

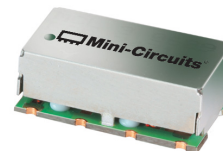
Surface Mount Bandpass Filter

SXBP-45-75+

75Ω 5 to 85 MHz

The Big Deal

- High Q
- Low VSWR
- Good rejection, 30dB Typ.
- Miniature shielded package



Generic photo used for illustration purposes only
CASE STYLE: HF1139

Product Overview

SXBP-45-75+ is a 75Ω bandpass filter in a shielded package fabricated using SMT technology. This bandpass filter covers from 5 to 85 MHz. This filter offers low insertion loss, low VSWR and very good rejection.

Key Features

Feature	Advantages
Low VSWR	This model is used in digital television and test and measurement systems.
30 dB Typ rejection up to 3GHz	This enables the filter to attenuate spurious signals and reject harmonics for broad frequency band
Miniature package	The small surface mount package enables the SXBP-45-75+ to use in compact design

Notes

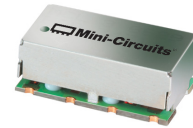
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Surface Mount Bandpass Filter

75Ω 5 to 85 MHz

SXBP-45-75+



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CASE STYLE: HF1139

Features

- High Q
- Low VSWR
- Good rejection, 30dB Typ.
- Miniature shielded package

Applications

- Digital Television
- CATV applications
- Test and measurement

Electrical Specifications at 25°C

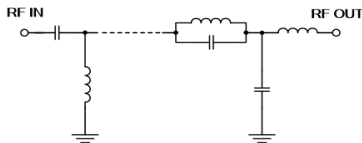
Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Center Frequency	—	—	45	—	MHz
	Insertion Loss	F1-F2	—	1.4	2.2	dB
	VSWR	F1-F2	—	1.2	1.92	:1
Stop Band, Lower	Insertion Loss	DC-F3	28	36	—	dB
	VSWR	DC-F3	—	20	—	:1
Stop Band, Upper	Insertion Loss	F4-F5	30	39	—	dB
	VSWR	F4-F5	—	20	—	:1

Maximum Ratings

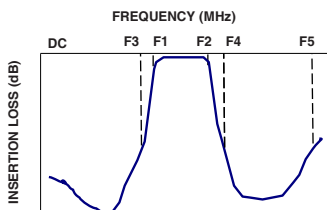
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	0.5W

Permanent damage may occur if any of these limits are exceeded.

Functional Schematic



Typical Frequency Response

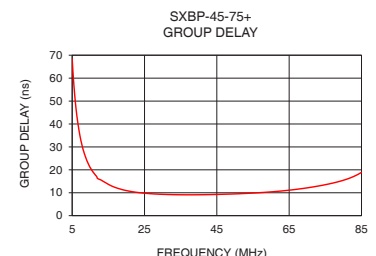
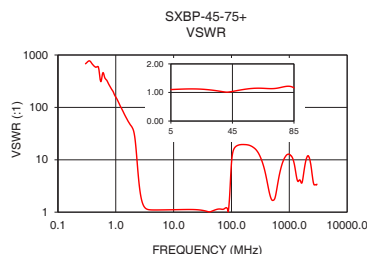
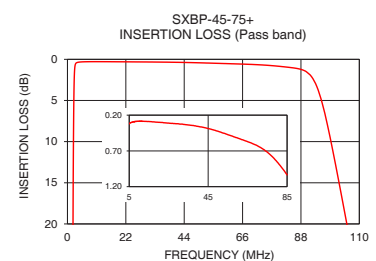
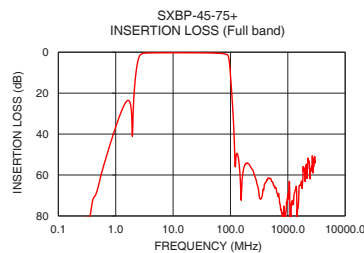


Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Group Delay (nsec)
0.30	80.53	681.04	5	68.51
1.00	36.50	157.71	6	47.64
1.20	30.28	105.30	8	28.99
2.05	24.20	34.36	9	24.29
2.10	19.34	30.07	10	21.00
2.50	3.04	3.97	15	13.68
2.55	2.38	3.24	20	10.94
5.00	0.32	1.10	25	9.81
45.00	0.39	1.04	30	9.30
85.00	1.03	1.16	35	9.12
92.00	2.11	1.69	40	9.12
94.00	3.32	2.53	45	9.27
106.00	21.23	14.18	50	9.50
112.00	32.32	16.61	55	9.87
116.00	41.47	17.48	60	10.39
500.00	61.65	1.71	65	11.13
1000.00	71.90	12.73	70	12.14
1750.00	64.94	5.03	75	13.52
2250.00	51.74	10.33	80	15.46
3000.00	53.20	3.42	85	18.90

