New Product Announcement!

Ceramic

Dual Low Pass Filter DLFCV-1000+

50Ω DC to 1000 MHz

Click here for data sheet



CASE STYLE: JV1210C-1

The Big Deal

- Low insertion loss
- Fast roll off
- Small size
- Dual filter in 1210 package

Product Overview

DLFCV-1000+ is a dual low pass filter which can also operate as a balanced input /output low pass filter in LTCC package. This filter has faster roll and offers low insertion loss, low VSWR and high power handling.

Key Features

Feature	Advantages
Faster roll off	DLFCV-1000+ is a dual low pass filter in LTCC package with 7 sections hence the roll off is faster.
Power handling	Each filter can handle 8.5W power.
Dual filter	Dual Filter in 1210 package, LTCC construction.

Notes
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Dual Low Pass Filter

DLFCV-1000+

50Ω DC to 1000 MHz



CASE STYLE: JV1210C-1

+RoHS Compliant

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

Maximum Ratings

Operating Temperature	-40° to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input*	8.5W Max. at 25°C

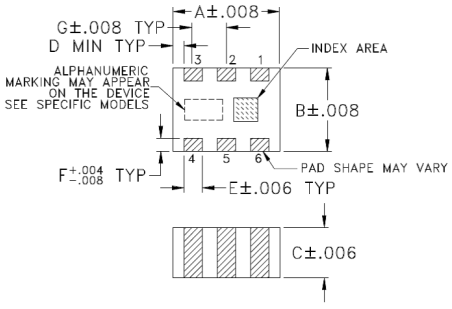
* Passband rating, derate linearly to 3.5W at 100°C ambient. Permanent damage may occur if any of these limits are exceeded.

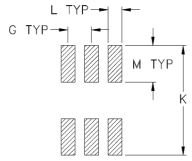
Pin Connections

RF IN1, RF IN2	1, 6
RF OUT1, RF OUT2	3, 4
GROUND	2, 5

Product Marking: HB

Outline Drawing



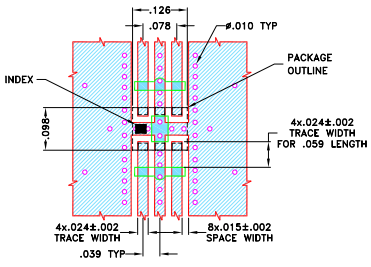


Outline Dimensions (inch / mm)

A	B	C	D	E	F	G
.126	.098	.059	.004	.022	.016	.039
3.2	2.5	1.50	.1	.56	.4	1.0

H	J	K	L	M	WT.GRAMS
-	-	.177	.024	.059	.03
-	-	4.5	.6	1.5	

Demo Board MCL P/N: TB-867+
Suggested PCB Layout (PL-483)



NOTES:
1. TRACE WIDTH IS SHOWN FOR ROGERS (RO4350B) WITH DIELECTRIC THICKNESS .010"±.001". 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 SOLDERMASK

Features

- Low insertion loss
- Smal size
- Excellent return loss
- High rejection

Applications

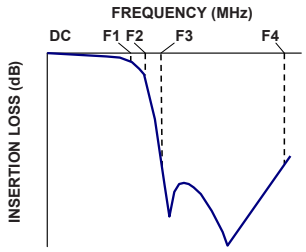
- Military Applications
- VHF/UHF transmitters/receivers
- Harmonic rejection
- Output of the A/D convertor
- Test and Measurement

Electrical Specifications[1,2] at 25°C

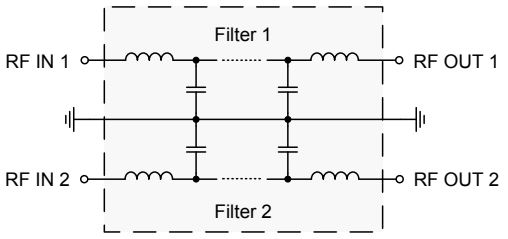
Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	DC-F1	DC-1000	—	1.2	2.2	dB
	Freq. Cut-Off	F2	1280	—	3.0	—	dB
	Amp Unbalance	DC-F1	DC-1000	—	0.1	—	dB
	Pha Unbalance	DC-F1	DC-1000	—	3	—	deg
	VSWR	DC-F1	DC-1000	—	1.4	—	:1
Stop Band	Insertion Loss	F3-F4	1700-5000	24	27	—	dB
	Cross Over Isolation	F3-F4	1700-5000	—	27	—	dB
	VSWR	F3-F4	1700-5000	—	20	—	:1

(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-867+.

