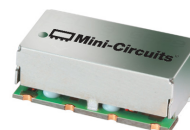


Surface Mount Bandpass Filter

SXBP-1100+

50Ω 1000 to 1200 MHz



Generic photo used for illustration purposes only

CASE STYLE: HF1139

The Big Deal

- Fast roll-off on the upper sideband
- Good Matching and low loss in the pass band
- Miniature shielded package

Product Overview

SXBP-1100+ is a wideband bandpass filter in a miniature shielded package covering 1000 to 1200 MHz. This is designed for asymmetric rejection applications such as super-heterodyne receivers. By having asymmetric band, faster roll-off at upper side band is achieved in a comparatively smaller package and lower pass band insertion loss. It has repeatable performance across lots and consistent performance across temperature

Key Features

Feature	Advantages
Fast roll-off on the upper side band	Wide bandwidth filter with fast-roll off on the upper side band, which increases selectivity on the adjacent channel.
Good matching and low loss in pass band	This filter has good matching and low loss in the pass band
Small size, 0.44" X 0.74" X 0.27"	The surface mount package enables the SXBP-1100+ to be used in compact designs.

Notes

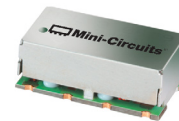
- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's 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 Bandpass Filter

50Ω 1000 to 1200 MHz

SXBP-1100+



Generic photo used for illustration purposes only
CASE STYLE: HF1139

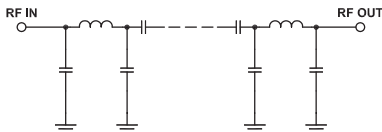
Features

- Fast roll-off on the upper side band
- Good matching in the pass band
- Miniature shielded package

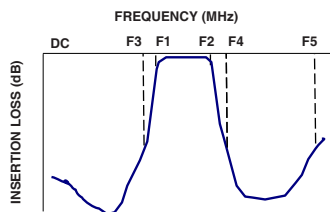
Applications

- Aviation and Aeronautical
- Aeronautical radio navigation
- Radar systems
- Navigation systems

Functional Schematic



Typical Frequency Response

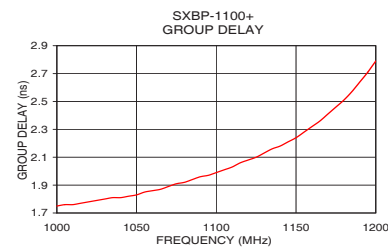
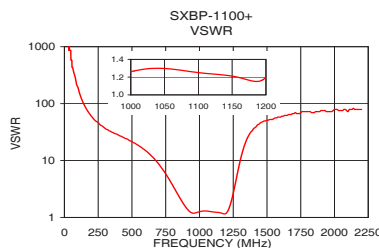
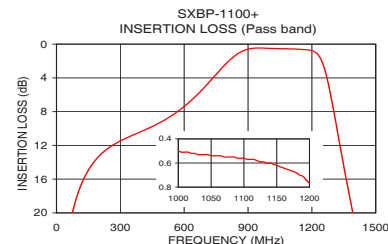
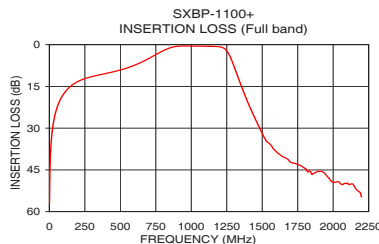


Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Group Delay (nsec)
1	57.02	1737.18	1000	1.75
5	43.13	1737.18	1020	1.78
20	31.10	1737.18	1030	1.80
70	20.52	347.44	1040	1.81
150	14.93	91.43	1050	1.83
600	7.38	15.00	1060	1.86
750	3.59	5.83	1070	1.89
830	1.54	2.79	1080	1.92
880	0.76	1.76	1090	1.96
1000	0.50	1.26	1100	1.99
1100	0.56	1.25	1110	2.03
1200	0.77	1.20	1120	2.08
1235	1.46	1.90	1130	2.13
1265	3.43	3.87	1140	2.18
1300	7.58	9.58	1150	2.24
1360	15.82	26.33	1160	2.32
1400	20.90	36.20	1170	2.41
1500	31.84	51.10	1180	2.51
1750	43.02	69.49	1190	2.64
2200	54.70	78.97	1200	2.79

