Ceramic

High Pass Filter

HFCN-6010-5+

50Ω 6000 to 8500 MHz

CASE STYLE: FV1206-1

+RoHS Compliant

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

Available Tape and Reel at no extra cost

Reel Size	Devices/Reel
7"	20, 50, 100, 200, 500,1000, 3000

Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	1W max. at 25°C

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

Pin Connections

RF IN	1
RF OUT	3
GROUND	2,4,5,6

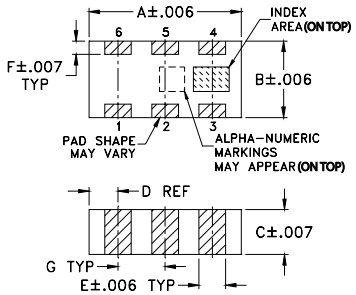
Features

- Low cost
- Small size
- 5 sections
- Temperature stable
- Hermetically sealed
- LTCC construction
- Protected by US Patent 7,760,485

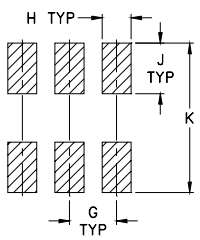
Applications

- Point-to-point radio
- Sub-harmonic rejection
- Transmitters / receivers
- Avionics & Air Traffic Control

Outline Drawing



PCB Land Pattern



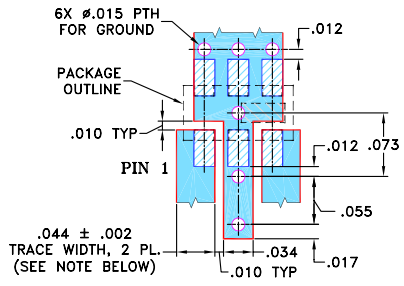
Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch / mm)

A	B	C	D	E	F
.126	.063	.035	.024	.022	.011
3.20	1.60	0.89	0.61	0.56	0.28

G	H	J	K	wt
.039	.024	.042	.123	grams
0.99	0.61	1.07	3.12	.020

Demo Board MCL P/N: TB-285
Suggested PCB Layout (PL-158)



NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350 WITH DIELECTRIC THICKNESS: .020 ± .0015; 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

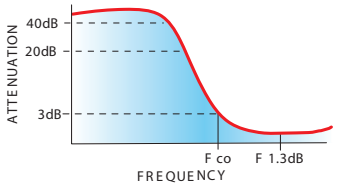
DENOTES COPPER LAND PATTERN FREE OF SOLDERMASK

Electrical Specifications[1,2] at 25°C

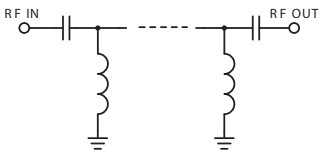
Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Insertion Loss	6000-6400	—	10	—	dB
	6400-8500	—	1.8	4.5	
Rejection	5800	15	20	—	dB
	1000-5000	20	25	—	
VSWR	6400-7000	—	2.30	—	:1
	7000-8500	—	1.44	—	
Power Input		—	20	30	dBm

(1) In Application where DC voltage is present at either input or output ports, coupling capacitors are required.
(2) Measured on Mini-Circuits Characterization Test Board TB-285.