Typical Frequency Response



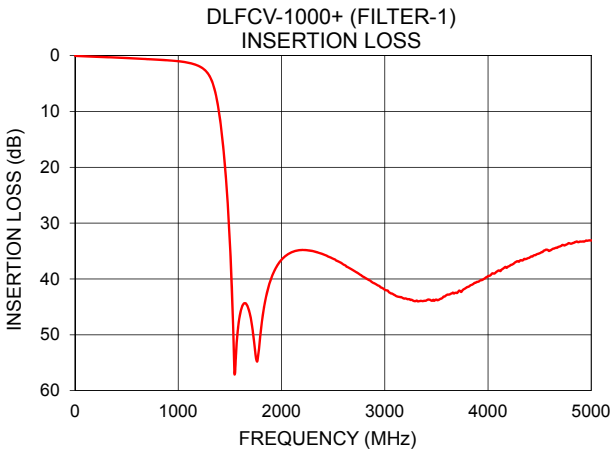
Functional Schematic

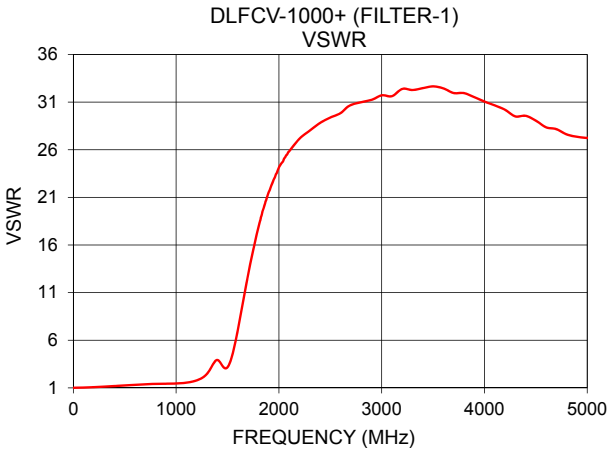


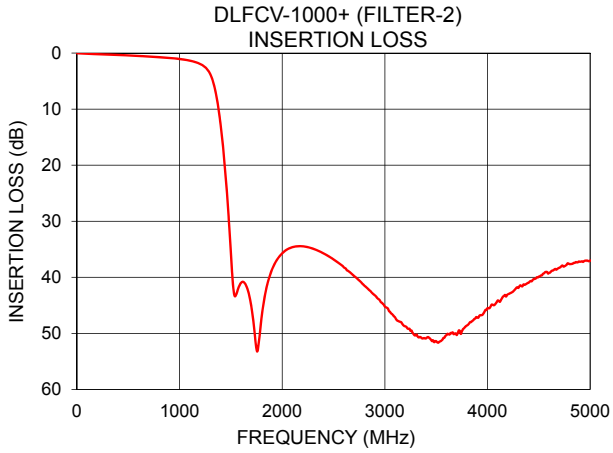
Typical Performance Data at 25°C

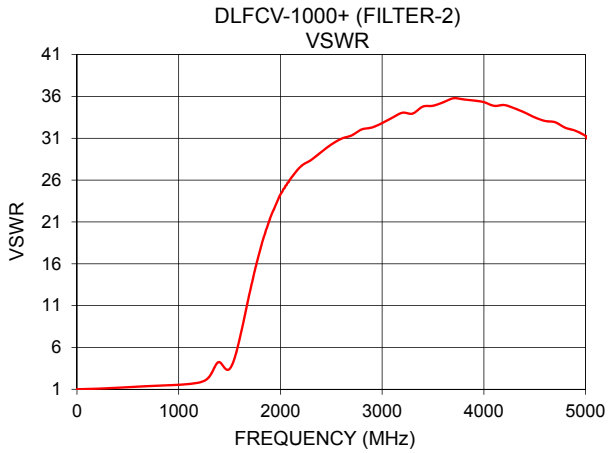
Freq.	Insertion Loss Filter1	Insertion Loss Filter2	Cross Over Isolation	VSWR Filter1	VSWR Filter2	Freq.	Amp Unbal.	Phase Unbal.	Group Delay Filter1	Group Delay Filter2
(MHz)	(dB)	(dB)	(dB)	(:1)	(:1)	(MHz)	(dB)	(deg)	(ns)	(ns)
1.0	0.03	0.03	86.58	1.01	1.01	1.0	0.01	0.01	0.56	0.57
30.0	0.07	0.07	56.46	1.01	1.01	40.0	0.01	0.02	0.58	0.58
100.0	0.13	0.12	45.96	1.04	1.03	60.0	0.01	0.05	0.58	0.58
250.0	0.24	0.23	38.21	1.10	1.10	100.0	0.01	0.09	0.58	0.58
500.0	0.43	0.42	33.11	1.25	1.25	140.0	0.00	0.16	0.58	0.58
1000.0	1.00	1.05	30.36	1.46	1.54	200.0	0.01	0.24	0.58	0.58
1280.0	3.02	3.16	36.44	2.26	2.24	260.0	0.01	0.34	0.58	0.58
1400.0	10.79	12.85	30.56	3.93	4.25	300.0	0.01	0.38	0.59	0.59
1450.0	19.29	22.21	32.88	3.32	3.57	340.0	0.01	0.44	0.59	0.59
1500.0	33.50	35.73	38.85	3.17	3.43	460.0	0.02	0.64	0.61	0.61
1600.0	46.20	40.97	59.38	7.08	7.08	480.0	0.02	0.69	0.61	0.61
1700.0	46.78	45.32	65.50	12.88	12.65	500.0	0.02	0.73	0.61	0.62
1760.0	54.70	53.12	64.01	15.97	15.76	540.0	0.02	0.82	0.62	0.63
1800.0	49.27	47.00	63.58	17.81	17.63	600.0	0.02	0.93	0.64	0.64
1900.0	39.91	38.63	62.98	21.53	21.49	660.0	0.03	1.06	0.66	0.66
2000.0	36.56	35.71	62.46	24.14	24.28	700.0	0.03	1.20	0.67	0.68
2100.0	35.21	34.62	61.91	25.84	26.18	740.0	0.03	1.31	0.69	0.70
2500.0	36.38	36.82	73.40	29.38	30.26	800.0	0.03	1.55	0.72	0.73
3000.0	41.95	45.22	49.35	31.71	32.81	840.0	0.03	1.77	0.75	0.76
3400.0	43.88	50.90	42.63	32.46	34.79	900.0	0.04	2.11	0.80	0.81
4000.0	39.49	45.49	36.75	31.05	35.32	960.0	0.06	2.48	0.86	0.87
5000.0	33.10	37.01	31.76	27.23	31.28	1000.0	0.07	2.81	0.90	0.91

