Surface Mount

Diplexer

DPB4254-75+

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

CASE STYLE: PA2002

The Big Deal

- Low insertion loss, 0.8dB Typ.
- High rejection, > 45dB
- Very good return loss, 22dB Typ.
- 75Ω Impedance
- Used in DOCSIS 3.1 standard

Product Overview

DPB4254-75+ is a high performance 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 component in cable TV and multiband radio systems.

Key Features

Feature	Advantages
Low passband insertion loss	Passband insertion loss 1dB ensures low signal loss through both the channels.
Excellent Stopband rejection	Co-channel rejection of 45dB 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.

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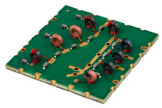


CASE STYLE: PA2002

+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	27dBm 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	9
COMMON PORT	18
GROUND	1-6,8,10-17,19,20

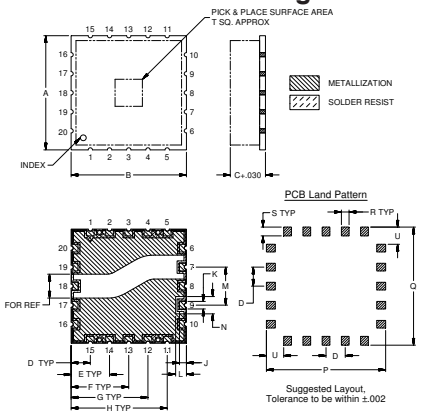
Features

- Low insertion loss
- 75Ω Impedance
- Excellent return loss
- High rejection

Applications

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

Outline Drawing

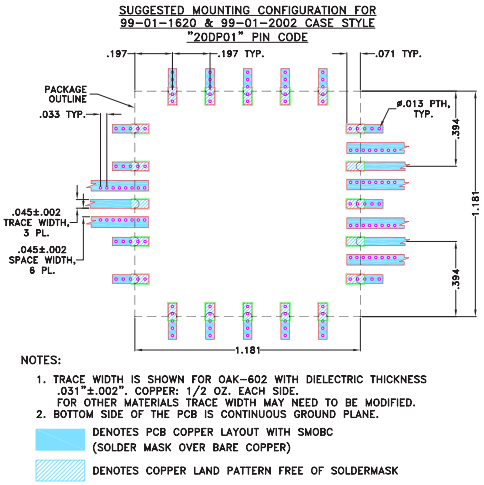


Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H	J	K
1.181	1.181	.300	.197	.394	.591	.787	.984	.071	.079
30.00	30.00	7.62	5.00	10.00	15.00	20.00	25.00	1.80	2.00

L	M	N	P	Q	R	S	T	U	Wt.
.111	.394	.179	1.221	1.221	.079	.091	.280	.178	grams
2.82	10.00	4.54	31.01	31.01	2.01	2.31	7.11	4.52	3.8

Demo Board MCL P/N: TB-786+
Suggested PCB Layout (PL-435)



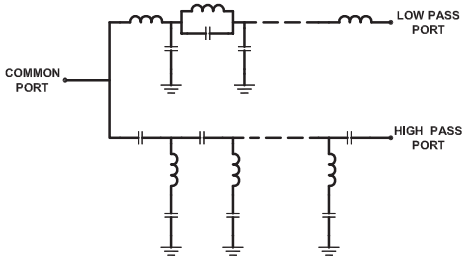
Electrical Specifications at 25°C

Parameter		Port	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	Low Pass	DC-42	-	0.8	1.5	dB
		High Pass	54-1220	-	0.8	1.5	
	Return Loss	Low Pass	DC-42	18	22	-	dB
		High Pass	54-1220	17	22	-	
		Common	DC-42	18	22	-	
			54-1220	17	22	-	
Stop Band Isolation		Low Pass	54-700	45	50	-	dB
			700-1220	43	45	-	
		High Pass	DC-42	45	50	-	

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	0.04	76.19	46.46	47.21	0.02
10.0	0.10	58.76	31.99	34.11	0.03
40.0	0.55	68.16	28.57	26.99	0.58
42.0	0.73	77.07	26.13	24.80	0.70
44.5	1.37	51.98	16.71	17.61	0.89
45.5	2.57	40.72	9.25	8.78	1.01
46.0	3.86	33.91	6.59	5.82	1.09
47.0	8.60	19.25	3.73	2.37	1.45
47.5	12.18	13.40	3.49	1.57	1.93
48.0	16.74	8.74	4.15	1.12	2.96
49.5	34.02	2.28	13.39	0.65	12.04
50.0	37.91	1.73	18.70	0.59	16.67
54.0	70.61	0.78	30.05	0.40	27.62
55.0	72.01	0.71	30.35	0.38	27.25
60.0	64.95	0.51	28.76	0.34	25.46
100.0	68.36	0.29	32.99	0.27	32.67
250.0	64.30	0.28	28.44	0.17	28.74
300.0	62.66	0.29	26.35	0.16	26.71
500.0	57.58	0.35	21.76	0.15	22.03
700.0	55.33	0.42	19.69	0.19	20.30
1000.0	50.67	0.49	20.87	0.32	22.66
1220.0	48.51	0.67	26.83	0.44	31.42

