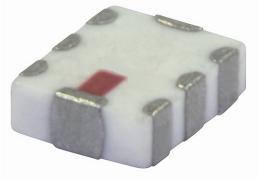
Ceramic

Dual Low Pass Filter

DLFCV-1600+

50Ω DC to 1600 MHz



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-1600+ is an LTCC dual low pass filter with a passband from DC to 1600 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.

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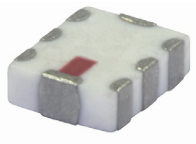


CASE STYLE: JV1210C-6

+RoHS Compliant

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

Maximum Ratings

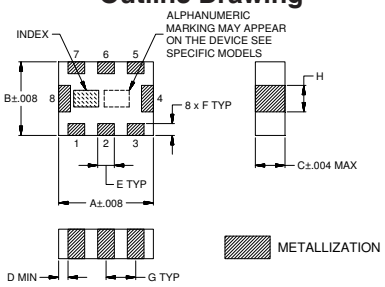
Operating Temperature	-40° to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input*	3 W Max. at 25°C

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

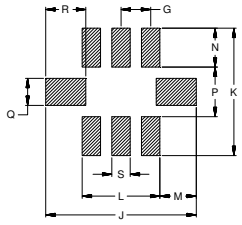
Pin Connections

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

Outline Drawing



PCB LAND PATTERN



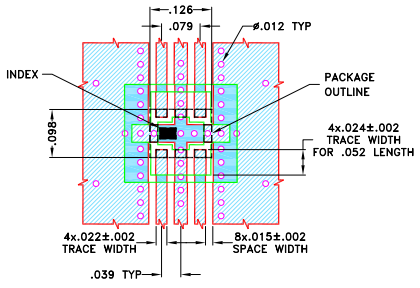
SUGGESTED LAYOUT
TOLERANCE TO BE WITHIN ±.002

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

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



NOTES:
1. TRACE WIDTH IS SHOWN FOR ROGERS (RO4350B) WITH DIELECTRIC THICKNESS .010"±.001". COPPER: 1/2oz. 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
- Small size
- Excellent return loss
- High rejection

Applications

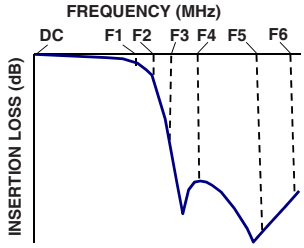
- Military Radio communication
- VHF/UHF transmitters/receivers
- Harmonic rejection
- Output of the A/D convertor

Electrical Specifications[1,2] at 25°C

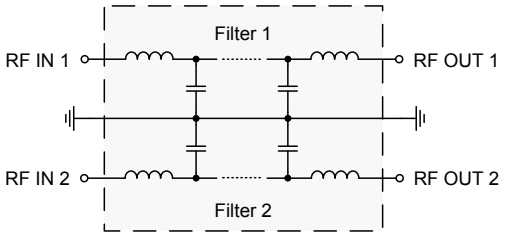
Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	DC-F1	DC-1600	—	1.5	2.5	dB
	Freq. Cut-Off	F2	1800	—	3.0	—	dB
	Amp Unbalance	DC-F1	DC-1600	—	0.2	—	dB
	Pha Unbalance	DC-F1	DC-1600	—	3.0	—	deg
	VSWR	DC-F1	DC-1600	—	1.5	—	:1
Stop Band	Insertion Loss	F3-F4	2400-4900	35	50	—	dB
		F4-F5	4900-7000	—	33	—	dB
		F5-F6	7000-10000	—	25	—	dB
	Isolation(between filters)	F3-F4	2400-4900	—	50	—	dB
	VSWR	F3-F4	2400-4900	—	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-1074+.