typical frequency response

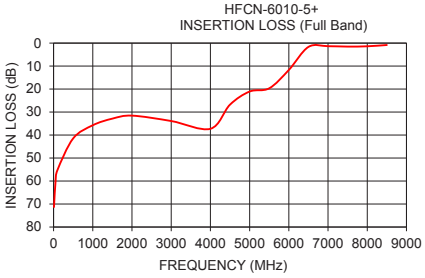


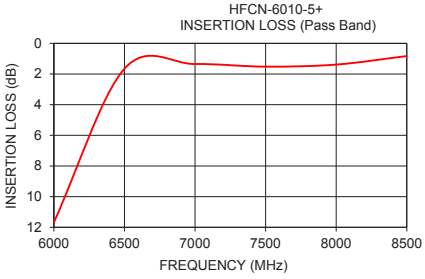
electrical schematic

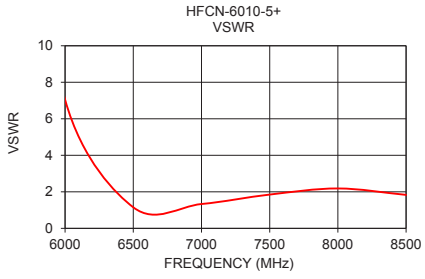


Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
10	71.32	370.56
50	60.26	352.25
100	55.17	319.28
500	41.45	244.75
1000	35.73	189.75
1500	32.85	159.15
2000	31.55	134.69
3000	33.89	141.30
4000	37.27	133.68
4500	26.76	93.07
5000	21.06	53.72
5500	19.66	28.10
6000	11.68	7.05
6500	1.66	1.15
7000	1.35	1.33
7500	1.52	1.85
8000	1.38	2.18
8500	0.83	1.83