+RoHS Compliant

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



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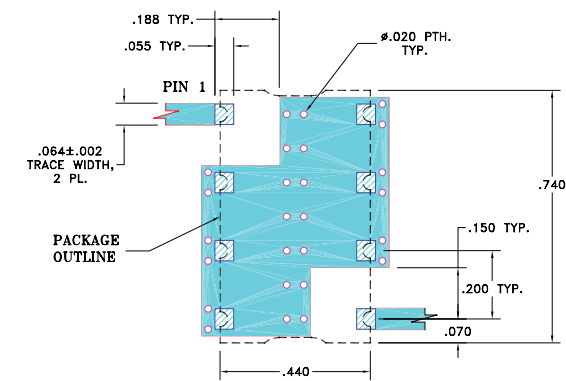
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REV. C
ECO-005139
SXBP-1100+
EDU1705
URJ
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Page 2 of 3

Pad Connections

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

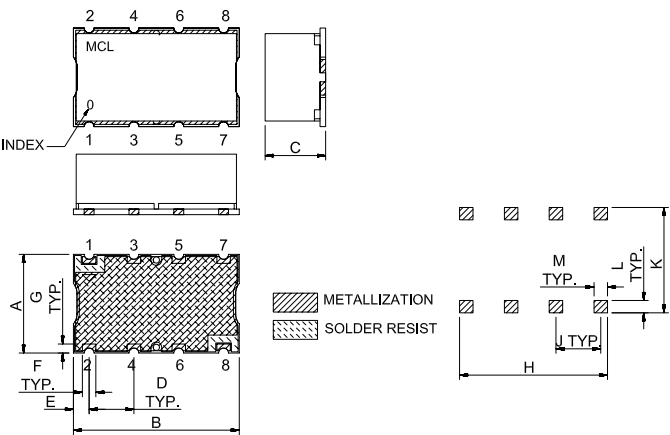
Demo Board MCL P/N: TB-368+
Suggested PCB Layout (PL-230)



- 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

Outline Drawing



Outline Dimensions (inch)

A	B	C	D	E	F	G
.44	.74	.27	.200	.07	.060	.040
11.18	18.80	6.86	5.08	1.78	1.52	1.02
H	J	K	L	M		wt
.660	.200	.470	.055	.060		grams
16.76	5.08	11.94	1.40	1.52		3.0

