Surface Mount

High Pass Filter

JCHP-1200+

50Ω 1400 to 3000 MHz

CASE STYLE: BG291

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

Features

- low insertion loss, 1dB typ @ passband
- good VSWR, 1.5:1 typ @ passband
- high rejection
- aqueous washable

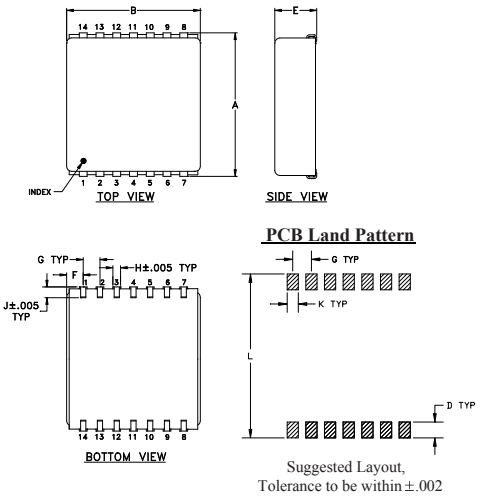
Applications

- transmitters/receivers
- sub-harmonic rejection
- military communications

+RoHS Compliant

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

Outline Drawing

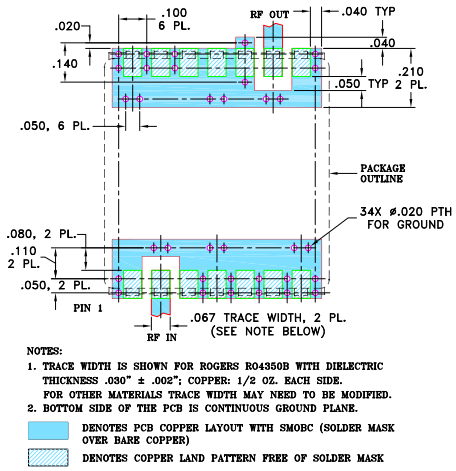


Outline Dimensions (inch / mm)

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)



NOTES:
1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .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.

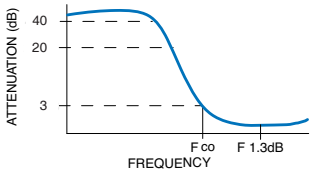
DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

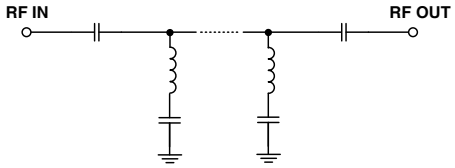
High Pass Filter Electrical Specifications (T_{AMB}= 25°C)

STOPBAND (MHz) (Loss > 40dB)	STOPBAND (MHz) (Loss > 20dB)	fco, MHz Nom. (Loss 3dB)	PASSBAND (MHz) (Loss < 2dB)	VSWR (:1) Stopband Typ.	VSWR (:1) Passband Typ.
DC - 730	DC - 1040	1200	1400 - 3000	20	1.5

Typical Frequency Response

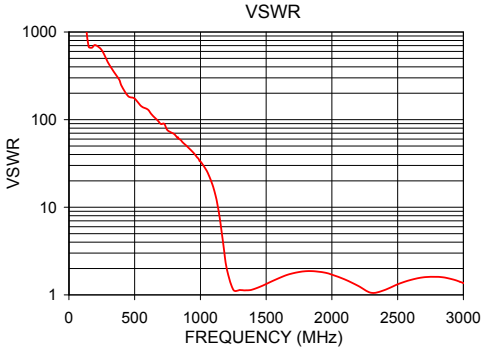


Functional Schematic



Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
1.0	78.15	1119.71
10.0	76.42	2277.04
50.0	64.15	8883.34
300.0	50.10	441.90
730.0	51.48	86.53
1000.0	38.26	33.37
1040.0	32.09	27.10
1100.0	20.20	16.51
1125.0	14.89	11.68
1150.0	9.77	7.03
1175.0	5.57	3.68
1200.0	2.98	2.00
1250.0	1.44	1.14
1300.0	1.10	1.14
1400.0	0.85	1.16
2000.0	0.87	1.70
2500.0	0.67	1.32
3000.0	1.18	1.36



