

New Product Announcement!

Ceramic

Dual Low Pass Filter

DLFCV-1000+

50Ω DC to 1000 MHz



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

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



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

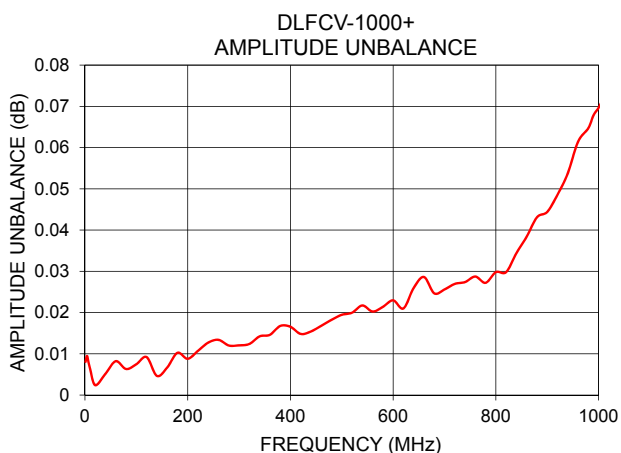
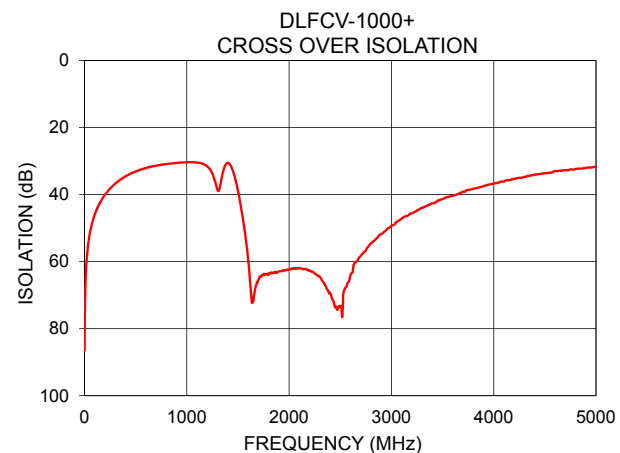
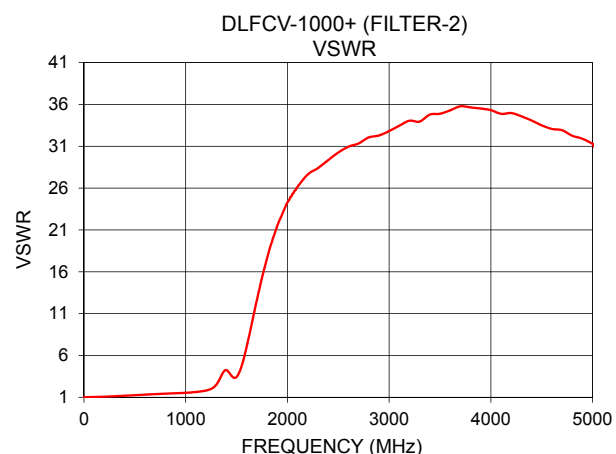
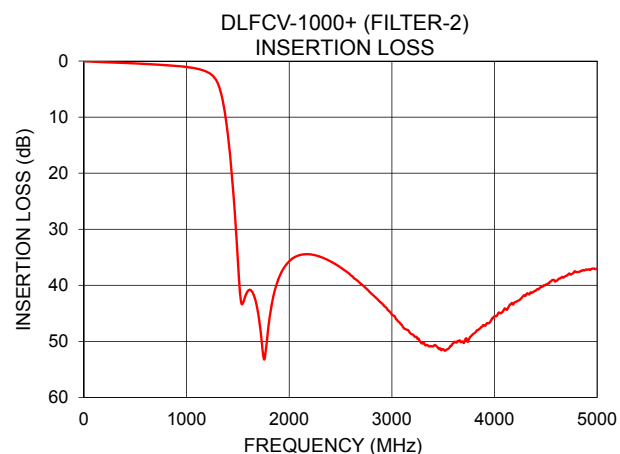
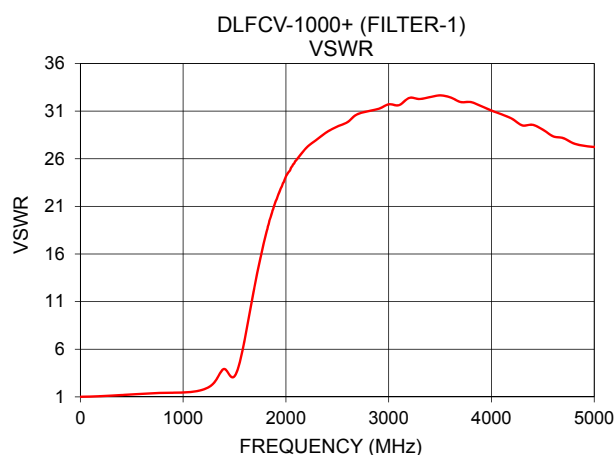
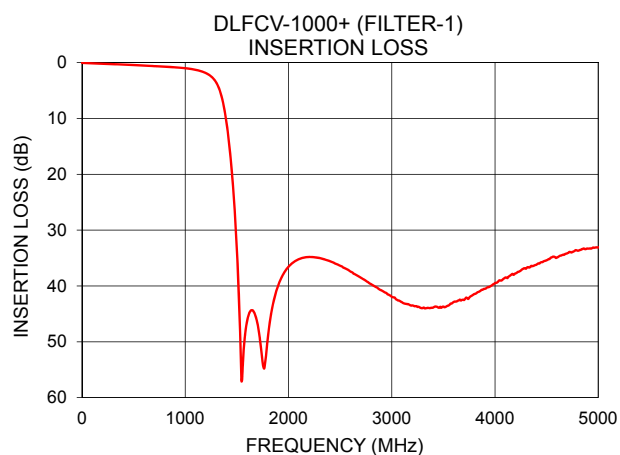
50Ω DC to 1000 MHz