Note: Please refer to case style drawing for details

Notes

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Typical Performance Data

FREQ.	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
(MHz)	(dB)			(dB)			(dB)		
	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C
1	57.10	57.02	57.05	0.00	0.00	0.00	0.00	0.00	0.00
7	40.21	40.21	40.20	0.00	0.00	0.00	0.00	0.00	0.00
20	31.10	31.10	31.08	0.00	0.01	0.00	0.00	0.00	0.00
22	30.27	30.28	30.26	0.00	0.00	0.00	0.00	0.00	0.00
32	27.06	27.05	27.03	0.01	0.01	0.01	0.01	0.01	0.01
45	24.20	24.17	24.13	0.02	0.02	0.02	0.02	0.02	0.02
70	20.59	20.52	20.46	0.04	0.05	0.05	0.05	0.05	0.05
100	17.84	17.75	17.67	0.08	0.09	0.09	0.08	0.09	0.09
130	15.93	15.86	15.77	0.13	0.15	0.15	0.13	0.14	0.15
170	14.16	14.16	14.10	0.21	0.23	0.23	0.20	0.22	0.22
200	13.17	13.26	13.22	0.28	0.29	0.29	0.26	0.27	0.28
300	11.31	11.47	11.57	0.46	0.47	0.46	0.43	0.44	0.44
320	11.09	11.23	11.34	0.48	0.50	0.50	0.46	0.47	0.47
400	10.30	10.33	10.45	0.58	0.62	0.62	0.56	0.59	0.59
430	9.98	10.00	10.09	0.63	0.67	0.67	0.62	0.65	0.64
500	9.08	9.11	9.13	0.77	0.81	0.82	0.75	0.79	0.80
580	7.76	7.78	7.75	1.01	1.07	1.09	1.00	1.05	1.08
600	7.37	7.38	7.34	1.10	1.16	1.19	1.10	1.15	1.18
620	6.95	6.96	6.91	1.21	1.27	1.31	1.21	1.27	1.30
700	4.97	4.98	4.92	1.96	2.03	2.10	1.96	2.04	2.10
770	2.98	3.03	2.98	3.51	3.59	3.71	3.51	3.59	3.72
800	2.17	2.23	2.19	4.69	4.78	4.94	4.69	4.78	4.94
830	1.48	1.54	1.52	6.38	6.51	6.71	6.36	6.48	6.69
885	0.65	0.71	0.73	11.49	11.81	12.09	11.31	11.57	11.82
900	0.53	0.60	0.62	13.53	13.92	14.21	13.18	13.47	13.71
950	0.37	0.45	0.49	20.97	21.23	21.21	18.96	18.97	18.92
1000	0.41	0.50	0.53	18.85	18.76	18.98	17.70	17.63	17.84
1045	0.45	0.53	0.57	17.58	17.72	18.07	17.05	17.26	17.65
1100	0.47	0.56	0.60	18.75	19.06	19.22	18.62	19.11	19.36
1150	0.52	0.62	0.67	20.18	20.39	20.54	20.00	20.28	20.35
1185	0.58	0.70	0.76	22.43	23.05	23.19	20.86	21.07	20.84
1200	0.64	0.77	0.85	20.70	20.98	20.25	19.06	19.00	18.30
1235	1.25	1.46	1.63	10.42	10.14	9.61	10.03	9.73	9.21
1265	3.09	3.43	3.72	4.72	4.59	4.38	4.59	4.45	4.24
1295	6.49	6.91	7.24	2.05	2.05	2.01	1.99	1.99	1.96
1300	7.15	7.58	7.91	1.81	1.82	1.79	1.75	1.75	1.74
1320	9.92	10.34	10.66	1.14	1.19	1.19	1.10	1.15	1.16
1330	11.32	11.74	12.04	0.93	0.99	1.01	0.91	0.96	0.98
1360	15.43	15.82	16.08	0.59	0.66	0.69	0.58	0.64	0.68
1400	20.56	20.90	21.12	0.41	0.48	0.51	0.41	0.48	0.51
1430	24.07	24.37	24.58	0.35	0.41	0.45	0.34	0.41	0.44
1490	30.53	30.80	30.97	0.28	0.35	0.38	0.28	0.35	0.38
1500	31.59	31.84	32.01	0.27	0.34	0.37	0.27	0.34	0.37
1600	38.37	38.49	38.55	0.23	0.30	0.33	0.24	0.30	0.34
1640	39.97	40.08	40.05	0.21	0.28	0.31	0.22	0.29	0.32
1700	42.10	42.21	42.17	0.18	0.26	0.29	0.19	0.26	0.30
1710	42.38	42.44	42.43	0.18	0.25	0.29	0.19	0.26	0.30
1800	44.51	44.42	44.24	0.16	0.24	0.28	0.17	0.24	0.28
1870	45.97	46.09	46.53	0.16	0.24	0.28	0.17	0.24	0.28
1900	45.77	45.56	45.74	0.15	0.23	0.28	0.16	0.24	0.28
1950	46.90	46.83	47.26	0.15	0.24	0.29	0.15	0.23	0.28
1980	48.80	48.65	48.82	0.14	0.24	0.28	0.14	0.23	0.27
1990	49.26	49.19	49.36	0.14	0.23	0.27	0.14	0.23	0.27
2000	49.42	49.46	49.60	0.13	0.22	0.27	0.14	0.22	0.26
2020	49.52	49.37	49.30	0.13	0.22	0.27	0.13	0.22	0.26
2060	50.71	50.24	50.23	0.13	0.23	0.28	0.13	0.22	0.27
2080	49.85	49.80	50.01	0.13	0.22	0.27	0.12	0.21	0.26
2100	49.64	49.71	50.12	0.14	0.24	0.29	0.12	0.22	0.27
2140	50.25	50.13	50.44	0.12	0.21	0.27	0.12	0.22	0.27
2200	54.64	54.70	54.74	0.12	0.22	0.28	0.13	0.22	0.28