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

Surface Mount High Pass Filter JCHP-1200+

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
10	75.93	78.56	78.50	0.00	0.00	0.00	0.00	0.00	0.00
50	63.53	63.58	63.75	0.00	0.00	0.00	0.01	0.01	0.01
100	57.89	57.96	58.10	0.00	0.01	0.01	0.02	0.01	0.03
200	52.63	52.79	52.83	0.01	0.03	0.04	0.01	0.03	0.05
300	50.38	50.74	50.93	0.04	0.07	0.08	0.01	0.05	0.08
400	50.31	50.68	51.04	0.06	0.10	0.11	0.01	0.08	0.11
500	52.79	53.25	53.57	0.10	0.14	0.16	0.02	0.11	0.14
600	61.75	62.88	63.50	0.14	0.18	0.21	0.05	0.14	0.18
700	57.13	57.09	56.79	0.17	0.23	0.26	0.07	0.17	0.22
730	53.38	53.31	53.19	0.19	0.24	0.27	0.09	0.19	0.23
800	48.80	48.90	48.80	0.23	0.29	0.32	0.11	0.23	0.27
900	46.03	46.02	46.02	0.30	0.38	0.43	0.18	0.31	0.37
950	44.51	44.24	44.20	0.37	0.46	0.52	0.23	0.37	0.44
1000	39.51	39.28	38.86	0.46	0.57	0.66	0.30	0.47	0.56
1040	32.46	32.05	31.54	0.59	0.73	0.86	0.38	0.58	0.71
1100	19.25	18.78	18.28	1.07	1.34	1.58	0.73	1.02	1.25
1150	8.26	8.04	7.85	3.08	3.79	4.36	2.35	2.95	3.44
1200	2.27	2.54	2.73	13.61	15.16	16.43	10.39	11.17	11.74
1250	1.24	1.53	1.75	21.38	21.55	21.09	17.43	17.44	16.99
1300	0.98	1.25	1.47	19.26	19.10	18.03	17.90	17.60	16.59
1350	0.84	1.12	1.34	18.28	17.55	16.25	17.52	16.83	15.57
1400	0.79	1.08	1.30	16.29	15.35	14.26	15.95	15.17	14.12
1450	0.81	1.10	1.33	14.05	13.18	12.42	13.91	13.23	12.49
1500	0.89	1.18	1.40	11.96	11.41	10.98	11.87	11.51	11.14
1550	0.98	1.27	1.47	10.40	10.09	9.93	10.35	10.18	10.10
1600	1.10	1.35	1.52	9.23	9.16	9.21	9.17	9.24	9.39
1650	1.17	1.42	1.56	8.53	8.56	8.74	8.48	8.64	8.91
1700	1.22	1.45	1.59	8.14	8.25	8.49	8.07	8.34	8.66
1750	1.21	1.43	1.57	8.13	8.19	8.45	8.10	8.27	8.62
1800	1.14	1.38	1.52	8.25	8.36	8.59	8.21	8.46	8.76
1850	1.04	1.29	1.45	8.73	8.77	8.90	8.70	8.85	9.08
1900	0.90	1.17	1.37	9.52	9.40	9.44	9.51	9.52	9.64
1950	0.76	1.04	1.25	10.70	10.37	10.17	10.70	10.48	10.31
2000	0.60	0.91	1.13	12.47	11.68	11.16	12.54	11.82	11.36
2050	0.53	0.80	1.05	14.76	13.44	12.39	14.78	13.65	12.60
2100	0.41	0.70	0.94	18.52	15.88	14.13	18.63	16.19	14.41
2150	0.35	0.63	0.86	24.39	19.39	16.48	25.21	20.04	16.85
2200	0.34	0.59	0.80	34.48	25.46	19.92	34.88	27.19	20.46
2250	0.36	0.59	0.78	24.03	32.90	25.50	23.55	37.66	27.00
2300	0.40	0.61	0.78	19.23	24.45	30.51	18.88	24.29	43.46
2350	0.45	0.65	0.81	16.45	19.70	24.31	16.15	19.40	25.11
2400	0.51	0.71	0.86	14.74	16.95	19.78	14.47	16.70	19.94
2450	0.55	0.77	0.90	13.60	15.15	17.04	13.38	14.94	17.14
2500	0.59	0.82	0.97	12.99	14.05	15.32	12.77	13.86	15.34
2550	0.63	0.90	1.05	12.60	13.29	14.13	12.44	13.13	14.15
2600	0.63	0.92	1.10	12.57	12.92	13.49	12.35	12.72	13.38
2650	0.63	0.95	1.17	12.73	12.80	13.21	12.53	12.60	13.04
2700	0.61	0.95	1.19	13.03	12.99	13.38	12.79	12.76	13.08
2750	0.63	0.96	1.21	13.67	13.58	13.71	13.39	13.28	13.32
2800	0.63	0.94	1.20	14.01	14.43	14.46	13.85	14.01	13.78
2850	0.60	0.92	1.22	15.06	15.91	16.03	14.69	15.24	14.75
2900	0.53	0.91	1.17	16.10	17.81	18.68	15.84	16.77	16.26
2950	0.51	0.87	1.15	17.95	20.92	23.14	17.57	19.04	18.08
3000	0.51	0.86	1.15	20.17	27.36	39.00	20.25	21.74	19.01