GROUND 2, 5

 DENOTES COPPER LAND PATTERN FREE OF SOLDERMASK

The diagram shows a two-channel filter circuit. It consists of two parallel signal paths, each containing an inductor and a capacitor. The top path is labeled 'Filter 1' and the bottom path is labeled 'Filter 2'. The input ports are 'RF IN 1' and 'RF IN 2', and the output ports are 'RF OUT 1' and 'RF OUT 2'. The two paths are connected to a common ground line, which is also connected to a power supply symbol.

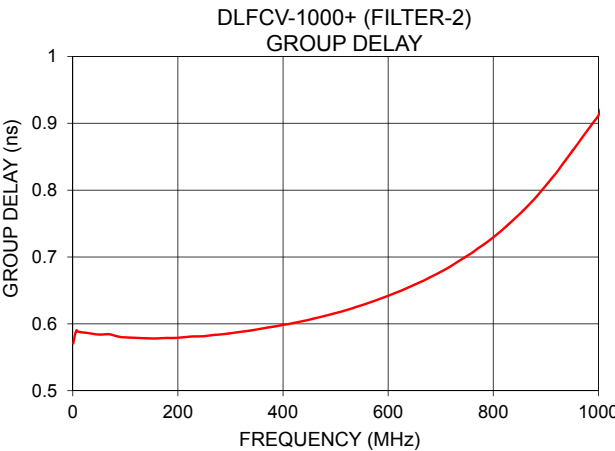
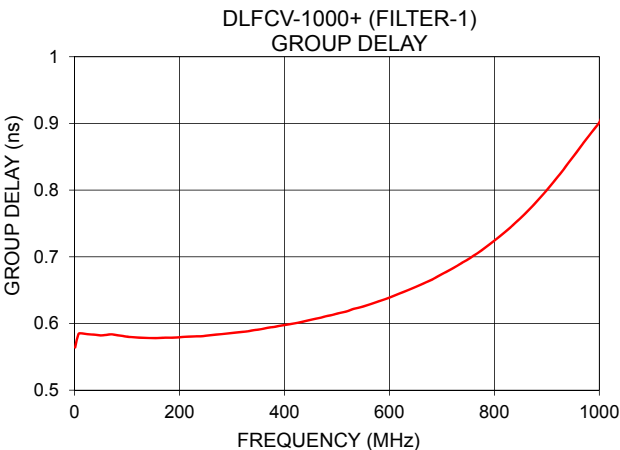
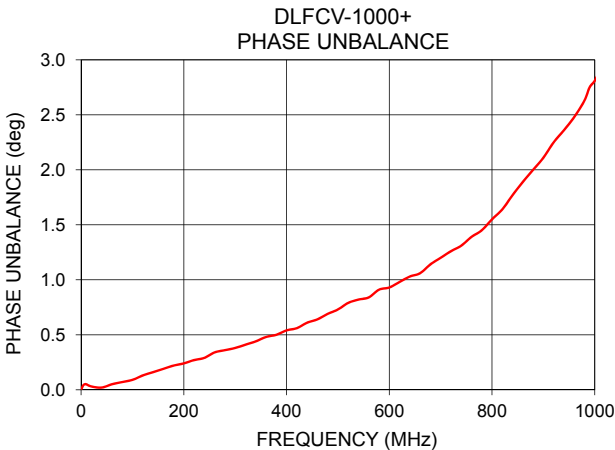
VSWR						Group Delay				
Freq.	Insertion Loss		Cross Over	VSWR		Freq.	Amp Unbal.	Phase Unbal.	Group Delay	
	Filter1	Filter2	Isolation	Filter1	Filter2				Filter1	Filter2
(MHz)	(dB)	(dB)	(dB)	(:1)	(:1)	(MHz)	(dB)	(deg)	(ns)	(ns)
1.0	0.03	0.03	86.58	1.01	1.01	1.0	0.01	0.01	0.56	0.57
30.0	0.07	0.07	56.46	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



