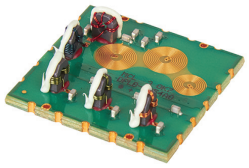
Surface Mount

Diplexer

DPLB-4254A0+

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



CASE STYLE: NU1620

The Big Deal

- Low insertion loss, 0.8dB Typ.
- High rejection, 45dB Typ.
- Very good return loss, 18dB Typ.
- 75Ω Impedance
- Used in DOCSIS 3.1 standard

Product Overview

DPLB-4254A0+ is a Low cost diplexer with the lowpass port at DC-42 MHz and highpass port at 54-1220 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 0.8dB ensures low signal loss through both the channels.
Good Stopband rejection	Co-channel rejection of 45dB ensures unwanted spurious are eliminated.
Good 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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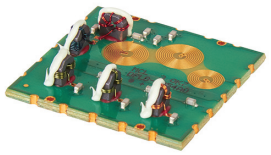


CASE STYLE: NU1620

+RoHS Compliant

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

Maximum Ratings

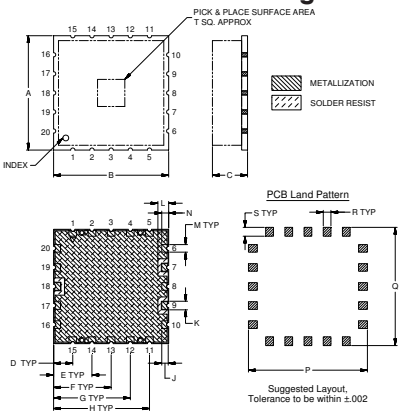
Operating Temperature	-40° to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	27dBm Max.

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

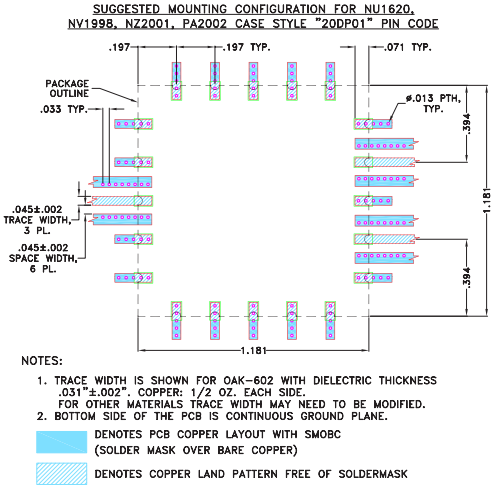


Outline Dimensions (inch / mm)

A	B	C		D	E	F	G	H	J	K
-	-	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.
.111	.079	.071	1.221	1.221	.079	.091	.280	grams
2.82	2.01	1.80	31.01	31.01	2.01	2.31	7.11	3.6

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



Features

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

Applications

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

CAUTION NOTE: *Open units are not recommended for use with Aqueous wash systems. Please evaluate your wash process before use.*

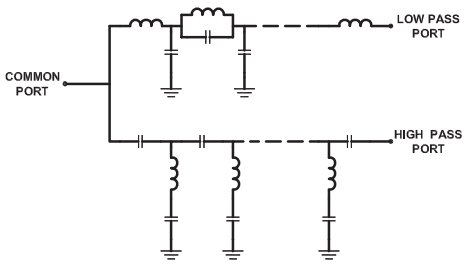
Electrical Specifications at 25°C

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	17	18	-	dB
		High Pass	54-1220	16	18	-	
		Common	DC-42	17	18	-	
			54-1220	16	18	-	
Stop Band Isolation		Low Pass	54-1220	43	50	-	dB
		High Pass	DC-42	43	50	-	
Group Delay Variation		Low Pass	38.5-42	-	18	-	ns
		High Pass	54-57.5	-	12	-	

