

50Ω

DC to 27500 MHz



Generic photo used for illustration purposes only
CASE STYLE: FV1206-11

The Big Deal

- Good rejection, 40 dB typical
- Rugged, ceramic construction
- Small size, 3.2mm X 1.6mm (1206)
- LTCC Low pass filter at mm wave frequency

Product Overview

Mini-Circuits' LFCN-2752+ is an LTCC low pass filter with a passband from DC to 27500 MHz, supporting a variety of applications. This model provides 1.5 dB typical passband insertion loss and provides a very good stopband rejection due to strategically constructed layout with minimal interaction between components. It handles up to 1W RF input power and provides a wide operating temperature range from -55 to +125°C. Housed in a small 1206 ceramic form factor, the filter is ideal for dense PCB layouts and with minimal performance variation due to parasitics.

Key Features

Feature	Advantages
Ultra-wide stopband	The LTCC lowpass filter provides a very good stopband rejection until 46 GHz suitable for high end applications.
LTCC Construction	Provides repeatable performance in a rugged, ceramic package well suited for tough environments such as high humidity and temperature extremes.
Small size 3.2mm X 1.6mm (1206)	Saves space in dense circuit board layouts and minimizes the effects of parasitics.

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



Low Pass Filter

50Ω

DC to 27500 MHz

LFCN-2752+



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CASE STYLE: FV1206-11

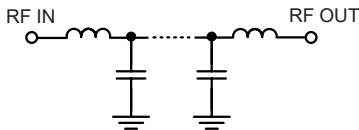
Features

- Low loss, 1.5 dB typical
- Good rejection 40 dB typical
- Good power handling, 1W
- Small size 3.2mm X 1.6mm (1206)
- Temperature stable
- LTCC construction

Applications

- 5G applications

Functional Schematic



Electrical Specifications^{1,2} at 25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	DC-F1	DC - 17000	—	0.6	1.0	dB
	F1-F2	17000 - 25500	—	1.0	1.8	dB
	F2-F3	25500 - 27500	—	1.5	—	dB
	F4	29500	—	3	—	dB
Stop Band	DC-F3	DC - 27500	—	12	—	dB
	F5-F6	34500 - 39000	19	30	—	dB
	F6-F7	39000 - 45000	29	40	—	dB
	F7-F8	45000 - 46000	—	42	—	dB

1 DC de-coupling capacitors are required in Applications where DC voltage and/or current is present at either input or output ports. Please contact Mini-Circuits for alternatives if DC pass from IN-OUT is required.

2 Measured on Mini-Circuits Characterization Test Board TB-LFCN-2752C+.

Maximum Ratings

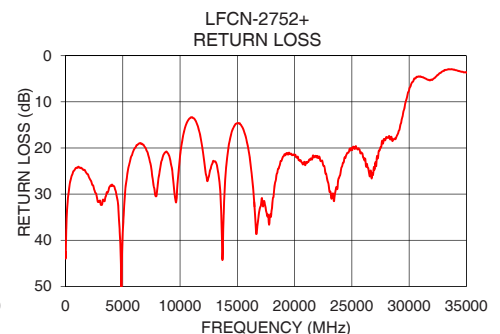
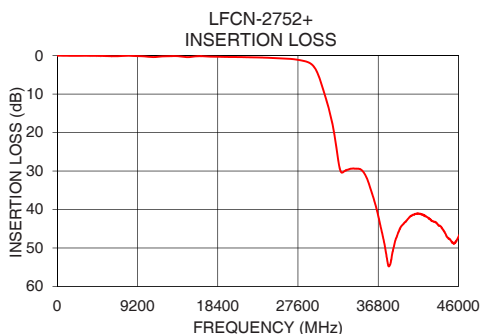
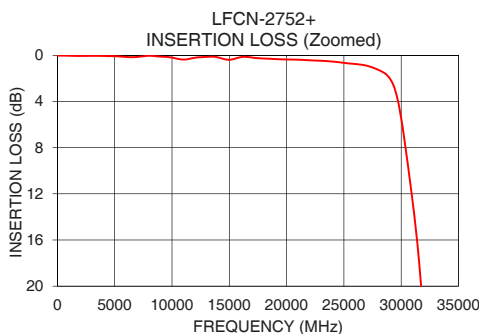
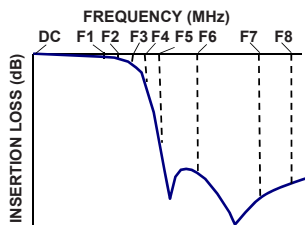
Operating Temperature	-55°C to 125°C
Storage Temperature	-55°C to 125°C
RF Power Input*	1W max. @25°C

