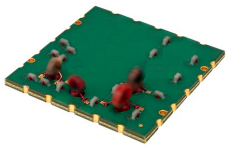
Surface Mount

Diplexer

DPLX-4254A0+

75Ω DC to 1000 MHz (DC-42, 54-1000 MHz)



CASE STYLE: NU1620

The Big Deal

- Low insertion loss, 0.9dB typ.
- High rejection, 50dB typ.
- 75Ω Impedance
- Used in DOCSIS 3.0 standard

Product Overview

DPLX-4254A0+ has lowpass port at DC-42 MHz and highpass port at 54-1000 MHz. Good 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 0.9dB ensures low signal loss through both the channels.
Good Stopband rejection	Co-channel rejection of 50dB ensures unwanted spurious are eliminated.
Good return loss at DC-42 and 54-1000 MHz	This makes signal transmission with very less reflection and well-matched with the adjacent component used in the system.

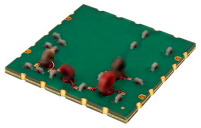
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Surface Mount

Diplexer

DPLX-4254A0+

75Ω DC to 1000 MHz (DC-42, 54-1000 MHz)



CASE STYLE: NU1620

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

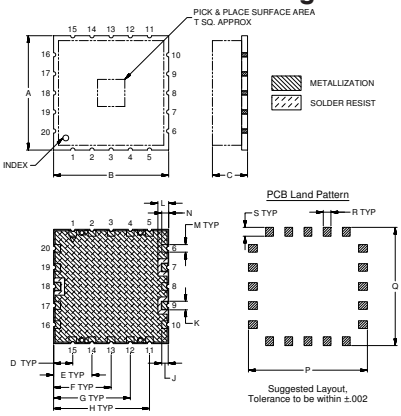
Features

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

Applications

- Cable TV systems (DOCSIS 3.0 standard)
- Multiband radio systems

Outline Drawing

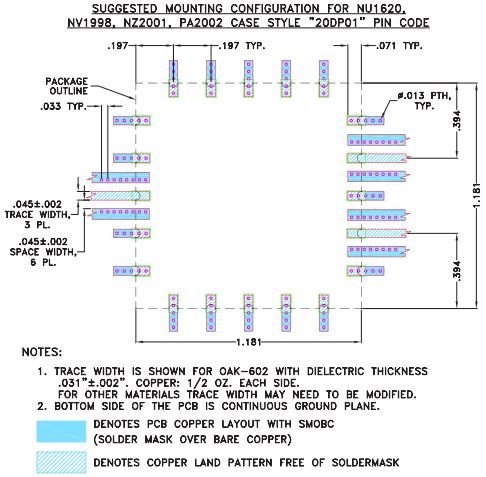


Outline Dimensions (inch / mm)

A	B	C		D	E	F	G	H	J	K
-	-	Max	Min	-	-	-	-	-	-	-
1.181	1.181	.280	.205	.197	.394	.591	.787	.984	.066	.089
30.00	30.00	7.11	5.21	5.00	10.00	15.00	20.00	25.00	1.68	2.26

L	M	N	P	Q	R	S	T	Wt. grams
-	-	-	-	-	-	-	-	
.111	.079	.071	1.221	1.221	.079	.091	.280	3.6
2.82	2.01	1.80	31.01	31.01	2.01	2.31	7.11	

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



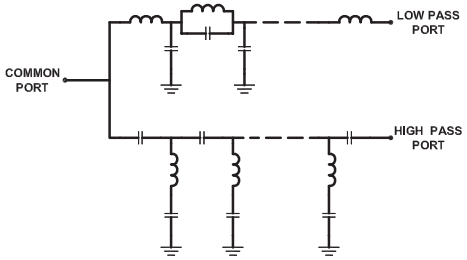
Electrical Specifications at 25°C

Parameter		Port	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	Low Pass	DC-42	-	0.9	1.3	dB
		High Pass	54-1000	-	0.9	1.3	
	Return Loss	Low Pass	DC-42	17	20	-	dB
		High Pass	54-1000	15	18	-	
		Common	DC-42	17	20	-	
			54-1000	15	18	-	
Stop Band Isolation		Low Pass	54-1000	42	50	-	dB
		High Pass	DC-42	42	50	-	

