36.35	0.09	0.11	0.12	0.09	0.11	0.13
12.5	32.76	32.54	32.39	0.10	0.11	0.13	0.12	0.14	0.15
13.0	28.76	28.52	28.37	0.14	0.16	0.18	0.14	0.17	0.19
14.0	20.37	20.10	19.93	0.27	0.29	0.33	0.29	0.34	0.38
15.0	11.18	10.88	10.72	0.86	0.96	1.03	0.95	1.07	1.18
16.0	2.65	2.55	2.54	5.96	6.52	6.88	6.52	7.20	7.68
17.0	0.91	0.98	1.06	13.39	13.01	12.84	14.69	14.20	14.02
18.0	0.99	1.04	1.09	10.01	10.06	10.13	10.15	10.22	10.33
19.0	0.73	0.77	0.81	12.45	12.61	12.74	12.62	12.85	13.04
20.0	0.49	0.52	0.57	18.70	18.96	19.06	19.52	19.98	20.23
26.0	0.35	0.38	0.41	18.37	18.45	18.61	18.26	18.44	18.71
30.0	0.27	0.30	0.32	34.61	33.24	32.29	39.17	37.91	37.41
40.0	0.26	0.29	0.32	32.24	33.73	34.76	30.32	31.06	31.41
43.0	0.27	0.31	0.34	29.30	28.63	28.40	28.16	27.64	27.30
50.0	0.34	0.38	0.41	20.55	20.56	20.71	20.49	20.54	20.68
60.0	0.39	0.43	0.47	23.29	23.69	24.19	23.24	23.84	24.49
70.0	0.48	0.54	0.59	34.96	33.95	32.96	35.29	34.56	33.52
80.0	0.68	0.75	0.83	26.03	26.36	26.52	26.17	26.64	27.00
90.0	1.18	1.31	1.43	16.25	15.93	15.74	16.95	16.60	16.40
100.0	5.49	5.80	6.04	3.62	3.59	3.61	3.64	3.62	3.63
110.0	15.73	16.04	16.24	1.08	1.13	1.18	1.02	1.08	1.14
120.0	25.36	25.60	25.75	0.70	0.73	0.75	0.63	0.69	0.73
130.0	33.56	33.75	33.90	0.57	0.59	0.60	0.50	0.55	0.59
140.0	40.75	41.01	41.16	0.49	0.51	0.53	0.45	0.50	0.53
150.0	47.52	47.75	48.08	0.43	0.45	0.46	0.38	0.42	0.45
160.0	54.27	54.41	54.32	0.41	0.42	0.44	0.34	0.37	0.41
170.0	61.16	60.75	61.42	0.37	0.38	0.40	0.31	0.35	0.39
180.0	68.69	69.56	69.36	0.36	0.37	0.38	0.31	0.35	0.39
190.0	79.74	76.96	80.25	0.33	0.34	0.35	0.28	0.33	0.35
200.0	77.37	76.75	78.59	0.31	0.33	0.34	0.27	0.31	0.35
300.0	74.48	71.73	72.91	0.26	0.29	0.31	0.21	0.27	0.32
400.0	81.02	80.58	77.86	0.24	0.28	0.31	0.19	0.27	0.34
500.0	80.24	81.32	82.00	0.25	0.29	0.32	0.19	0.30	0.37
600.0	88.70	87.32	86.70	0.28	0.32	0.35	0.20	0.32	0.41
700.0	83.95	84.14	100.37	0.26	0.32	0.37	0.23	0.36	0.45
800.0	89.57	97.76	81.81	0.27	0.35	0.39	0.23	0.37	0.47
900.0	84.38	94.27	83.36	0.29	0.37	0.43	0.26	0.41	0.51
1000.0	79.77	85.63	79.20	0.32	0.40	0.45	0.28	0.44	0.54
1100.0	73.89	75.28	73.54	0.33	0.41	0.47	0.30	0.48	0.59
1200.0	72.75	73.43	73.13	0.36	0.44	0.50	0.34	0.52	0.64
1300.0	69.66	68.69	68.20	0.38	0.47	0.54	0.36	0.54	0.68
1400.0	68.47	65.23	65.74	0.40	0.48	0.55	0.38	0.58	0.72
1500.0	58.47	63.63	57.73	0.42	0.53	0.59	0.41	0.63	0.76