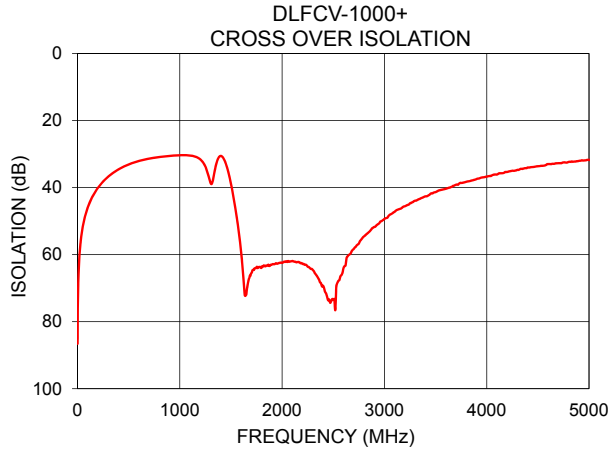
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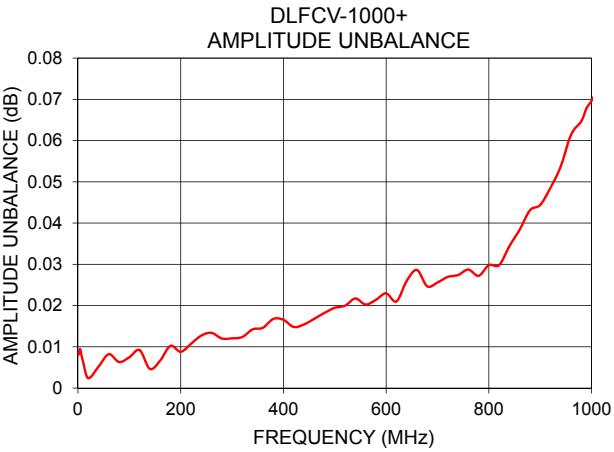




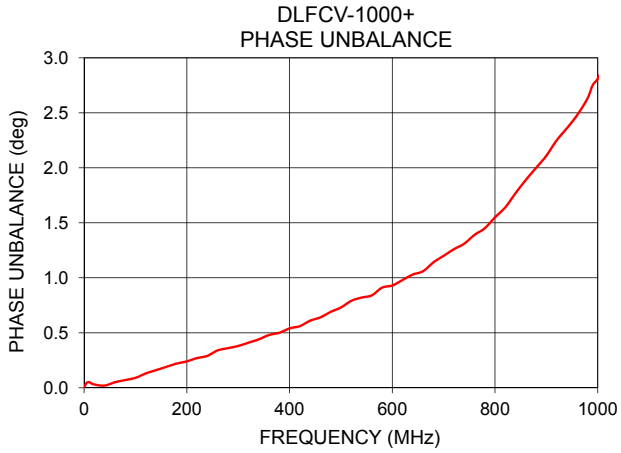


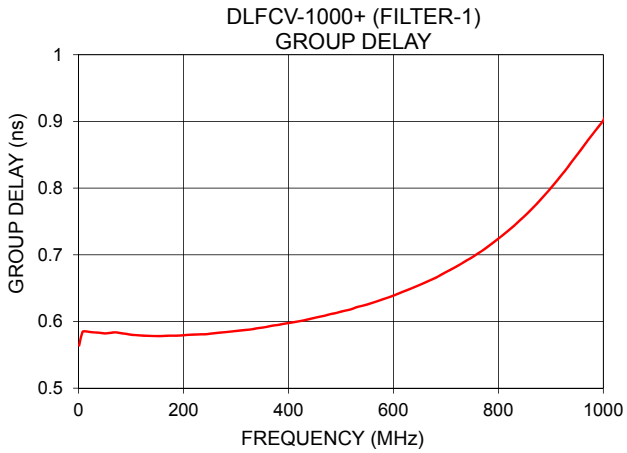


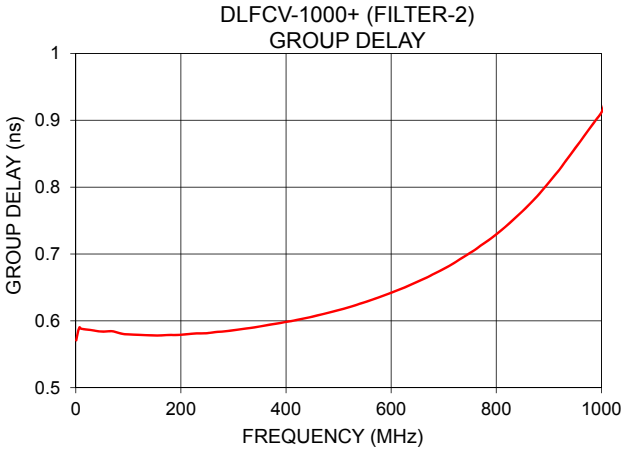




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Dual Low Pass Filter DLFCV-1000+

