Surface Mount

Diplexer

DPLB-8510A04+

75Ω 5 to 1220 MHz (5-85, 102-1220 MHz)

CASE STYLE: NU1620

The Big Deal

- Very Low insertion loss, 0.9dB typ.
- High rejection
- Very good return loss, 24dB typ.
- 75Ω Impedance
- Used for DOCSIS 3.1 standard

Product Overview

DPLB-8510A04+ is a Low cost diplexer with the lowpass port at 5-85 MHz and highpass port at 102-1220 MHz. Good return loss combined with high out of channel rejection makes it an ideal part in cable TV and multiband radio systems.

Key Features

Feature	Advantages
Low passband insertion loss	Passband insertion loss of 0.9dB typical ensures low signal loss through both the channels.
Good Stopband rejection	Co-channel rejection of 48dB typical ensures unwanted spurious are eliminated.
Excellent return loss at 5-85 and 102-1220 MHz	This makes signal transmission with very less reflection and well-matched with the adjacent component used in the system.

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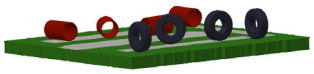


CASE STYLE: NU1620

+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	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

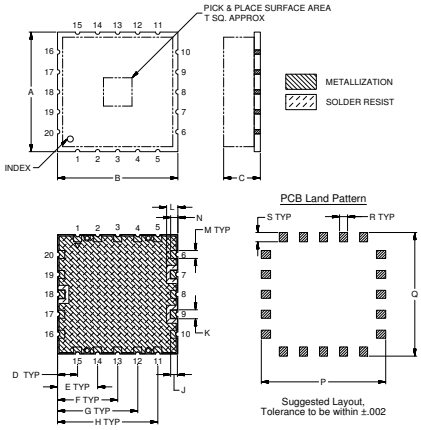
- Low insertion loss
- 75Ω Impedance
- Good return loss
- High rejection

Applications

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

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

Outline Drawing

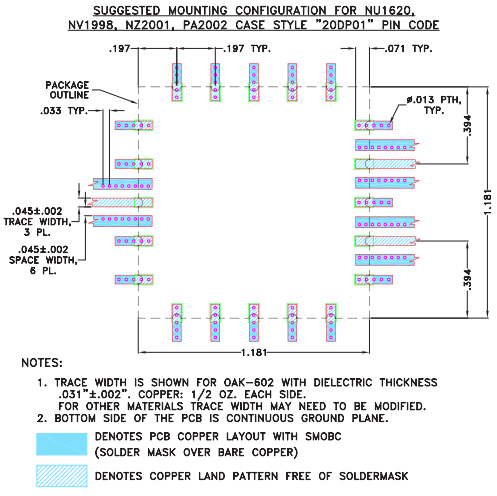


Outline Dimensions (inch / mm)

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)



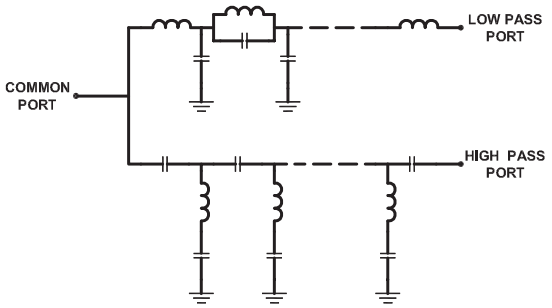
Electrical Specifications at 25°C

Parameter		Port	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	Low Pass	5-85	-	0.7	1.0	dB
		High Pass	102-1220	-	1.0	1.3	
	Return Loss	Low Pass	5-85	20	24	-	dB
		High Pass	102-1220	20	24	-	
		Common	5-85	20	24	-	
			102-1220	20	24	-	
Stop Band Isolation		Low Pass	102-1220	41	48	-	dB
		High Pass	5-85	41	48	-	
Cross over Isolation		LP-HP	85-102	-	9	-	dB
Group Delay Variation		Low Pass	83-84	-	2.3	-	ns
			84-85	-	2.8	-	
		High Pass	102-107	-	13	-	
			109-113	-	4	-	