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Typical Performance Data

FREQ. (MHz)	GROUP DELAY (nsec)		
	@ -40° C	@ +25° C	@ +85° C
26	40.46	40.38	40.32
27	37.75	37.66	37.63
28	35.46	35.40	35.36
29	33.43	33.39	33.35
30	31.71	31.63	31.59
31	30.07	29.99	30.00
32	28.67	28.64	28.61
33	27.38	27.36	27.36
34	26.32	26.25	26.27
35	25.27	25.24	25.26
36	24.38	24.39	24.36
37	23.60	23.59	23.59
38	22.89	22.87	22.85
39	22.19	22.22	22.18
40	21.65	21.62	21.60
41	21.13	21.11	21.10
42	20.62	20.60	20.58
43	20.17	20.15	20.13
44	19.78	19.76	19.75
45	19.37	19.41	19.37
46	19.00	18.98	18.98
47	18.66	18.65	18.66
48	18.37	18.36	18.37
49	18.10	18.09	18.10
50	17.84	17.82	17.83
51	17.62	17.62	17.64
52	17.39	17.41	17.42
53	17.21	17.26	17.26
54	17.06	17.09	17.10
55	16.91	16.93	16.97
56	16.78	16.82	16.83
57	16.72	16.72	16.73
58	16.64	16.65	16.67
59	16.57	16.60	16.60
60	16.51	16.55	16.55

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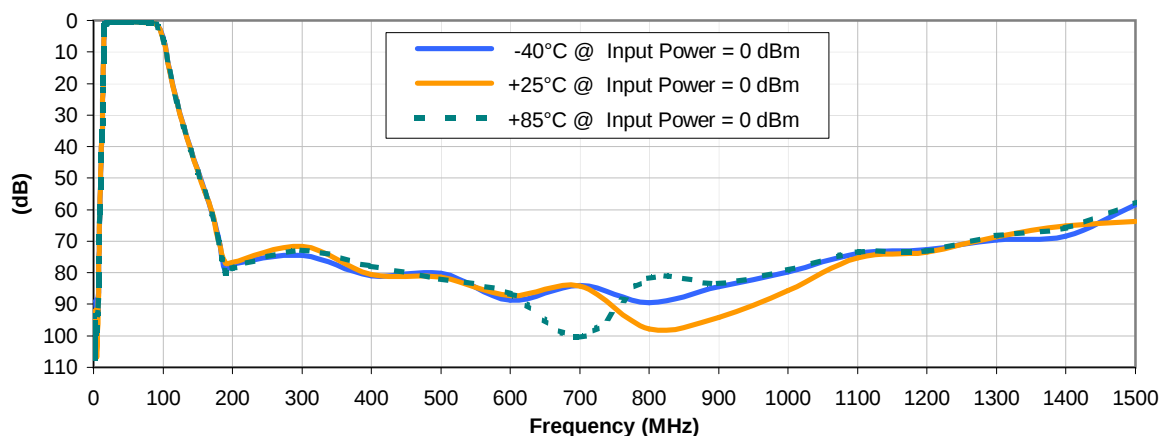