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Typical Performance Data

FREQ. (MHz)	GROUP DELAY (nsec)		
	@ -40˚ C	@ +25˚ C	@ +85˚ C
1400	1.61	1.57	1.53
1420	1.53	1.50	1.46
1450	1.44	1.40	1.36
1500	1.30	1.26	1.23
1520	1.25	1.21	1.18
1550	1.18	1.15	1.12
1600	1.08	1.06	1.04
1620	1.05	1.03	1.01
1650	1.01	0.99	0.97
1700	0.95	0.93	0.92
1720	0.94	0.91	0.90
1750	0.91	0.89	0.88
1800	0.89	0.86	0.85
1820	0.87	0.85	0.84
1850	0.86	0.84	0.83
1900	0.85	0.83	0.81
1920	0.85	0.83	0.80
1950	0.84	0.82	0.79
2000	0.85	0.82	0.80
2020	0.84	0.81	0.78
2050	0.84	0.81	0.78
2100	0.84	0.81	0.78
2120	0.83	0.80	0.77
2150	0.82	0.80	0.77
2200	0.81	0.79	0.76
2220	0.80	0.78	0.76
2250	0.79	0.77	0.75
2300	0.77	0.76	0.74
2320	0.76	0.75	0.74
2350	0.75	0.75	0.73
2400	0.74	0.73	0.72
2420	0.74	0.72	0.71
2450	0.73	0.71	0.71
2500	0.72	0.71	0.69
2520	0.71	0.70	0.68
2550	0.71	0.69	0.68
2600	0.71	0.68	0.66
2620	0.70	0.68	0.66
2650	0.70	0.67	0.66
2700	0.70	0.67	0.65
2720	0.70	0.68	0.65
2750	0.69	0.67	0.64
2800	0.69	0.68	0.65
2820	0.69	0.68	0.65
2850	0.69	0.68	0.65
2900	0.70	0.67	0.66
2920	0.70	0.67	0.67
2950	0.70	0.69	0.67
3000	0.71	0.70	0.68