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

REV. A
M156275
ED15122206
HFCN-6010-5+
AVB/CP/AM
160531

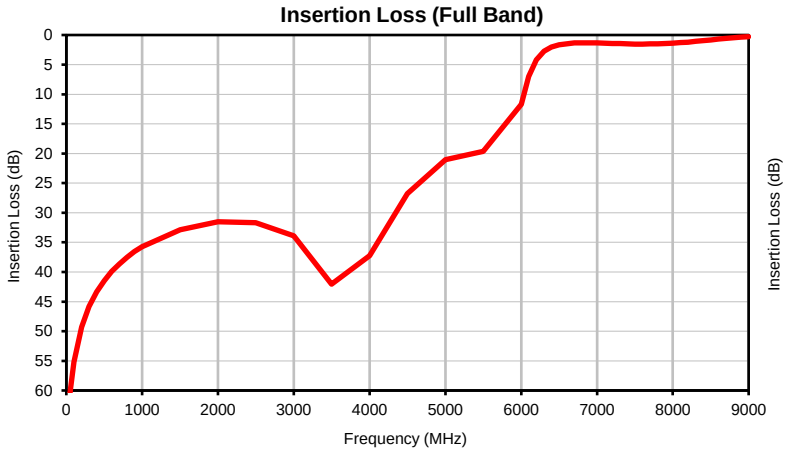
Ceramic High Pass Filter HFCN-6010-5+

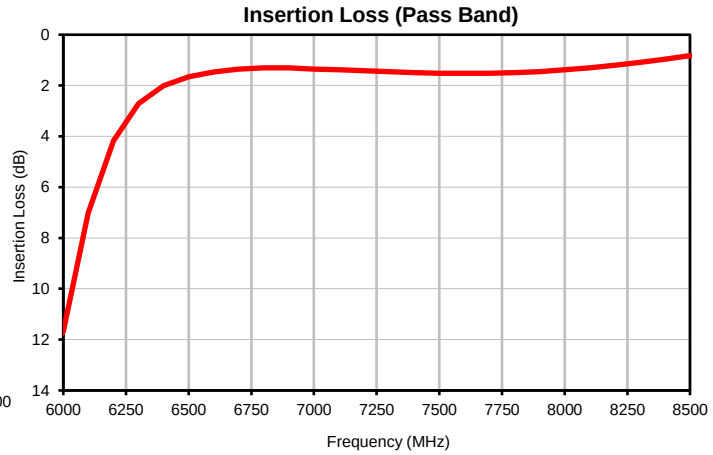
Typical Performance Data

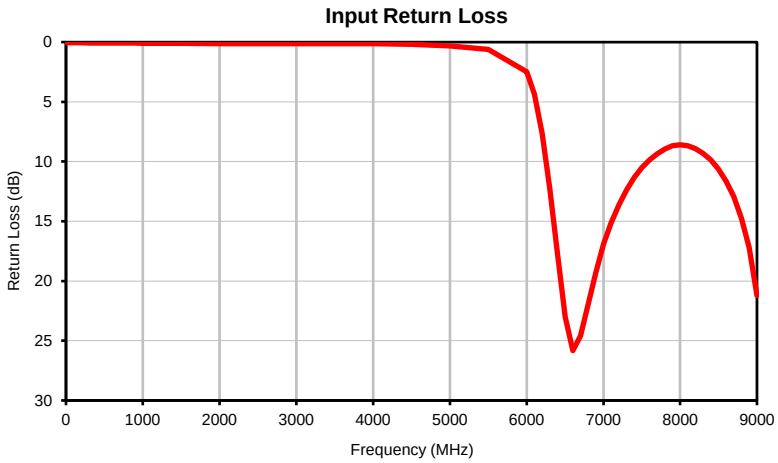
FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT RETURN LOSS (dB)	OUTPUT RETURN LOSS (dB)
10	71.32	0.05	0.05
50	60.26	0.05	0.05
100	55.17	0.05	0.05
200	49.28	0.06	0.05
300	45.83	0.06	0.06
400	43.37	0.07	0.06
500	41.45	0.07	0.06
600	39.92	0.07	0.06
700	38.64	0.08	0.06
800	37.54	0.08	0.07
900	36.57	0.09	0.07
1000	35.73	0.09	0.07
1500	32.85	0.11	0.09
2000	31.55	0.13	0.11
2500	31.71	0.13	0.11
3000	33.89	0.12	0.10
3500	42.04	0.13	0.08
4000	37.27	0.13	0.09
4500	26.76	0.19	0.15
5000	21.06	0.32	0.30
5500	19.66	0.62	0.60
6000	11.68	2.48	2.15
6100	7.01	4.36	3.80
6200	4.17	7.64	6.65
6300	2.71	12.26	10.43
6400	2.01	17.70	14.44
6500	1.66	22.98	17.90
6600	1.47	25.83	19.72
6700	1.35	24.59	19.73
6800	1.31	21.95	18.24
6900	1.31	19.28	16.29
7000	1.35	16.91	14.45
7100	1.38	15.10	12.92
7200	1.42	13.63	11.56
7300	1.45	12.39	10.51
7400	1.49	11.33	9.66
7500	1.52	10.50	9.00
7600	1.52	9.86	8.53
7700	1.52	9.34	8.21
7800	1.49	8.94	8.04
7900	1.45	8.68	7.97
8000	1.38	8.59	8.01
8100	1.30	8.68	8.16
8200	1.20	8.91	8.38
8300	1.08	9.33	8.77
8400	0.96	9.87	9.30
8500	0.83	10.63	10.05
8600	0.71	11.65	11.02
8700	0.59	12.94	12.28
8800	0.46	14.76	13.96
8900	0.37	17.20	16.31
9000	0.29	21.21	20.00