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	0.05	76.90	50.71	50.56	0.02
`5.0	0.07	63.29	41.83	42.55	0.02
83.0	0.65	54.34	29.87	32.74	1.23
84.0	0.69	50.99	31.37	37.87	1.42
85.0	0.74	47.69	34.10	48.55	1.68
88.0	1.01	29.66	25.22	21.64	3.66
89.4	1.30	20.31	19.14	16.20	4.89
90.0	1.50	17.15	17.07	14.07	4.80
92.0	2.69	10.19	11.81	8.22	3.79
93.0	3.60	8.15	10.03	6.29	3.98
97.4	13.03	3.36	13.75	2.11	15.65
98.4	20.94	1.89	22.03	1.07	32.20
99.6	30.27	1.39	28.93	0.73	31.26
100.0	33.50	1.30	29.99	0.68	29.55
102.0	57.10	1.02	34.17	0.54	29.04
107.0	48.16	0.73	33.87	0.42	41.25
109.0	50.10	0.67	31.07	0.40	47.63
113.0	54.90	0.58	28.85	0.37	40.25
500.0	49.90	0.25	30.76	0.01	28.52
750.0	50.33	0.29	33.25	0.04	37.98
950.0	49.81	0.34	39.31	0.13	33.33
1220.0	49.51	0.45	27.92	0.30	25.85

Functional Schematic



Notes
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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.
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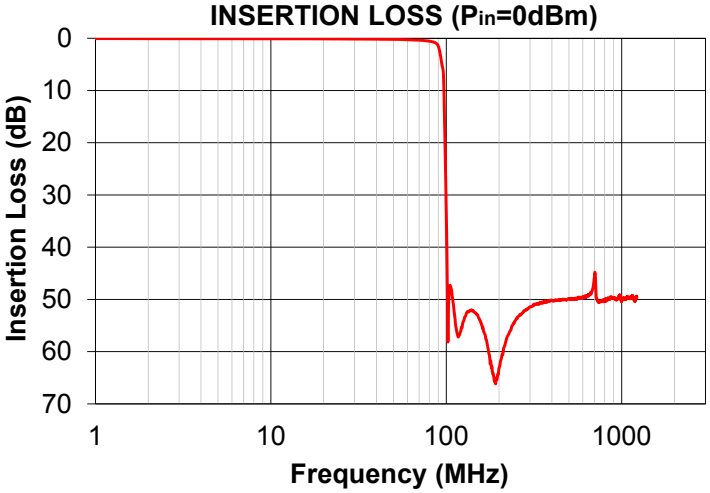
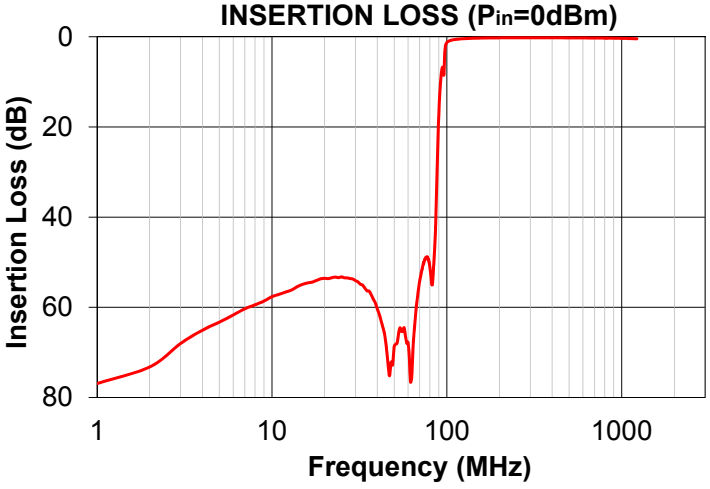
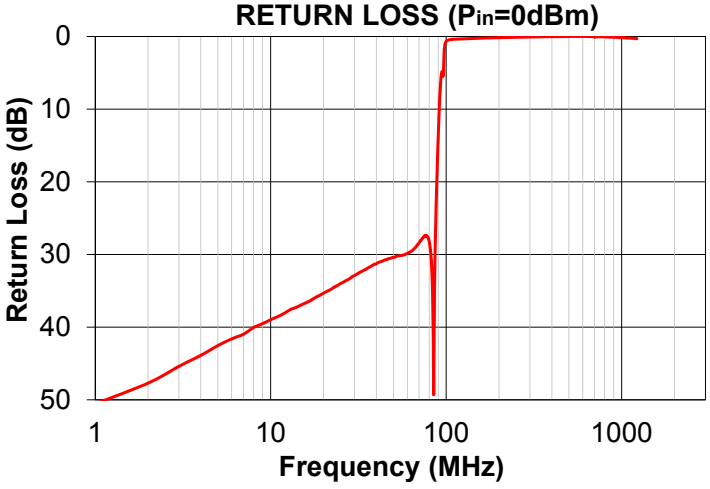
DPLB-8510A04+ LOW PASS PORT
INSERTION LOSS (Pin=0dBm)



