

Surface Mount Bandpass Filter

SXBP-1430+

50Ω 950 to 2150 MHz

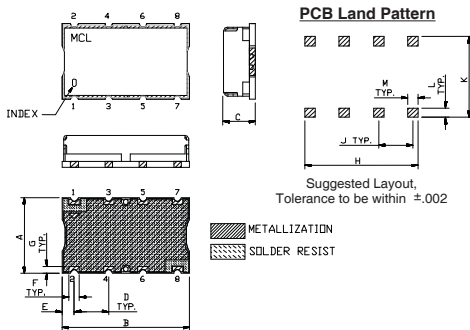
Maximum Ratings

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

Pin Connections

INPUT	1
OUTPUT	8
GROUND	2, 3, 4, 5, 6, 7

Outline Drawing

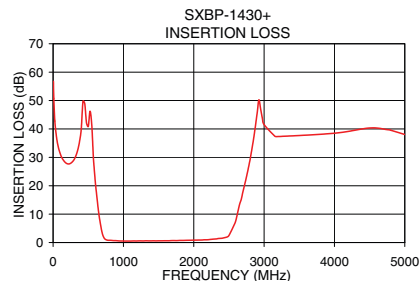
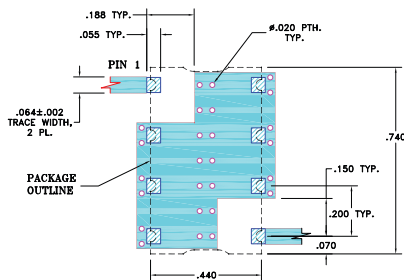


Outline Dimensions (inch/mm)

A	B	C	D	E	F	
.44	.74	.19	.200	.07	.060	
11.18	18.80	4.83	5.08	1.78	1.52	
G	H	J	K	L	M	wt.
.040	.660	.200	.470	.055	.060	grams
1.02	16.76	5.08	11.94	1.40	1.52	3.0

Note: Please refer to case style drawing for details

Demo Board MCL P/N: TB-368 Suggested PCB Layout (PL-230)

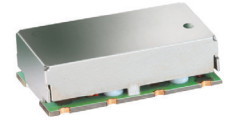


Features

- wideband, 950 to 2150 MHz
- flat group delay @ passband, 1 nsec typ.
- good VSWR, 1.3:1 typ @ passband
- aqueous washable

Applications

- L-band satellite
- receivers/transmitters
- wireless communication systems



Generic photo used for illustration purposes only
CASE STYLE: HF1317

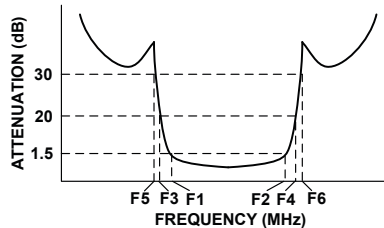
+RoHS Compliant

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

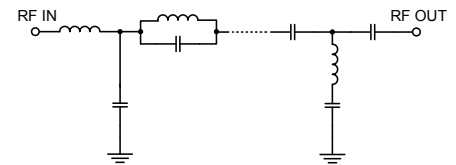
Bandpass Filter Electrical Specifications (T_{AMB} = 25°C)

CENTER FREQ. (MHz)	PASSBAND (MHz) (Loss < 1.5dB)	STOPBANDS (MHz)				VSWR (:1)		
		Loss > 20dB		Loss 30dB Typ.		Passband		Stopband
F _c	F ₁ - F ₂	F ₃	F ₄	F ₅	F ₆	Typ.	Max.	Typ.
1430	950 - 2150	575	2850	570	2850 - 5000	1.3	1.9	20

Typical Frequency Response

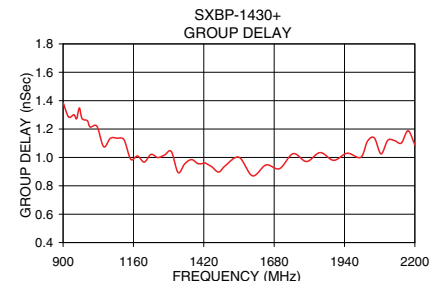
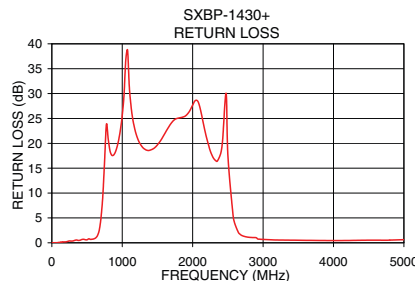