Notes

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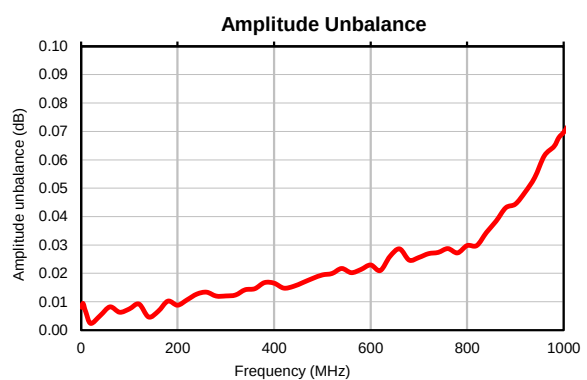
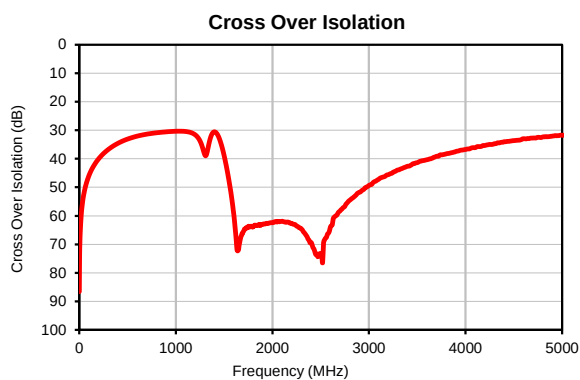
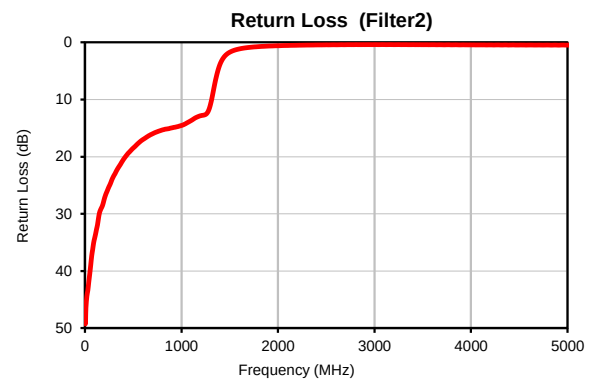
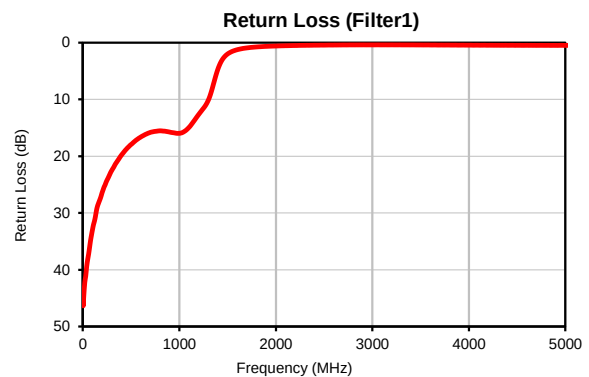
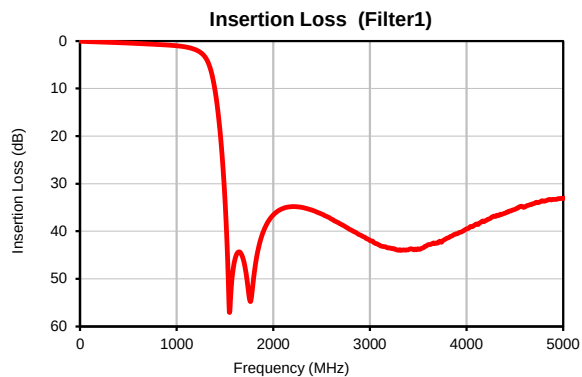
Typical Performance Data