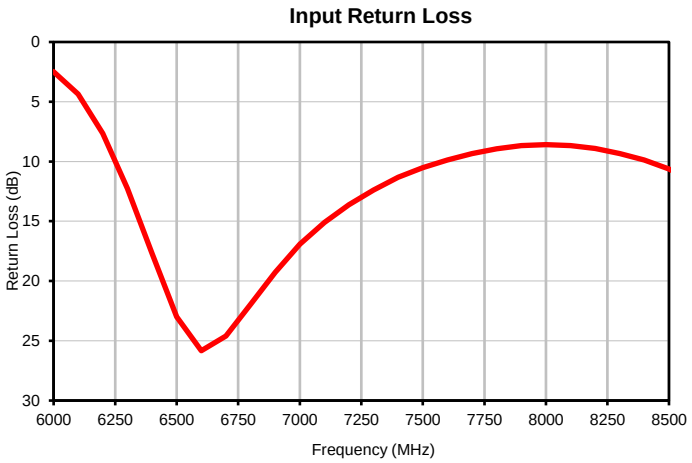
Ceramic High Pass Filter HFCN-6010-5+

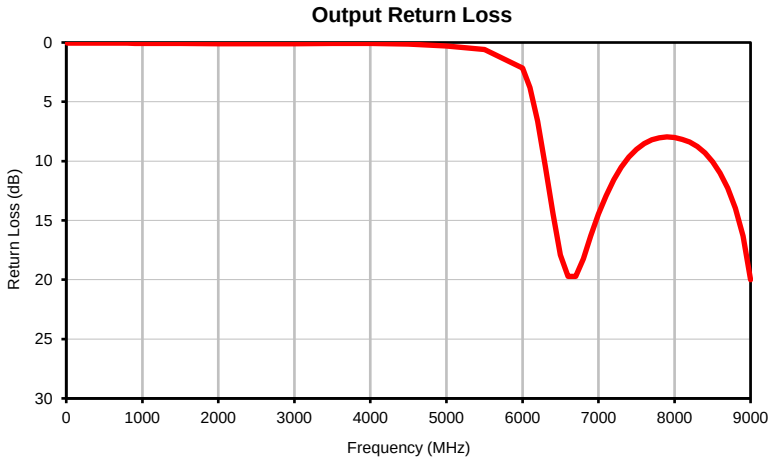
Typical Performance Curves

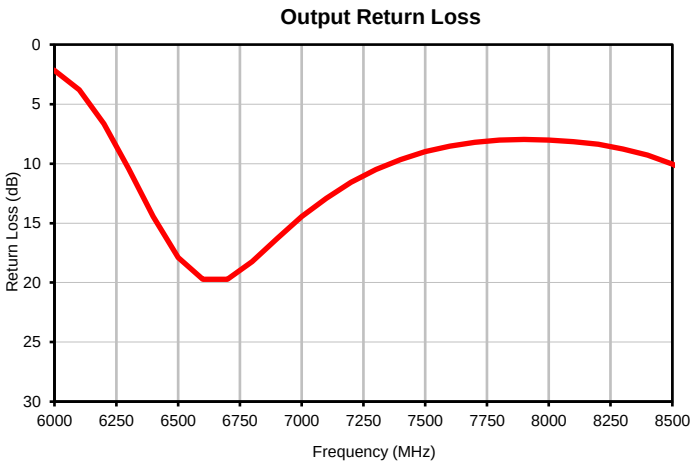








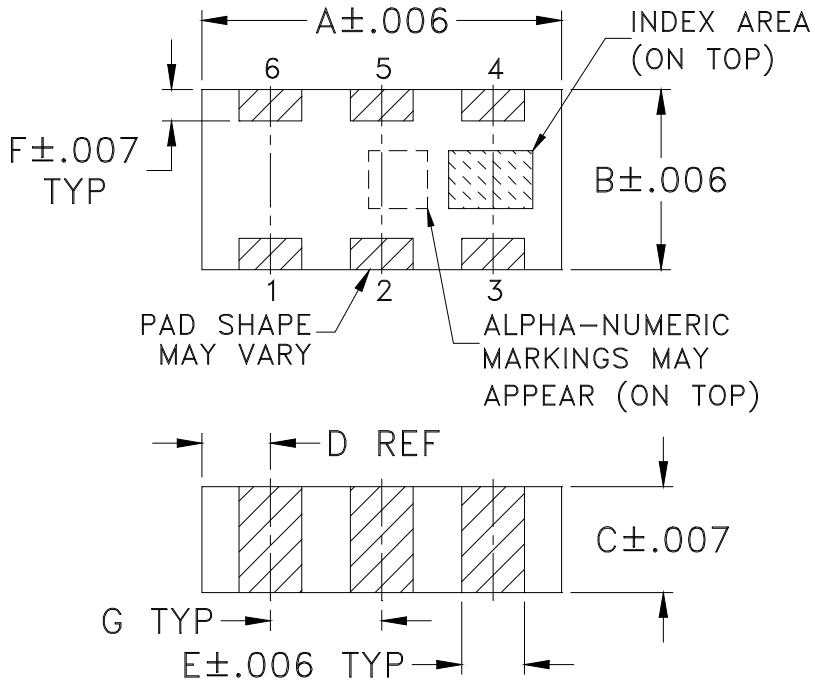




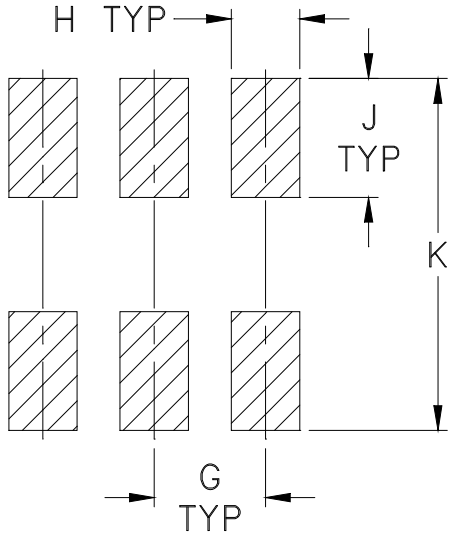
Case Style FV

FV1206-1

Outline Dimensions



PCB Land Pattern



Suggested Layout,
Tolerance to be within ±.002

CASE #	A	B	C	D	E	F	G	H	J	K	L	M	N	P	WT. GRAM
FV1206-1	.126 (3.20)	.063 (1.60)	.035 (0.89)	.024 (0.61)	.022 (0.56)	.011 (0.28)	.039 (0.99)	.024 (0.61)	.042 (1.07)	.123 (3.12)	-- --	-- --	-- --	-- --	.020

Dimensions are in inches (mm). Tolerances: 2 Pl. ± .01; 3 Pl. ± .005

Notes:

1. Open style, ceramic base.
2. Termination finish: **as shown below or indicated on Data Sheet.**
