Ceramic

Low Pass Filter

LFCV-1450+

50Ω DC to 1450 MHz

Product Features

- Small size (.126” x .098”x .059”)
- Temperature stable
- Hermetically sealed

Generic photo used for illustration purposes only

CASE STYLE: JV1210C

+RoHS Compliant

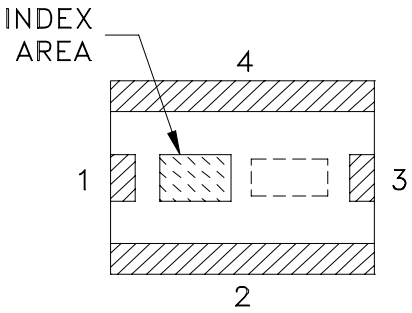
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Typical Applications

- Harmonic rejection
- VHF/UHF transmitters / receivers
- Lab use
- DECT/PACS/PHS/GSM/DCS/WLAN

General Description

The LFCV-1450+ (RoHS compliant) is constructed with new Ferrite material LTCC multi layer. The existing LFCN-1450+ is cut off at frequency 1825 MHz. But LFCV-1450+ is cut off at frequency 1500 MHz with same pass band frequency, DC-1450 MHz. The rejection frequency is much improved.



Pad Description

Function	Pad Number	Description
RF IN	1	RF input
RF-OUT	3	RF output
GND	2,4	Connected to ground

Notes

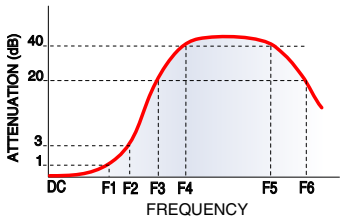
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit’s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

Electrical Specifications[1] at 25°C, 50Ω

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	DC-F1	DC-1450	—	—	2.2	dB
	Freq. Cut-Off	F2	1500	—	3.0	—	dB
	VSWR	DC - F1	DC-1450	—	1.3	—	:1
Stop Band	Rejection Loss	F3	1650	20	—	—	dB
		F4 - F5	1800 - 2300	—	40		dB
	VSWR	F6	3000	—	20	—	dB
		F3 - F6	1650-3000		20		:1

1. Coupling capacitors at input and output are recmmended for use in applications that require DC isolation of input to output port or other port to ground.

Typical Frequency Response

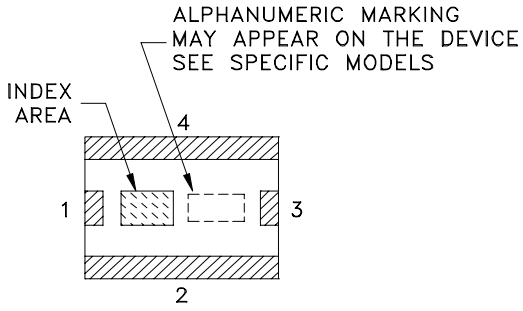


Absolute Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature*	-55°C to 100°C
RF Input Power**	0.5W at 25°C

*12 months in vacuum sealed bag and 1 week after opened.
**Passband rating, derate linearly to 0.125W at 85°C ambient
Permanent damage may occur if any of these limits are exceeded.

Product Marking



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Characterization Test Circuit

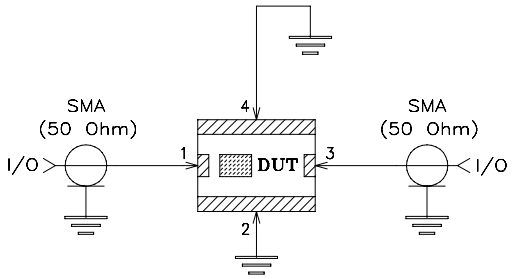
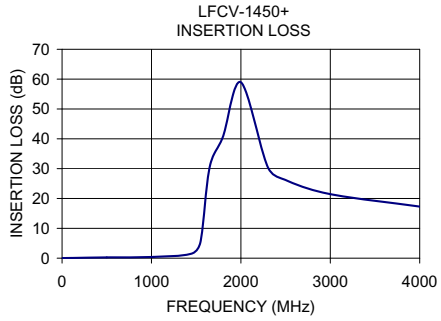
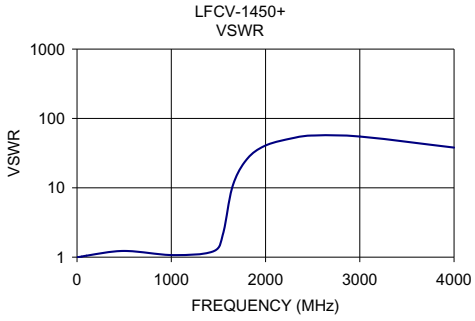