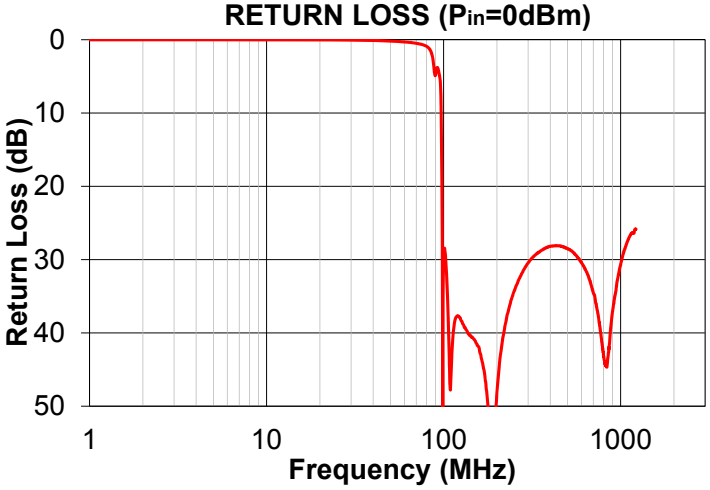
DPLB-8510A04+ HIGH PASS PORT
INSERTION LOSS (Pin=0dBm)



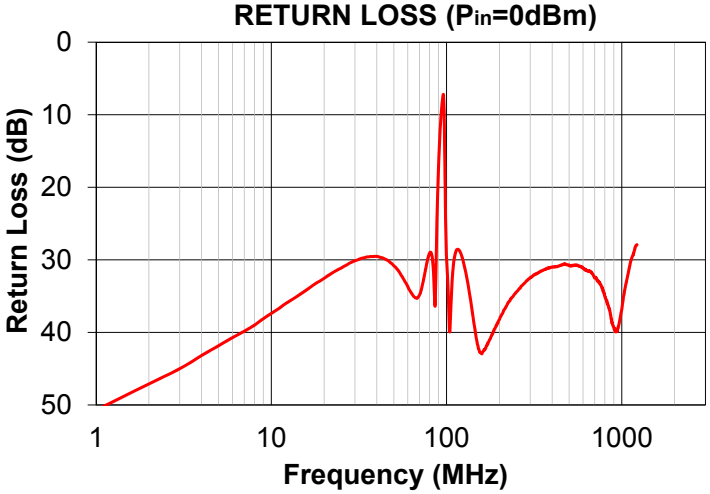
DPLB-8510A04+ LOW PASS PORT
RETURN LOSS (Pin=0dBm)



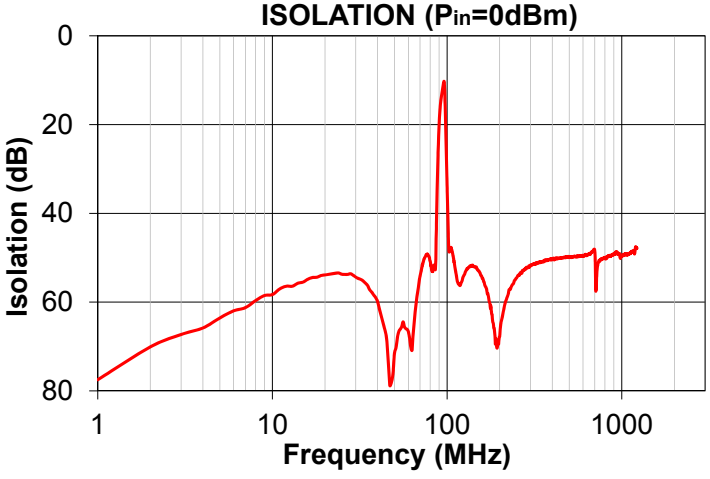
DPLB-8510A04+ HIGH PASS PORT
RETURN LOSS (Pin=0dBm)



DPLB-8510A04+ COMMON PORT
RETURN LOSS (Pin=0dBm)



DPLB-8510A04+ CROSS OVER
ISOLATION (Pin=0dBm)



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