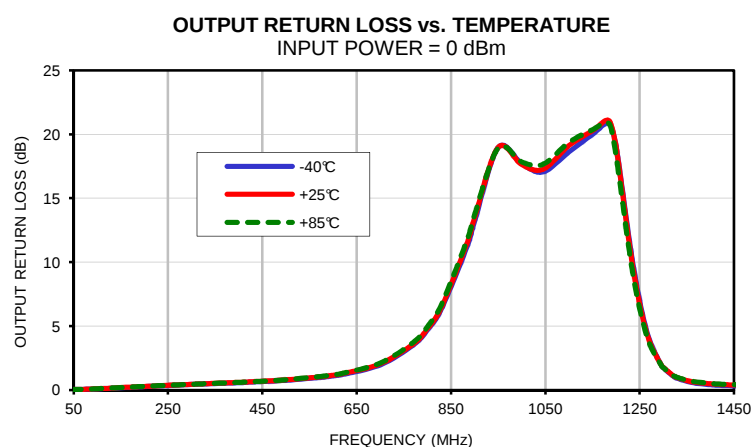
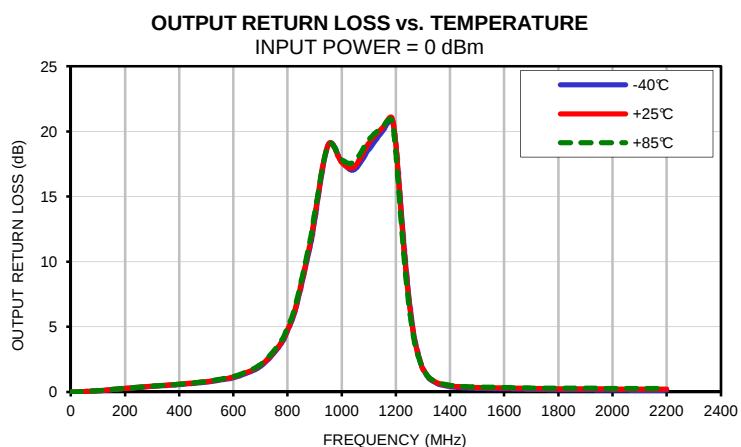
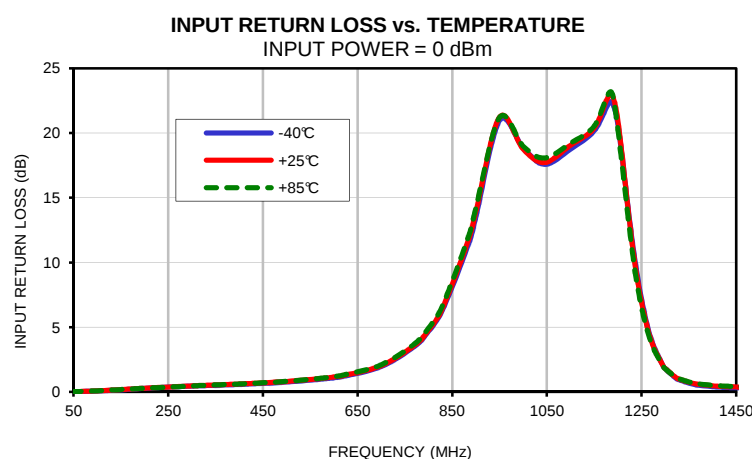
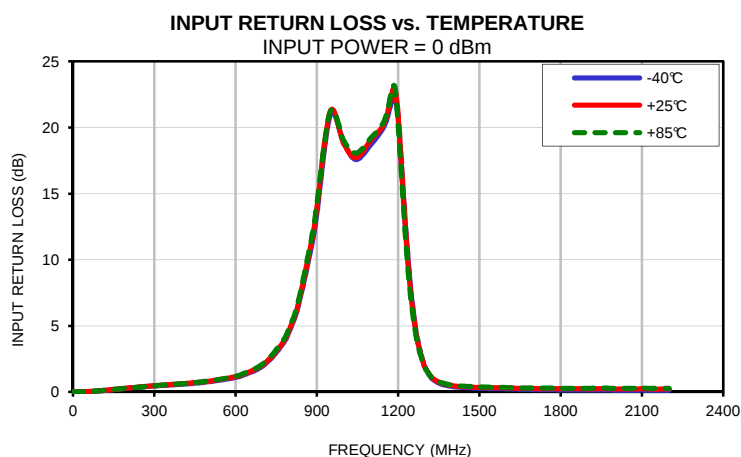
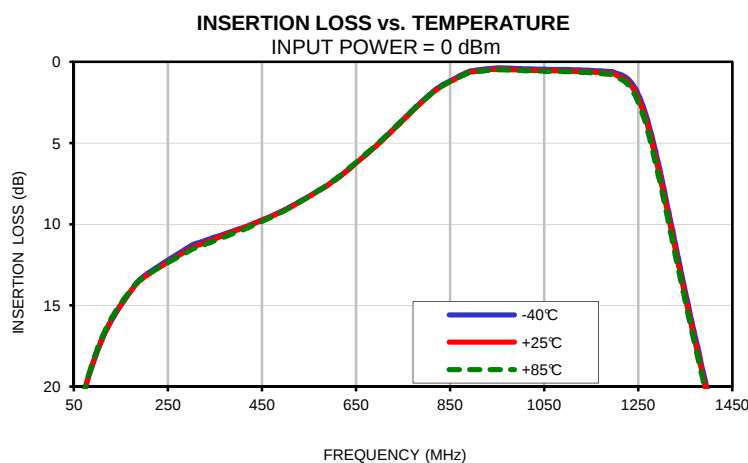
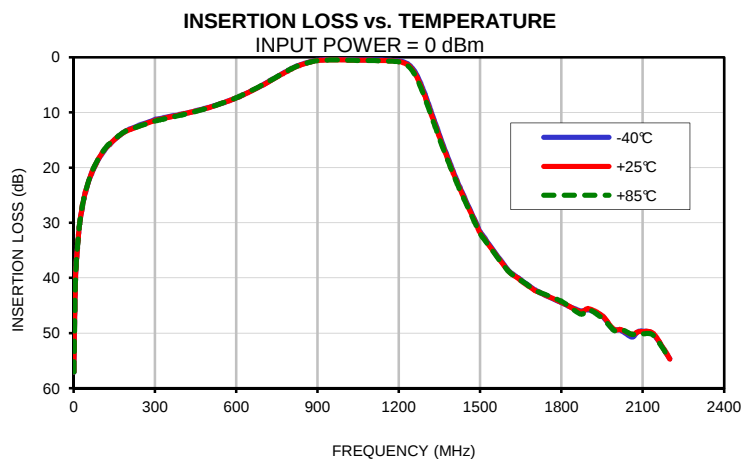
Typical Performance Data