Typical Frequency Response



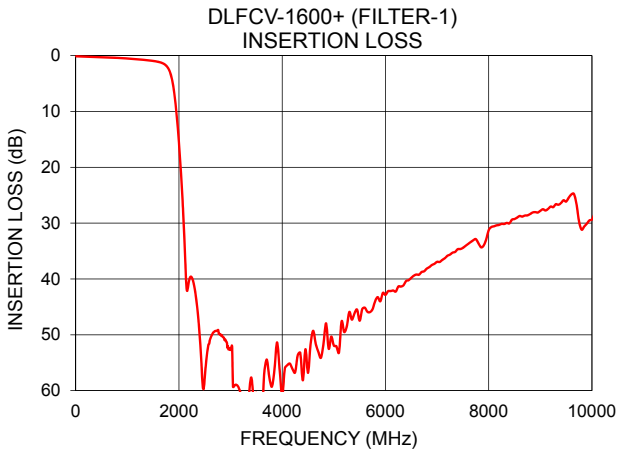
Functional Schematic

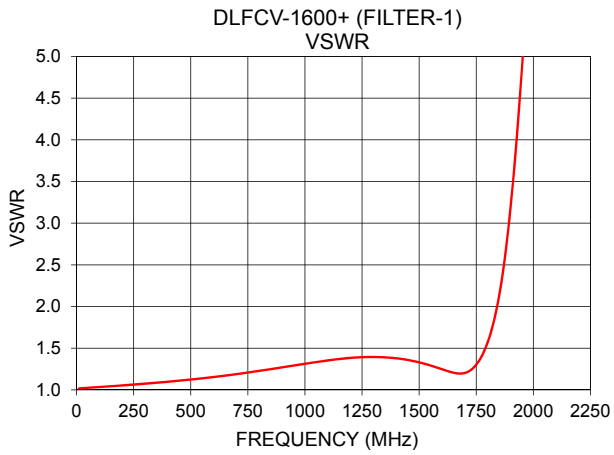


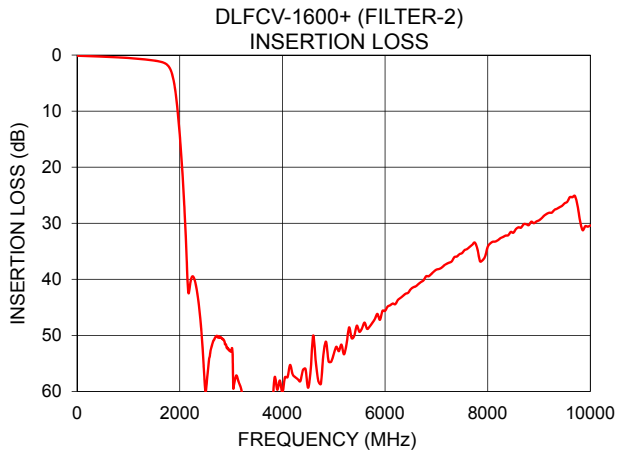
Typical Performance Data at 25°C

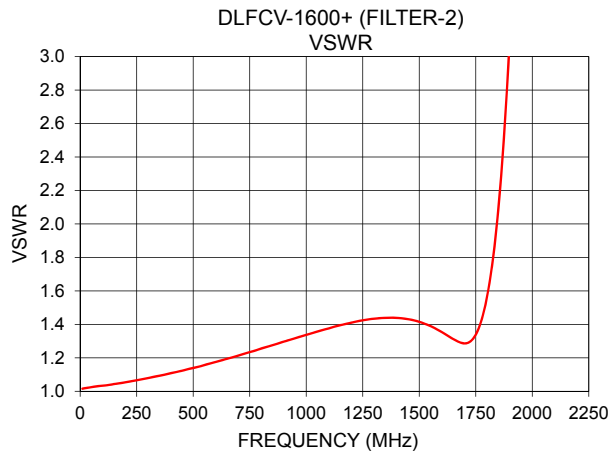
Freq.	Insertion Loss Filter1	Insertion Loss Filter2	Isolation (between filters)	VSWR Filter1	VSWR Filter2	Freq.	Amp Unbal.	Phase Unbal.	Group Delay Filter1	Group Delay Filter2
(MHz)	(dB)	(dB)	(dB)	(:1)	(:1)	(MHz)	(dB)	(deg)	(ns)	(ns)
10.0	0.11	0.11	97.17	1.01	1.02	10.0	0.001	0.06	0.27	0.28
100.0	0.16	0.15	79.47	1.03	1.03	40.0	0.003	0.06	0.31	0.31
500.0	0.29	0.28	64.19	1.12	1.14	60.0	0.003	0.10	0.31	0.31
1000.0	0.51	0.52	54.46	1.31	1.34	100.0	0.009	0.11	0.31	0.30
1600.0	1.12	1.13	47.06	1.25	1.35	140.0	0.010	0.13	0.30	0.30
1750.0	1.77	1.69	48.55	1.30	1.34	200.0	0.009	0.15	0.30	0.30
1800.0	2.40	2.24	49.26	1.57	1.57	260.0	0.012	0.19	0.30	0.30
1850.0	3.66	3.35	49.31	2.13	2.09	300.0	0.011	0.20	0.31	0.30
2000.0	15.61	14.23	49.44	6.83	6.30	350.0	0.009	0.22	0.31	0.31
2030.0	19.63	17.93	49.95	8.02	7.17	400.0	0.008	0.26	0.31	0.31