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	0.07	65.41	40.14	40.22	0.00
10.0	0.18	48.28	24.32	25.10	0.04
40.0	0.80	48.88	22.23	21.66	0.69
42.0	0.96	55.87	23.58	22.92	0.83
44.5	1.40	26.42	21.59	22.82	1.13
45.5	1.83	19.44	18.28	21.92	1.43
46.0	2.24	15.87	15.96	19.32	1.73
47.0	4.36	8.29	11.80	10.72	3.41
47.5	6.93	5.14	11.24	7.05	5.54
48.0	10.77	3.15	12.30	4.68	8.74
49.5	22.50	1.33	20.45	2.16	18.17
50.0	25.50	1.15	22.78	1.85	19.94
54.0	52.35	0.68	22.92	0.93	22.84
55.0	63.74	0.63	23.09	0.85	23.23
60.0	64.87	0.49	24.16	0.63	24.48
100.0	72.04	0.32	25.50	0.33	26.46
250.0	65.83	0.31	29.68	0.15	31.03
300.0	63.07	0.33	26.25	0.13	26.96
500.0	57.17	0.40	20.28	0.08	20.94
700.0	54.08	0.47	19.00	0.12	19.86
1000.0	51.70	0.54	23.91	0.33	21.44
1220.0	49.72	0.73	23.07	0.56	17.79

Functional Schematic



Notes

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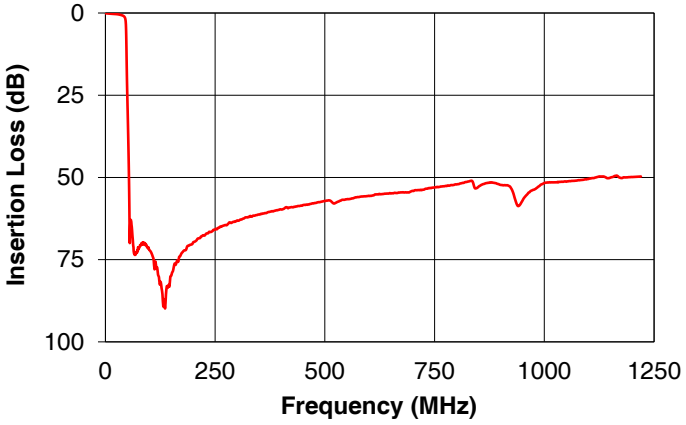
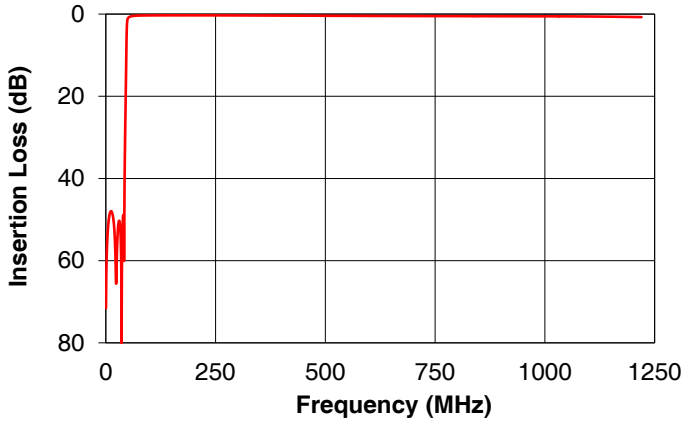
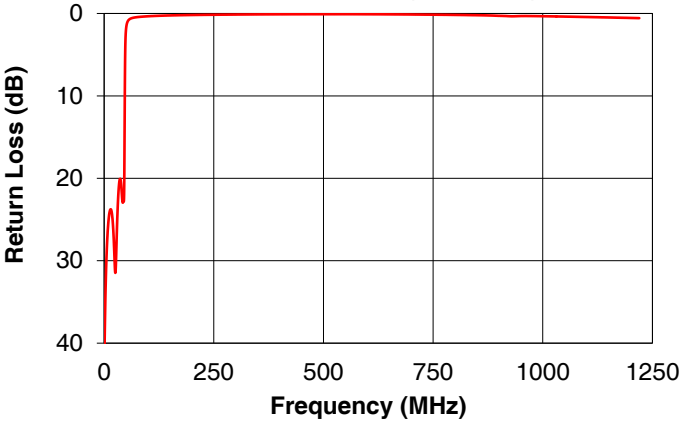
DPLB-4254A0+ LOW PASS PORT
INSERTION LOSS (P_{in}=0dBm)