FREQ.	GROUP DELAY		
(MHz)	(nsec)		
	@-40°C	@+25°C	@+85°C
1000	1.76	1.75	1.75
1005	1.77	1.76	1.76
1010	1.77	1.76	1.76
1015	1.78	1.77	1.77
1020	1.79	1.78	1.78
1025	1.80	1.79	1.79
1035	1.81	1.81	1.81
1040	1.82	1.81	1.81
1045	1.83	1.82	1.82
1050	1.84	1.83	1.83
1055	1.85	1.85	1.85
1060	1.86	1.86	1.86
1065	1.88	1.87	1.87
1070	1.89	1.89	1.89
1075	1.91	1.91	1.91
1080	1.93	1.92	1.92
1085	1.94	1.94	1.94
1090	1.96	1.96	1.96
1095	1.97	1.97	1.97
1100	1.99	1.99	1.99
1105	2.01	2.01	2.01
1110	2.03	2.03	2.03
1115	2.06	2.06	2.06
1120	2.08	2.08	2.08
1125	2.10	2.10	2.11
1130	2.13	2.13	2.13
1135	2.16	2.16	2.16
1140	2.18	2.18	2.19
1145	2.21	2.21	2.22
1150	2.24	2.24	2.25
1155	2.28	2.28	2.29
1160	2.31	2.32	2.33
1165	2.35	2.36	2.37
1170	2.40	2.41	2.42
1175	2.45	2.46	2.48
1180	2.50	2.51	2.53
1185	2.56	2.57	2.60
1190	2.62	2.64	2.66
1195	2.69	2.71	2.73
1200	2.77	2.79	2.81

Band Pass Filter

SXBP-1100+

Typical Performance Curves



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 • Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site
The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