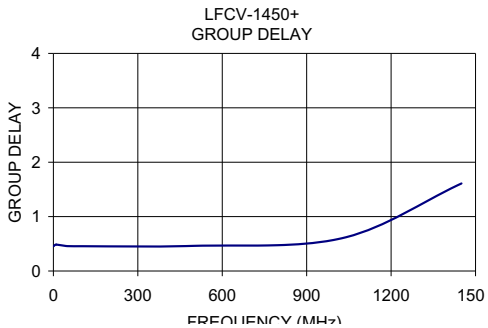
Fig 1. Block diagram of Test Circuit used for characterization, Test board TB-526+
Conditions:
Insertion loss, VSWR: Pin= 0 dBm

Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Group Delay (ns)
1.00	0.04	1.00	0.46
10.00	0.03	1.00	0.49
50.00	0.06	1.02	0.46
100.00	0.08	1.05	0.46
500.00	0.26	1.23	0.46
1025.00	0.42	1.07	0.60
1450.00	1.54	1.22	1.61
1550.00	5.66	2.19	
1650.00	30.39	10.50	
1800.00	40.74	25.62	
2000.00	58.94	40.77	
2300.00	30.57	52.42	
2500.00	26.20	56.69	
3000.00	21.46	54.87	
4000.00	17.29	38.02	







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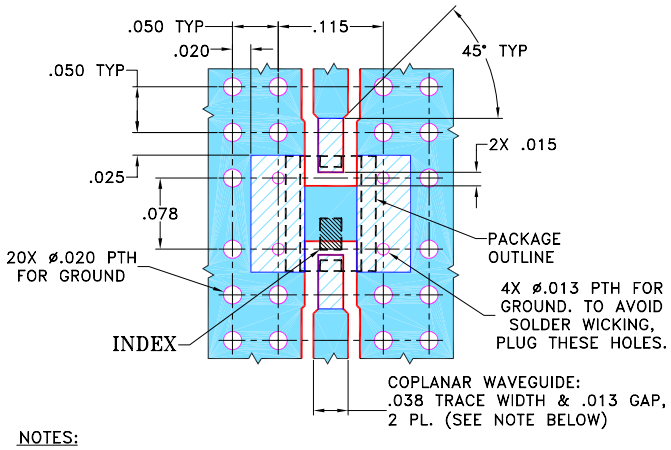
Suggested PCB Layout (PL-307)



NOTES:
1. COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.020" ± 0.0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP 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

Additional Detailed Technical Information

additional information is available on our dash board. To access this information click here

Performance Data	Data Table
	Swept Graphs
Case Style	JV1210C *Ceramic package, Terminal finish: Tin plate over Nickel plate*
Tape & Reel Packaging **Standard quantities available on reel**	F74 *7" reels with 20, 50, 100, 200, 500, 1K or 2K devices.*
Suggested Layout for PCB Design	PL-307
Evaluation Board	TB-526+
Environmental Ratings	ENV06T2

ESD Rating

Human Body Model (HBM):

Machine Model (MM):