+RoHS Compliant

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



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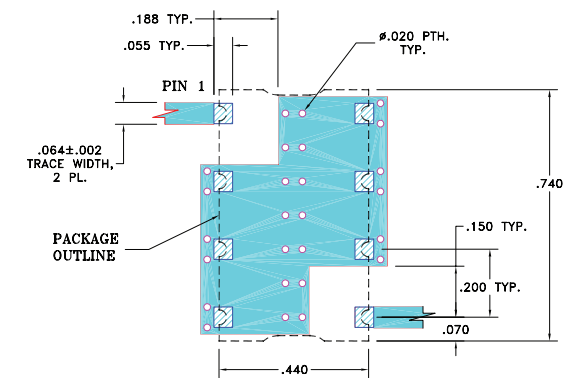
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REV. C
ECO-005139
SXBP-45-75+
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Page 2 of 3

Pad Connections

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

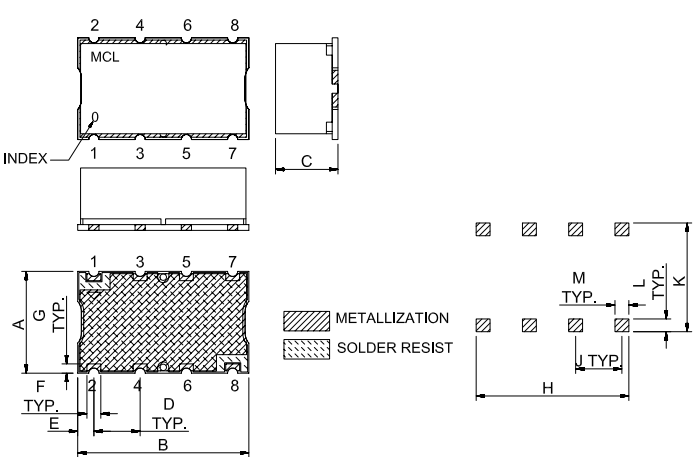
Demo Board MCL P/N: TB-683+
Suggested PCB Layout (PL-281)



- NOTE:
- 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.
 - 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