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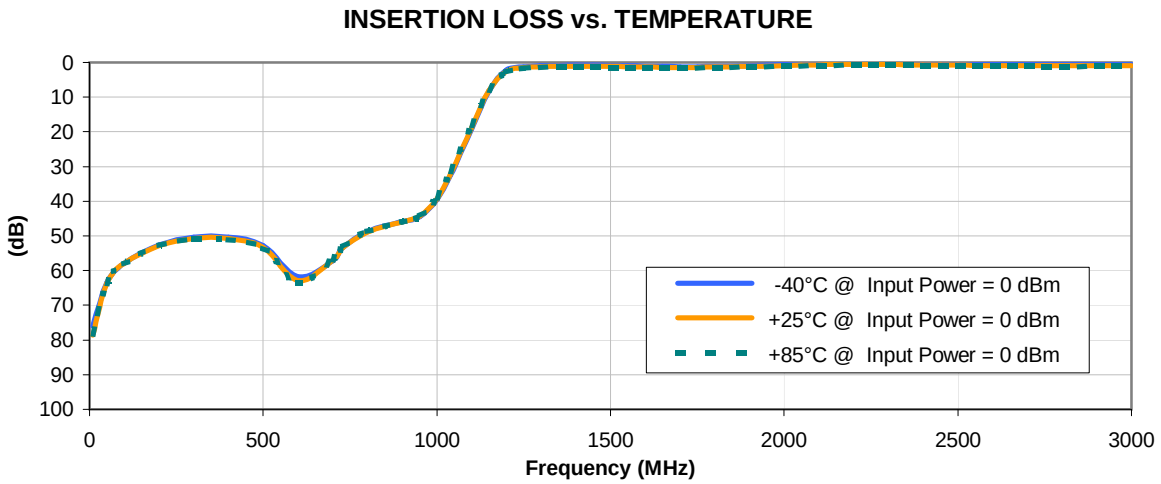
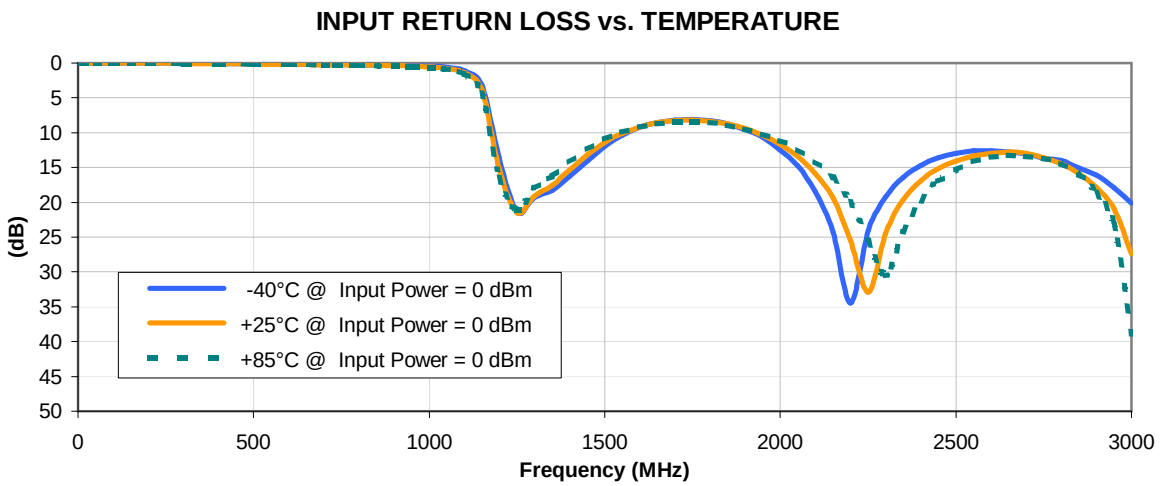
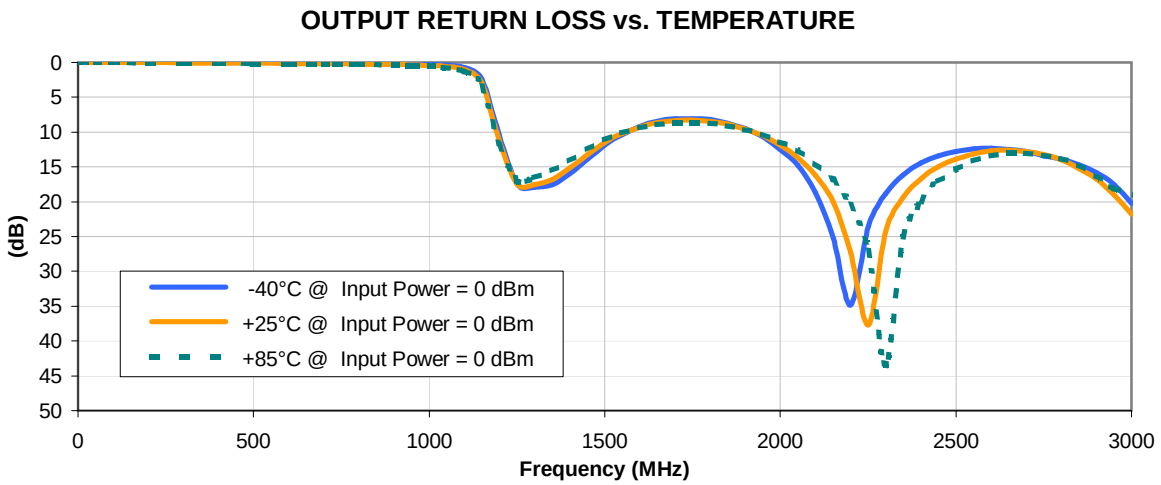
Surface Mount High Pass Filter JCHP-1200+