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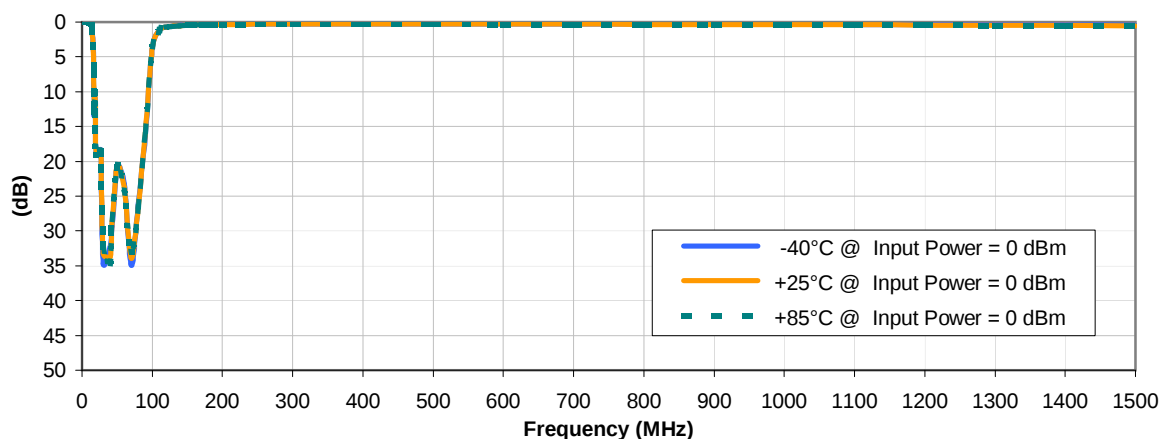


Typical Performance Curves

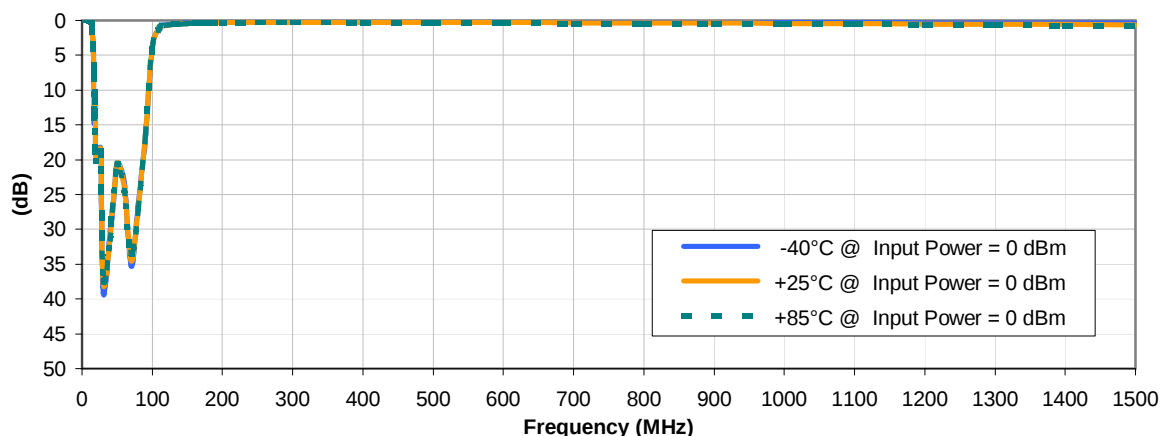
INSERTION LOSS vs. TEMPERATURE



INPUT RETURN LOSS vs. TEMPERATURE



OUTPUT RETURN LOSS vs. TEMPERATURE



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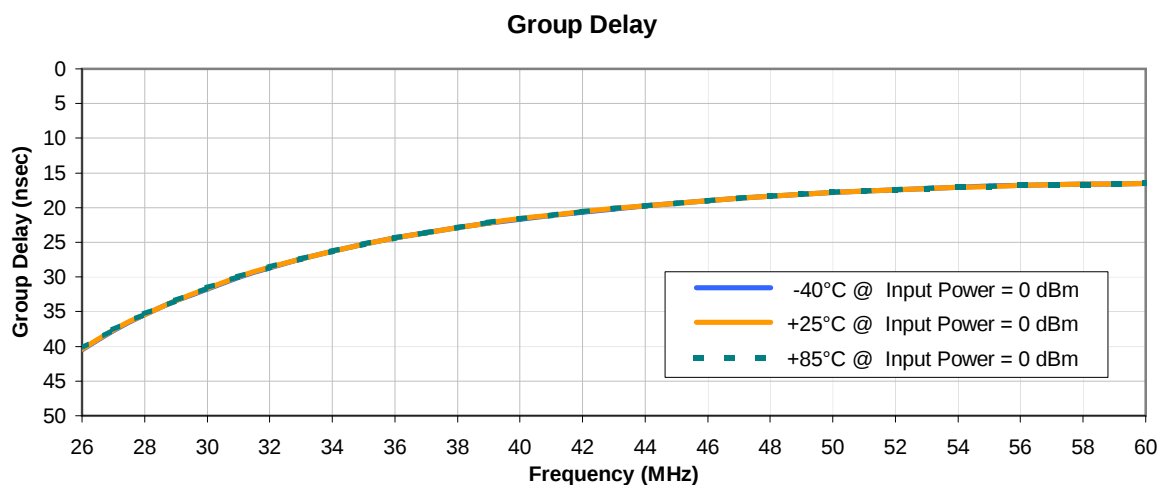
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Typical Performance Curves