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Band Pass Filter

SXBP-45-75+

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
0.3	88.93	83.91	81.76	0.00	0.01	0.01	0.05	0.06	0.08
1.0	37.12	36.72	36.44	0.12	0.12	0.13	0.44	0.56	0.65
2.0	32.26	36.66	39.93	0.66	0.65	0.62	0.86	0.91	0.92
2.4	7.88	6.90	6.24	2.05	2.26	2.45	1.97	2.17	2.34
2.9	1.12	1.02	0.96	11.65	12.28	12.77	11.63	12.32	12.87
3.6	0.54	0.53	0.52	20.88	21.45	21.92	23.69	25.68	27.62
4.2	0.46	0.45	0.46	22.09	22.84	23.43	27.16	30.82	34.95
4.6	0.43	0.43	0.44	22.01	22.87	23.54	27.28	30.90	34.26
5.0	0.42	0.42	0.42	21.81	22.75	23.51	26.81	29.94	32.44
10.0	0.37	0.38	0.38	21.21	22.24	23.09	22.52	23.51	24.32
12.0	0.37	0.38	0.39	21.36	22.30	23.07	21.86	22.65	23.33
14.0	0.38	0.38	0.39	21.56	22.40	23.10	21.42	22.08	22.67
22.0	0.39	0.40	0.41	23.10	23.58	24.00	21.00	21.50	21.91
25.0	0.39	0.40	0.41	24.16	24.57	24.92	21.38	21.91	22.27
36.0	0.42	0.43	0.45	33.14	34.99	36.20	26.46	27.79	28.35
37.5	0.42	0.44	0.46	34.57	37.05	39.24	27.90	29.60	30.35
42.0	0.44	0.47	0.49	30.76	31.10	31.73	32.68	35.89	38.18
51.5	0.52	0.56	0.58	21.87	21.68	21.78	23.61	23.43	23.51
61.0	0.64	0.68	0.71	19.10	18.99	19.05	19.08	19.19	19.31
65.0	0.68	0.73	0.76	19.24	19.17	19.24	18.71	18.96	19.12
75.0	0.81	0.87	0.92	22.04	21.61	21.47	20.91	21.19	21.31
76.0	0.83	0.90	0.94	22.07	21.55	21.36	21.19	21.33	21.40
79.5	0.92	1.00	1.05	21.05	20.37	20.15	21.40	21.01	20.86
82.5	1.02	1.10	1.17	19.86	19.34	19.22	21.08	20.42	20.24
84.0	1.08	1.17	1.24	19.66	19.26	19.21	21.21	20.53	20.39
84.5	1.10	1.19	1.26	19.70	19.33	19.32	21.36	20.68	20.58
85.0	1.12	1.21	1.29	19.79	19.48	19.51	21.59	20.93	20.85
88.5	1.33	1.43	1.53	23.32	23.57	23.94	28.78	28.45	28.74
89.5	1.41	1.53	1.64	25.01	25.08	25.04	34.21	33.30	31.26
92.0	1.81	1.98	2.13	18.13	17.14	16.44	18.23	17.42	16.62
94.0	2.50	2.76	2.99	11.53	10.86	10.43	11.37	10.81	10.36
96.0	3.79	4.18	4.49	7.16	6.77	6.54	7.01	6.67	6.42
98.0	5.82	6.32	6.71	4.44	4.26	4.17	4.31	4.15	4.04
104.0	14.74	15.35	15.81	1.62	1.70	1.75	1.47	1.53	1.57
108.0	21.40	21.99	22.44	1.23	1.32	1.39	1.04	1.12	1.16
114.0	31.95	32.54	33.00	1.03	1.13	1.19	0.79	0.87	0.91
120.0	45.04	45.77	46.38	0.96	1.05	1.11	0.66	0.74	0.78
124.0	57.45	57.82	57.78	0.93	1.02	1.07	0.60	0.68	0.72
136.0	52.70	52.82	52.95	0.89	0.96	1.01	0.49	0.56	0.59
154.0	70.40	69.97	69.87	0.86	0.92	0.96	0.39	0.45	0.48
158.0	68.03	67.22	66.65	0.86	0.91	0.95	0.37	0.43	0.47
170.0	58.78	58.57	58.22	0.85	0.89	0.93	0.33	0.39	0.42
210.0	55.74	55.68	55.68	0.84	0.85	0.87	0.24	0.30	0.33
290.0	64.17	64.46	64.72	0.95	0.98	0.95	0.15	0.20	0.23
360.0	65.07	65.26	65.48	1.42	1.35	1.30	0.10	0.16	0.18
490.0	81.46	85.00	88.00	1.63	1.90	1.91	0.05	0.10	0.13
710.0	76.72	75.48	76.38	4.57	4.75	4.73	0.01	0.06	0.09
900.0	75.57	75.46	75.02	1.73	1.68	1.74	0.02	0.07	0.12
1050.0	65.21	65.02	65.13	1.26	1.36	1.42	0.01	0.10	0.15
1090.0	79.68	77.99	76.78	1.22	1.33	1.37	0.02	0.12	0.17
1200.0	69.54	69.40	69.04	1.20	1.35	1.40	0.07	0.17	0.23
1400.0	68.05	68.49	67.95	1.69	2.22	2.28	0.19	0.30	0.36
1500.0	67.77	68.04	67.63	2.84	3.19	3.34	0.27	0.38	0.45
1825.0	55.66	55.37	54.83	1.37	1.71	1.89	0.49	0.61	0.68
1950.0	60.52	60.79	60.32	1.56	2.04	2.18	0.55	0.67	0.76
2000.0	57.63	57.07	57.25	1.75	2.32	2.47	0.56	0.69	0.78
2375.0	53.75	53.33	53.20	4.92	4.69	4.74	0.53	0.71	0.78
2500.0	47.94	47.60	47.53	4.35	4.39	4.51	0.49	0.66	0.72
2650.0	53.25	53.31	52.29	4.63	5.27	5.46	0.35	0.54	0.61
3000.0	47.79	48.39	51.84	9.35	11.51	11.56	0.00	0.19	0.28