   For RoHS Case Styles: Tin plate over Nickel plate. All models, (+) suffix.
   For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.

Tape & Reel Packaging TR-F75

DEVICE ORIENTATION IN T&R

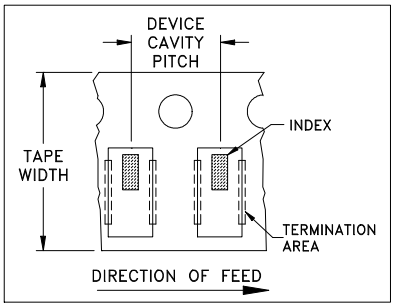


ILLUSTRATION 1

Applicable Case Styles
FV1206-1
FV1206-3

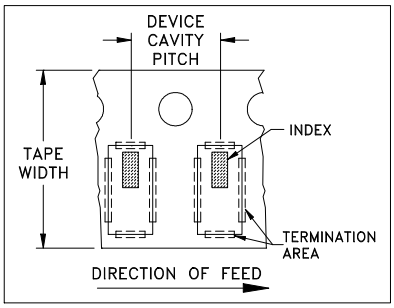


ILLUSTRATION 2

Applicable Case Styles
FV1206-4
FV1206-5
FV1206-6
FV1206-7
FV1206-9

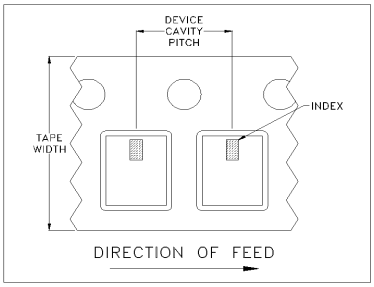


ILLUSTRATION 3

Applicable Case Styles
FV1206-11
FV1206-12
GE0805C-18
NL1008C-6
NL1008C-7
NL1008C-9
NL1008C-10
NL1008C-12

Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel	
8	4	7	Small quantity standards (see note)	20
				50
				100
				200
				500
				1000
			Standard	3000

Note: Please consult individual model data sheet to determine device per reel availability.