Typical Performance Curves







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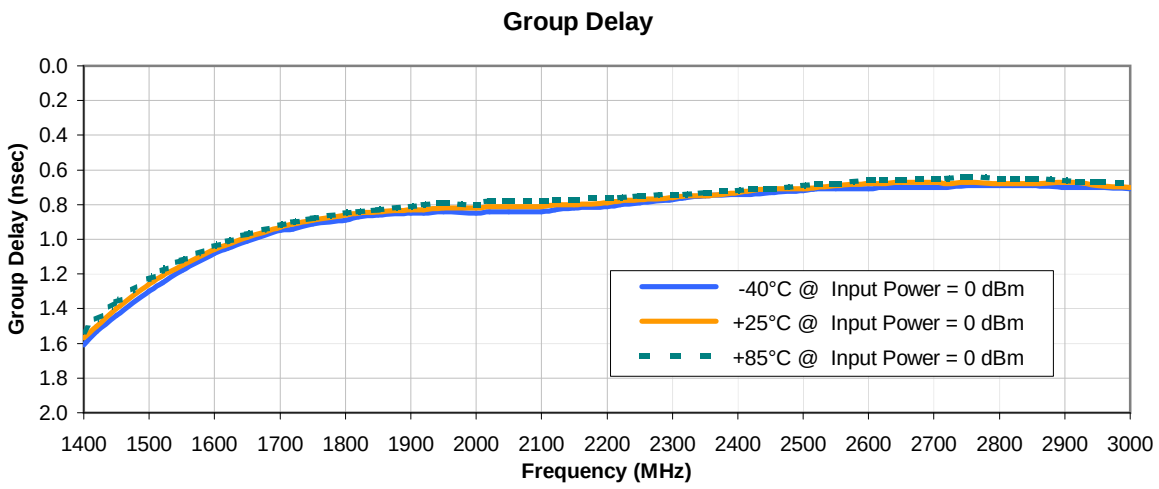
Typical Performance Curves



