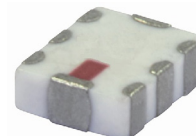


Ceramic

Dual Low Pass Filter

DLFCV-1750+

50Ω DC to 1750 MHz



Generic photo used for illustration purposes only
CASE STYLE: JV1210C-6

The Big Deal

- Differential operation
- Fast roll off
- Small size
- Very wide stopband, up to 10000 MHz

Product Overview

Mini-Circuits' DLFCV-1750+ is an LTCC dual low pass filter with a passband from DC to 1750 MHz. This can also operate as balanced input / output filter. This model is ideal for applications requiring filtering of balanced signals on dual 50Ω lines such as DACs/ADCs, systems with very low noise requirements and more. The filter provides low insertion loss in the passband, fast roll off in the transition, and a very wide stopband up to 10000 MHz, making it suitable for use in wideband systems with many harmonics and spurious products. The unit comes housed in a tiny, rugged 1210 ceramic package, with wraparound terminations for excellent solderability.

Key Features

Feature	Advantages
Dual filter	Allows filtering of balanced signals in a single, tiny component. Eliminates the need for binning and matching of separate discrete components.
Tiny size (0.126" x 0.098" x 0.039")	Saves space in dense circuit board layouts and minimizes the effects of parasitics.
Fast roll off	Provides sharp rejection at frequencies close to the passband.
Ultra-wide stopband	Provides excellent rejection over a wide band, ideal for blocking harmonics in wide-band communications systems.
Wrap-around terminations	Provides excellent solderability and easy visual inspection.

Notes

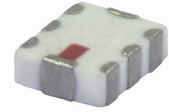
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Dual Low Pass Filter

DLFCV-1750+

50Ω DC to 1750 MHz



Generic photo used for illustration purposes only
CASE STYLE: JV1210C-6

Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power Input*	3 W Max. at 25°C

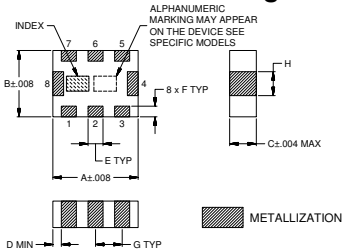
* Passband rating, derate linearly to 1.5W at 85°C ambient. Permanent damage may occur if any of these limits are exceeded.

Pin Connections

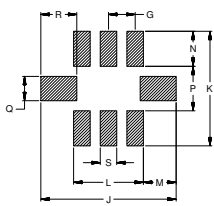
RF IN1, RF IN2	1, 3
RF OUT1, RF OUT2	7, 5
GROUND	2, 4, 6, 8

Product Marking: KT

Outline Drawing



PCB LAND PATTERN



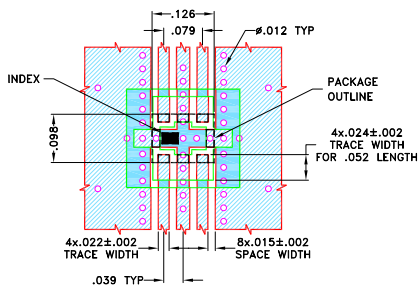
SUGGESTED LAYOUT
TOLERANCE TO BE WITHIN ±.002

Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J
.126	.098	.039	.004	.022	.016	.039	.035	.200
3.20	2.50	1.00	0.10	0.56	0.40	1.00	0.90	5.08
K	L	M	N	P	Q	R	S	Wt.
.170	.103	.048	.052	.066	.036	.053	.024	grams
4.32	2.62	1.23	1.32	1.68	0.92	1.35	0.62	0.03

Note: Please refer to case style drawing for details

Demo Board MCL P/N: TB-1074+ Suggested PCB Layout (PL-600)



NOTES:

- TRACE WIDTH IS SHOWN FOR ROGERS (RO4350B) WITH DIELECTRIC THICKNESS .010"±.001". COPPER: 1/20z. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH 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 SOLDERMASK

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Features

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

Applications

- Military Radio communication
- VHF/UHF transmitters/receivers
- Harmonic rejection
- Output of the A/D convertor