MSL Rating

Moisture Sensitivity: MSL1 in accordance with IPC/JEDEC J-STD-020D

Low Pass Filter LFCV-1450+

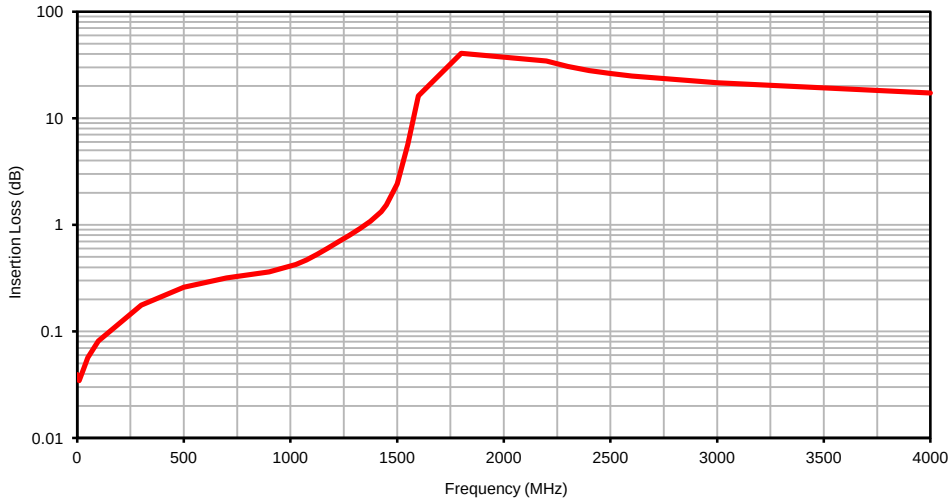
Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	VSWR (:1)	GROUP DELAY (ns)
1.0	0.04	1.00	0.46
5.0	0.04	1.00	0.46
10.0	0.03	1.00	0.49
30.0	0.04	1.01	0.47
50.0	0.06	1.02	0.46
100.0	0.08	1.05	0.46
300.0	0.18	1.16	0.45
500.0	0.26	1.23	0.46
700.0	0.32	1.21	0.49
900.0	0.36	1.08	0.53
1025.0	0.42	1.07	0.60
1075.0	0.47	1.13	0.65
1125.0	0.53	1.19	0.69
1175.0	0.60	1.26	0.74
1225.0	0.69	1.32	0.79
1275.0	0.80	1.35	0.86
1325.0	0.92	1.36	0.97
1375.0	1.08	1.32	1.12
1425.0	1.33	1.25	1.35
1450.0	1.54	1.22	1.61
1500.0	2.41	1.30	2.04
1550.0	5.66	2.19	2.96
1600.0	16.14	5.55	2.85
1800.0	40.74	25.62	0.49
2200.0	34.40	50.17	0.27
2300.0	30.57	52.42	0.32
2400.0	28.03	54.76	0.32
2500.0	26.20	56.69	0.31
2600.0	24.82	57.78	0.30
3000.0	21.46	54.87	0.28
4000.0	17.29	38.02	0.26