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

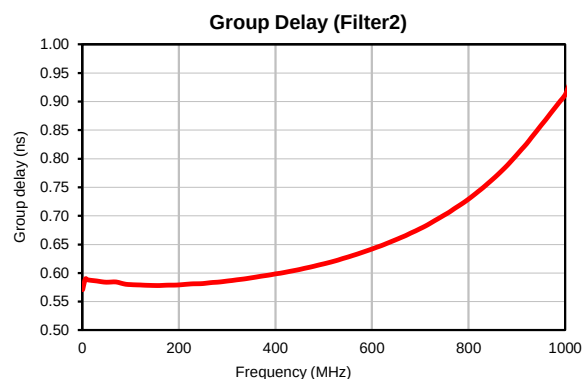
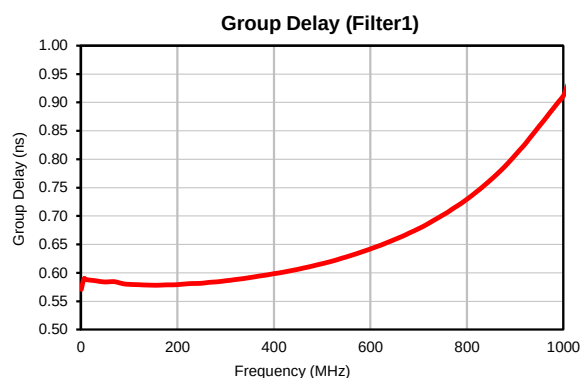
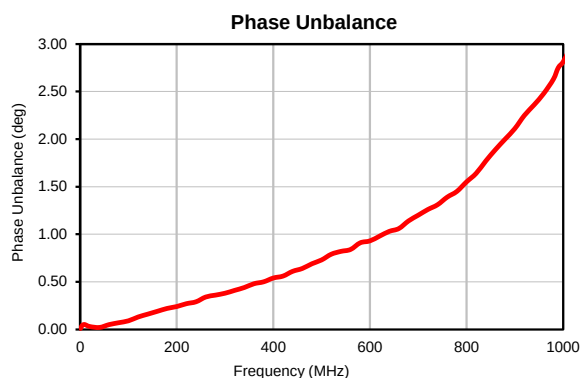
Typical Performance Data