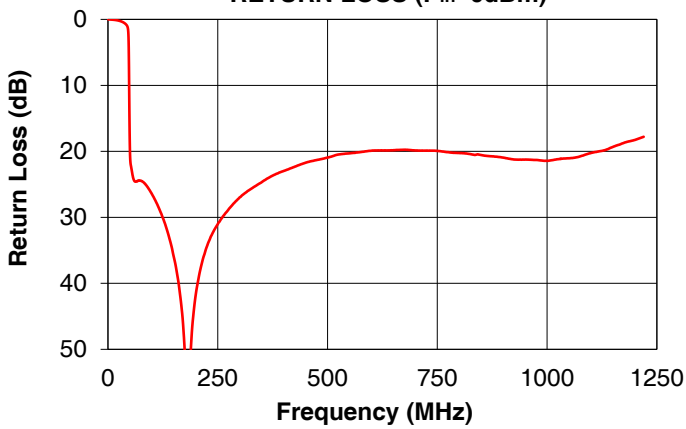
DPLB-4254A0+ HIGH PASS PORT
INSERTION LOSS (P_{in}=0dBm)



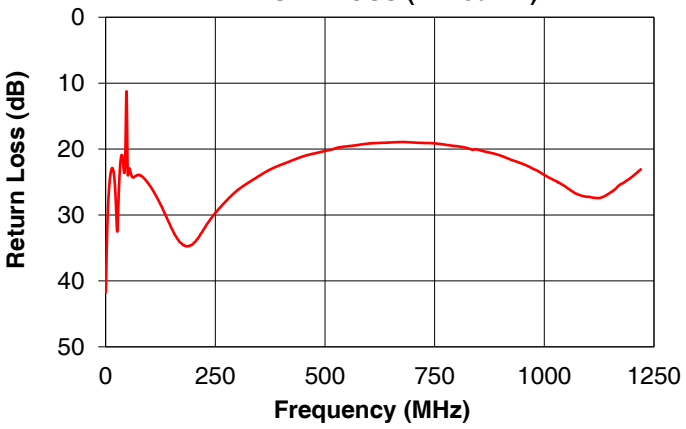
DPLB-4254A0+ LOW PASS PORT
RETURN LOSS (P_{in}=0dBm)



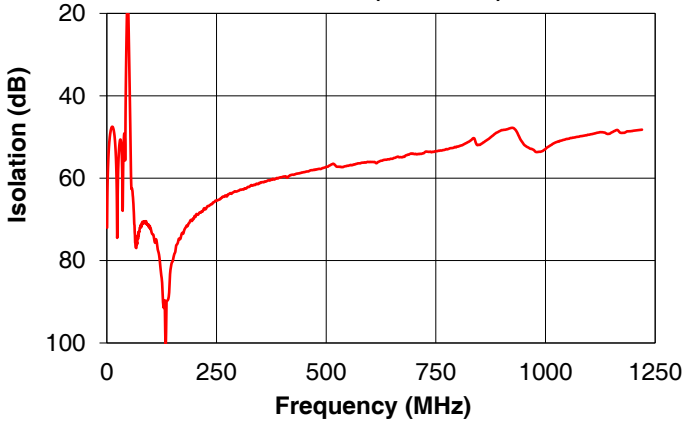
DPLB-4254A0+ HIGH PASS PORT
RETURN LOSS (P_{in}=0dBm)



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



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



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