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

Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)
10	0.01	42.56
100	0.02	35.35
500	0.02	26.42
1000	0.04	24.26
5000	0.07	38.21
10000	0.19	21.80
17000	0.19	32.82
25500	0.71	20.31
27500	1.05	19.85
29500	3.09	12.10
31000	12.67	4.49
31800	20.85	5.35
32500	30.10	4.17
34500	29.38	3.43
39000	46.63	2.68
40000	43.07	2.78
42000	41.42	3.15
44000	44.48	2.99
45000	47.73	3.70
46000	47.10	3.34

Typical Frequency Response



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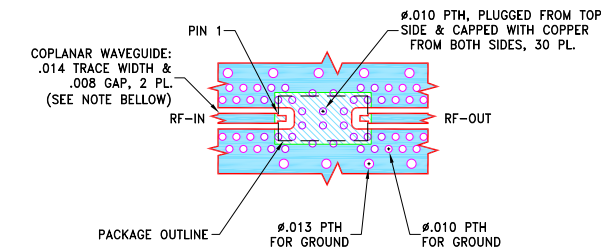


Pad Connections

INPUT	1
OUTPUT	2
GROUND	3

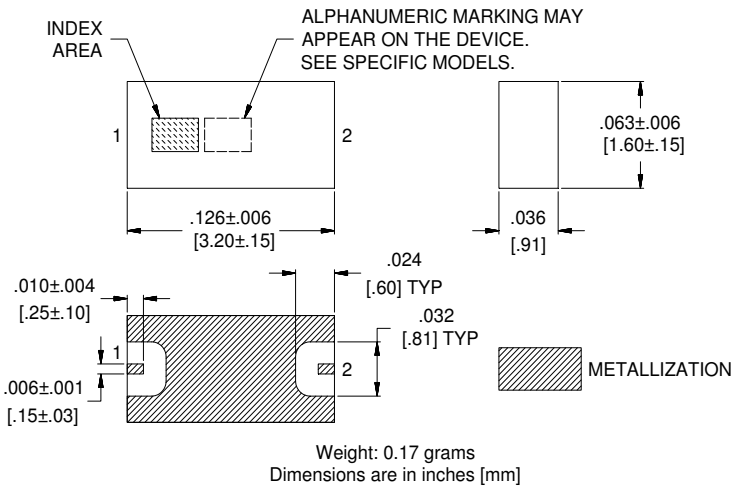
Product Marking: LW

Demo Board MCL P/N: TB-LFCN-2752C+
Suggested PCB Layout (PL-702)



- NOTES:
1. TRACE WIDTH & GAP PARAMETERS ARE SHOWN FOR MEGTRON-7 R5785(N); DIELECTRIC THICKNESS: .0079±.001; COPPER: HVLP/HVLP, 1/2 Oz EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH & 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.