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

Typical Performance Curves



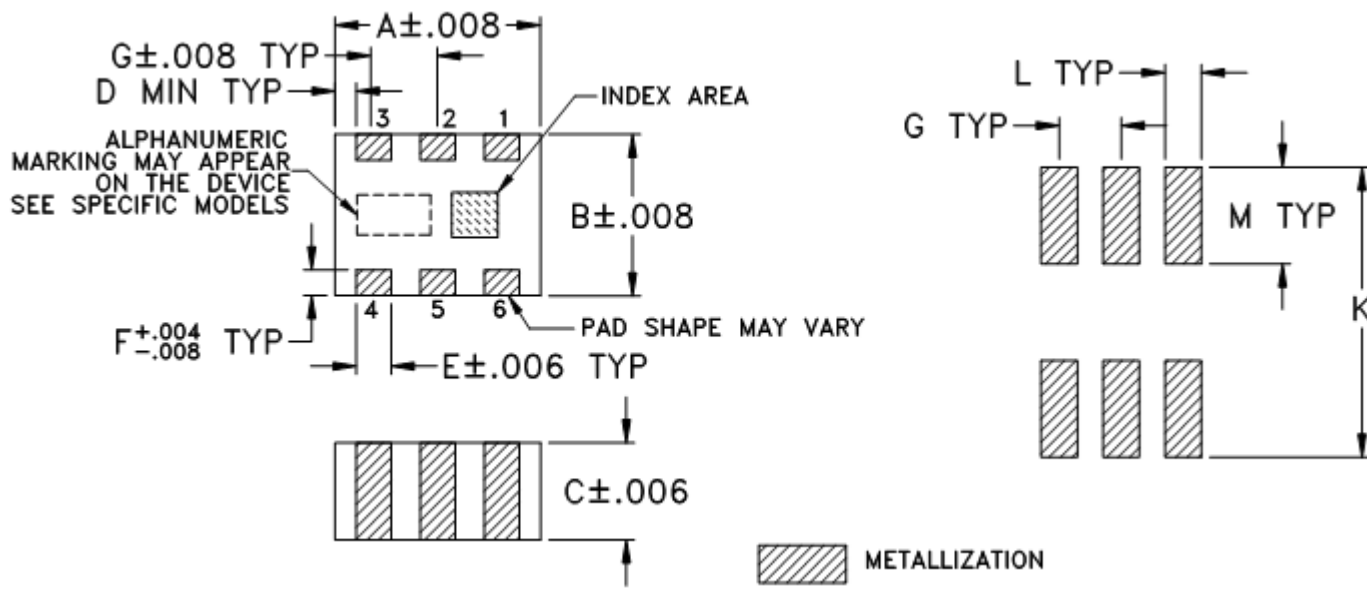
Typical Performance Curves



Outline Dimensions

JV1210C-1

PCB Land Pattern



Suggested Layout,
Tolerance to be within $\pm.002$

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. $\pm .01$; 3 Pl. $\pm .005$

Notes:

- Open style, ceramic base.
- 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.
- Pad tolerance is non-cumulative. Minimum spacing between each pad is .004.

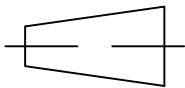


P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



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RF/IF MICROWAVE COMPONENTS



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

Top view of a 16-pin DIP package. The package is rectangular with a central notch. Dimensions include a total width of .126, a central width of .078, and a total height of .098. The package outline is shown in red, and the internal layout is shown in blue. The central area contains a black square and a green square. The package is labeled with dimensions and tolerances: 4x.024±.002 TRACE WIDTH, 8x.015±.002 SPACE WIDTH, .039 TYP, 4x.024±.002 TRACE WIDTH FOR .059 LENGTH, .010 TYP, and PACKAGE OUTLINE. An INDEX label points to the central area.

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

TOLERANCES ON:
2 PL DECIMALS ±
3 PL DECIMALS ± .005"
ANGLES ±
FRACTIONS ±

26 MAY 16

26 MAY 16

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Mini-Circuits® 13 Neptune Avenue
Brooklyn NY 11235