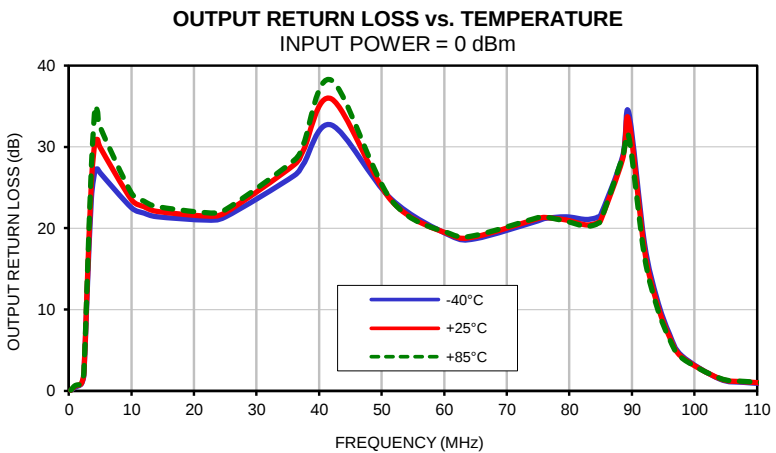
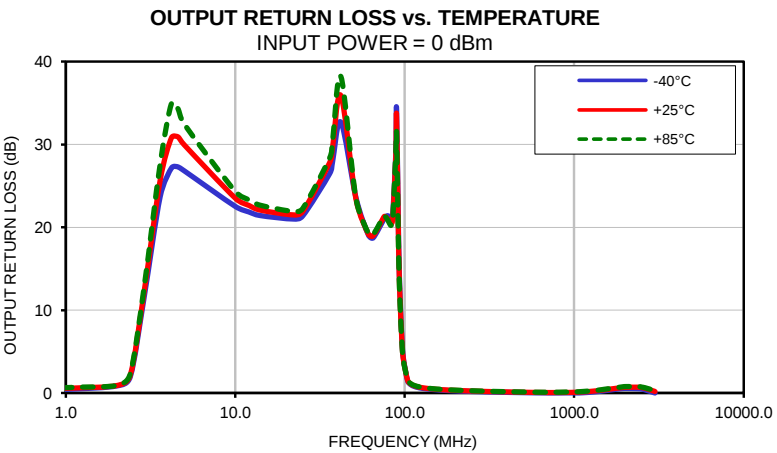
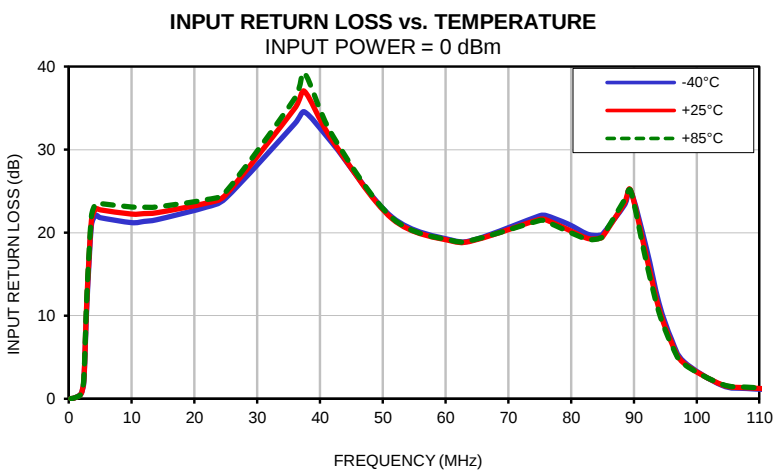
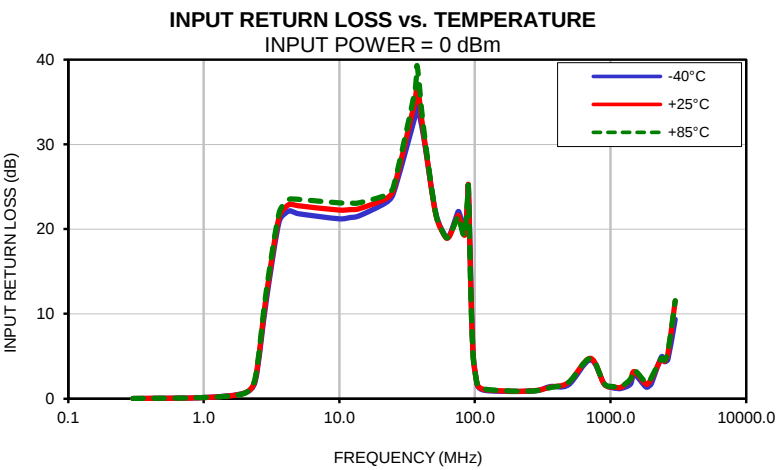
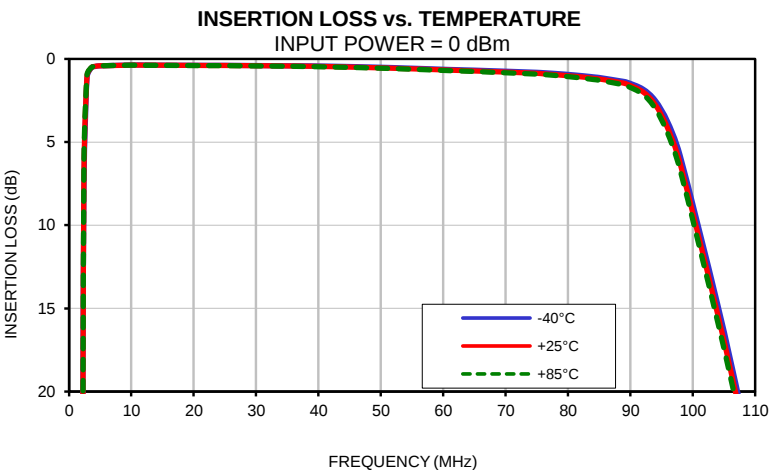
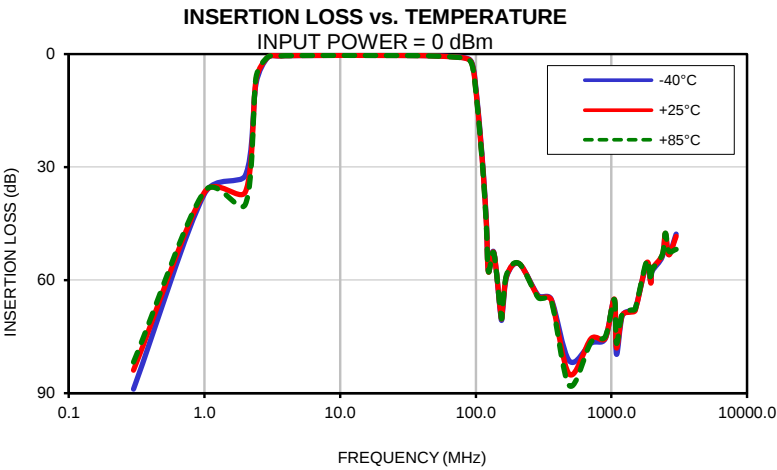
Band Pass Filter**SXBP-45-75+***Typical Performance Data*