Outline Drawing



Notes

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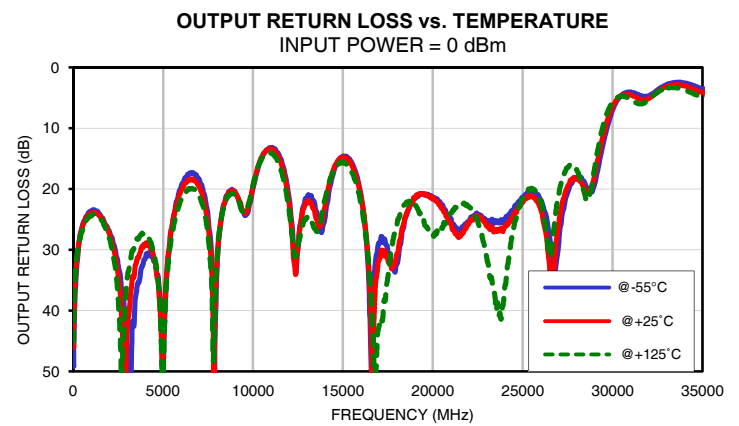
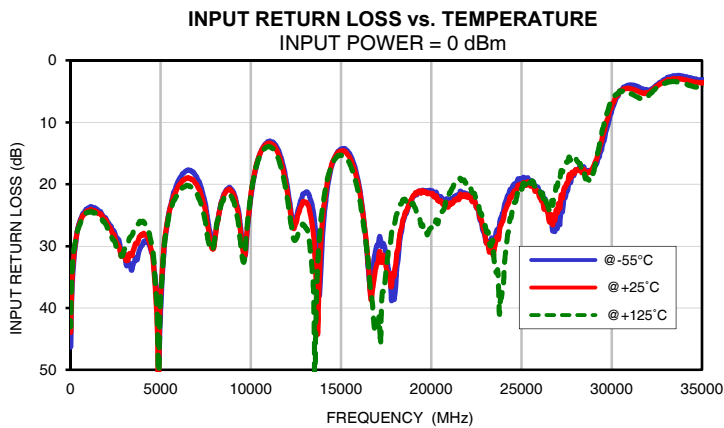
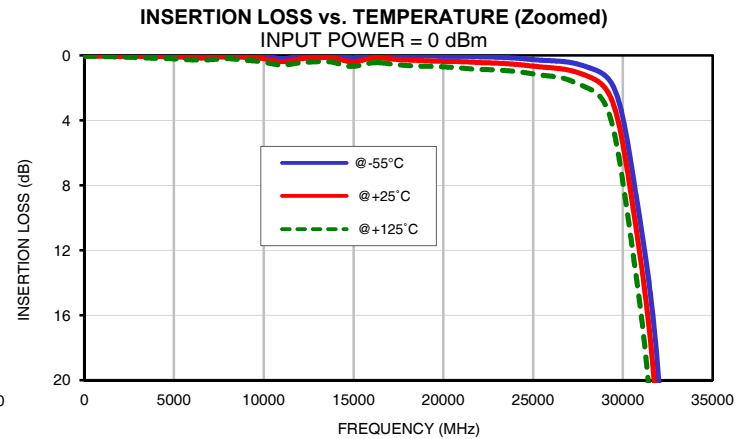
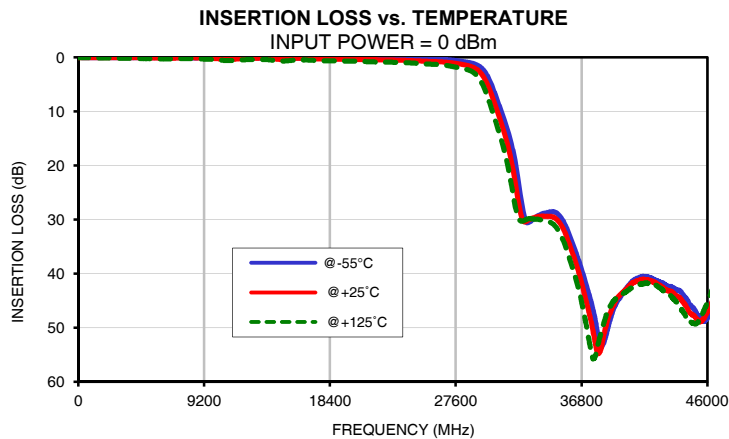
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Typical Performance Data