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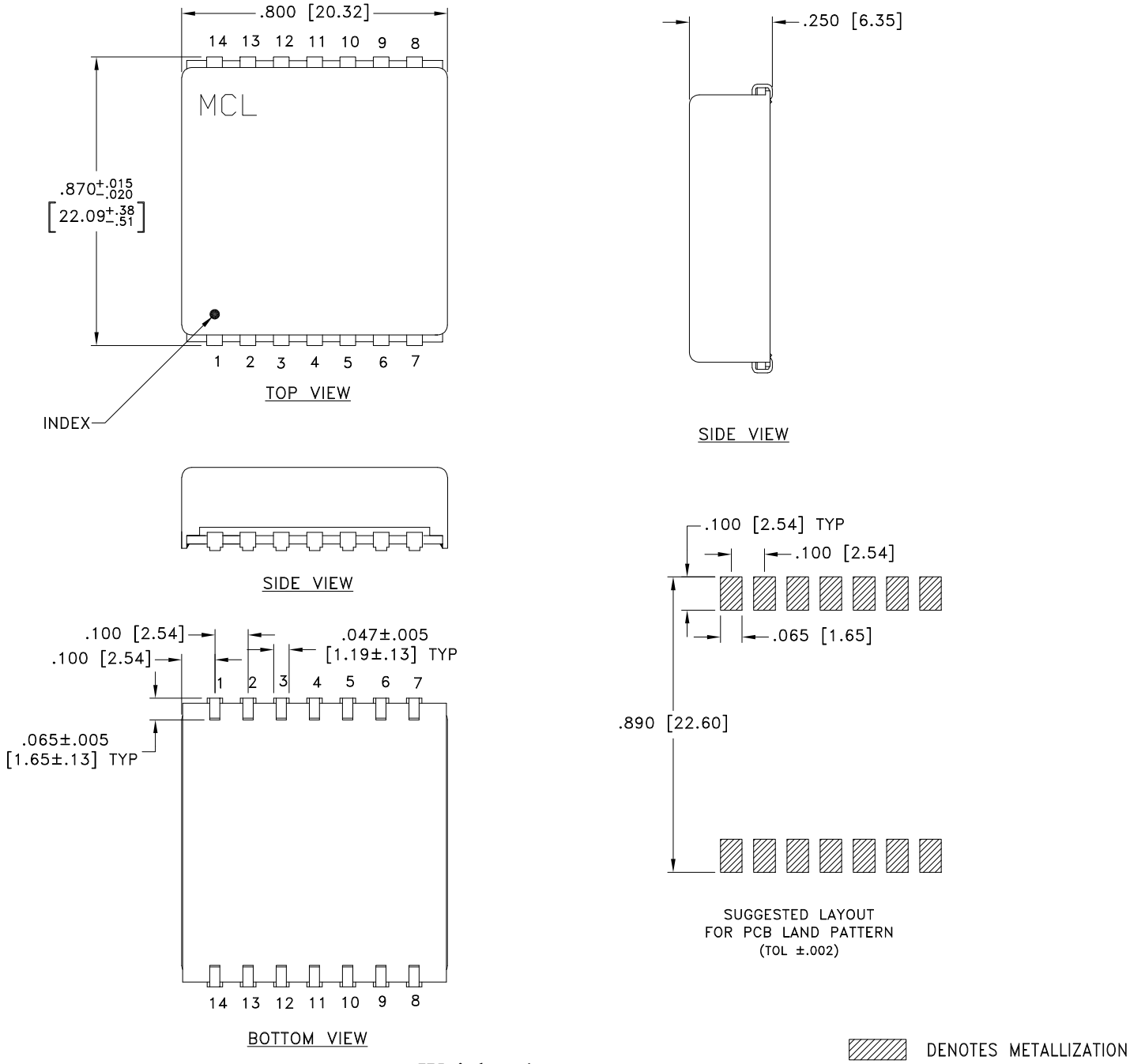
Case Style BG

Outline Dimensions

BG291



Weight: 4 gram

Dimensions are in inches[mm]. Tolerances: 2PL.±0.03[0.76]; 3 Pl.± 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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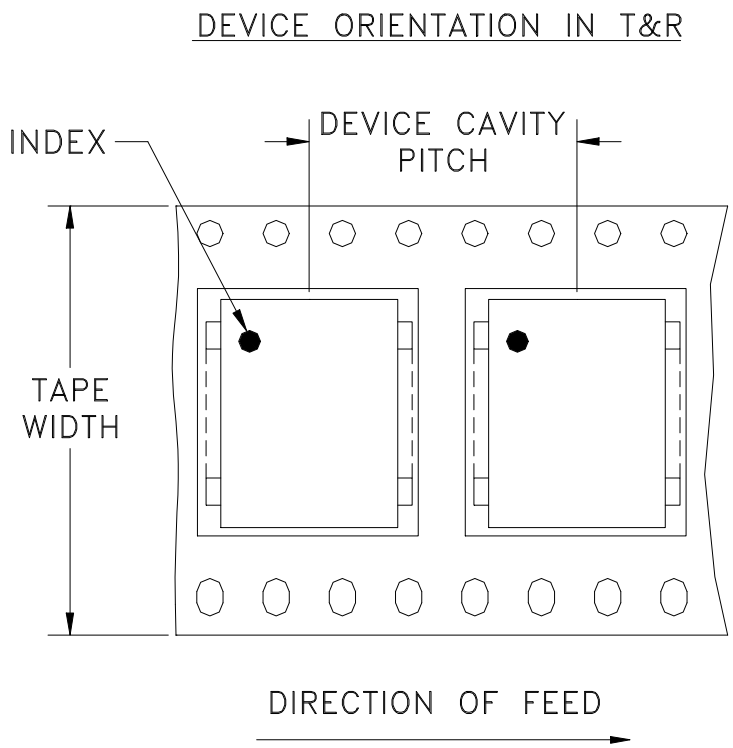
Tape & Reel Packaging TR-F21