Typical Performance Data

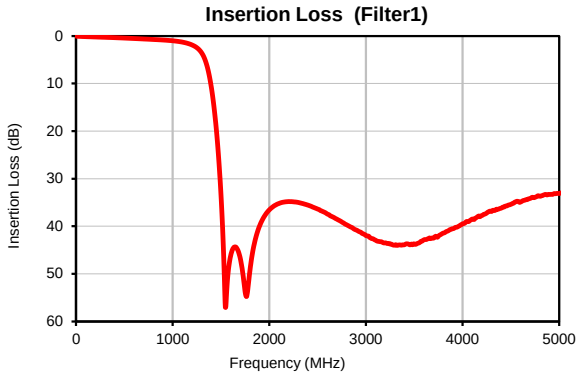
FREQUENCY (MHz)	INSERTION LOSS (dB)		Cross Over Isolation (dB)	RETURN LOSS (dB)	
	Filter1	Filter2		Filter1	Filter2
1	0.03	0.03	86.58	44.69	46.66
10	0.05	0.04	66.06	44.50	46.44
50	0.09	0.09	51.97	38.20	40.44
100	0.13	0.12	45.96	32.92	34.28
370	0.32	0.32	35.16	20.55	21.28
510	0.44	0.43	32.98	17.80	18.34
730	0.65	0.65	31.21	15.69	15.75
1000	1.00	1.05	30.36	15.97	14.53
1190	1.79	1.85	31.36	12.89	12.87
1215	2.02	2.08	32.02	12.33	12.77
1280	3.02	3.16	36.44	10.81	11.94
1310	3.89	4.22	38.94	9.72	10.20
1435	16.28	19.01	31.74	3.29	2.70
1440	17.23	20.03	32.07	3.14	2.59
1445	18.24	21.10	32.45	3.00	2.48
1450	19.29	22.21	32.88	2.88	2.38
1455	20.40	23.36	33.32	2.76	2.29
1490	30.01	32.73	37.41	2.13	1.82
1500	33.50	35.73	38.85	2.00	1.72
1525	44.74	42.20	42.90	1.74	1.52
1530	47.66	42.87	43.78	1.69	1.48
1545	57.08	43.33	46.59	1.57	1.39
1550	56.86	43.15	47.55	1.53	1.36
1635	44.40	41.04	72.13	1.11	1.03
1645	44.34	41.34	72.12	1.08	1.00
1700	46.78	45.32	65.50	0.93	0.88
1750	53.83	52.89	63.74	0.84	0.79
1765	54.78	52.64	63.83	0.82	0.78
1840	44.13	42.43	63.45	0.72	0.69
1865	42.03	40.53	63.01	0.69	0.67
1900	39.91	38.63	62.98	0.66	0.64
1920	38.98	37.81	62.88	0.65	0.63
2110	35.13	34.57	61.99	0.55	0.53
2150	34.92	34.46	62.22	0.53	0.51
2300	34.99	34.88	64.59	0.48	0.46
2500	36.38	36.82	73.40	0.44	0.42
2590	37.28	38.00	65.44	0.43	0.41
2700	38.51	39.76	58.32	0.41	0.40
2850	40.22	42.32	53.23	0.41	0.39
3000	41.95	45.22	49.35	0.41	0.38
3250	43.76	49.57	44.69	0.40	0.38
3300	43.96	50.35	43.92	0.41	0.39
3500	43.70	51.40	41.37	0.41	0.40
3750	42.10	49.65	38.62	0.44	0.41
3980	39.73	45.82	36.88	0.45	0.43
4000	39.49	45.49	36.75	0.45	0.43
4050	39.00	44.89	36.39	0.46	0.44
4150	38.09	43.46	35.74	0.46	0.44
4260	37.07	42.32	34.99	0.47	0.44
4400	36.21	40.97	34.02	0.48	0.45
4560	34.76	39.10	33.48	0.48	0.46
4600	34.91	39.19	32.99	0.48	0.45
4650	34.47	38.61	32.91	0.48	0.46
4700	34.15	38.28	32.73	0.49	0.46
4800	33.68	37.64	32.35	0.49	0.46
4850	33.37	37.41	32.26	0.50	0.47
4900	33.31	37.22	32.05	0.49	0.48
4950	33.12	37.04	31.92	0.48	0.45
4960	33.16	37.03	31.89	0.48	0.45
5000	33.10	37.01	31.76	0.49	0.47