Typical Performance Data at 25°C

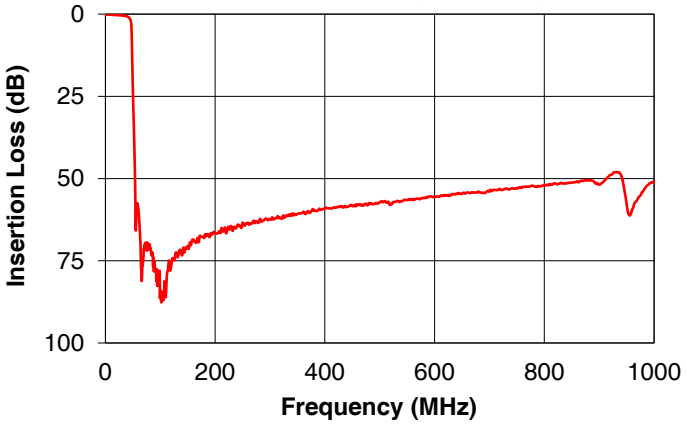
FREQUENCY (MHz)	INSERTION LOSS (dB)		RETURN LOSS (dB)		
	Low Pass Port	High Pass Port	Common Port	Low Pass Port	High Pass Port
1.0	0.11	66.00	40.84	40.73	0.03
10.0	0.17	48.33	27.21	27.74	0.04
40.0	0.71	55.34	32.36	28.45	0.66
42.0	0.89	52.30	24.17	23.65	0.84
44.0	1.20	31.59	18.66	18.36	1.13
44.5	1.32	28.10	17.71	17.19	1.24
45.5	1.65	22.14	16.57	15.29	1.58
46.0	1.88	19.55	16.59	14.77	1.84
47.0	2.73	13.74	19.26	14.73	2.92
47.5	3.84	9.65	20.97	11.94	4.26
48.5	10.12	3.56	15.44	4.15	10.59
49.5	18.77	1.93	15.65	2.01	15.94
50.0	22.37	1.61	16.76	1.62	17.58
51.0	28.65	1.23	19.49	1.21	20.75
51.5	31.69	1.11	20.92	1.09	22.36
52.0	34.83	1.02	22.25	1.00	23.86
54.0	49.71	0.78	25.89	0.76	27.51
300.0	62.29	0.21	24.46	0.06	24.38
500.0	57.29	0.31	17.98	0.05	18.52
700.0	54.00	0.42	15.61	0.11	16.16
950.0	57.81	0.51	15.56	0.33	16.10
1000.0	50.92	0.53	15.76	0.31	16.37

Functional Schematic

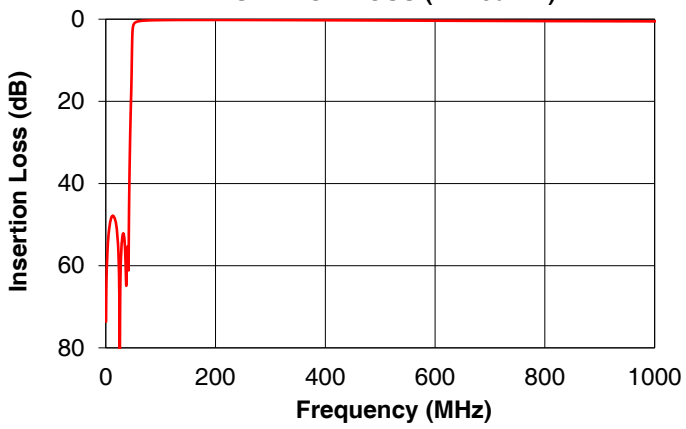


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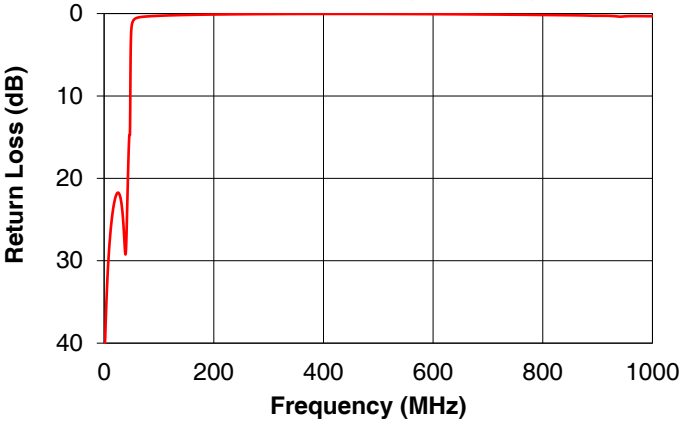
DPLX-4254A0+ LOW PASS PORT
INSERTION LOSS (P_{in}=0dBm)



