

Plug-in

Diplexer

DPLC-4254A0+

75Ω DC to 1220 MHz
(DC-42, 54-1220 MHz)

The Big Deal

- Plug-in design
- Field replaceable
- Low insertion loss
- Excellent return loss, 24 dB typ.
- Low group delay variation in passband
- Mirrored version available for ease of routing
- DOCSIS 3.1 standard

Product Overview

DPLC-4254A0+ is a high performance field replaceable plug-in diplexer with the lowpass port at DC-42 MHz and highpass port at 54-1220 MHz. Excellent return loss combined with high out of channel rejection makes it a ideal part in cable TV and multiband radio systems



Generic photo used for illustration purposes only

CASE STYLE: QB2223

Key Features

Feature	Advantages
Low passband insertion loss	Ensures low signal loss through both the channels.
Excellent Stopband rejection	Co-channel rejection of 50dB typical ensures unwanted spurious are eliminated.
Excellent return loss at DC-42 and 54-1220 MHz	This makes signal transmission with very less reflection and well-matched with the adjacent component used in the system.

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



Plug-in Diplexer

75Ω DC to 1220 MHz (DC-42, 54-1220 MHz)

Maximum Ratings

Operating Temperature -40° to 85°C

Storage Temperature -55°C to 100°C

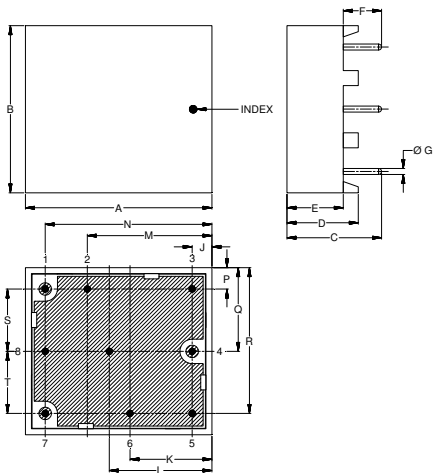
RF Power Input 30dBm Max.

Permanent damage may occur if any of these limits are exceeded. These ratings are not intended for continuous normal operation

Pin Connections

HIGH PASS PORT	7
LOW PASS PORT	1
COMMON PORT	4
GROUND	2,3,5,6,8,9

Outline Drawing



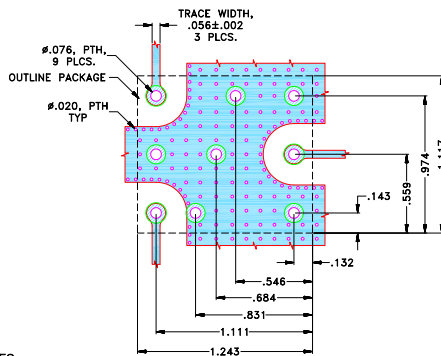
Outline Dimensions (inch mm)

A	B	C	D	E	F	G	H	J	K
1.243	1.117	.630	.475	.375	.255	.040	--	.132	.546
31.56	28.36	16.00	12.07	9.53	6.48	1.02	--	3.35	13.87
L	M	N	P	Q	R	S	T	Wt.	
.684	.831	1.111	.143	.559	.974	.417	.415	grams	
17.37	21.10	28.22	3.63	14.21	24.74	10.58	10.53		7

Note: Please refer to case style drawing for details

Demo Board MCL P/N: TB-897+
Suggested PCB Layout (PL-485)

SUGGESTED MOUNTING CONFIGURATION FOR
QB2223 CASE STYLE



NOTES:

- TRACE WIDTH IS SHOWN FOR IT180, WITH DIELECTRIC THICKNESS .059"±.005", COPPER: 1/2 Oz 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
- 75Ω Impedance
- Excellent return loss 24 dB typ.
- Low group delay variation
- High rejection

Applications

- Cable TV systems (DOCSIS 3.1 standard)
- Multiband radio systems



CAUTION NOTE: Not designed for reflow process.