Functional Schematic



Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)		Return Loss (dB)	Frequency (MHz)	Group Delay (nSec)
	$\bar{x}$	σ			
5.0	56.78	0.07	0.01	900.0	1.39
570.0	31.48	0.81	0.72	950.0	1.27
575.0	28.99	0.64	0.72	1000.0	1.21
600.0	21.53	0.49	0.81	1100.0	1.14
650.0	10.23	0.41	1.51	1200.0	0.97
675.0	6.25	0.37	2.69	1300.0	1.04
700.0	3.19	0.28	5.26	1400.0	0.96
750.0	1.04	0.07	16.69	1430.0	0.96
950.0	0.56	0.02	20.73	1450.0	0.93
1430.0	0.60	0.03	18.82	1500.0	0.94
2150.0	0.97	0.02	24.15	1600.0	0.87
2425.0	1.65	0.06	20.56	1700.0	0.92
2500.0	2.50	0.28	17.51	1800.0	0.97
2575.0	6.28	0.86	5.39	1900.0	0.98
2650.0	13.27	1.06	2.06	2000.0	1.00
2800.0	29.07	1.38	1.11	2100.0	1.12
2850.0	36.43	1.93	1.05	2150.0	1.10
5000.0	38.05	1.34	0.63	2200.0	1.09



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-Circuit's applicable established test performance criteria and measurement instructions.
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Surface Mount Band Pass Filter