FREQ.	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
(MHz)	(dB)			(dB)			(dB)		
	@-55°C	@+25°C	@+125°C	@-55°C	@+25°C	@+125°C	@-55°C	@+25°C	@+125°C
10	0.00	0.01	0.01	43.54	42.56	42.03	46.24	45.11	45.10
100	0.00	0.02	0.03	36.74	35.35	34.22	37.72	36.04	34.57
200	0.00	0.02	0.04	32.12	31.37	30.63	32.58	31.60	30.96
250	0.01	0.02	0.04	30.61	30.06	29.75	30.96	30.33	29.99
300	0.01	0.02	0.04	29.52	29.20	28.86	29.66	29.26	29.08
350	0.01	0.02	0.05	28.28	28.17	28.20	28.32	28.23	28.53
400	0.01	0.02	0.05	27.27	27.41	27.51	27.35	27.47	27.83
500	0.02	0.02	0.05	26.18	26.42	26.73	26.14	26.35	26.96
550	0.02	0.02	0.05	25.69	25.97	26.32	25.55	25.87	26.37
600	0.02	0.02	0.05	25.45	25.69	25.93	25.29	25.51	25.91
800	0.02	0.03	0.06	24.43	24.74	25.00	24.25	24.52	24.87
1000	0.02	0.04	0.06	23.83	24.26	24.57	23.58	23.94	24.44
5000	0.05	0.07	0.20	40.88	38.21	38.86	51.90	48.32	51.76
8000	0.11	0.04	0.19	29.16	29.17	28.78	32.64	31.55	31.32
10000	0.02	0.19	0.40	22.15	21.80	21.68	19.81	19.50	19.29
12000	0.02	0.21	0.45	19.95	20.83	21.94	21.25	22.26	23.49
14000	0.06	0.17	0.45	27.46	24.94	23.14	24.85	22.91	21.66
16000	0.10	0.16	0.45	20.23	20.76	21.97	20.93	21.21	22.44
17000	0.07	0.19	0.51	29.82	32.82	43.56	28.88	31.67	42.66
18000	0.01	0.27	0.62	37.49	33.43	25.96	32.24	30.65	25.92
20000	0.05	0.36	0.70	21.16	21.61	27.00	21.48	21.60	27.31
21000	0.05	0.38	0.77	22.44	23.10	21.52	24.84	25.64	24.00
25000	0.25	0.65	1.13	19.38	20.29	20.81	21.44	22.18	21.59
25500	0.29	0.71	1.21	19.66	20.31	19.85	20.36	21.23	19.87
27500	0.53	1.05	1.74	21.18	19.85	16.40	20.54	19.57	16.49
28000	0.70	1.26	1.99	17.65	17.64	15.83	18.03	18.24	16.88
28500	0.90	1.51	2.29	17.75	18.10	18.52	19.43	20.30	21.57
29500	1.99	3.09	4.68	13.46	12.10	10.97	12.23	10.90	9.30