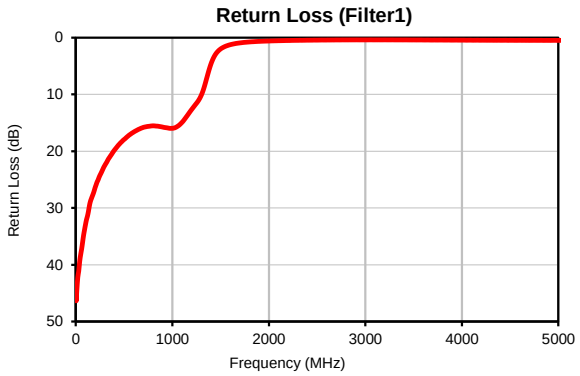
Typical Performance Data

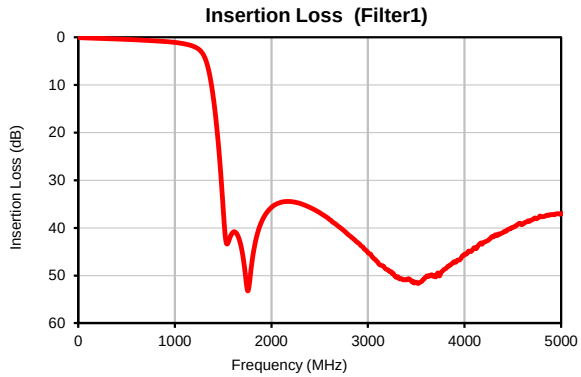
FREQUENCY (MHz)	AMPLITUDE UNBALANCE (dB)	PHASE UNBALANCE (deg)	GROUP DELAY (ns)	
			Filter1	Filter2
1	0.01	0.01	0.56	0.57
10	0.01	0.05	0.59	0.59
20	0.00	0.03	0.58	0.59
40	0.01	0.02	0.58	0.58
60	0.01	0.05	0.58	0.58
80	0.01	0.07	0.58	0.58
100	0.01	0.09	0.58	0.58
120	0.01	0.13	0.58	0.58
140	0.00	0.16	0.58	0.58
160	0.01	0.19	0.58	0.58
180	0.01	0.22	0.58	0.58
200	0.01	0.24	0.58	0.58
220	0.01	0.27	0.58	0.58
240	0.01	0.29	0.58	0.58
260	0.01	0.34	0.58	0.58
280	0.01	0.36	0.58	0.58
300	0.01	0.38	0.59	0.59
320	0.01	0.41	0.59	0.59
340	0.01	0.44	0.59	0.59
360	0.01	0.48	0.59	0.59
380	0.02	0.50	0.59	0.60
400	0.02	0.54	0.60	0.60
420	0.01	0.56	0.60	0.60
440	0.02	0.61	0.60	0.60
460	0.02	0.64	0.61	0.61
480	0.02	0.69	0.61	0.61
500	0.02	0.73	0.61	0.62
520	0.02	0.79	0.62	0.62
540	0.02	0.82	0.62	0.63
560	0.02	0.84	0.63	0.63
580	0.02	0.91	0.63	0.64
600	0.02	0.93	0.64	0.64
620	0.02	0.98	0.65	0.65
640	0.03	1.03	0.65	0.66
660	0.03	1.06	0.66	0.66
680	0.02	1.14	0.67	0.67
700	0.03	1.20	0.67	0.68
720	0.03	1.26	0.68	0.69
740	0.03	1.31	0.69	0.70
760	0.03	1.39	0.70	0.71
780	0.03	1.45	0.71	0.72
800	0.03	1.55	0.72	0.73
820	0.03	1.64	0.74	0.74
840	0.03	1.77	0.75	0.76
860	0.04	1.89	0.77	0.77
880	0.04	2.00	0.78	0.79
900	0.04	2.11	0.80	0.81
920	0.05	2.25	0.82	0.83
940	0.05	2.36	0.84	0.85
960	0.06	2.48	0.86	0.87
980	0.06	2.63	0.88	0.89
1000	0.07	2.81	0.90	0.91