SXBP-1430+

Typical Performance Data

FREQ. (MHz)	INSERTION LOSS (dB)			INPUT RETURN LOSS (dB)			OUTPUT RETURN LOSS (dB)		
	@ -40° C	@ +25° C	@ +85° C	@ -40° C	@ +25° C	@ +85° C	@ -40° C	@ +25° C	@ +85° C
5	57.15	57.14	56.54	0.00	0.01	0.00	0.01	0.01	0.01
50	37.16	37.19	37.12	0.01	0.01	0.02	0.01	0.01	0.01
100	31.55	31.61	31.64	0.01	0.05	0.07	0.01	0.02	0.03
200	27.79	27.89	27.94	0.07	0.14	0.17	0.01	0.05	0.09
300	29.16	29.37	29.53	0.19	0.28	0.33	0.06	0.13	0.16
400	39.58	39.92	40.28	0.27	0.39	0.43	0.14	0.21	0.25
500	40.79	41.05	41.17	0.37	0.49	0.55	0.24	0.34	0.40
570	30.99	30.67	30.32	0.45	0.60	0.69	0.32	0.46	0.52
575	29.18	28.89	28.54	0.47	0.62	0.71	0.35	0.47	0.54
600	21.69	21.54	21.28	0.56	0.73	0.83	0.44	0.58	0.66
650	10.91	10.79	10.59	1.18	1.44	1.63	1.03	1.24	1.39
700	3.70	3.73	3.67	4.42	5.05	5.54	4.01	4.46	4.80
750	0.96	1.14	1.23	14.62	15.84	16.74	12.65	13.05	13.42
950	0.45	0.64	0.72	15.71	16.39	16.88	15.94	16.81	17.42
1200	0.31	0.52	0.64	25.75	25.10	24.72	25.08	24.24	23.89
1300	0.34	0.56	0.69	17.71	18.10	18.35	17.58	17.78	18.01
1430	0.43	0.65	0.77	13.99	14.52	14.95	13.98	14.47	14.95
1600	0.48	0.75	0.89	12.47	13.27	13.80	12.60	13.49	14.16
1700	0.60	0.85	0.98	13.06	14.02	14.60	13.27	14.52	15.35
1800	0.44	0.73	0.90	15.37	16.30	16.90	15.81	17.48	18.79
2000	0.49	0.88	1.10	22.21	20.21	18.93	25.42	22.20	20.66
2150	0.85	1.25	1.49	11.91	11.93	11.76	11.89	11.69	11.50
2200	1.03	1.42	1.70	10.47	10.65	10.66	10.36	10.44	10.33
2300	1.10	1.50	1.76	9.63	10.59	11.26	9.26	9.95	10.34
2400	1.23	1.76	2.19	17.62	24.48	51.10	13.05	13.35	13.03
2500	3.11	4.43	5.52	6.32	5.54	4.87	5.25	4.62	4.16
2650	16.97	18.07	19.32	0.66	0.95	1.11	0.63	0.95	1.14
2800	32.63	34.65	36.17	0.25	0.54	0.70	0.36	0.71	0.95
2850	42.51	44.95	46.96	0.21	0.49	0.67	0.35	0.76	0.96
3000	36.94	36.89	36.90	0.13	0.43	0.60	0.41	0.79	1.08
3200	35.61	35.17	34.88	0.12	0.38	0.56	0.51	0.96	1.27
3300	34.65	34.89	35.11	0.14	0.38	0.55	0.59	1.12	1.43
3400	34.26	35.01	35.05	0.11	0.38	0.54	0.66	1.22	1.63
3500	34.82	34.64	35.26	0.13	0.38	0.54	0.70	1.32	1.70
3600	34.75	35.11	35.08	0.11	0.37	0.54	0.73	1.40	1.84
3700	35.77	35.97	36.58	0.13	0.38	0.56	0.78	1.47	1.99
3800	35.12	35.16	35.34	0.12	0.40	0.57	0.82	1.57	2.08
4000	34.36	34.38	34.73	0.13	0.42	0.60	0.95	1.79	2.27
4200	32.90	33.60	34.26	0.13	0.45	0.66	1.09	1.93	2.31
4300	32.74	33.46	33.91	0.13	0.48	0.69	1.00	1.96	2.21
4400	30.29	30.98	32.26	0.15	0.52	0.73	1.06	1.78	2.21
4500	29.58	31.98	31.17	0.14	0.50	0.75	1.19	1.76	2.01
4600	30.72	30.18	31.62	0.15	0.57	0.81	1.18	1.72	1.95
4700	28.69	29.09	29.54	0.15	0.59	0.83	1.07	1.55	1.95
4800	27.54	27.12	27.59	0.21	0.60	0.89	0.92	1.41	1.83
5000	27.91	27.55	27.55	0.15	0.66	0.98	0.89	1.36	1.69
5200	25.01	25.91	25.92	0.26	0.87	1.21	0.79	1.23	1.49
5300	24.53	23.01	23.88	0.41	1.09	1.43	0.77	1.27	1.57
5400	23.72	24.10	24.19	0.59	1.04	1.57	0.76	1.28	1.55
5500	22.86	22.08	21.81	0.54	1.22	1.53	0.69	1.25	1.55
5600	19.08	17.98	18.42	1.10	1.66	2.23	0.74	1.34	1.71
5700	15.07	14.28	13.88	1.77	2.98	3.82	0.71	1.46	2.00
5800	9.08	8.88	8.80	4.75	8.79	15.22	1.57	2.59	3.24
6000	8.99	10.22	11.05	2.80	3.49	3.56	1.26	1.87	2.27

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SXBP-1430+

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Surface Mount Band Pass Filter

SXBP-1430+

Typical Performance Data

FREQ. (MHz)	GROUP DELAY (nsec)		
	@ -40° C	@ +25° C	@ +85° C
580	1.09	1.05	1.06
600	1.51	1.48	1.52
700	3.03	3.02	3.04
800	1.87	1.83	1.80
900	1.22	1.19	1.20
950	1.09	1.08	1.08
1000	1.03	1.01	1.01
1100	0.92	0.91	0.91
1200	0.85	0.83	0.83
1240	0.84	0.83	0.83
1250	0.83	0.82	0.81
1260	0.82	0.80	0.81
1280	0.80	0.79	0.79
1300	0.81	0.79	0.80
1320	0.79	0.78	0.77
1340	0.76	0.75	0.75
1350	0.78	0.77	0.76
1360	0.80	0.78	0.78
1380	0.78	0.76	0.76
1400	0.75	0.74	0.74
1420	0.79	0.77	0.77
1440	0.77	0.76	0.76
1450	0.74	0.73	0.73
1460	0.72	0.71	0.72
1480	0.77	0.75	0.76
1500	0.78	0.77	0.77
1520	0.72	0.71	0.71
1540	0.75	0.73	0.74
1550	0.79	0.77	0.78
1560	0.78	0.77	0.77
1580	0.72	0.71	0.72
1600	0.75	0.72	0.73
1620	0.81	0.79	0.79
1640	0.74	0.73	0.74
1650	0.73	0.73	0.74
1660	0.75	0.74	0.74
1680	0.81	0.79	0.79
1700	0.73	0.73	0.74
1740	0.81	0.79	0.79
1750	0.81	0.80	0.79
1760	0.78	0.77	0.78
1780	0.78	0.77	0.77
1800	0.82	0.80	0.81
1900	0.83	0.82	0.82
2000	0.87	0.85	0.86
2100	0.95	0.93	0.92
2150	0.94	0.94	0.95
2200	0.96	0.95	0.95
2300	1.16	1.15	1.19
2400	1.47	1.54	1.60
2500	2.17	2.01	1.90
2600	0.91	0.85	0.74
2700	0.53	0.50	0.47
2750	0.63	0.56	0.47