FREQ.	GROUP DELAY		
(MHz)	(nsec)		
	@-40°C	@+25°C	@+85°C
5	70.94	69.99	69.21
6	49.08	48.50	48.03
7	37.10	36.71	36.40
8	29.64	29.36	29.19
9	24.72	24.45	24.38
10	21.26	21.09	20.94
12	16.40	16.29	16.19
14	14.66	14.62	14.57
16	12.91	12.87	12.84
18	11.71	11.68	11.66
20	10.88	10.87	10.86
22	10.30	10.30	10.30
24	9.87	9.88	9.88
26	9.57	9.57	9.58
28	9.35	9.36	9.37
30	9.19	9.20	9.21
31	9.14	9.15	9.16
32	9.08	9.10	9.12
33	9.05	9.05	9.07
34	9.02	9.03	9.05
35	9.00	9.01	9.03
36	8.99	9.00	9.01
37	8.99	9.00	9.01
38	8.98	8.99	9.01
39	8.98	8.99	9.01
40	9.00	9.01	9.03
41	9.01	9.03	9.05
42	9.03	9.04	9.07
43	9.05	9.06	9.08
44	9.07	9.09	9.11
45	9.11	9.14	9.15
46	9.14	9.16	9.18
47	9.18	9.19	9.22
48	9.22	9.25	9.27
49	9.26	9.29	9.31
50	9.31	9.33	9.36
51	9.37	9.39	9.41
52	9.43	9.45	9.47
53	9.49	9.52	9.54
54	9.57	9.57	9.61
55	9.63	9.65	9.68
56	9.71	9.73	9.76
57	9.78	9.82	9.85
58	9.88	9.91	9.94
60	10.08	10.11	10.15
62	10.31	10.36	10.40
64	10.58	10.63	10.68
66	10.89	10.95	11.00
68	11.24	11.31	11.37
70	11.66	11.73	11.80
72	12.13	12.21	12.28
74	12.65	12.74	12.82
76	13.24	13.33	13.42
78	13.91	14.00	14.12
80	14.68	14.78	14.90
82	15.59	15.71	15.86
83	16.11	16.25	16.41
84	16.71	16.87	17.05
85	17.04	17.22	17.40
85	17.39	17.58	17.77