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+RoHS Compliant

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

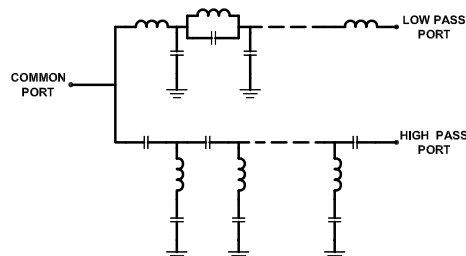
Electrical Specifications at 25°C

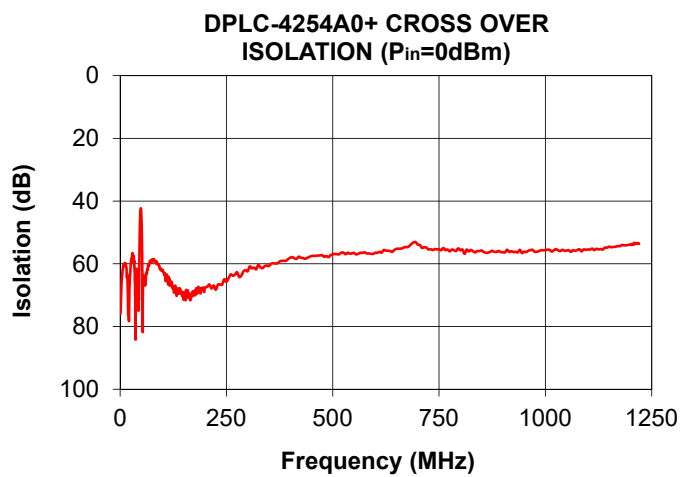
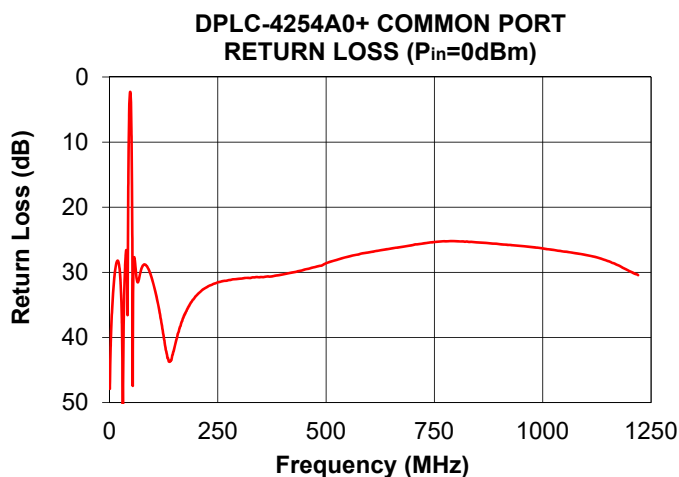
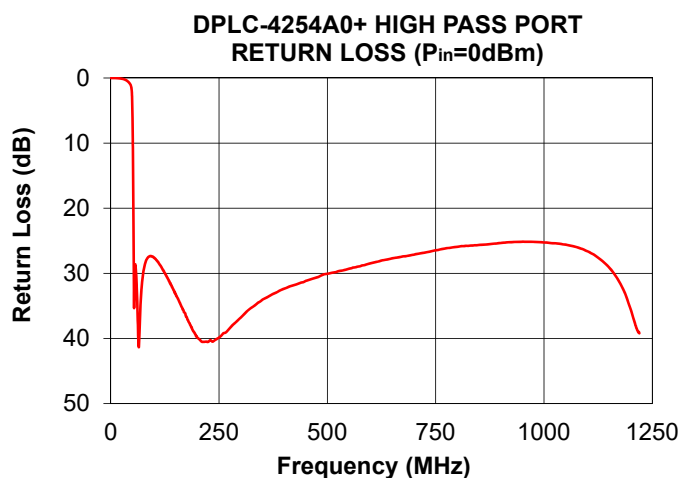
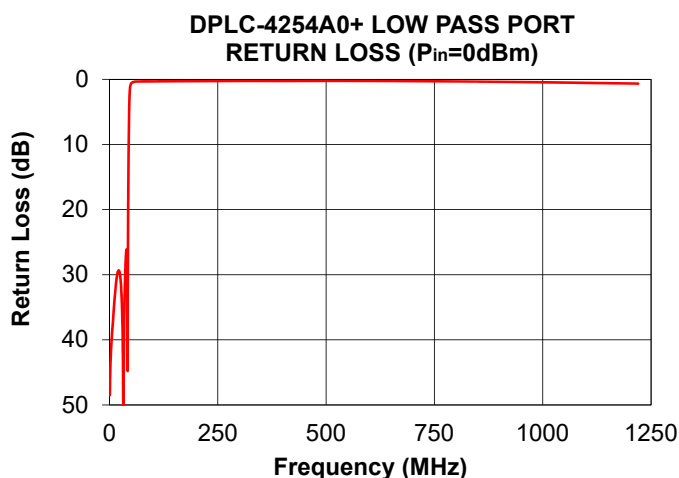
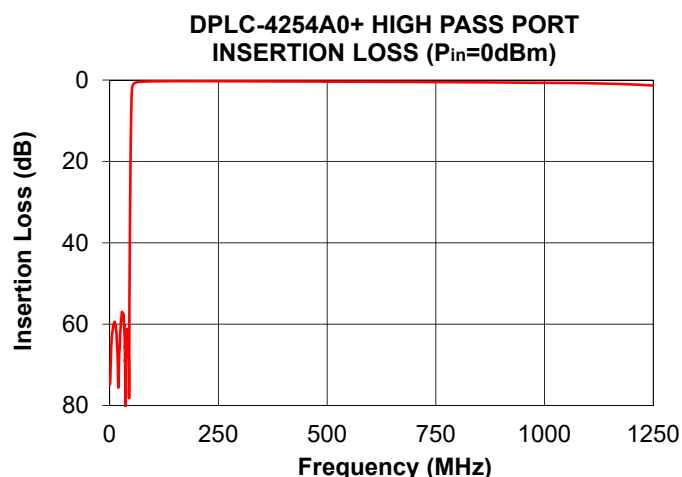
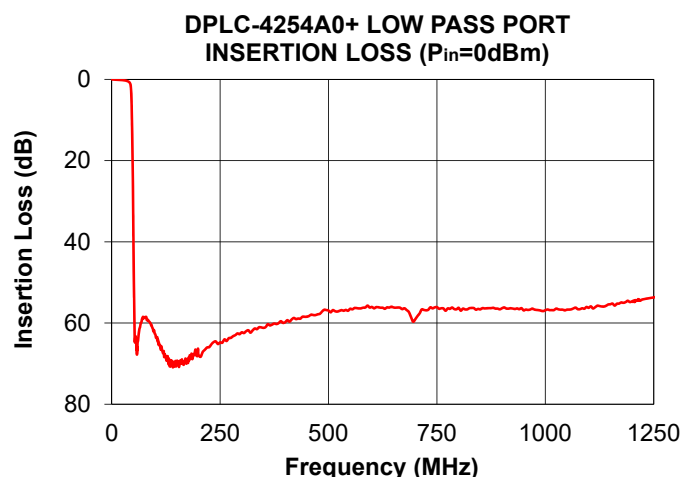
Parameter	Port	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	Low Pass	DC-42	-	1.0	1.4 dB
		High Pass	54-1220	-	1.0	1.5
	Return Loss	Low Pass	DC-42	20	24	- dB
		High Pass	54-1220	20	24	-
		Common	DC-42	20	24	-
			54-1220	20	24	-
Stop Band Isolation		Low Pass	54-1220	45	50	- dB
		High Pass	DC-42	45	50	-
		Cross over	42-54	37	40	-