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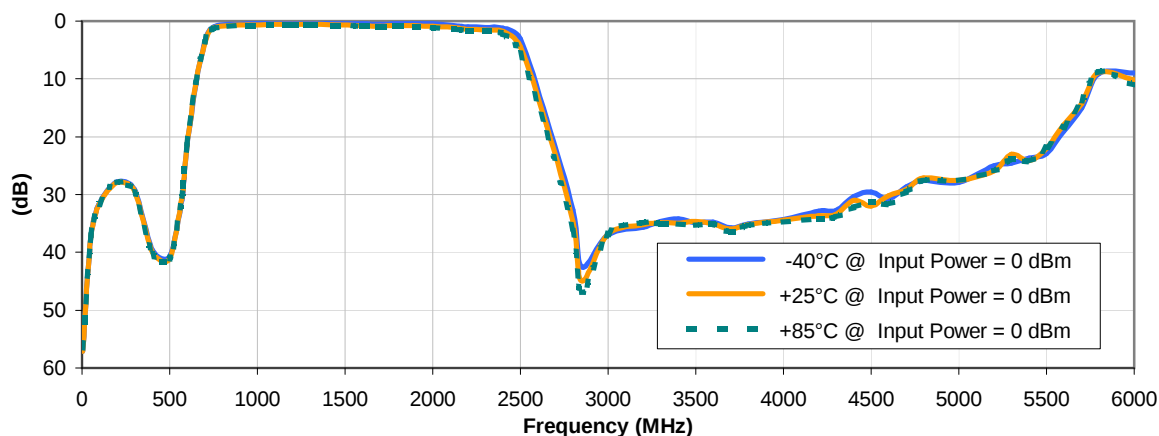


