Surface Mount

Diplexer

DPLB-8510A05+

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

CASE STYLE: NU1620

The Big Deal

- High crossover isolation
- Excellent return loss, 24dB Typ.
- 75Ω Impedance
- Used for DOCSIS 3.1 standard

Product Overview

DPLB-8510A05+ is a low cost high performance diplexer with the lowpass port at 5-85 MHz and highpass port at 102-1220 MHz. Excellent return loss combined with high out of channel rejection makes it an ideal component in cable TV and multiband radio systems.

Key Features

Feature	Advantages
Low passband insertion loss	Passband insertion loss 1.2 dB Typ. ensures low signal loss through both the channels.
Excellent stopband rejection	Co-channel rejection of 50dB Typ. 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.

Notes
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Maximum Ratings

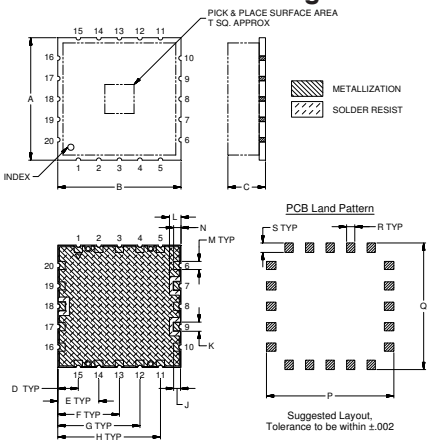
Operating Temperature	-40° to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	30dBm Max.

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

Outline Drawing

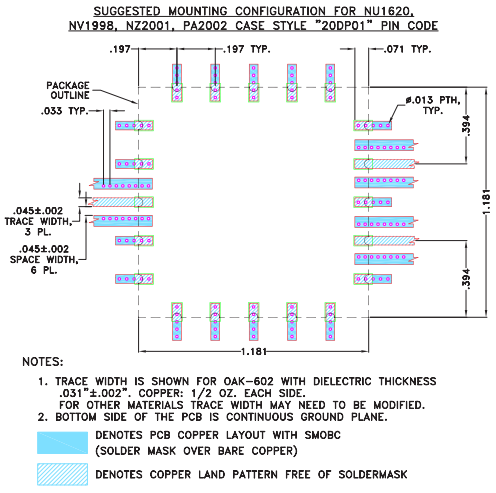


Outline Dimensions (inch / mm)

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)



NOTES:
1. TRACE WIDTH IS SHOWN FOR OAK-602 WITH DIELECTRIC THICKNESS .031"±.002". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDERMASK

Features

- Excellent return loss
- High crossover isolation
- Insertion loss 1.2 dB Typ.
- 75Ω Impedance

Applications

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

CASE STYLE: NU1620

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

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

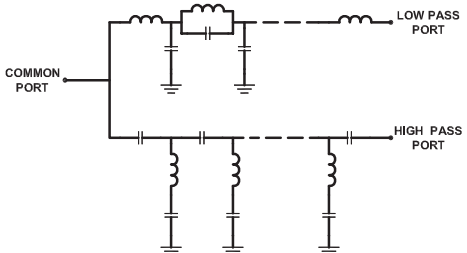
Electrical Specifications at 25°C

Parameter		Port	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	Low Pass	5-85	-	1.2	1.6	dB
		High Pass	102-1220	-	1.3	1.6	
	Return Loss	Low Pass	5-85	20	24	-	dB
		High Pass	102-250	20	24	-	
			250-1220	20	24	-	
		Common	5-85	20	24	-	
			102-250	20	24	-	
			250-1220	20	24	-	
	Group delay Variation	Low Pass	79-85	-	25	35	ns
		High Pass	102-108	-	18	23	
	Absolute Group Delay	Low Pass	85	-	55	65	
		High Pass	102	-	45	55	
Stop Band Isolation		Low Pass	102-1220	43	45	-	dB
		High Pass	5-85	48	55	-	
Cross Over Isolation		LP-HP	85-102	38	41	-	