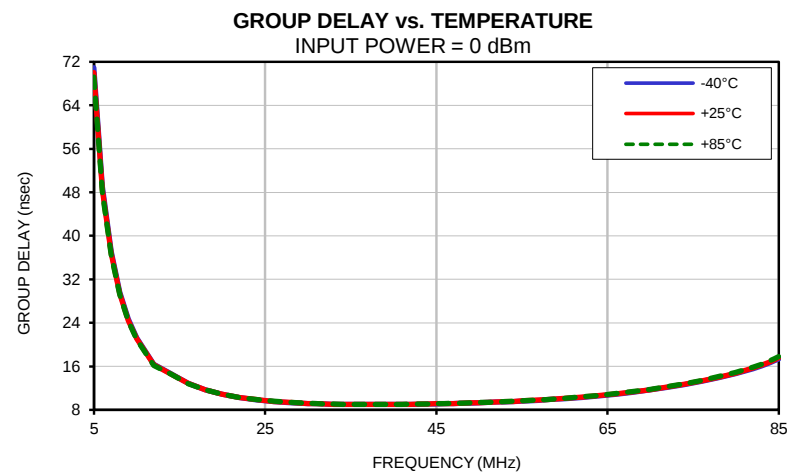
Band Pass Filter

SXBP-45-75+

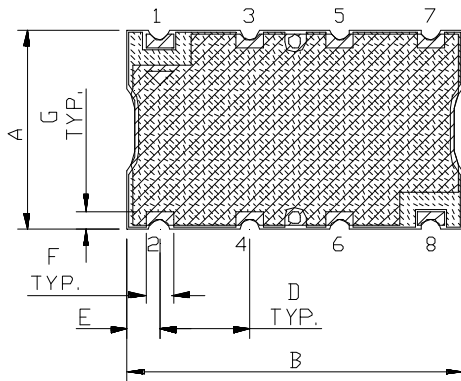
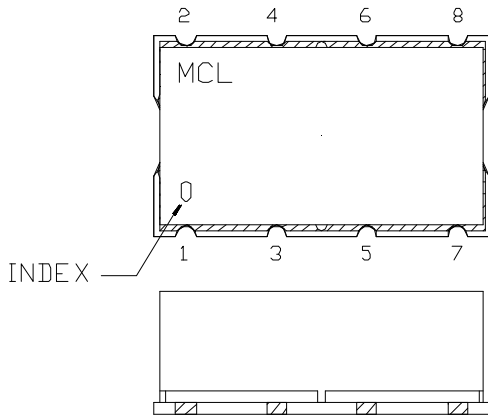
Typical Performance Curves



Typical Performance Curves

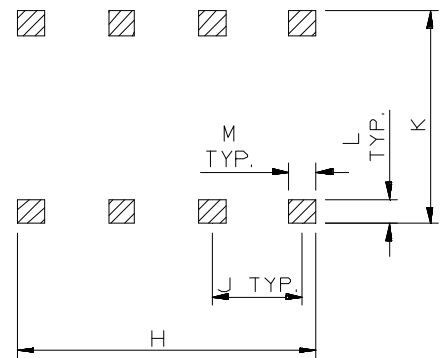


Outline Dimensions



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.



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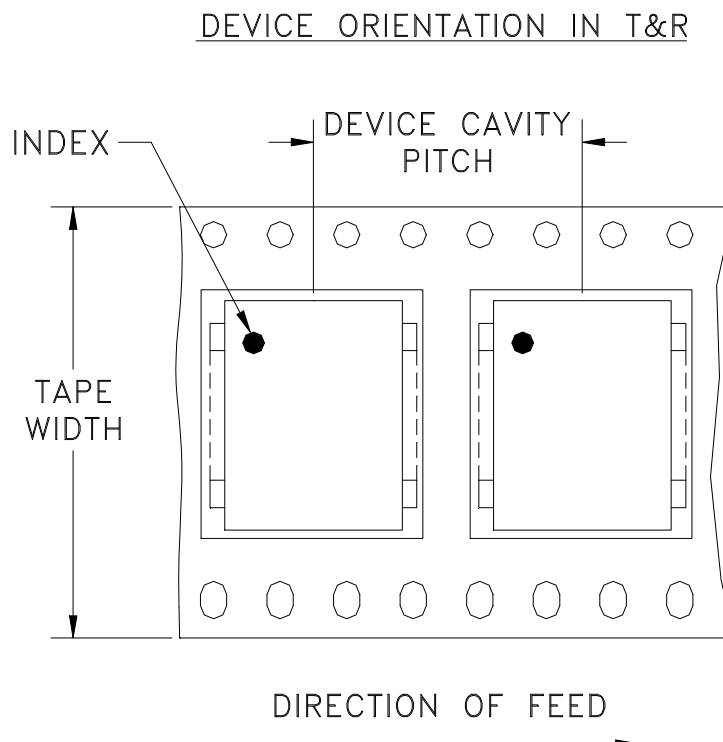


The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

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



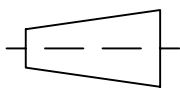
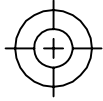
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THIRD ANGLE PROJECTION