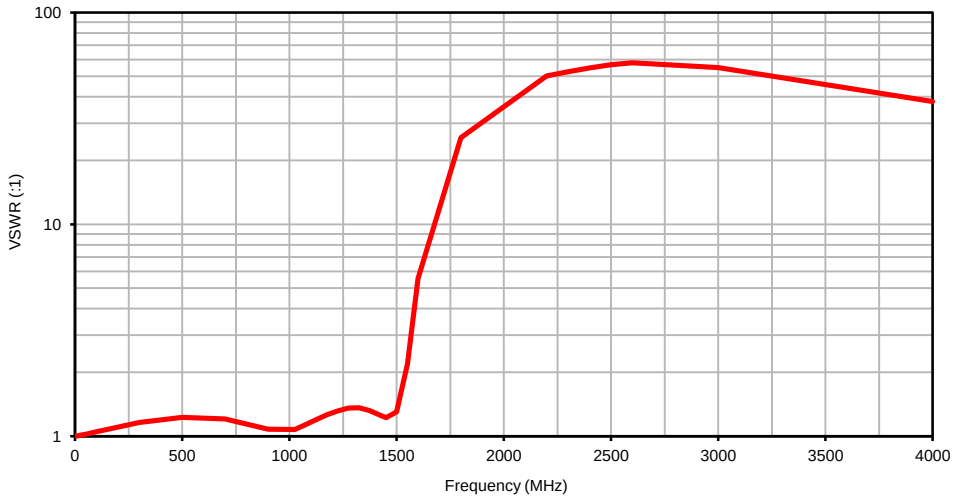
Low Pass Filter LFCV-1450+

Typical Performance Curves

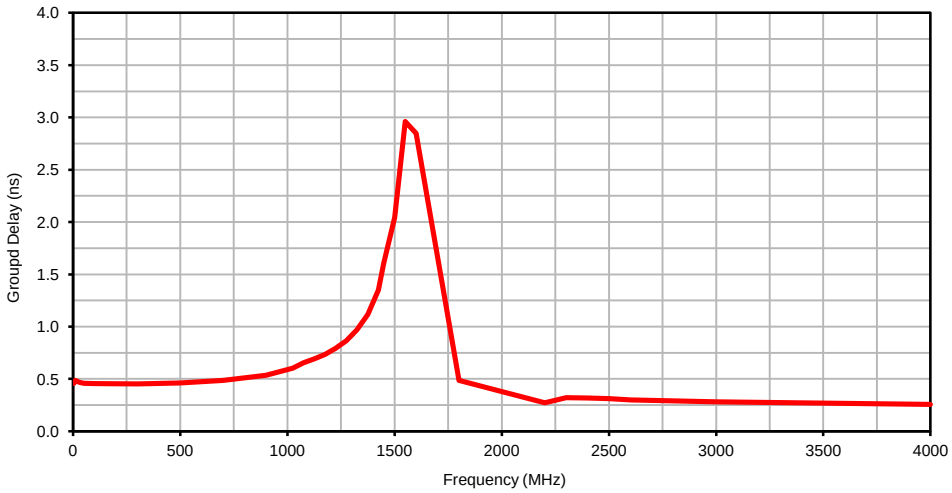
Insertion Loss



VSWR



Group Dealy

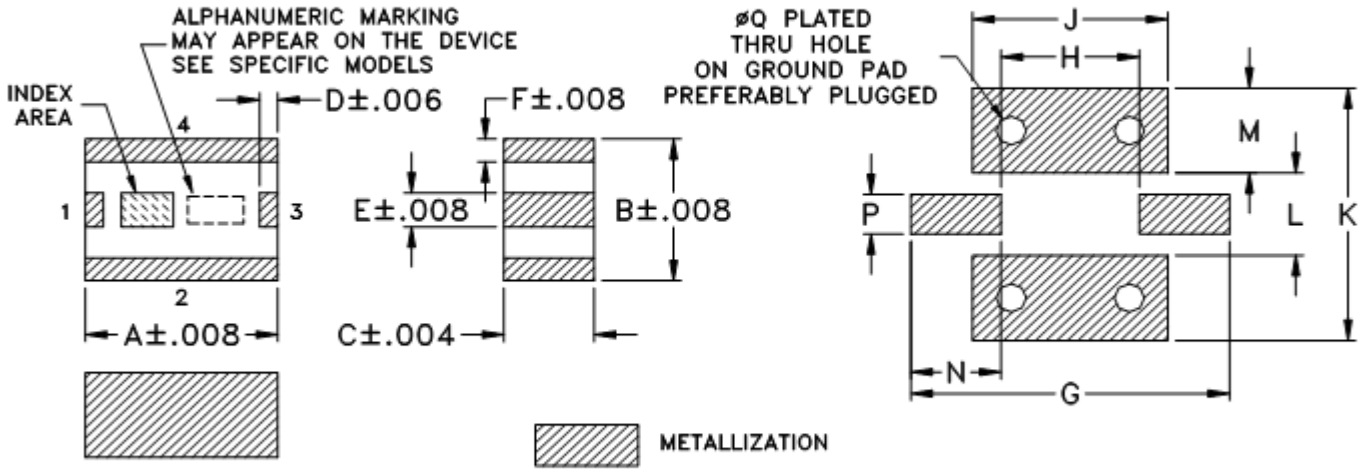


Case Style JV

Outline Dimensions

JV1210C

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	Q	WT. GRAM
JV1210C	.126 (3.2)	.098 (2.5)	.059 (1.5)	.012 (.3)	.024 (.6)	.016 (.4)	.209 (5.3)	.091 (2.3)	.128 (3.25)	.175 (4.45)	.057 (1.45)	.059 (1.5)	.059 (1.5)	.028 (.7)	.020 (.5)	.03