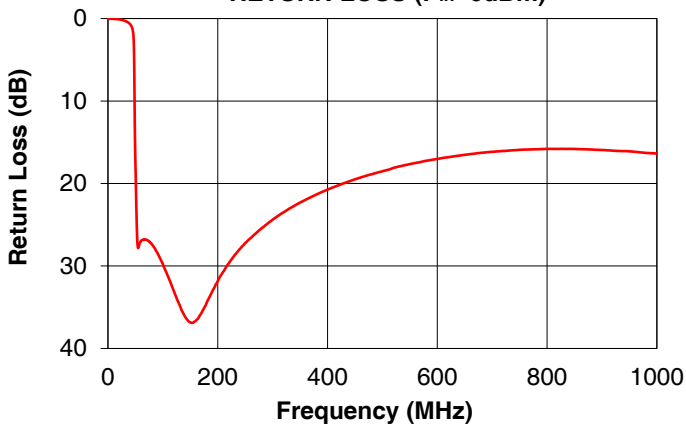
DPLX-4254A0+ HIGH PASS PORT
INSERTION LOSS (P_{in}=0dBm)



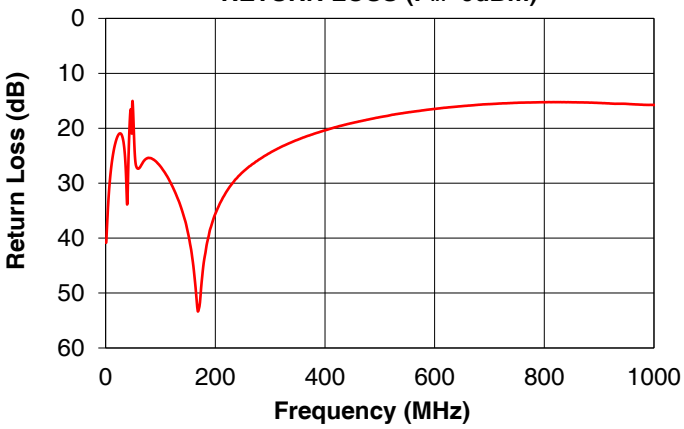
DPLX-4254A0+ LOW PASS PORT
RETURN LOSS (P_{in}=0dBm)



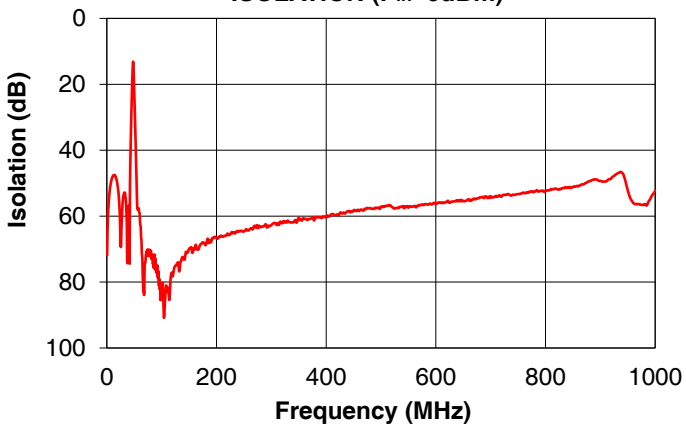
DPLX-4254A0+ HIGH PASS PORT
RETURN LOSS (P_{in}=0dBm)



DPLX-4254A0+ COMMON PORT
RETURN LOSS (P_{in}=0dBm)



DPLX-4254A0+ CROSS OVER
ISOLATION (P_{in}=0dBm)



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