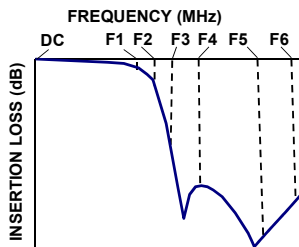
Electrical Specifications^(1,2) at 25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit	
Pass Band	Insertion Loss	DC-F1	DC-1750	—	1.5	2.5	dB
	Freq. Cut-Off	F2 *	1900	—	3.0	—	dB
	Amp Unbalance	DC-F1	DC-1750	—	0.2	—	dB
	Pha Unbalance	DC-F1	DC-1750	—	3.0	—	deg
	VSWR	DC-F1	DC-1750	—	1.5	—	:1
Stop Band	Insertion Loss	F3-F4	2500-5000	35	50	—	dB
		F4-F5	5000-7000	—	33	—	dB
		F5-F6	7000-10000	—	25	—	dB
	Isolation (between filters)	F3-F4	2500-5000	—	50	—	dB
	VSWR	F3-F4	2500-5000	—	20	—	:1

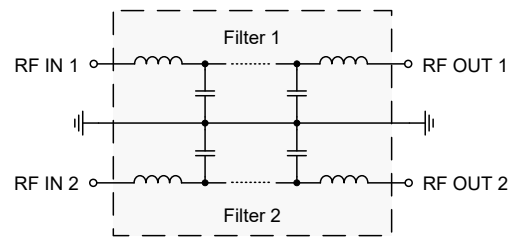
1 In Applications where DC voltage and/or current is present at either input or output ports, DC de-coupling capacitors are required. If DC pass from IN-OUT is required, please contact Mini-Circuits for alternatives.
 2 Measured on Mini-Circuits Characterization Test Board TB-1074+

* Typically, a ±5% frequency deviation from the stated value may occur on a unit-to-unit basis.