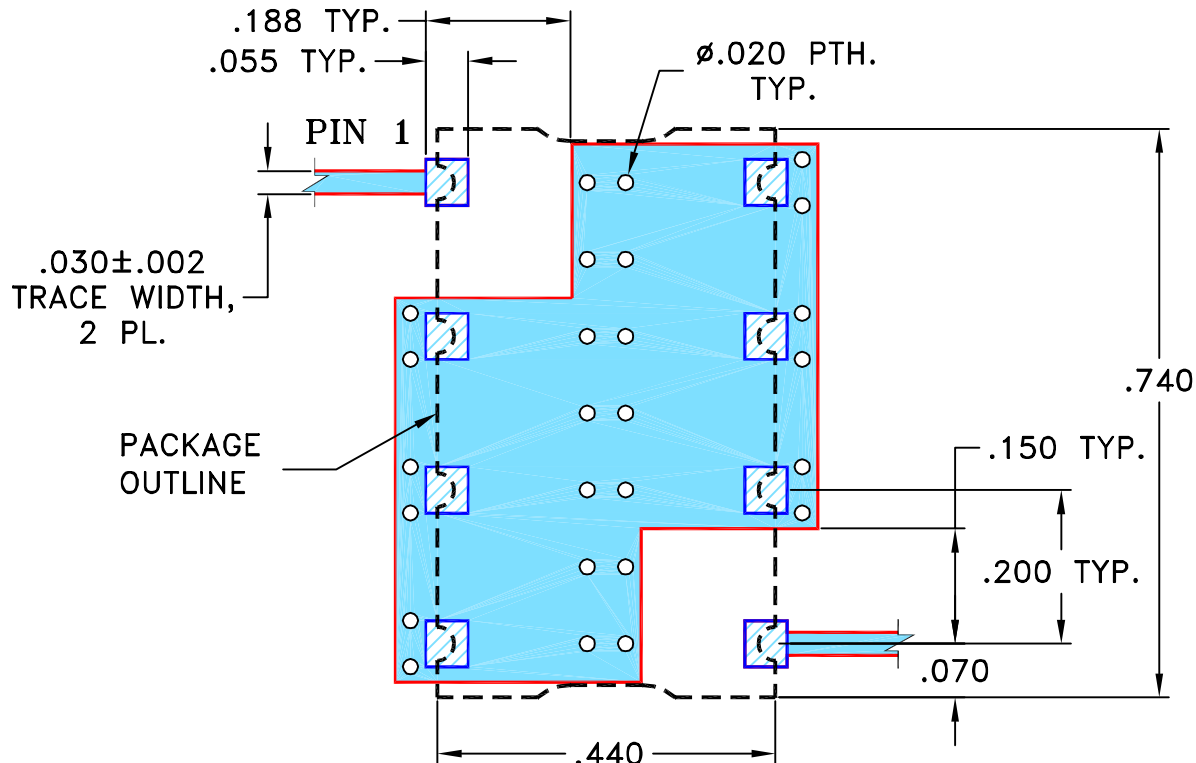


REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M114157	NEW RELEASE (FROM RAVON)	10/07	DK	HH
OR	R70641	NEW RELEASE (FROM RAVON)	10/07	DK	HH

SUGGESTED MOUNTING CONFIGURATION

FOR HF1317 CASE STYLE, cr PIN CONNECTION, 75 OHM



NOTE:

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

TOLERANCES ON:

2 PL DECIMALS ±

3 PL DECIMALS ± .005

ANGLES ±

FRACTIONS ±

DRAWN

DK (RAVON)

29 OCT 07

CHECKED

RZ (RAVON)

29 OCT 07

APPROVED

HH (RAVON)