Functional Schematic



Notes
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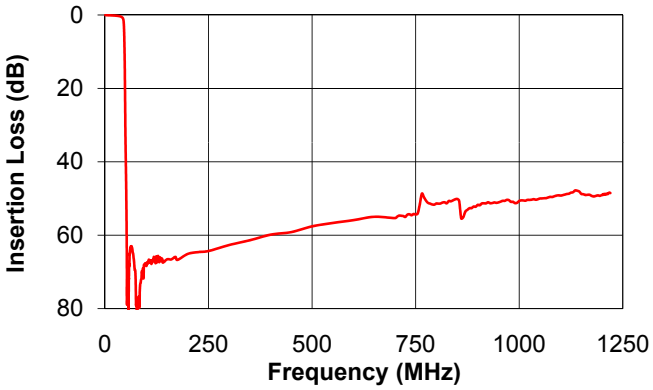
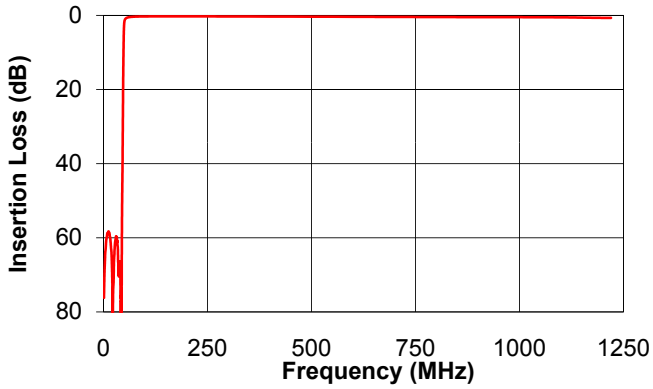
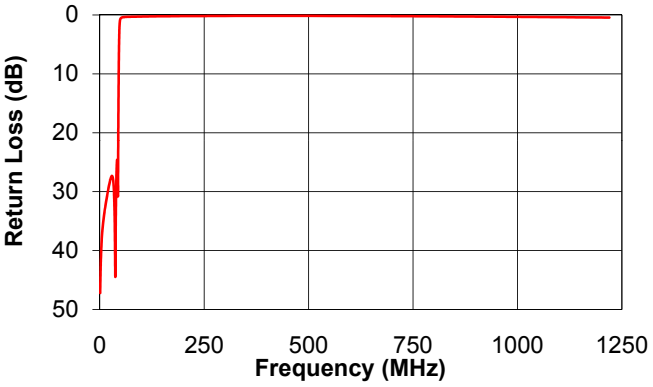
DPB4254-75+ LOW PASS PORT
INSERTION LOSS (P_{in}=0dBm)



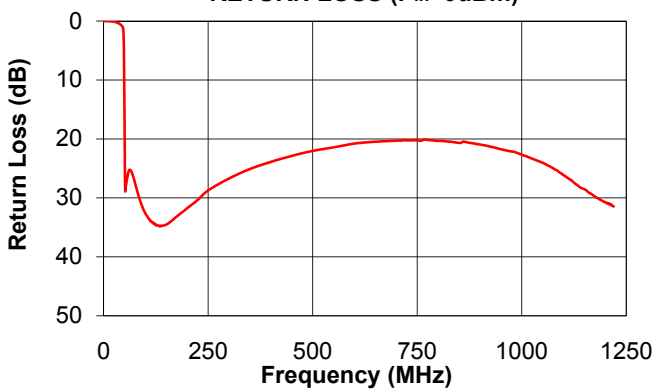
DPB4254-75+ HIGH PASS PORT
INSERTION LOSS (P_{in}=0dBm)



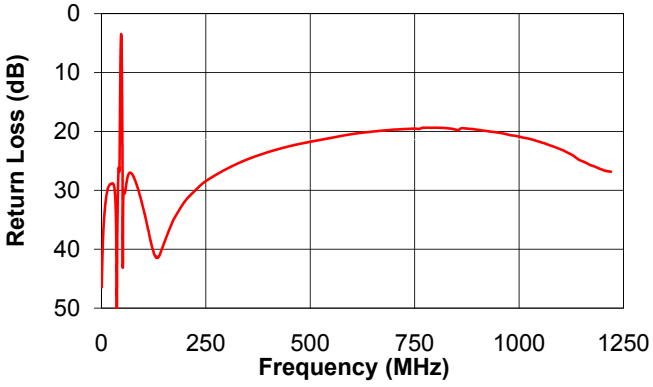
DPB4254-75+ LOW PASS PORT
RETURN LOSS (P_{in}=0dBm)



DPB4254-75+ HIGH PASS PORT
RETURN LOSS (P_{in}=0dBm)



DPB4254-75+ COMMON PORT
RETURN LOSS (P_{in}=0dBm)



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