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

SIZE
A

CODE IDENT
15542

DRAWING NO:
98-PL-483

REV:	OR
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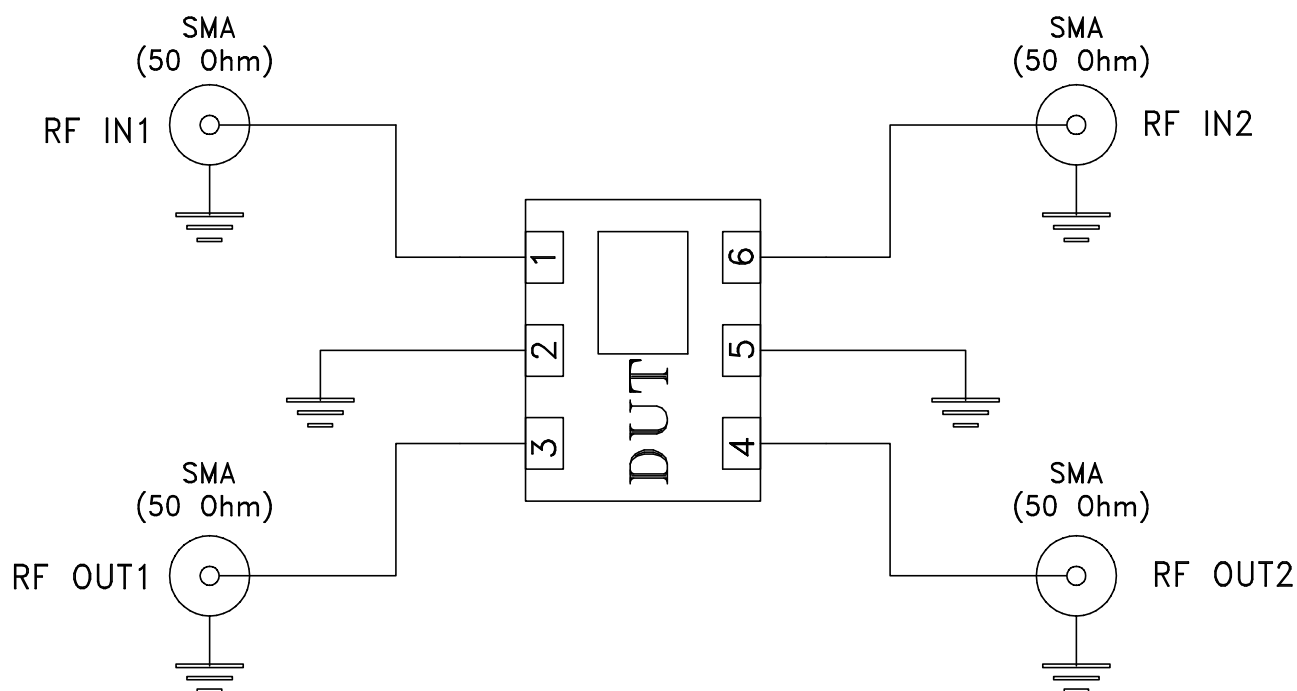
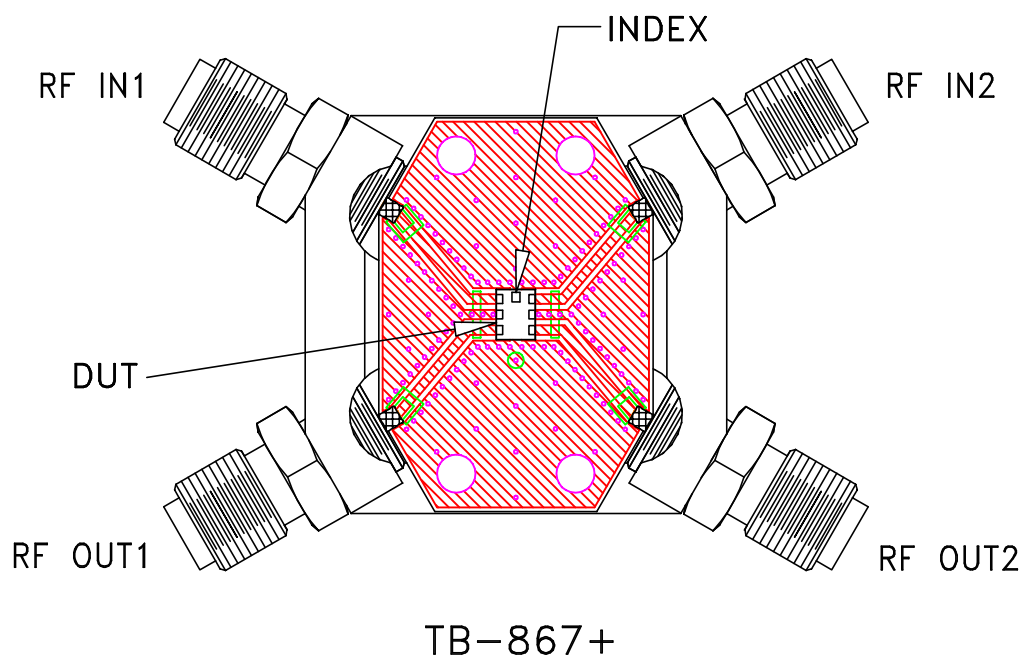
FILE: 98PL483

SCALE: 7:1

SHEET:	1 OF 1
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ASHEETA1.DWG REV:A DATE:01/12/95

Evaluation Board and Circuit



Schematic Diagram

Notes:

1. SMA Female connectors.
2. PCB Material: Rogers R04350 or equivalent, Dielectric Constant=3.5, Thickness=.020 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 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