30000	3.83	5.44	7.80	8.17	7.40	6.54	7.02	6.44	5.72
31000	10.49	12.67	15.80	3.94	4.49	5.22	4.05	4.52	5.23
31500	14.40	17.21	21.18	4.29	5.03	6.06	4.56	5.20	6.00
31800	17.44	20.85	25.34	4.74	5.35	6.14	4.81	5.36	5.81
32000	20.06	23.83	28.08	4.85	5.27	5.82	4.71	5.14	5.36
32500	28.16	30.10	30.27	3.95	4.17	4.42	3.70	4.00	4.08
33000	30.39	29.92	29.80	2.96	3.31	3.65	2.83	3.15	3.42
33500	29.46	29.48	29.92	2.45	2.95	3.41	2.50	2.88	3.35
34000	28.83	29.33	30.11	2.56	3.09	3.73	2.57	3.04	3.71
34500	28.57	29.38	30.49	2.91	3.43	4.21	2.99	3.56	4.31
35000	28.81	29.97	31.59	3.17	3.65	4.40	3.56	4.16	4.79
35500	30.43	31.87	34.05	2.90	3.37	3.95	3.60	4.09	4.50
36000	33.45	35.16	37.82	2.57	3.07	3.48	3.16	3.57	3.88
36500	36.88	38.89	41.98	2.54	3.01	3.38	2.73	3.16	3.49
37000	40.84	43.63	47.63	2.66	3.07	3.55	2.54	3.02	3.45
37500	45.25	48.79	54.24	2.73	3.17	3.88	2.56	3.09	3.66
38000	51.28	54.60	53.03	2.70	3.24	4.13	2.76	3.33	4.10
38500	52.00	50.56	48.54	2.39	2.98	3.87	2.94	3.52	4.39
39000	47.59	46.63	45.64	2.07	2.68	3.38	3.05	3.57	4.32
39500	44.64	44.20	44.19	2.11	2.64	3.15	3.01	3.48	3.99
40000	42.95	43.07	43.39	2.33	2.78	3.17	2.89	3.36	3.72
42000	40.99	41.42	41.91	2.44	3.15	4.04	2.86	3.47	4.30
42500	41.54	42.08	42.56	2.18	2.78	3.63	2.75	3.33	4.20
43000	42.15	42.96	43.46	2.09	2.56	3.35	2.72	3.26	4.06
43500	42.57	43.50	44.54	2.19	2.62	3.38	2.76	3.29	4.01
44000	43.20	44.48	46.18	2.48	2.99	3.71	2.93	3.48	4.11
44500	44.72	46.22	48.31	2.64	3.29	3.89	3.06	3.63	4.18
45000	46.40	47.73	49.12	2.89	3.70	4.16	3.28	3.86	4.34
45100	46.77	47.99	49.29	2.86	3.63	4.06	3.23	3.80	4.27
45200	47.31	48.25	49.15	3.00	3.81	4.19	3.29	3.87	4.36
45300	47.73	48.47	48.96	2.84	3.59	3.99	3.17	3.76	4.26
46000	48.29	47.10	45.38	2.84	3.34	3.88	3.11	3.67	4.31