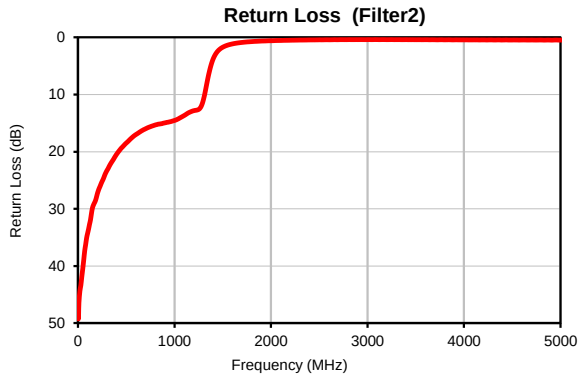
Dual Low Pass Filter DLFCV-1000+

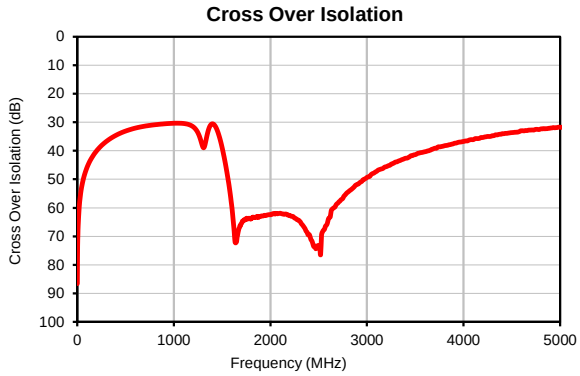
Typical Performance Curves

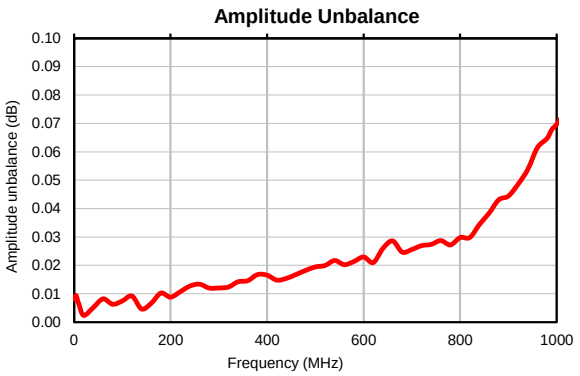




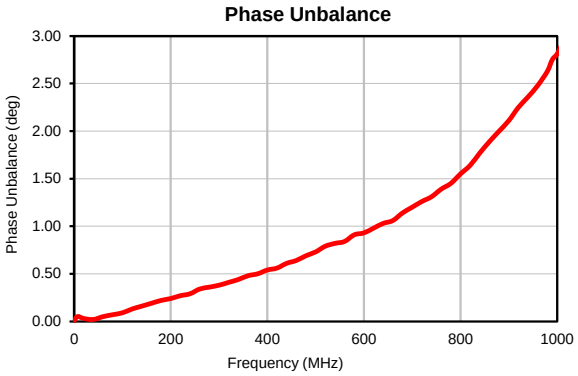


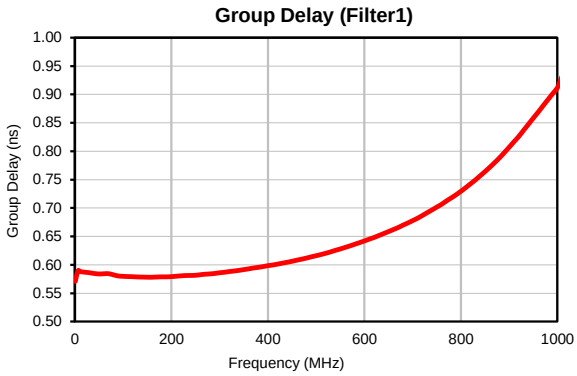


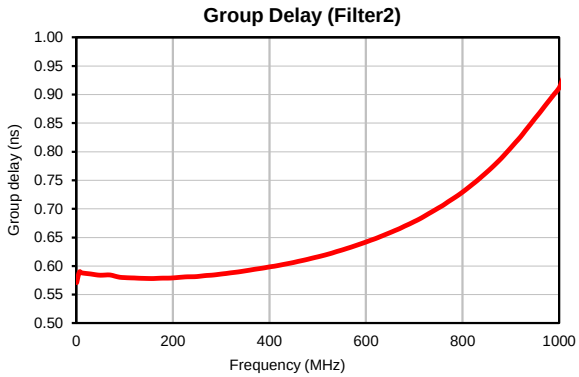




Typical Performance Curves

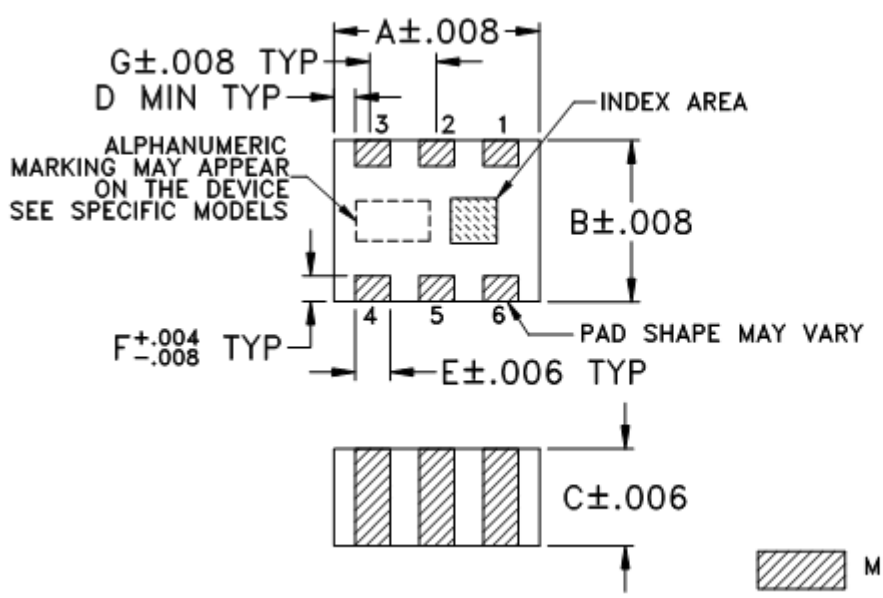




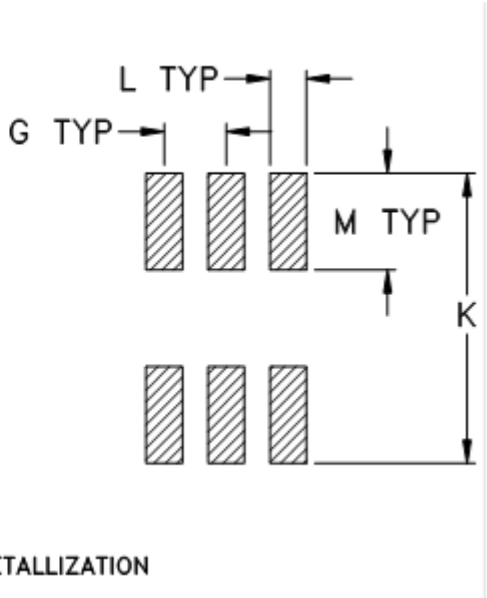


Case Style JV

Outline Dimensions JV1210C-1



PCB Land Pattern



Suggested Layout,
Tolerance to be within ±.002

CASE #	A	B	C	D	E	F	G	H	J	K	L	M	WT. GRAM
JV1210C-1	.126 (3.2)	.098 (2.5)	.059 (1.50)	.004 (.1)	.022 (.56)	.016 (.4)	.039 (1.0)	- -	- -	.177 (4.5)	.024 (.6)	.059 (1.5)	.03

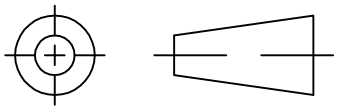