Surface Mount Band Pass Filter

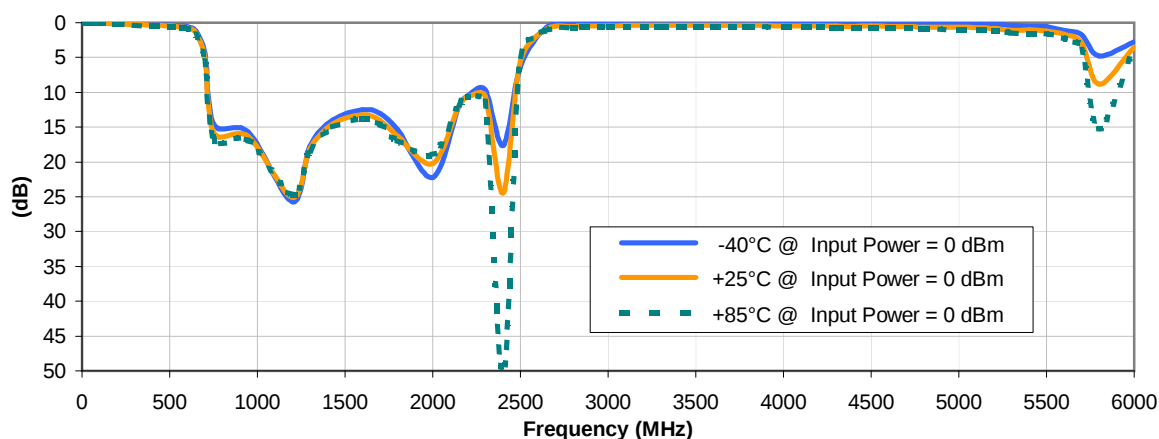
SXBP-1430+

Typical Performance Curves

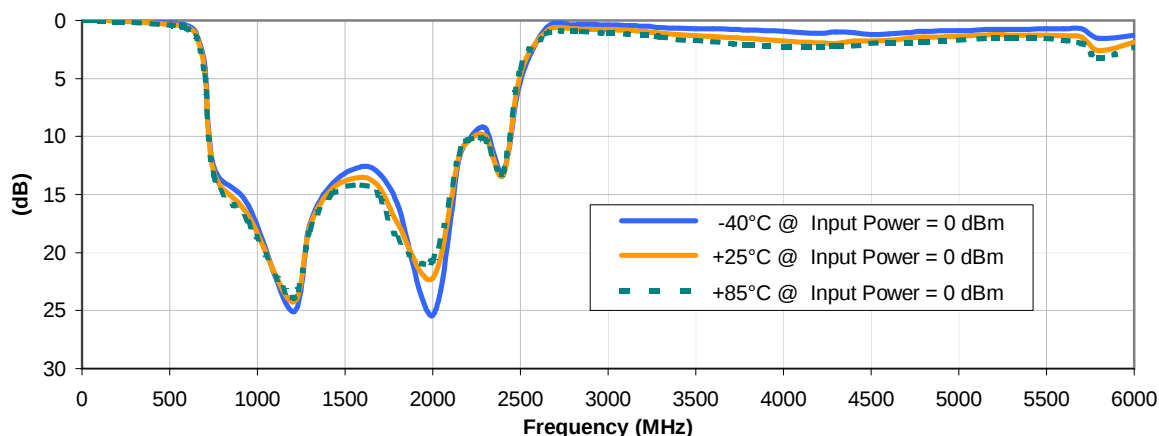
INSERTION LOSS vs. TEMPERATURE



INPUT RETURN LOSS vs. TEMPERATURE



OUTPUT RETURN LOSS vs. TEMPERATURE



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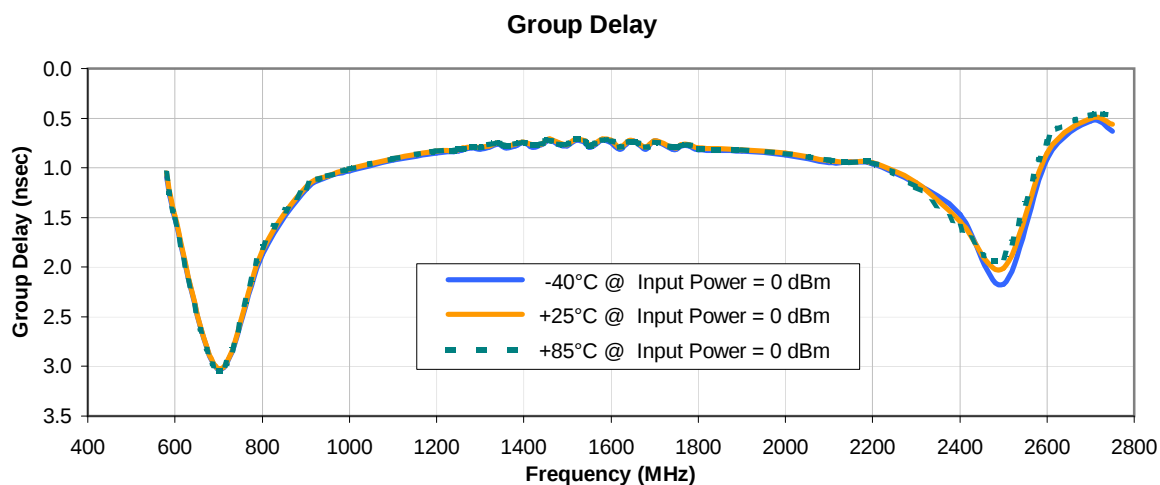