Typical Performance Curves



FV1206-11

DEVICE ORIENTATION IN T&R

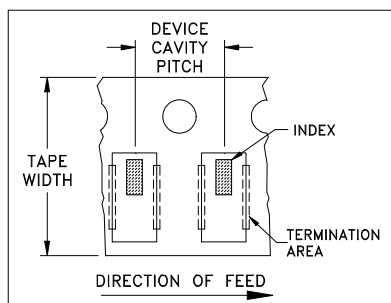


ILLUSTRATION 1

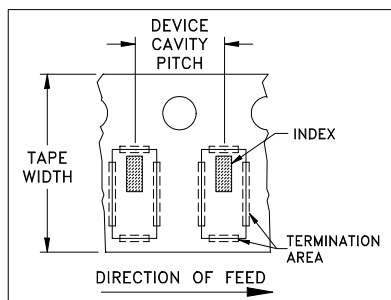


ILLUSTRATION 2

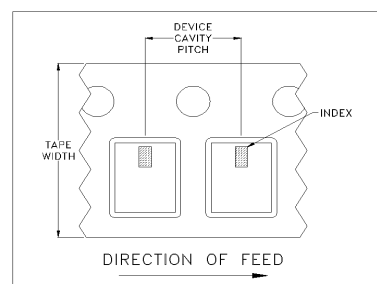


ILLUSTRATION 3

Applicable Case Styles

FV1206-1
FV1206-3

Applicable Case Styles

FV1206-4
FV1206-5
FV1206-6
FV1206-7
FV1206-9

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

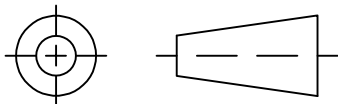


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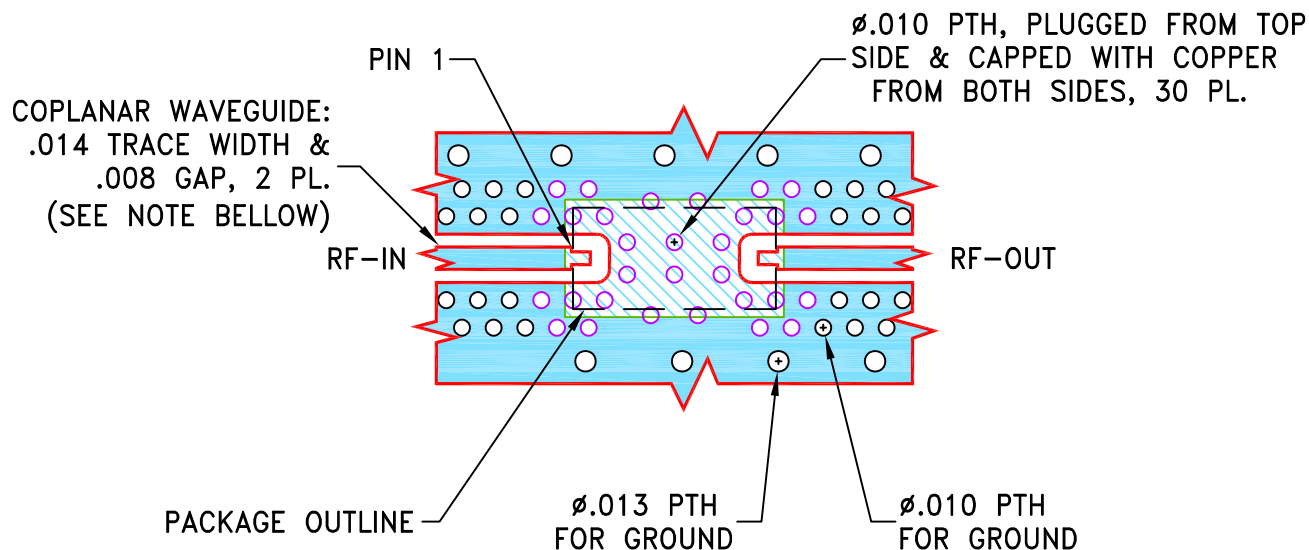
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THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	ECO-006066	NEW RELEASE	02/03/21	ITG	WY

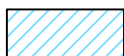
SUGGESTED MOUNTING CONFIGURATIONFV1206-11 CASE STYLE

NOTES:

- TRACE WIDTH & GAP PARAMETERS ARE SHOWN FOR MEGTRON-7 R5785(N); DIELECTRIC THICKNESS: $.0079 \pm .001$; COPPER: HVLP/HVLP, 1/2 Oz EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH & GAP 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	DRAWN	ITG	02/03/21
TOLERANCES ON:	CHECKED	GF	02/03/21
2 PL DECIMALS $\pm$	APPROVED	WY	02/03/21
3 PL DECIMALS $\pm$.005			
ANGLES $\pm$			
FRACTIONS $\pm$			