IF/RF MICROWAVE COMPONENTS

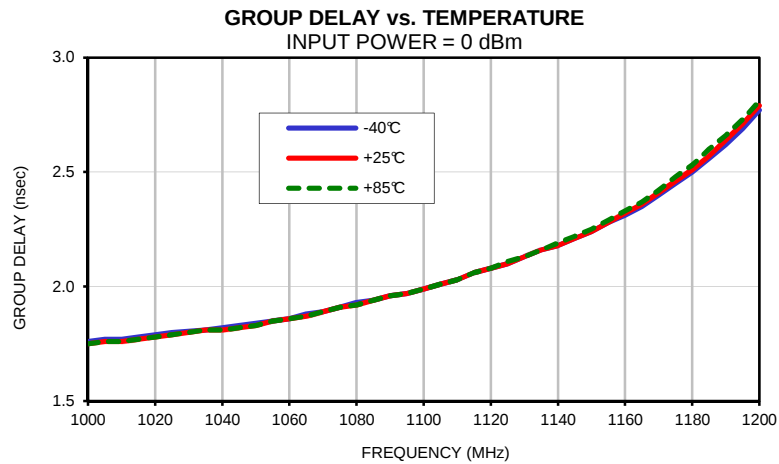


REV. OR
SXBP-1100+
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Page 1 of 2

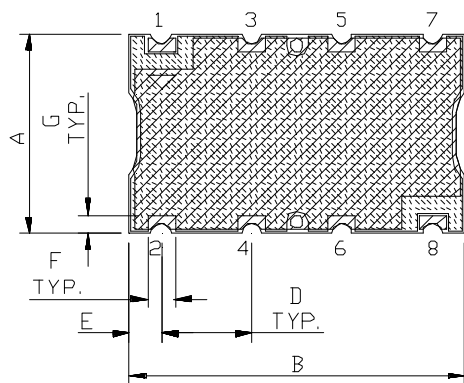
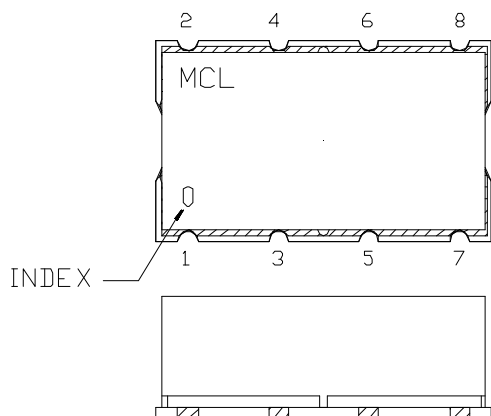
Band Pass Filter

SXBP-1100+

Typical Performance Curves

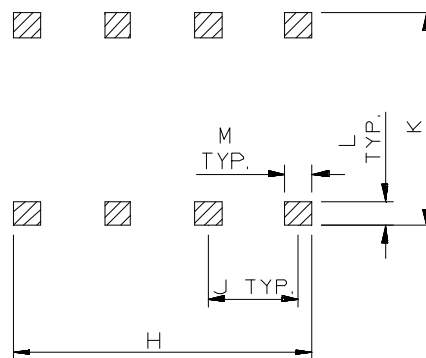


Outline Dimensions



 METALLIZATION
 SOLDER RESIST

PCB Land Pattern



CASE #	A	B	C	D	E	F	G	H	J	K	L	M	WT. GRAMS
HF1139	.44 (11.18)	.74 (18.80)	.27 (6.86)	.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.



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site

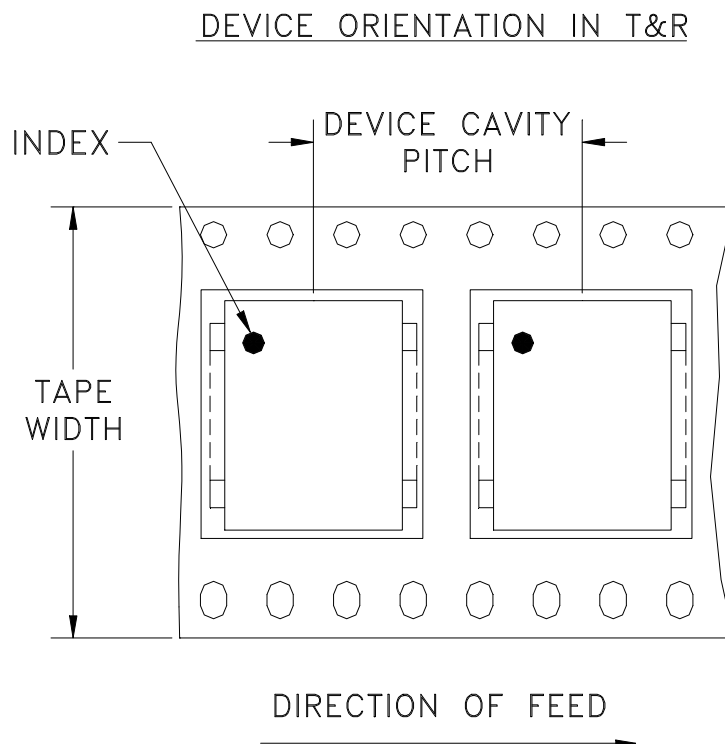


The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

RF/IF MICROWAVE COMPONENTS



Tape & Reel Packaging TR-F5



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

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.