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	0.01	78.50	48.44	48.60	0.00
5.0	0.04	68.33	41.24	42.18	0.00
79.0	0.69	60.77	30.44	29.30	0.44
85.0	1.19	55.01	34.05	32.97	0.67
89.0	3.14	50.30	12.09	10.29	0.95
91.6	12.59	30.12	4.74	2.18	1.30
92.6	19.47	23.04	3.93	1.41	1.54
93.0	22.75	20.55	3.76	1.24	1.67
93.8	30.59	16.01	3.64	1.02	2.04
97.2	44.14	3.82	8.88	0.65	8.88
102.0	52.29	1.35	37.73	0.50	29.34
108.0	56.02	0.89	38.70	0.42	28.86
250.0	52.92	0.25	36.13	0.12	32.34
300.0	51.23	0.24	47.92	0.09	44.68
500.0	50.13	0.26	41.70	0.02	29.69
600.0	49.71	0.28	36.91	0.03	29.86
750.0	50.04	0.32	31.47	0.01	32.39
800.0	49.98	0.33	30.55	0.03	32.94
850.0	49.98	0.35	30.03	0.06	33.13
900.0	49.91	0.36	29.98	0.10	32.58
1000.0	50.12	0.39	30.78	0.19	30.92
1220.0	50.11	0.46	31.08	0.42	29.66

Functional Schematic



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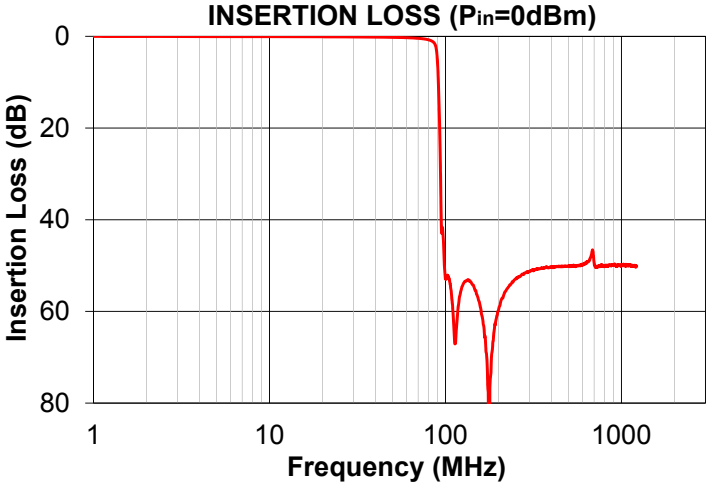
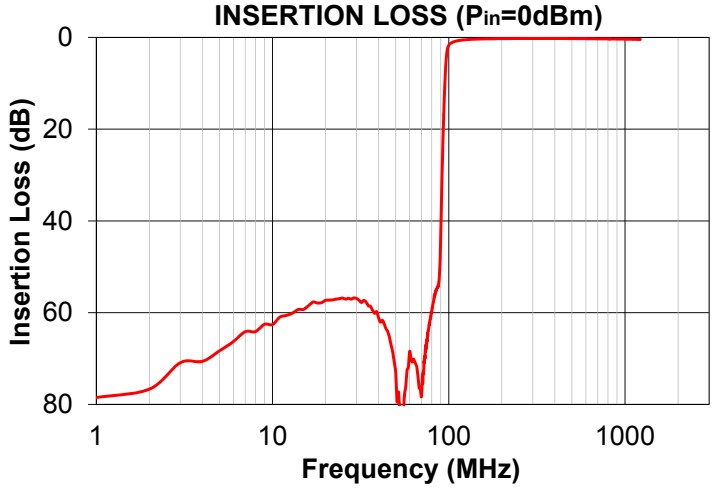
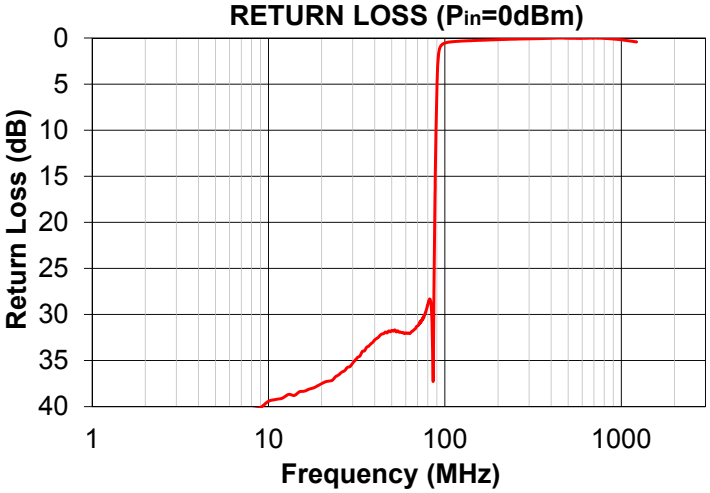
DPLB-8510A05+ LOW PASS PORT
INSERTION LOSS (Pin=0dBm)