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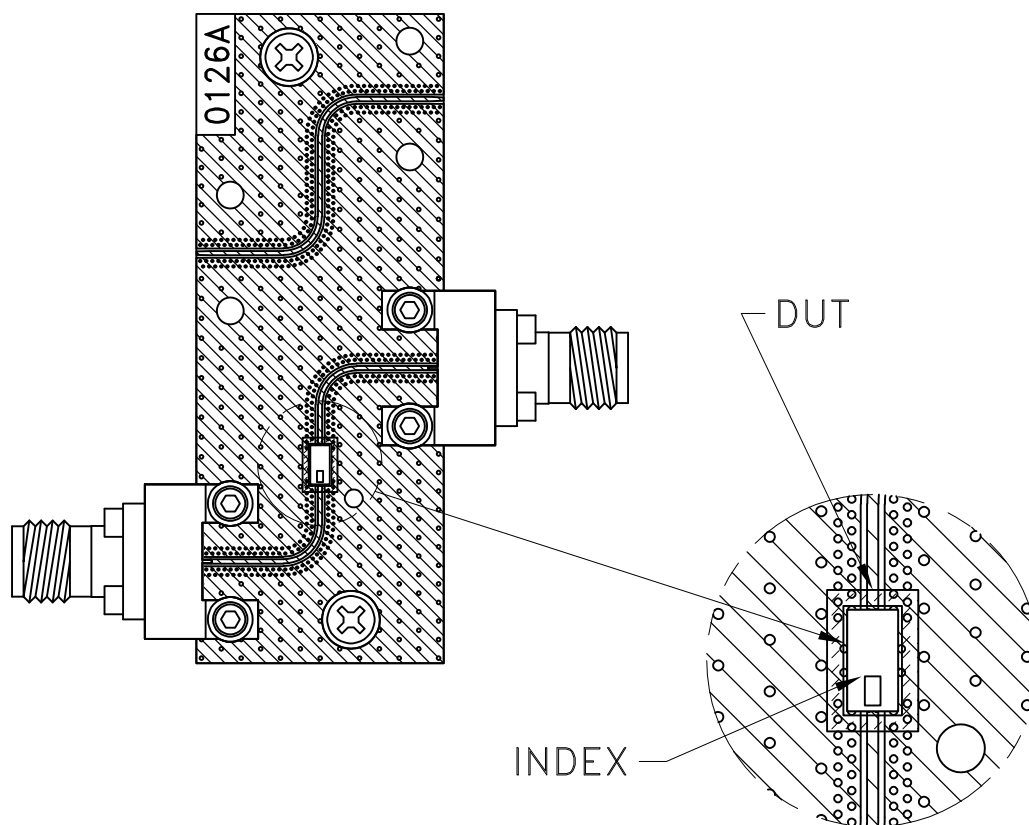
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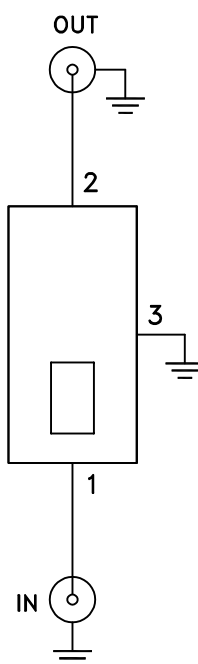
PL, FV1206-11, TB-LFCN-2352C+

SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-702	OR
FILE:	98PL702	SCALE: 8:1	SHEET: 1 OF 1

Evaluation Board and Circuit



TB-LFCN-2752C+



Schematic Diagram

1. 50 Ohm 2.4 End Launch Female connectors.
2. PCB Material: Megtron 7(N) or equivalent,
Dielectric Constant=3.4, Thickness=.0079 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	-55° to 125° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 125° C Ambient Environment	Individual Model Data Sheet
Thermal Cycling	-55 to 125°C, 100 cycles, Dwell Time 15 minutes.	MIL-STD-202, Method 107, Condition A-3
Mechanical Shock	50g, 11ms half-sine, 18 shocks applied each to 3 axes	MIL-STD-202 Method 213, Condition A
Vibration	10-2000Hz sine, 20g, 12 cycles applied each to 3 axes	MIL-STD-202, Method 204, Condition D
Constant Acceleration	30Kg, Y1 Direction	MIL-STD-883, Method 2001, Condition E
Humidity	85°C, 90-95% Relative Humidity, 250hours	
Solderability	10X / 30X Magnification	J-STD-002C Test S, J-STD-002C Test S1
High Temp Storage	125°C, 250 hours	