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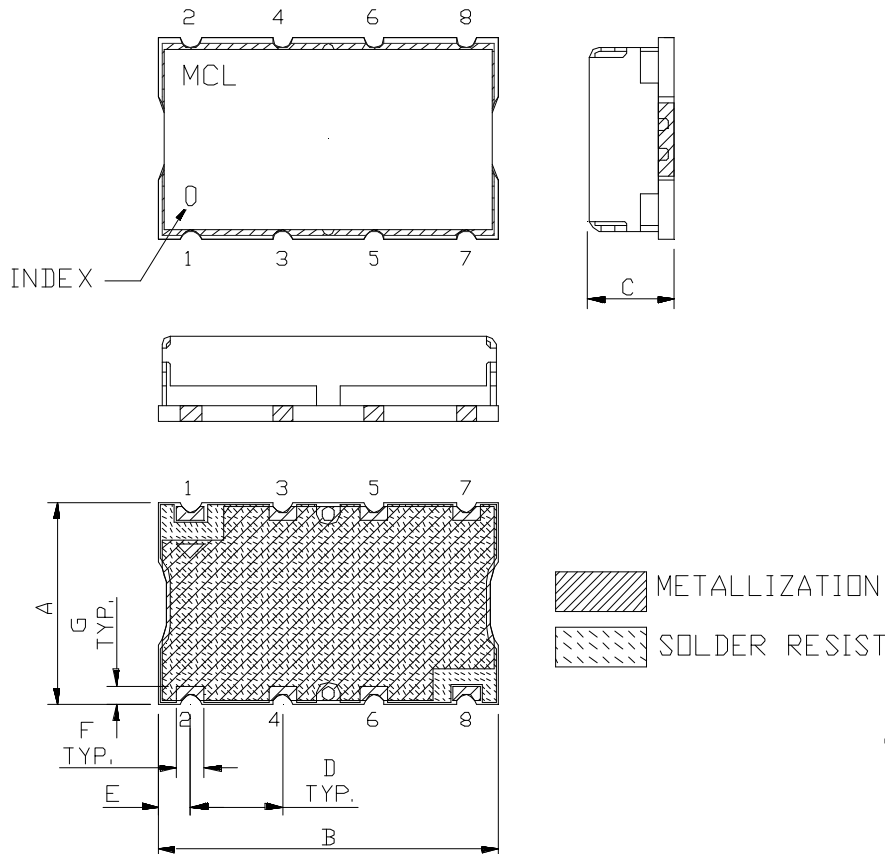
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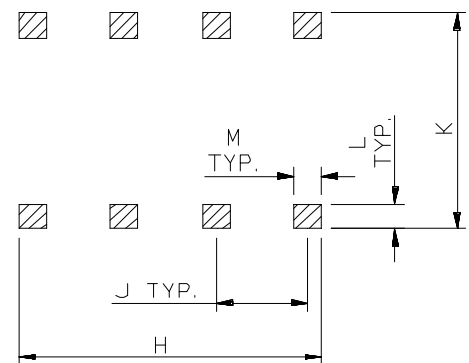
Typical Performance Curves



Outline Dimensions



PCB Land Pattern



Suggested Layout,
Tolerance to be within ± 0.002

CASE #	A	B	C	D	E	F	G	H	J	K	L	M	WT. GRAMS
HF1317	.44 (11.18)	.74 (18.80)	.19 (4.83)	.200 (5.08)	.07 (1.78)	.060 (1.52)	.040 (1.02)	.660 (16.76)	.200 (5.08)	.470 (11.94)	.055 (1.40)	.060 (1.52)	3.0

Dimensions are in inches (mm). Tolerances: 2 Pl. ± 0.015 "; 3 Pl. ± 0.01 "

Notes:

- Case material: Nickel-Silver alloy.
- Base: Printed wiring laminate.
- Termination finish:
 - For RoHS Case Styles: 2-5 μ inch (.05-.13 microns) Gold over 120-240 μ inch (3.05-6.10 microns) Nickel plate.
 - For RoHS-5 Case Styles: Tin-Lead plate.