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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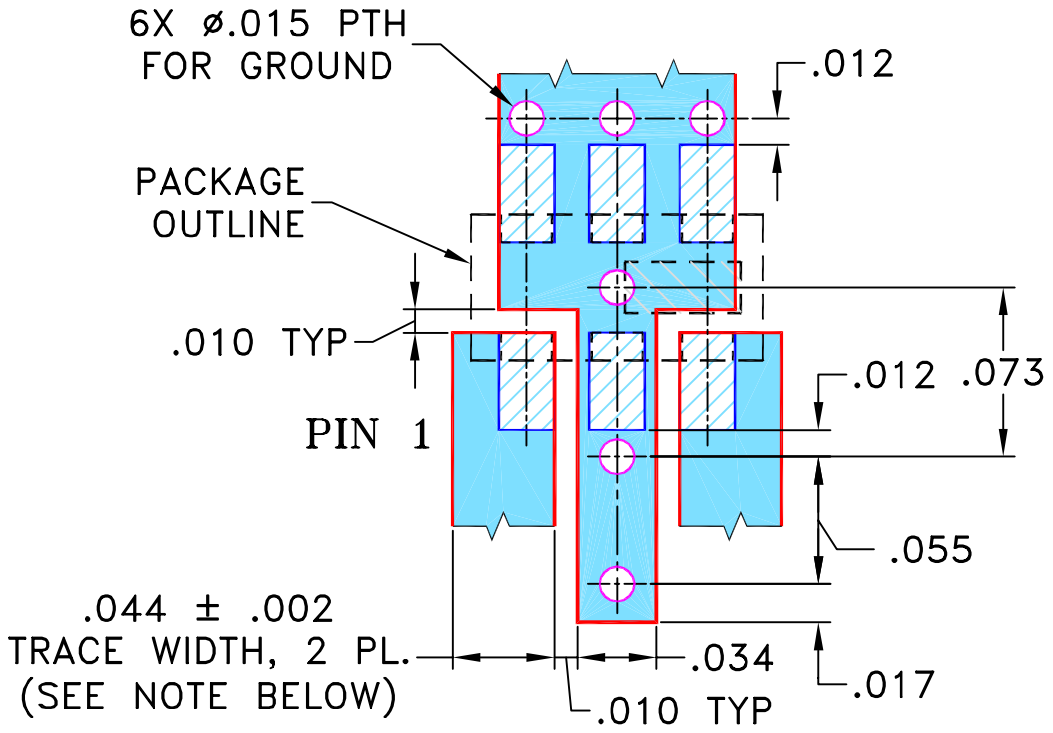
THIRD ANGLE PROJECTION

REVISIONS					
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M92199	NEW RELEASE	05/24/04	AV	ABD
A	M99247	ADD GROUND PTH	06/05	RZ	RZ
A	R60782	ADD GROUND PTH	06/05	RZ	RZ
B	M102713	ADDED "...WITH SMOBC"	01/12/06	GF	IL

SUGGESTED MOUNTING CONFIGURATION
FOR FV1206-1 CASE STYLE, "pr" PIN CONNECTION.



NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" ± .0015". 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	AV	05/03/04
TOLERANCES ON:	CHECKED	IL	05/24/04
2 PL DECIMALS ±	APPROVED	ABD	05/24/04
3 PL DECIMALS ± .005			
ANGLES ±			
FRACTIONS ±			