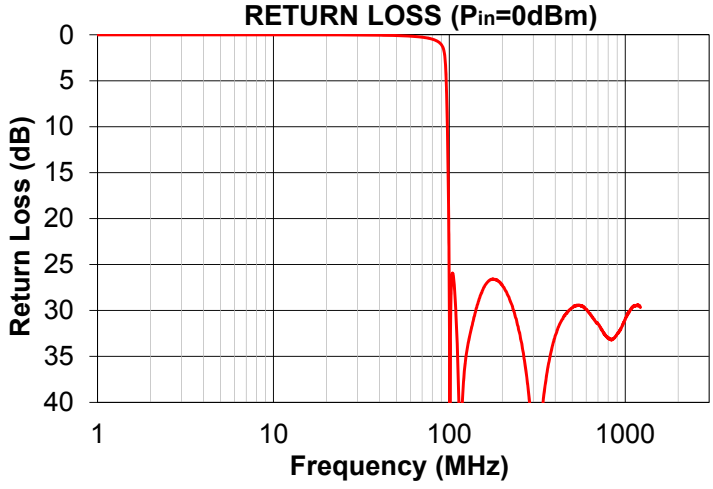
DPLB-8510A05+ HIGH PASS PORT
INSERTION LOSS (Pin=0dBm)



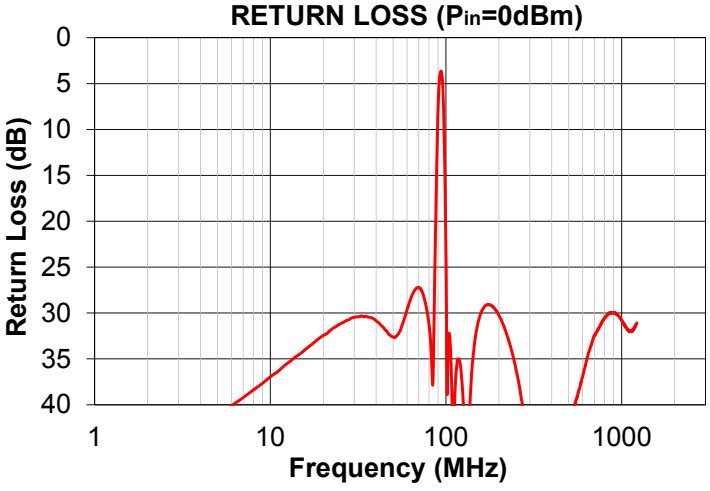
DPLB-8510A05+ LOW PASS PORT
RETURN LOSS (Pin=0dBm)



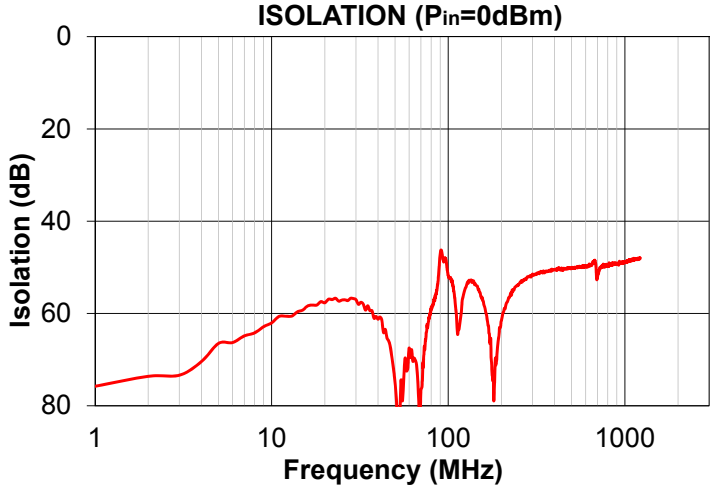
DPLB-8510A05+ HIGH PASS PORT
RETURN LOSS (Pin=0dBm)



DPLB-8510A05+ COMMON PORT
RETURN LOSS (Pin=0dBm)



DPLB-8510A05+ CROSS OVER
ISOLATION (Pin=0dBm)



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