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Tape & Reel Packaging TR-F5



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel
32	16	13	500

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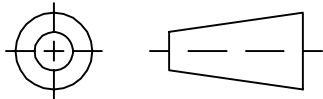
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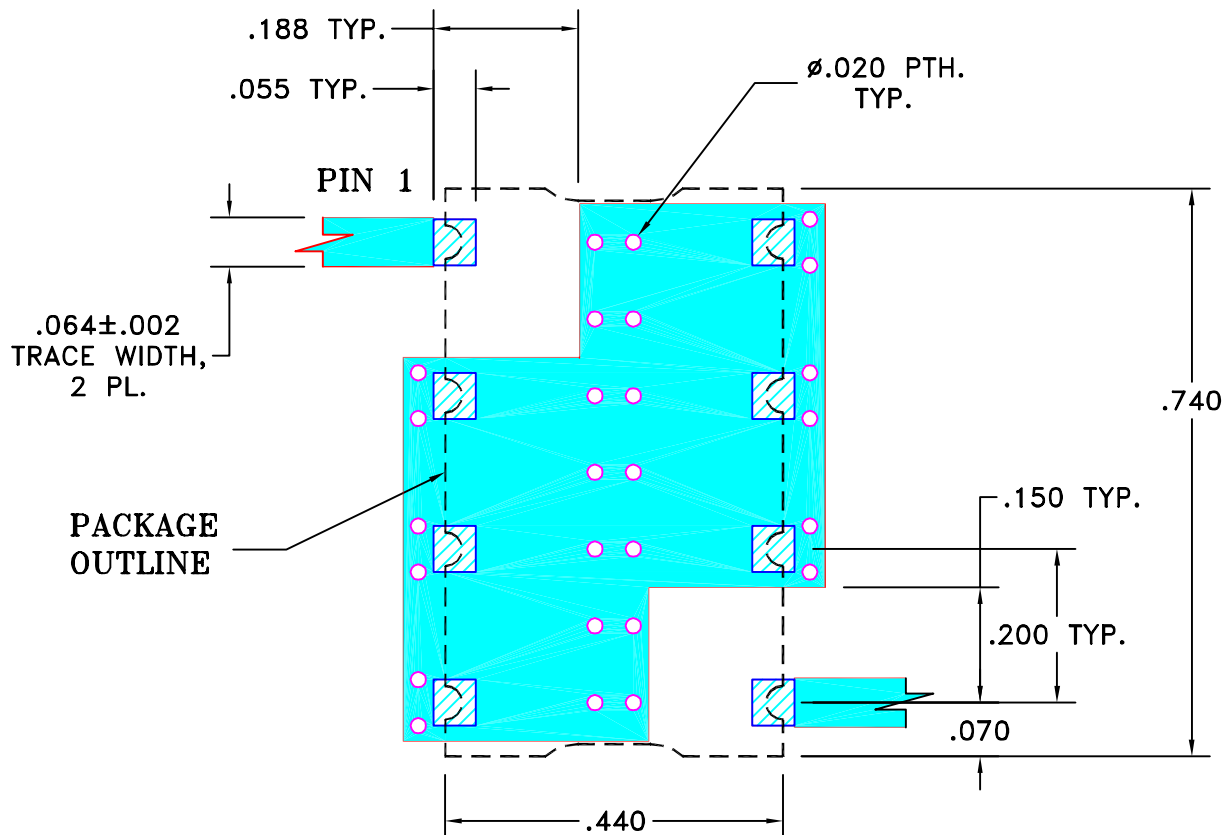
THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M101757	NEW RELEASE (FROM RAVON)	11/05	DK	HH
OR	R62293	NEW RELEASE (FROM RAVON)	11/05	DK	HH

SUGGESTED MOUNTING CONFIGURATION
FOR HF1139 CASE STYLE, cr PIN CONNECTION, 50 OHM.

**NOTE:**

1. TRACE WIDTH IS SHOWN FOR FR4 WITH DIELECTRIC THICKNESS: .025"±.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 ± .005

3 PL DECIMALS ± .005

ANGLES ±

FRACTIONS ±

DRAWN

DK (RAVON)

29 NOV 05

CHECKED

RZ (RAVON)

29 NOV 05

APPROVED

HH (RAVON)

29 NOV 05



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PL, cr, HF1139, SCLF, TB-368

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SIZE

A

CODE IDENT

15542

DRAWING NO:

98-PL-230

REV:

OR

FILE:

98PL230

SCALE:

4:1

SHEET:

1 OF 1

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

Evaluation Board and Circuit



TB-368



Schematic Diagram

Notes:

1. SMA Female connectors.
2. PCB Material: ROGERS R04350B or equivalent,
Dielectric Constant=3.5, 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