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

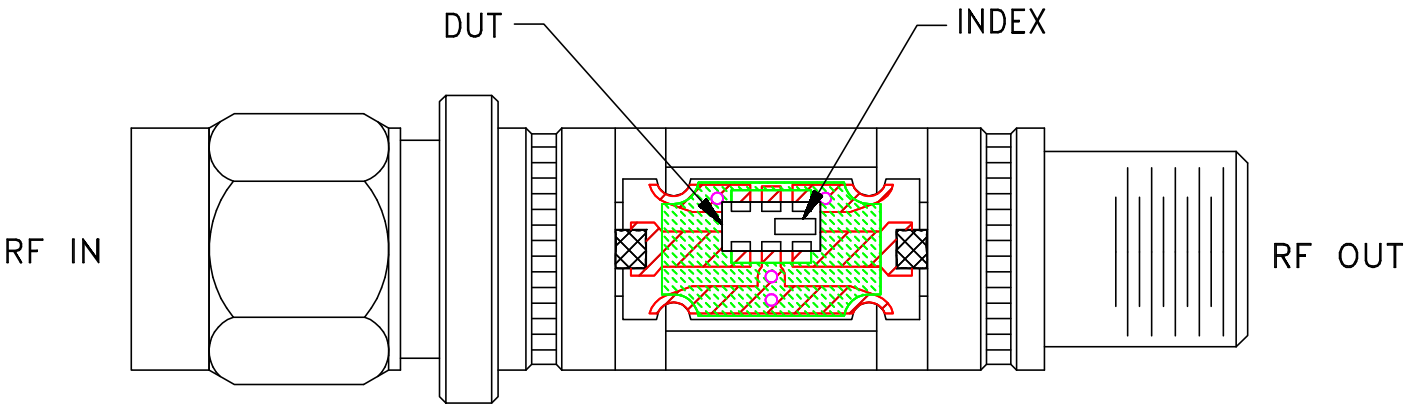
Mini-Circuits® 13 Neptune Avenue Brooklyn NY 11235

PL, pr, FV1206-1, HFCN, TB-285

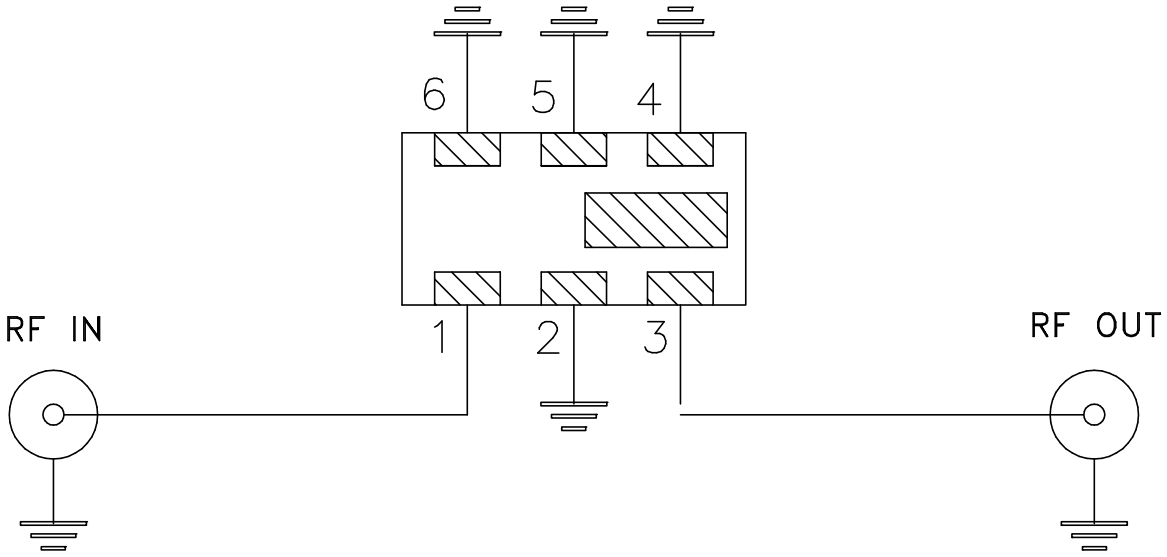
SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-158	B

FILE:	SCALE:	SHEET:
98PL158	12:1	1 OF 1

Evaluation Board and Circuit



TB-285



Schematic Diagram

Notes:

1. SMA Female connectors.
2. PCB Material: Rogers RO4350 or equivalent, Dielectric Constant=3.5, Thickness=.020 inch.

Mini-Circuits®

Mini-Circuits

Environmental Specifications ENV06T2

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, Para 4.2.5, Test S, 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