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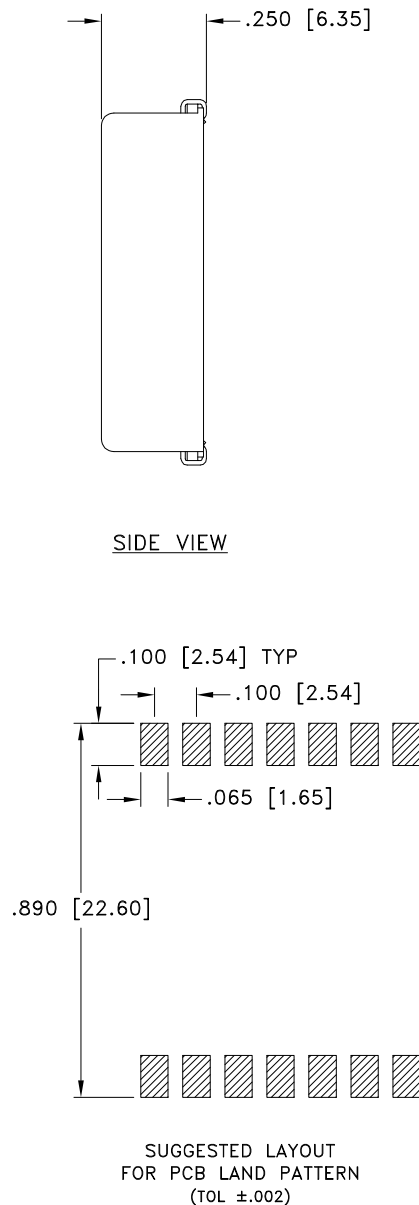
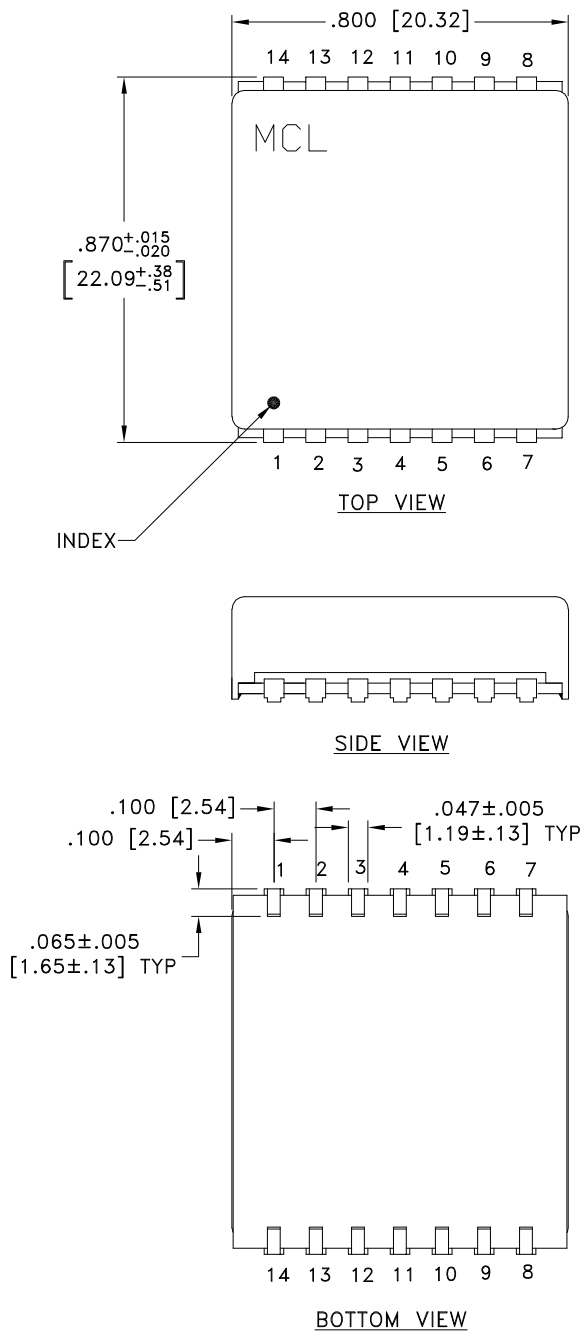