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

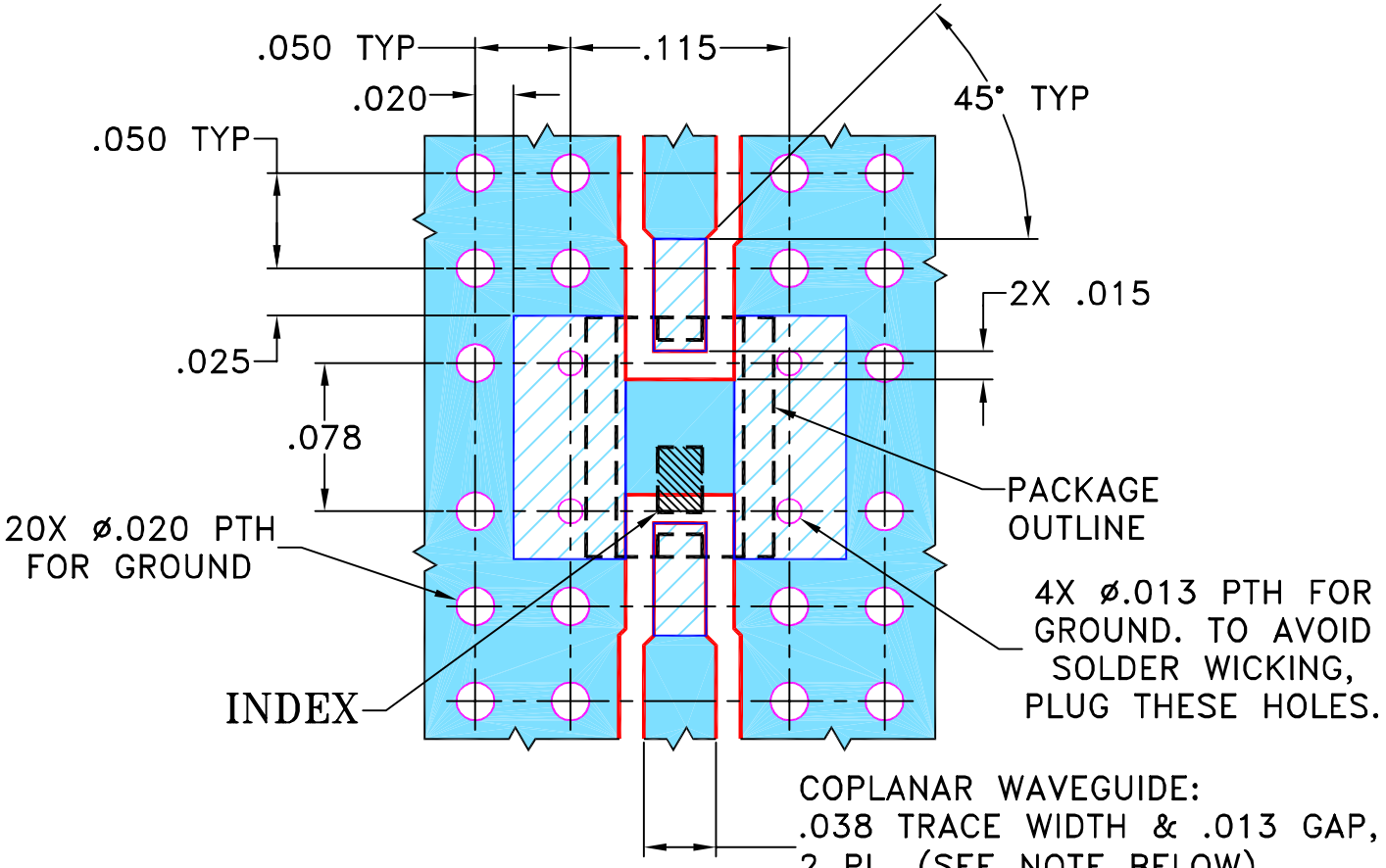
Notes:

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.
3. Pad tolerance is non-cumulative. Minimum spacing between each pad is .004.

THIRD ANGLE PROJECTION

REVISIONS					
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M123026	NEW RELEASE	06/08/09	PW	ABD

SUGGESTED MOUNTING CONFIGURATION
FOR JV1210C CASE STYLE, "04FL01" PIN CONNECTIONS



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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	PW	05/27/09
TOLERANCES ON:	CHECKED	IL	06/04/09
2 PL DECIMALS ±	APPROVED	ABD	06/08/09
3 PL DECIMALS ± .005			
ANGLES ±			
FRACTIONS ±			