Go to: www.minicircuits.com/pages/pdfs/tape.pdf



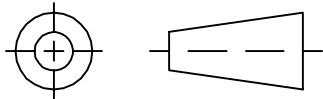
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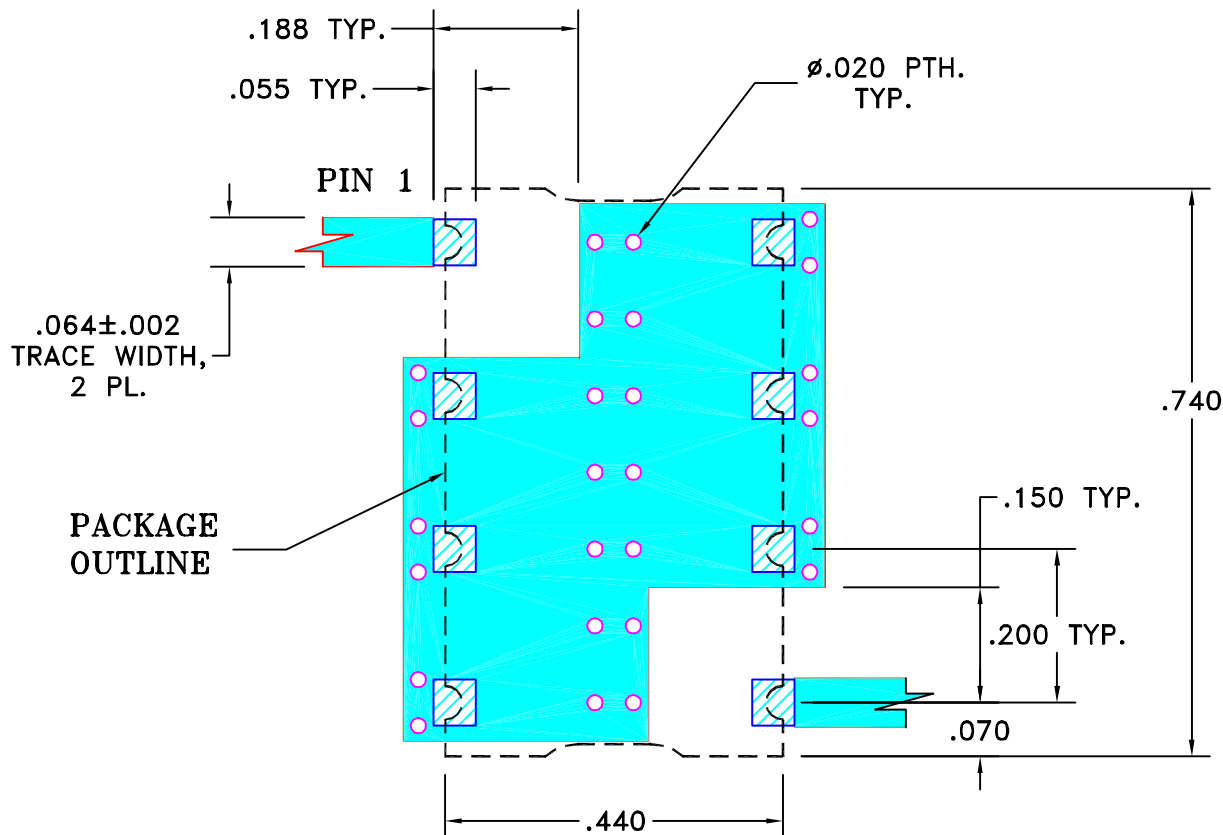
THIRD ANGLE PROJECTION



REVISIONS

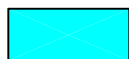
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OR	M101757	NEW RELEASE (FROM RAVON)	11/05	DK	HH
OR	R62293	NEW RELEASE (FROM RAVON)	11/05	DK	HH

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



NOTE:

- TRACE WIDTH IS SHOWN FOR FR4 WITH DIELECTRIC THICKNESS: $.025 \pm .002$ ". COPPER: 1/2 OZ. EACH SIDE.
FOR OTHER MATERIALS TRACE WIDTH 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

UNLESS OTHERWISE SPECIFIED

INITIALS

DATE

DIMENSIONS ARE IN INCHES

TOLERANCES ON:

2 PL DECIMALS $\pm$ 3 PL DECIMALS $\pm$.005ANGLES $\pm$ FRACTIONS $\pm$

DRAWN

DK (RAVON)

29 NOV 05

CHECKED

RZ (RAVON)

29 NOV 05

APPROVED

HH (RAVON)

29 NOV 05



Mini-Circuits® 13 Neptune Avenue
Brooklyn NY 11235

PL, cr, HF1139, SCLF, TB-368

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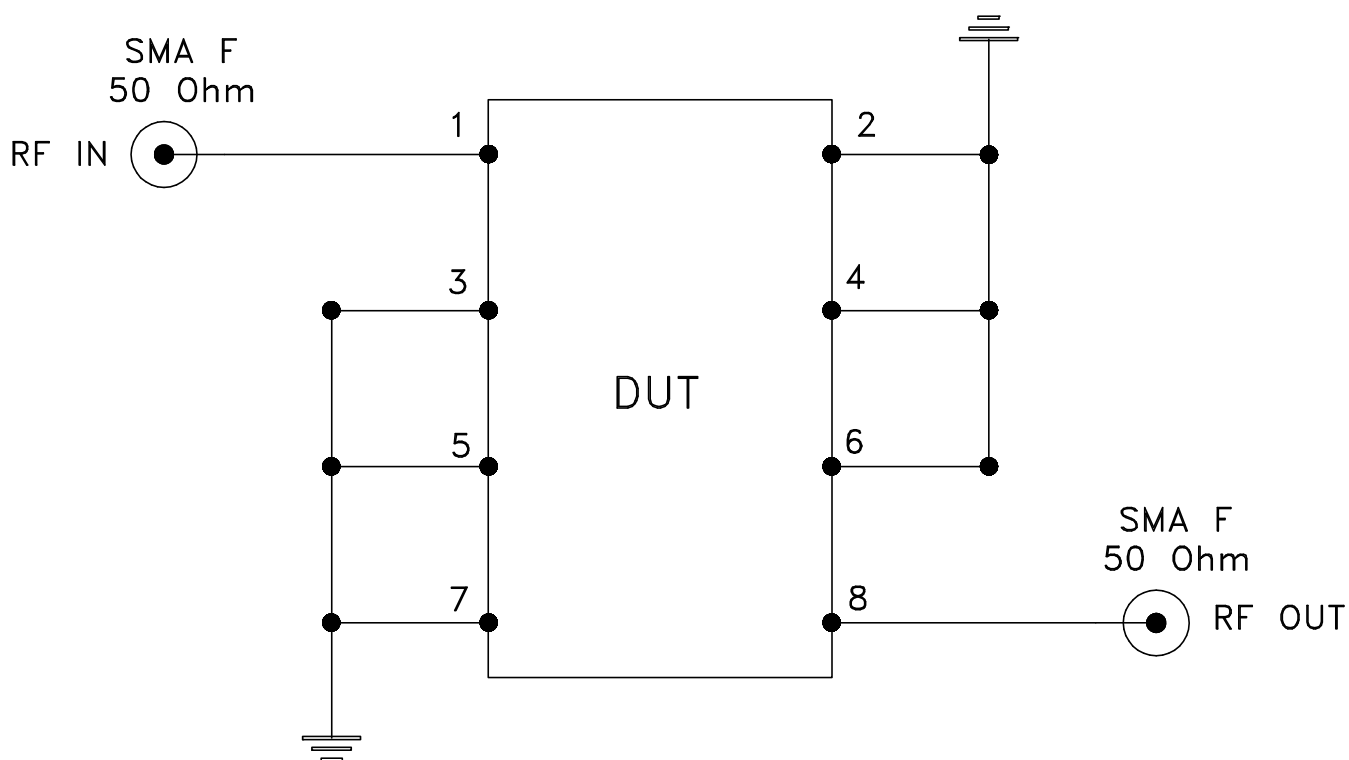
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Evaluation Board and Circuit



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