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Outline Dimensions

BG291



 DENOTES METALLIZATION

Weight: 4 gram

Dimensions are in inches[mm]. Tolerances: 2PL $\pm$ 0.03[0.76]; 3 PL $\pm$ 0.015 [0.381] inches[mm], unless otherwise specified

Notes:

1. Case material: Copper-Nickel alloy.
2. Base material: Printed wiring laminate.
3. Termination finish:

For RoHS Case Styles: Tin plate over Nickel plate. All models, (+) suffix.

For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.

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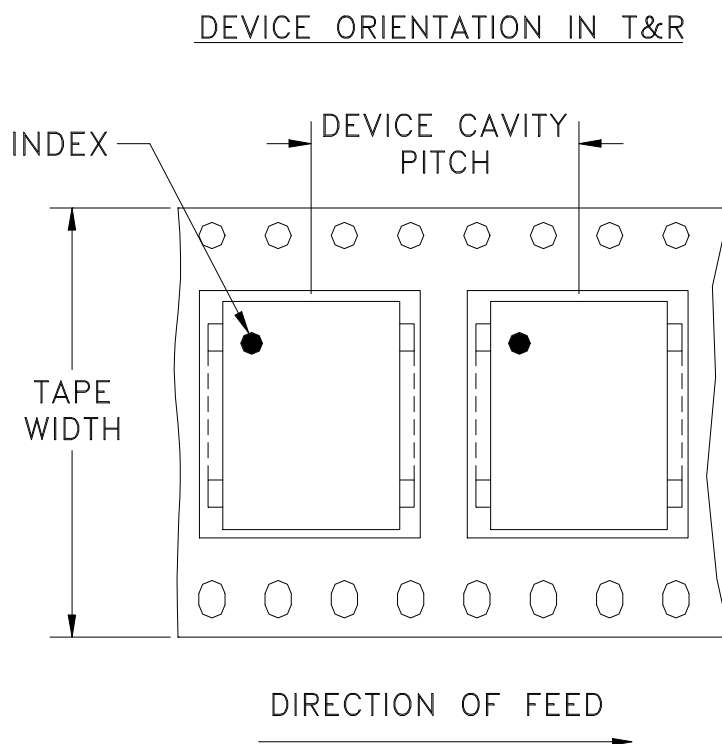
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Tape & Reel Packaging TR-F21