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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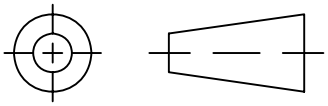
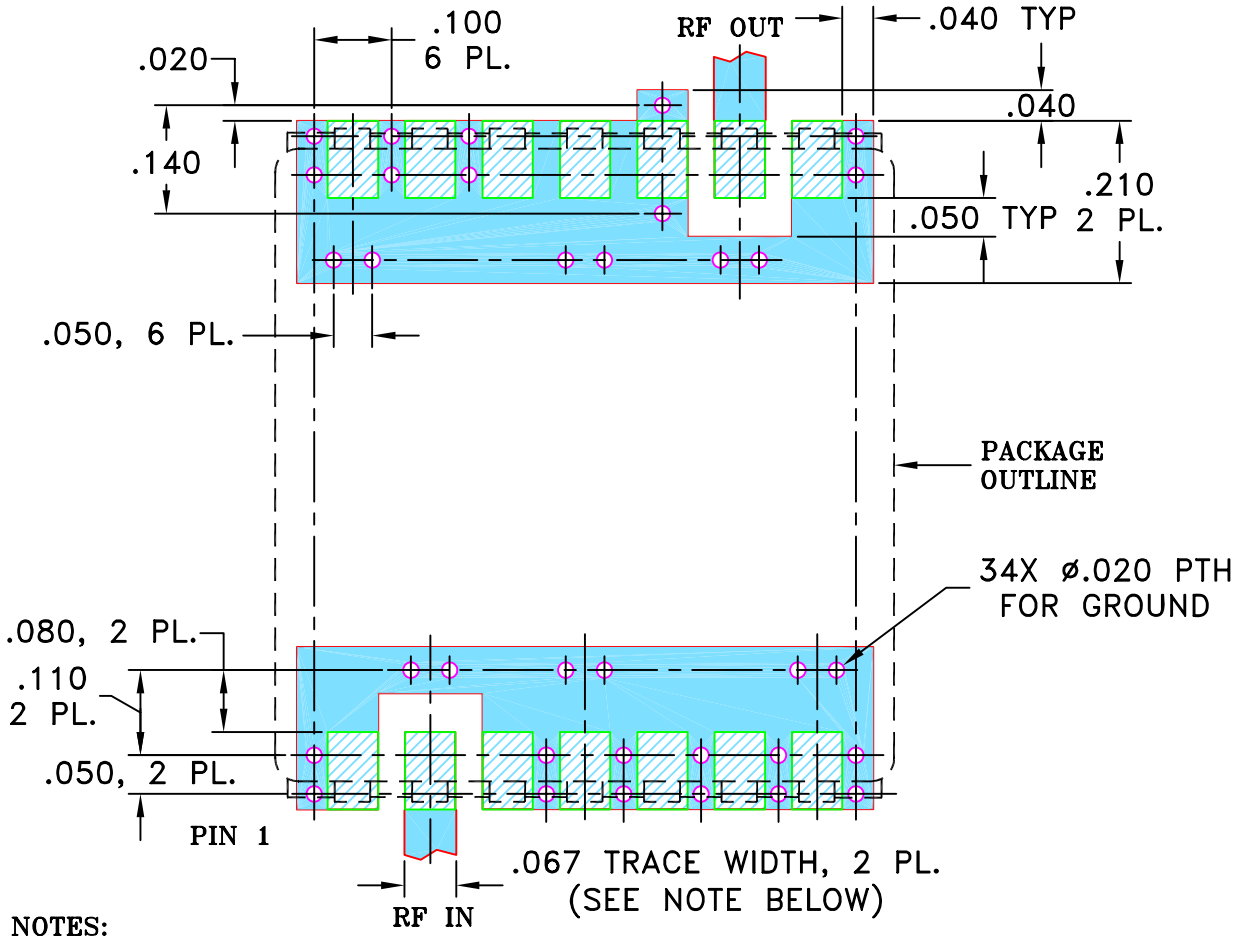
THIRD ANGLE PROJECTION