Typical Performance Data at 25°C

FREQUENCY (MHz)	INSERTION LOSS (dB)		RETURN LOSS (dB)		
	Low Pass Port	High Pass Port	Common Port	Low Pass Port	High Pass Port
1.0	0.01	74.70	47.89	48.49	0.01
39.0	0.57	62.69	26.60	26.23	0.49
40.5	0.69	61.30	28.32	27.22	0.58
42.0	0.88	64.39	35.79	44.79	0.68
44.5	2.28	78.15	10.34	9.80	0.89
45.0	3.21	66.56	7.70	7.04	0.95
46.5	8.93	37.14	3.23	2.35	1.15
47.0	11.76	30.37	2.66	1.70	1.25
47.5	14.96	24.60	2.37	1.30	1.38
48.0	18.51	19.59	2.28	1.06	1.58
49.0	26.95	11.37	2.81	0.79	2.46
50.0	38.29	5.69	5.03	0.65	4.90
50.5	44.42	3.93	7.11	0.61	7.04
51.0	48.83	2.81	9.82	0.57	9.82
54.0	63.90	1.07	43.52	0.43	35.33
55.3	64.30	0.91	29.81	0.40	29.99
58.0	66.47	0.71	27.88	0.36	29.37
61.0	64.22	0.59	29.84	0.33	33.81
64.0	61.42	0.52	31.38	0.32	40.75
67.0	60.02	0.47	31.33	0.31	37.80
68.0	59.94	0.45	31.04	0.31	36.21
70.0	58.99	0.43	30.43	0.31	33.52
100.0	62.68	0.32	31.42	0.30	27.57
250.0	64.78	0.29	31.53	0.25	39.87
500.0	56.93	0.39	28.60	0.23	30.07
1000.0	56.85	0.66	26.33	0.45	25.26
1150.0	55.37	0.89	28.26	0.58	29.09
1218.0	54.36	1.16	30.33	0.64	39.08
1220.0	54.43	1.17	30.43	0.64	39.20

Functional Schematic





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