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel
32	32	13	200

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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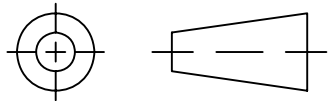
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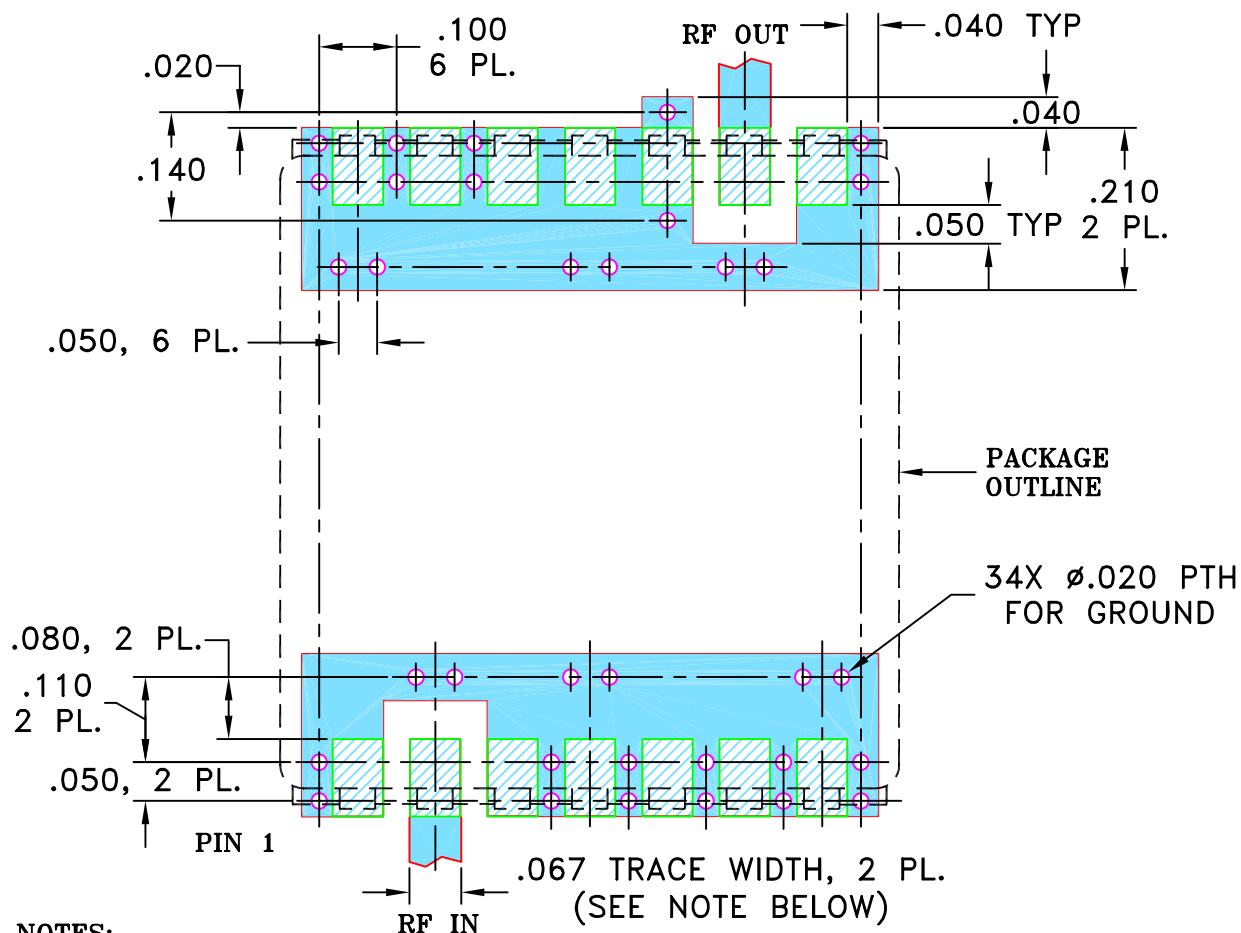
THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M110266	NEW RELEASE	03/07	DK	HH
OR	R68010	NEW RELEASE	03/07	DK	HH

SUGGESTED MOUNTING CONFIGURATION
FOR BG291 CASE STYLE, "sc" PIN CONNECTION.