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 RO4350B WITH DIELECTRIC THICKNESS .030" ± .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	DRAWN	DK	27 MAR 07
TOLERANCES ON:	CHECKED	HH	27 MAR 07
2 PL DECIMALS ±	APPROVED	HH	27 MAR 07
3 PL DECIMALS ± .005			
ANGLES ±			
FRACTIONS ±			

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

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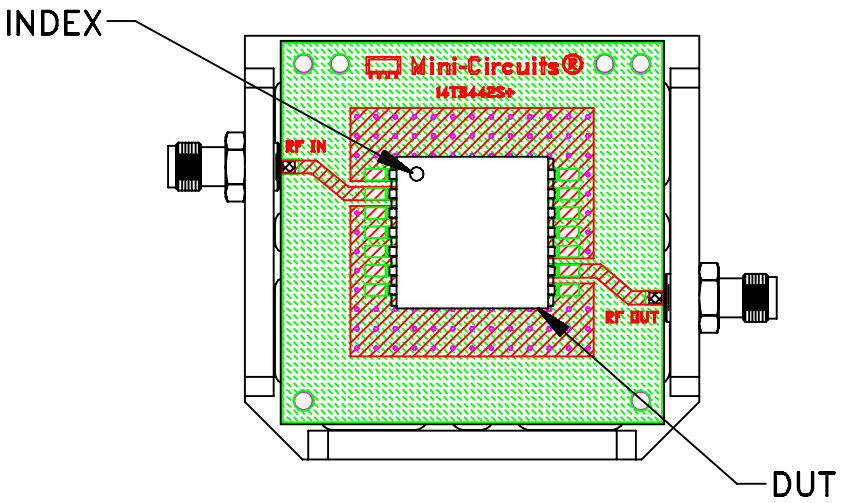
PL, sc, BG291, JCBP-25, TB-442+

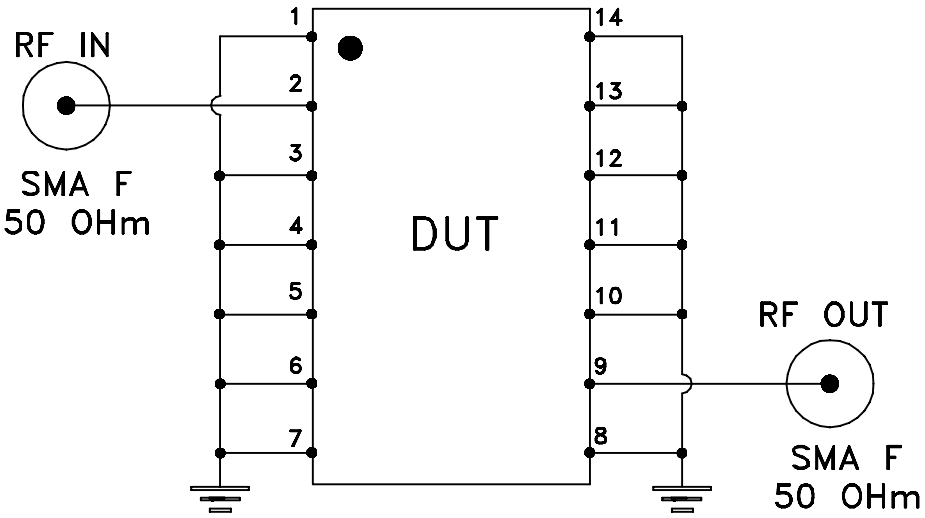
SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-269	OR

FILE:	SCALE:	SHEET:
98PL269	4:1	1 OF 1

Evaluation Board and Circuit



TB-442+



Schematic Diagram

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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Environmental Specifications ENV02T1

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

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