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

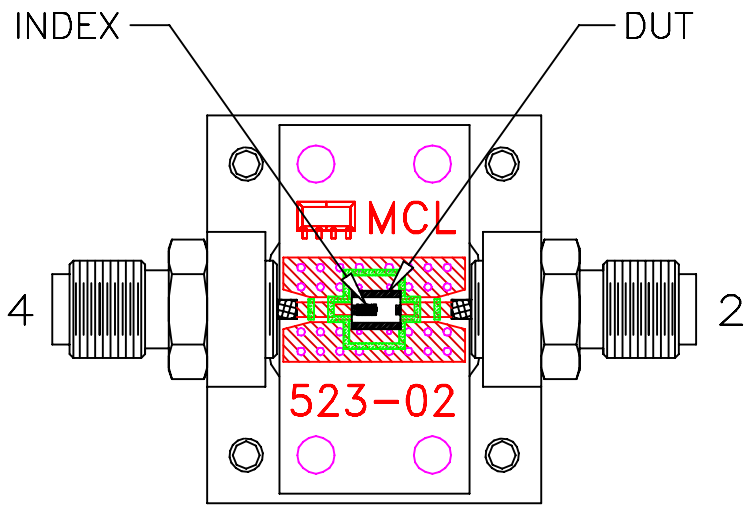
Mini-Circuits® 13 Neptune Avenue Brooklyn NY 11235

PL, 04FL01, JV1210C, LFCF, TB-526+

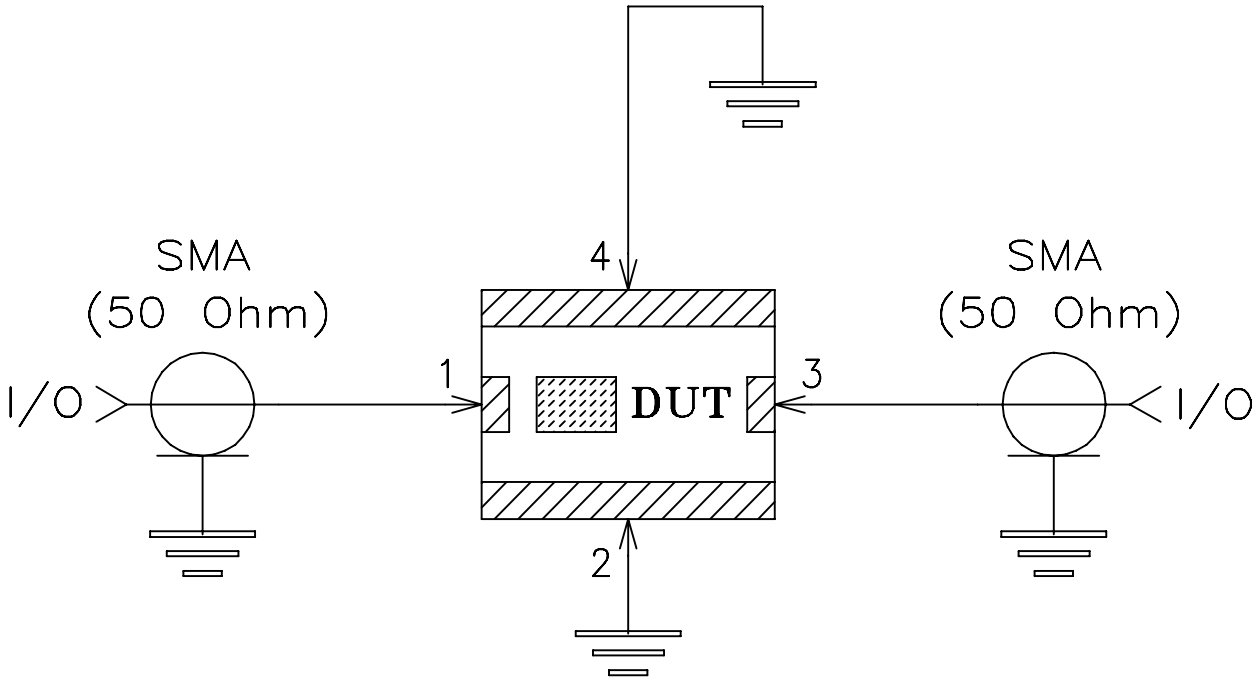
SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-307	OR

FILE:	SCALE:	SHEET:
98PL307	10:1	1 OF 1

Evaluation Board and Circuit



TB-526+



Schematic Diagram

Notes:

1. 50 Ohm SMA Female connectors.
2. PCB Material: RO4350 or equivalent,
   Dielectric Constant=3.5, Thickness=.020 inch.

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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