2040.0	21.11	19.28	50.22	8.41	7.44	450.0	0.009	0.28	0.31	0.31
2100.0	31.81	28.91	52.86	10.69	8.88	500.0	0.007	0.31	0.32	0.32
2110.0	34.01	30.88	53.31	11.09	9.12	600.0	0.004	0.39	0.33	0.32
2200.0	40.13	41.07	59.35	14.81	11.38	700.0	0.001	0.47	0.34	0.34
2400.0	49.99	47.01	68.22	24.62	18.15	800.0	0.004	0.57	0.35	0.35
4000.0	60.95	60.23	62.51	166.94	94.53	900.0	0.005	0.69	0.37	0.37
4900.0	52.49	54.64	53.28	727.75	76.18	1000.0	0.006	0.82	0.39	0.39
6000.0	42.85	45.63	46.32	97.47	66.67	1250.0	0.011	1.21	0.47	0.47
7000.0	36.93	38.27	42.09	78.40	49.21	1300.0	0.015	1.32	0.50	0.49
8000.0	31.26	34.21	40.75	129.24	29.12	1400.0	0.022	1.61	0.56	0.55
9000.0	27.80	29.48	36.25	87.60	129.96	1500.0	0.027	2.02	0.65	0.64
10000.0	29.35	30.41	38.94	153.05	156.98	1600.0	0.019	2.65	0.79	0.76

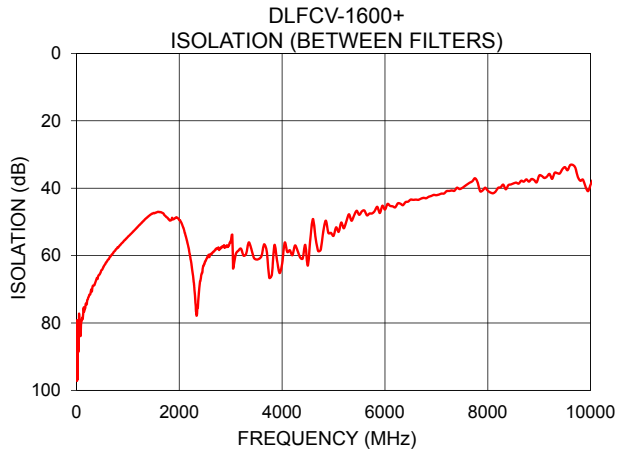
Notes
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's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

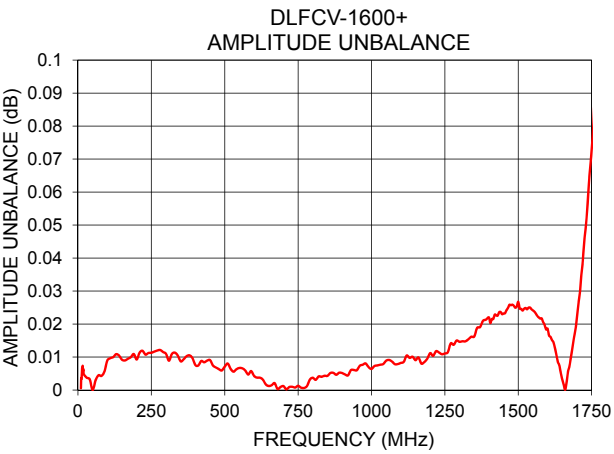












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