Dimensions are in inches (mm). Tolerances: 2 Pl. ± .01; 3 Pl. ± .005

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.

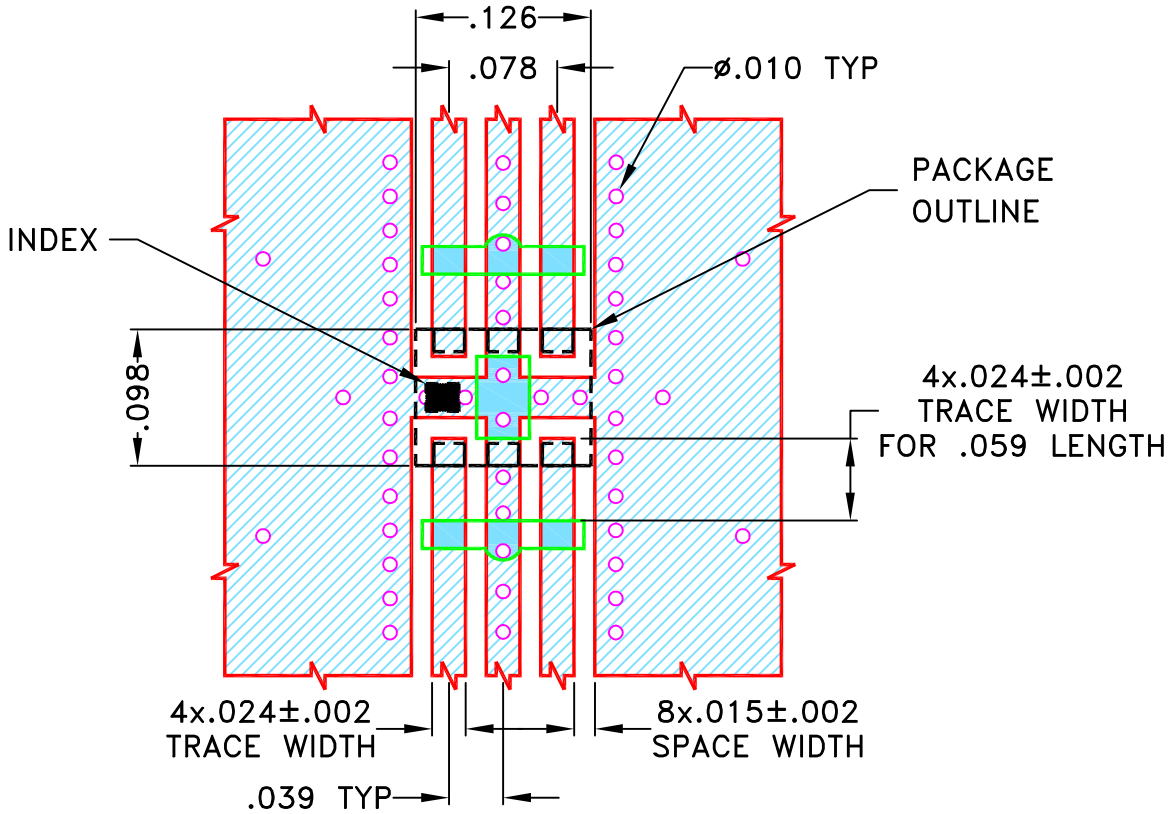
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THIRD ANGLE PROJECTION



REVISIONS					
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M156223	NEW RELEASE	MAY 16	DDR	MD

SUGGESTED MOUNTING CONFIGURATION FOR JV1210C-1 CASE STYLE "06FL08" PIN CODE



NOTES:

1. TRACE WIDTH IS SHOWN FOR ROGERS (RO4350B) WITH DIELECTRIC THICKNESS .010"±.001". 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 SOLDERMASK

UNLESS OTHERWISE SPECIFIED		INITIALS	DATE
DIMENSIONS ARE IN INCHES	DRAWN	DDR	26 MAY 16
TOLERANCES ON:	CHECKED	MD	26 MAY 16
2 PL DECIMALS ±	APPROVED	RV	26 MAY 16
3 PL DECIMALS ± .005"			
ANGLES ±			
FRACTIONS ±			

