

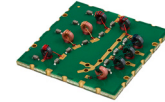
# NON-CATALOG

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.

#### Notes

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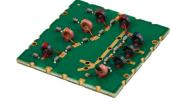


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### Maximum Ratings

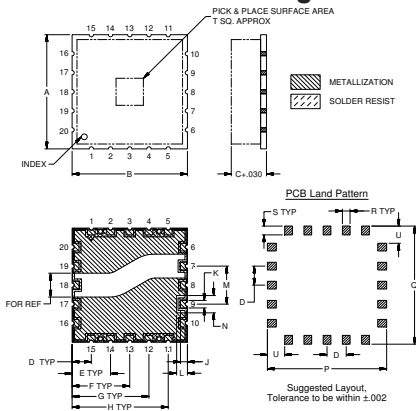
Operating Temperature	-40° to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	27dBm Max.

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

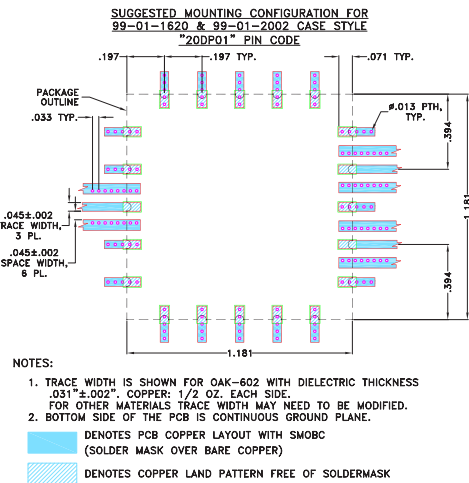
### Outline Drawing



### 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)



### Features

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

### Applications

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

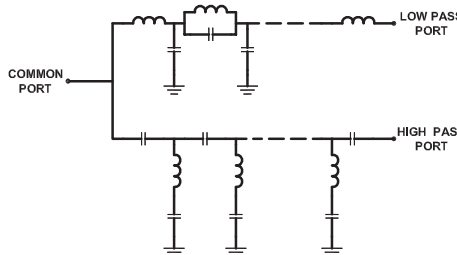
### Electrical Specifications at 25°C

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	-		
Stop Band Isolation	Low Pass	54-700	45	50	-	dB	
	High Pass	700-1220	43	45	-		
		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

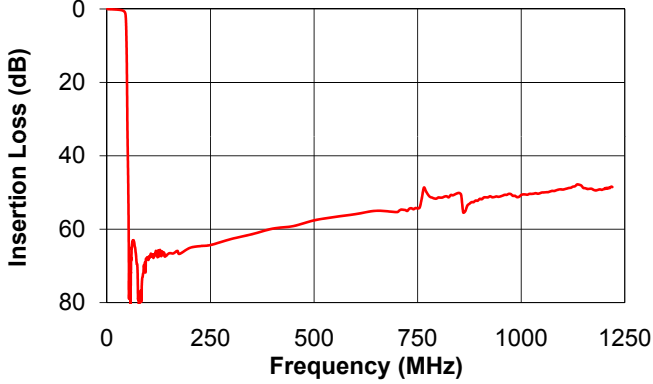


### Notes

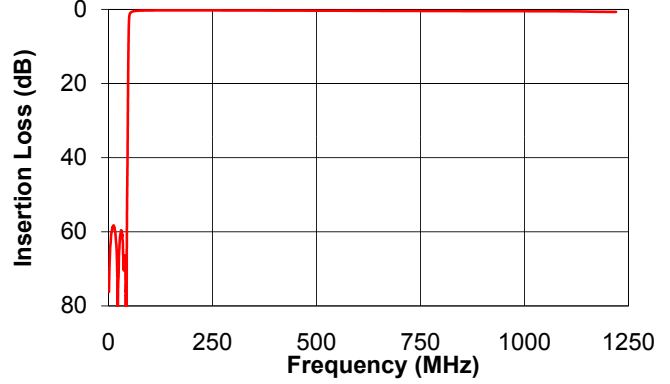
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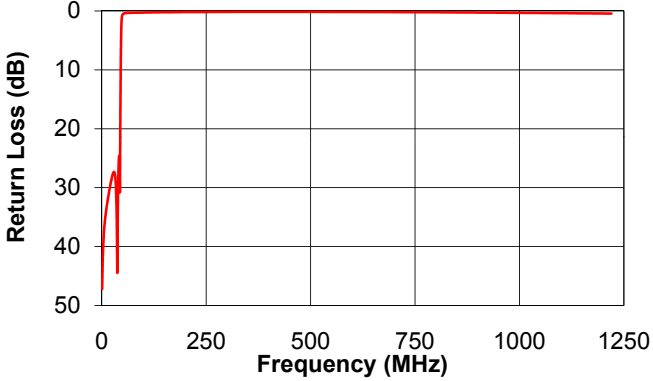
**DPB4254-75+ LOW PASS PORT  
INSERTION LOSS (P<sub>in</sub>=0dBm)**



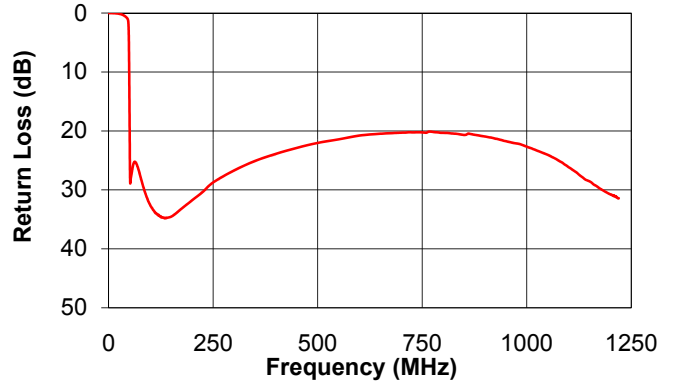
**DPB4254-75+ HIGH PASS PORT  
INSERTION LOSS (P<sub>in</sub>=0dBm)**



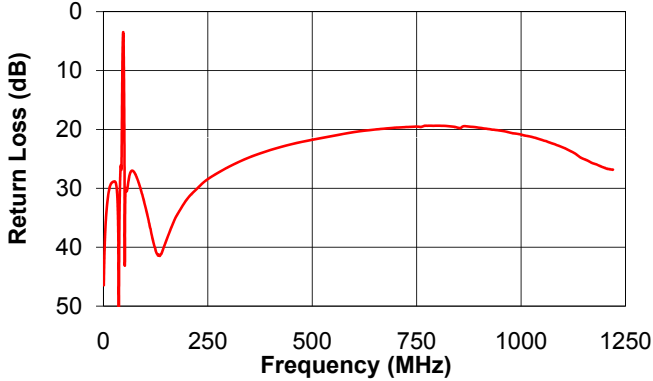
**DPB4254-75+ LOW PASS PORT  
RETURN LOSS (P<sub>in</sub>=0dBm)**



**DPB4254-75+ HIGH PASS PORT  
RETURN LOSS (P<sub>in</sub>=0dBm)**



**DPB4254-75+ COMMON PORT  
RETURN LOSS (P<sub>in</sub>=0dBm)**



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