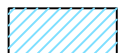


NOTES:

1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS $.030'' \pm .002''$; COPPER: 1/2 OZ. EACH SIDE.
FOR OTHER MATERIALS TRACE WIDTH 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
 TOLERANCES ON:
 2 PL DECIMALS $\pm$
 3 PL DECIMALS $\pm .005$
 ANGLES $\pm$
 FRACTIONS $\pm$

DRAWN

DK

27 MAR 07

CHECKED

HH

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PL, sc, BG291, JCBP-25, TB-442+

SIZE
 A

CODE IDENT
 15542

DRAWING NO:
 98-PL-269

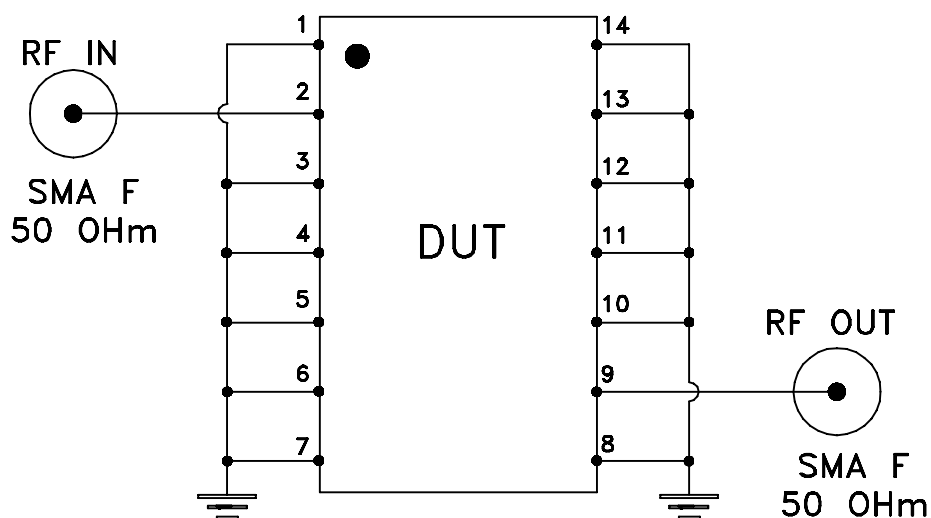
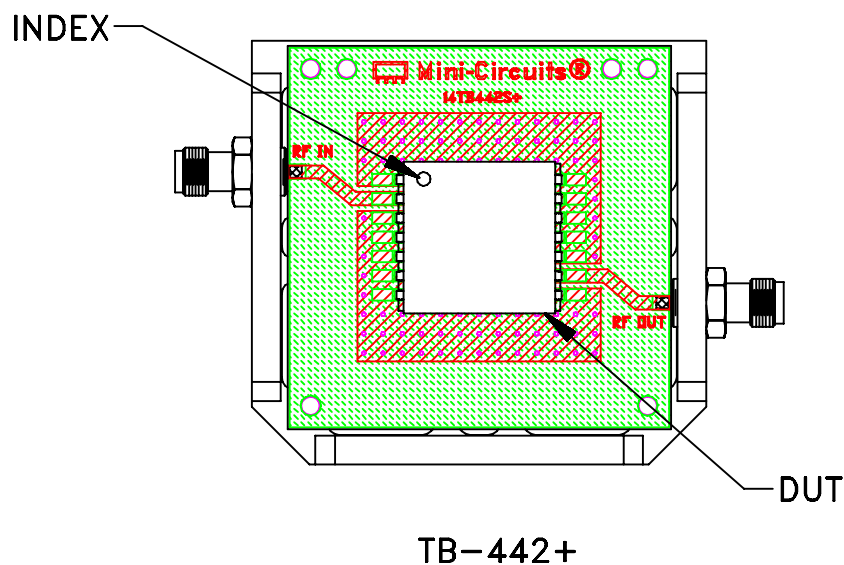
REV:
 OR

FILE: 98PL269

SCALE: 4:1

SHEET: 1 OF 1

Evaluation Board and Circuit



Notes:

1. 50 Ohm SMA Female connectors.
2. PCB Material: ROGERS R04350 or equivalent,
Dielectric Constant=3.48, Thickness=.030 inch.

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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	-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
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
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, 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
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215