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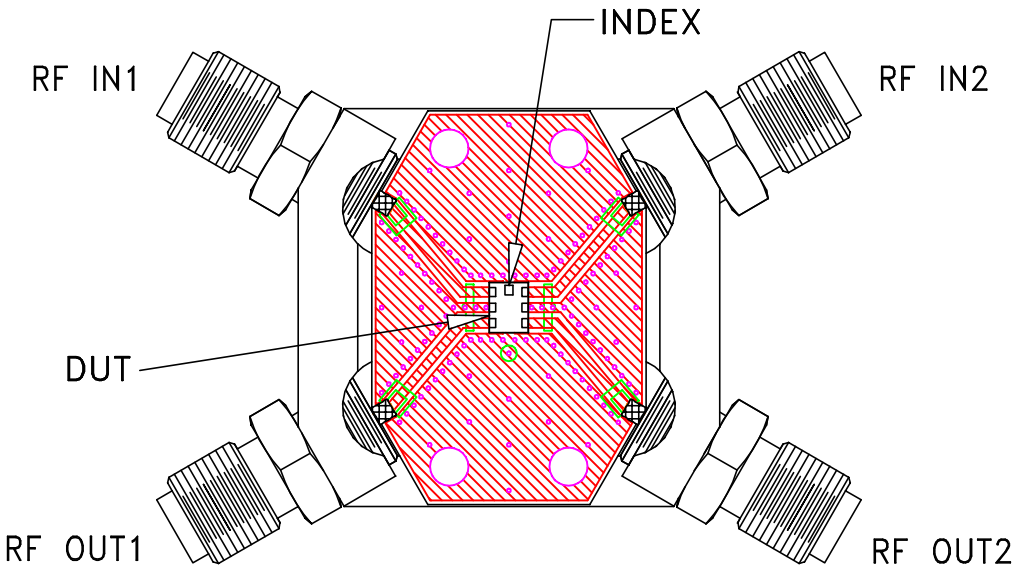
ASHEETA1.DWG REV:A DATE:01/12/95

Mini-Circuits®
13 Neptune Avenue
Brooklyn NY 11235

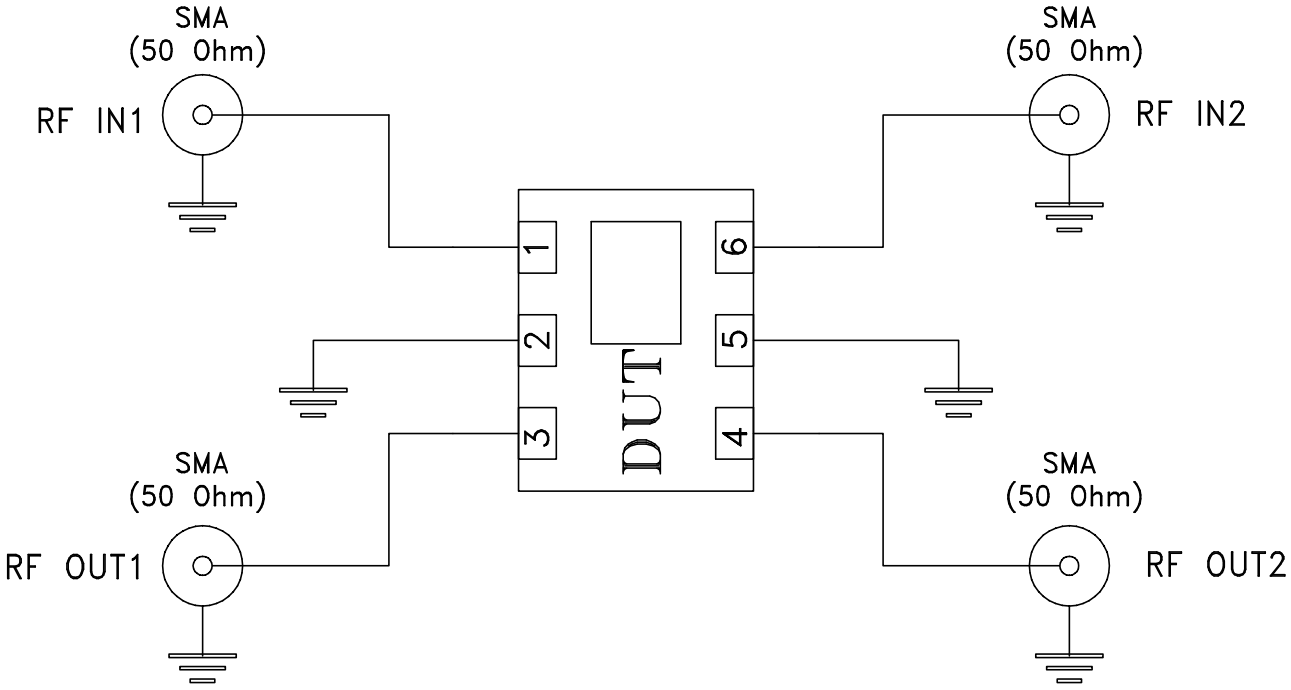
PL, 06FL08, JV1210C-1
LFCV, TB-867+, 50 OHM

SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-483	OR
FILE: 98PL483		SCALE: 7:1	SHEET: 1 OF 1

Evaluation Board and Circuit



TB-867+



Schematic Diagram

Notes:

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

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Environmental Specifications ENV06

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 100°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
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

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