Typical Frequency Response



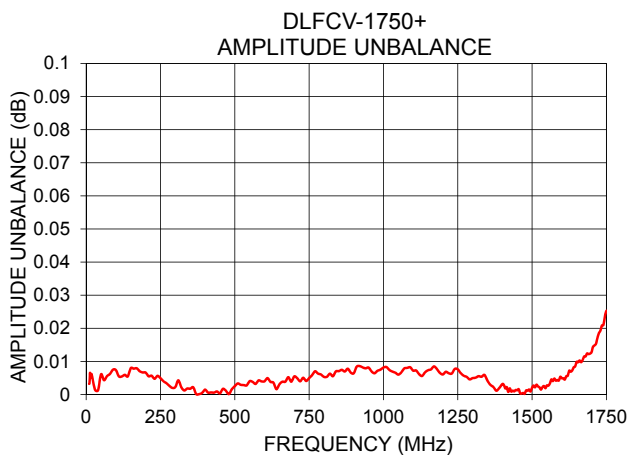
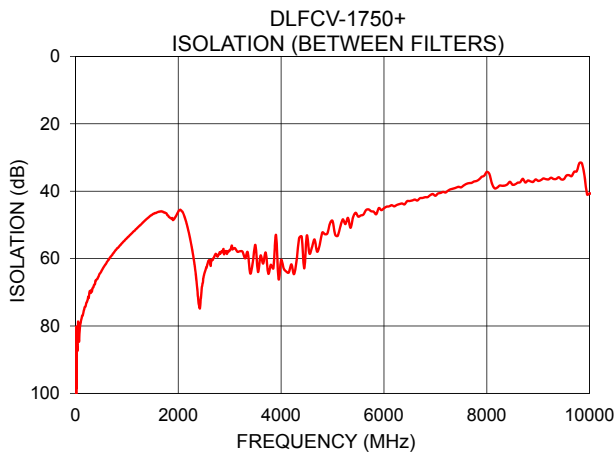
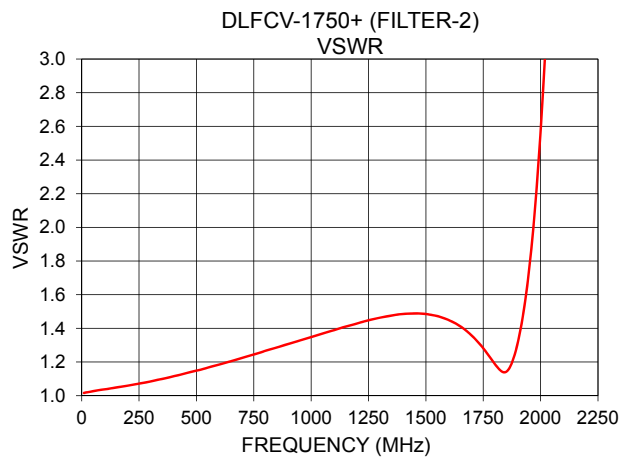
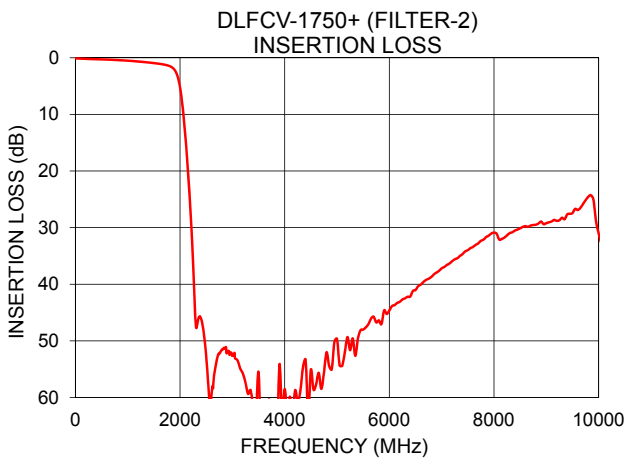
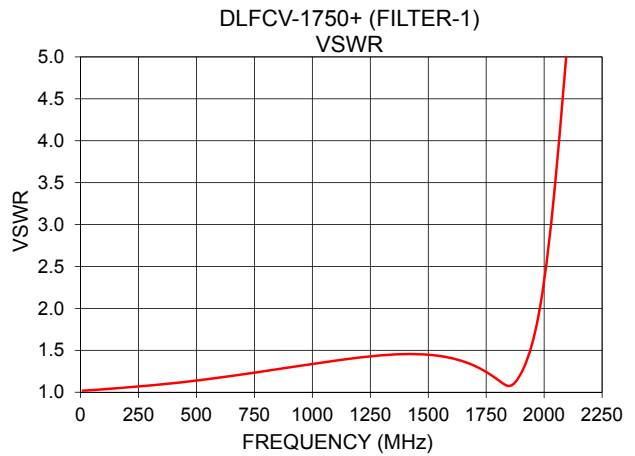
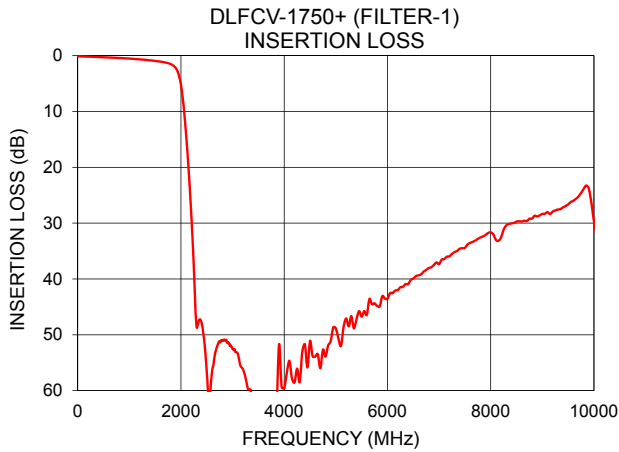
Functional Schematic