29 OCT 07

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



Mini-Circuits® 13 Neptune Avenue
Brooklyn NY 11235

PL,cr,HF1317,SXBP,TB-466+,75 OHM

SIZE
A

CODE IDENT
15542

DRAWING NO:
98-PL-281

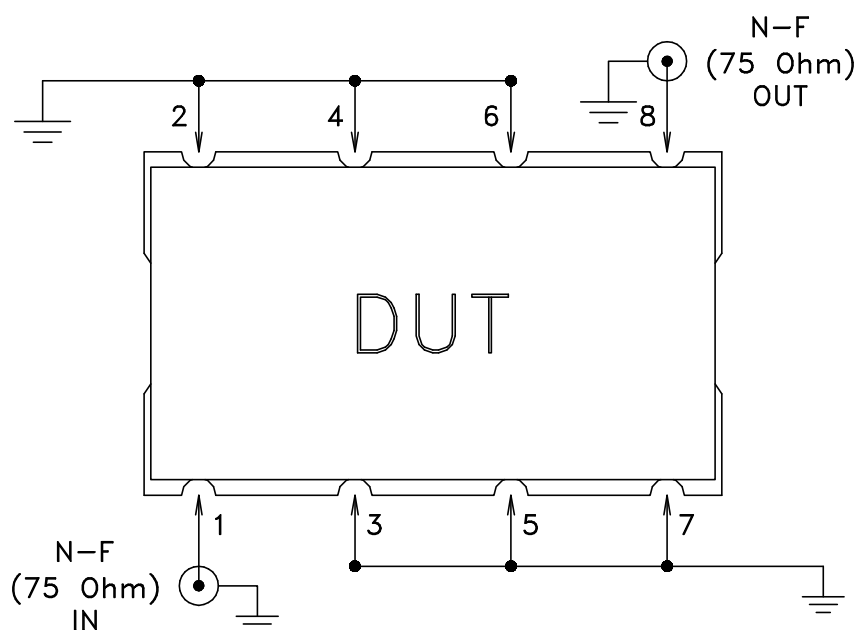
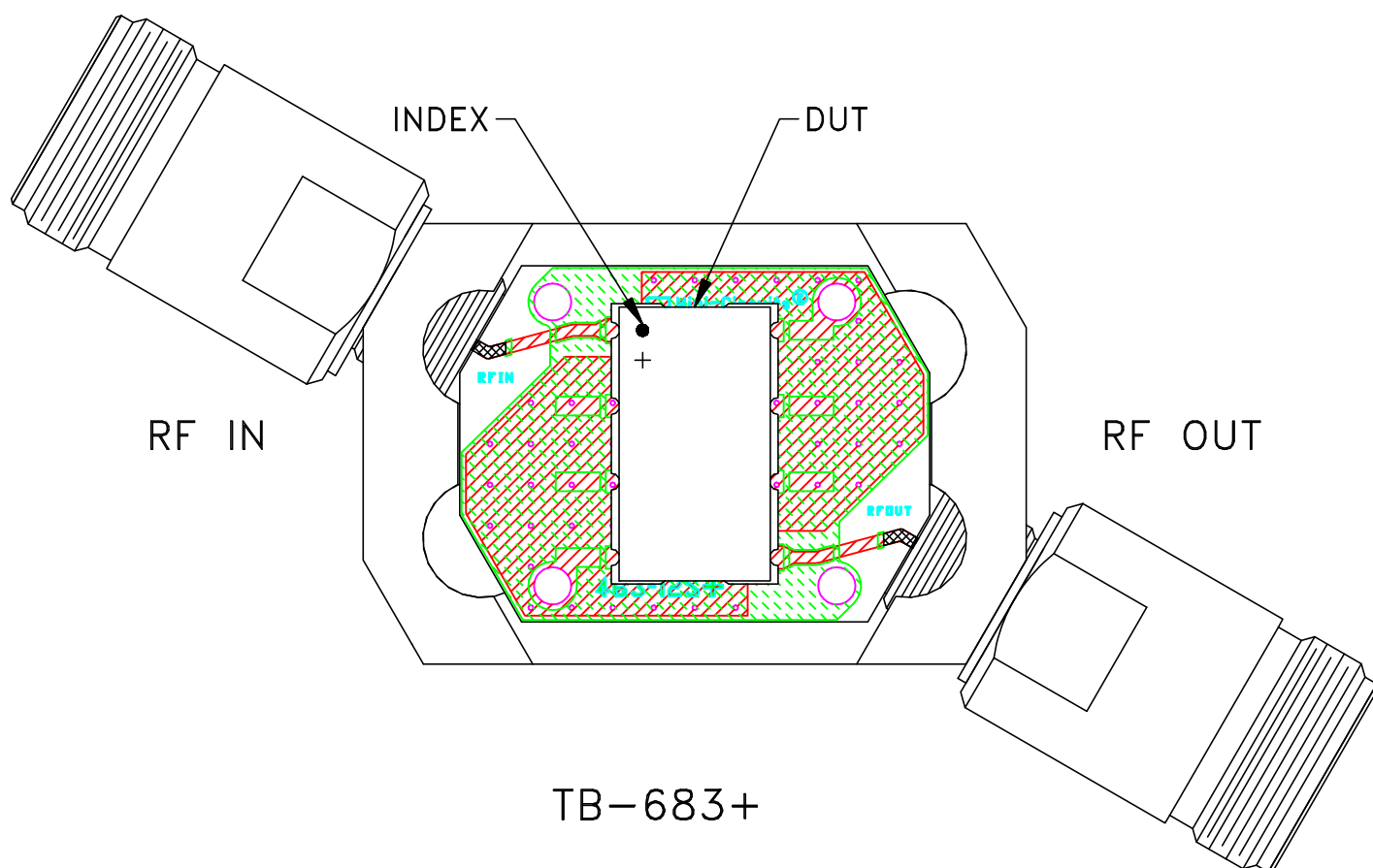
REV:
OR

FILE: 98PL281

SCALE: 4:1

SHEET: 1 OF 1

Evaluation Board and Circuit



Schematic Diagram

Notes:

1. 75 Ohm N Female connectors.
2. PCB Material: ROGERS (R04350B) OR Equivalent
Dielectric Constant= $3.48 \pm .05$, Thickness=.030 inch.

 **Mini-Circuits®**



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