Typical Performance Data at 25°C

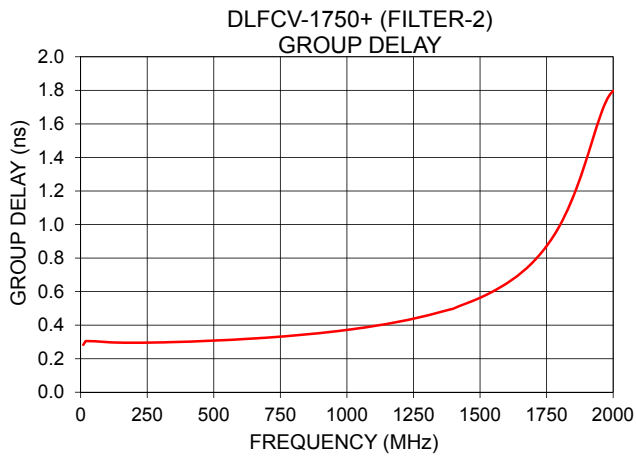
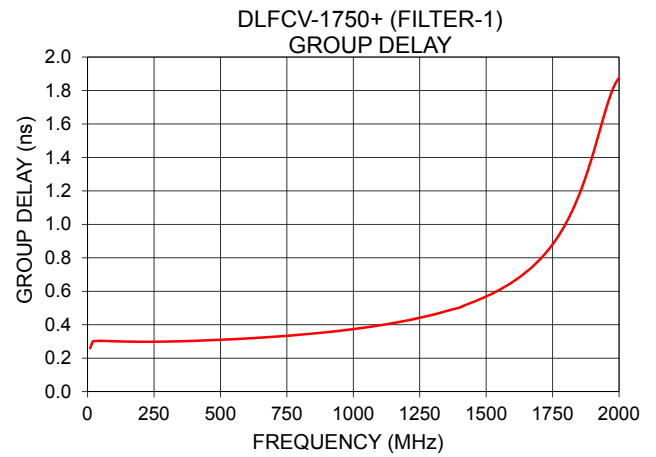
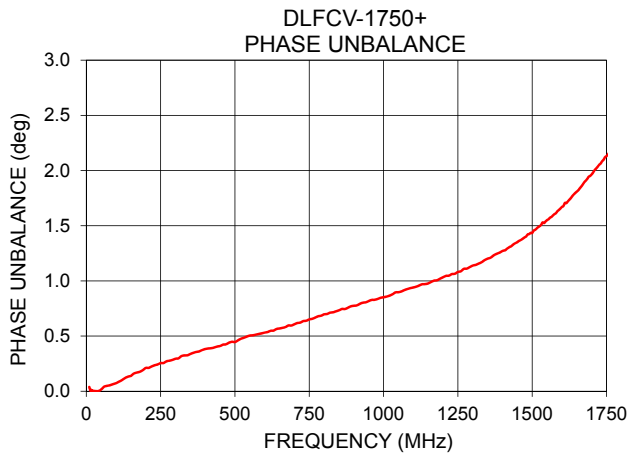
Freq. (MHz)	Insertion Loss		Isolation (between filters) (dB)	VSWR		Freq. (MHz)	Amp Unbal. (dB)	Phase Unbal. (deg)	Group Delay	
	Filter1 (dB)	Filter2 (dB)		Filter1 (:1)	Filter2 (:1)				Filter1 (ns)	Filter2 (ns)
10.0	0.11	0.11	87.77	1.02	1.02	10.0	0.003	0.04	0.26	0.28
100.0	0.15	0.16	79.19	1.03	1.04	40.0	0.001	0.00	0.30	0.30
500.0	0.29	0.29	63.93	1.14	1.15	60.0	0.004	0.04	0.30	0.30
1000.0	0.53	0.52	53.94	1.34	1.35	100.0	0.007	0.07	0.30	0.30
1500.0	0.95	0.95	46.85	1.45	1.49	140.0	0.005	0.13	0.30	0.30
1750.0	1.35	1.32	46.48	1.24	1.28	200.0	0.007	0.21	0.30	0.30
1900.0	2.23	2.19	48.56	1.22	1.31	260.0	0.004	0.26	0.30	0.30
1950.0	3.21	3.19	47.55	1.60	1.75	300.0	0.002	0.29	0.30	0.30
2100.0	14.17	13.63	46.63	5.16	5.26	350.0	0.002	0.34	0.30	0.30
2150.0	20.69	19.75	48.93	6.88	6.57	400.0	0.001	0.38	0.30	0.30
2210.0	30.19	28.78	52.62	9.01	8.04	450.0	0.000	0.41	0.31	0.30
2220.0	32.03	30.53	53.38	9.39	8.29	500.0	0.003	0.45	0.31	0.31
2400.0	47.89	46.03	73.63	17.08	14.03	600.0	0.004	0.53	0.32	0.32
2500.0	56.71	52.69	64.96	22.32	18.39	700.0	0.005	0.61	0.33	0.33
4900.0	51.14	55.02	52.53	61.70	66.16	800.0	0.005	0.70	0.34	0.34
5000.0	48.85	49.66	48.84	60.58	64.82	900.0	0.006	0.77	0.36	0.35
5500.0	46.75	48.01	47.55	60.89	62.75	1000.0	0.008	0.85	0.37	0.37
6000.0	43.54	44.63	45.08	58.62	62.63	1250.0	0.008	1.08	0.44	0.44
7000.0	37.35	37.19	41.36	55.74	50.45	1500.0	0.002	1.43	0.57	0.56
8000.0	31.66	30.88	34.28	46.88	45.70	1600.0	0.005	1.67	0.66	0.65
9000.0	28.34	29.22	36.95	150.58	109.47	1700.0	0.013	1.96	0.79	0.78
10000.0	29.69	31.02	40.62	95.46	116.97	1750.0	0.025	2.13	0.88	0.87





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