

Surface Mount

Diplexer

DPLB-8510A01+

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



CASE STYLE: NU1620

The Big Deal

- Low insertion loss
- High rejection, 50dB typ.
- 75Ω Impedance
- Used in DOCSIS 3.1 standard

Product Overview

DPLB-8510A01+ has lowpass port at DC-85 MHz and highpass port at 102-1220 MHz. Good return loss combined with high out of channel rejection makes it a ideal part in cable TV and multiband radio systems.

Key Features

Feature	Advantages
Low passband insertion loss	Low passband insertion loss ensures low signal loss through both the channels.
Good stopband rejection	Co-channel rejection of 50dB ensures unwanted spurious are eliminated.
Excellent return loss at DC-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

A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
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.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp



Surface Mount Diplexer

DPLB-8510A01+

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

Maximum Ratings

Operating Temperature -40° to 85°C

Storage Temperature -55°C to 100°C

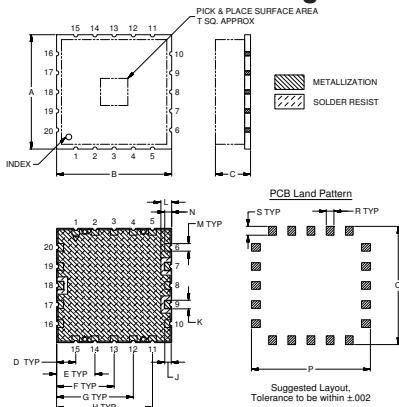
RF Power Input 30dBm Max.

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

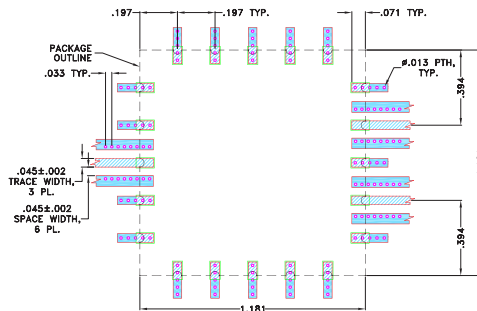


Outline Dimensions (inch mm)

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

SUGGESTED MOUNTING CONFIGURATION FOR NU1620,
NV1988, NZ2001, PA2002 CASE STYLE "20DP01" PIN CODE



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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.

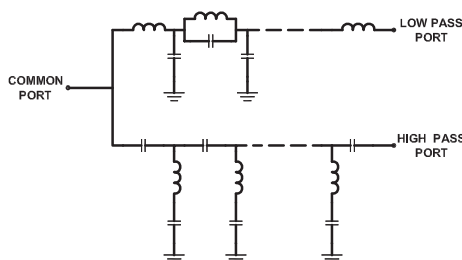
Electrical Specifications at 25°C

Parameter	Port	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	Low Pass	DC-85	-	1.4	1.7
		High Pass	102-1220	-	1.4	1.7
	Return Loss	Low Pass	DC-85	14	18	-
		High Pass	102-1220	14	16	-
		DC-85	14	18	-	dB
		Common	102-1220	14	16	-
Stop Band Isolation	Low Pass	102-1220	42	50	-	dB
	High Pass	DC-85	42	50	-	dB
Group Delay Variation	Low Pass	83-84	-	3	7	ns
		84-85	-	3	8	
	High Pass	102.25-106.83	-	10	18	
		109.25-112.83	-	4	8	

Typical Performance Data at 25°C

FREQUENCY (MHz)	INSERTION LOSS (dB)		RETURN LOSS (dB)	
	Low Pass Port	High Pass Port	Common Port	High Pass Port
1.00	0.04	83.22	45.42	45.76
50.00	0.33	55.81	17.42	17.13
83.00	1.03	65.73	23.88	25.72
84.00	1.12	70.08	24.17	24.58
85.00	1.24	52.96	25.07	23.72
87.75	1.78	29.92	33.60	21.55
89.25	2.66	19.24	17.49	15.32
89.75	3.30	15.77	14.43	12.57
92.00	11.66	5.10	9.64	4.31
94.00	13.56	2.81	15.51	3.46
97.50	21.20	1.55	21.99	6.74
99.50	31.03	1.25	20.51	6.66
100.00	34.46	1.20	20.35	5.56
102.00	50.21	1.04	20.27	2.66
106.00	51.12	0.83	21.65	1.09
109.00	55.90	0.72	23.29	0.77
112.00	58.53	0.64	25.33	0.61
500.00	56.11	0.26	23.85	0.08
750.00	52.74	0.38	17.41	0.04
950.00	50.04	0.45	16.37	0.14
1000.00	51.56	0.45	16.62	0.16
1220.00	49.40	0.42	21.01	0.31

Functional Schematic



CASE STYLE: NU1620

+RoHS Compliant

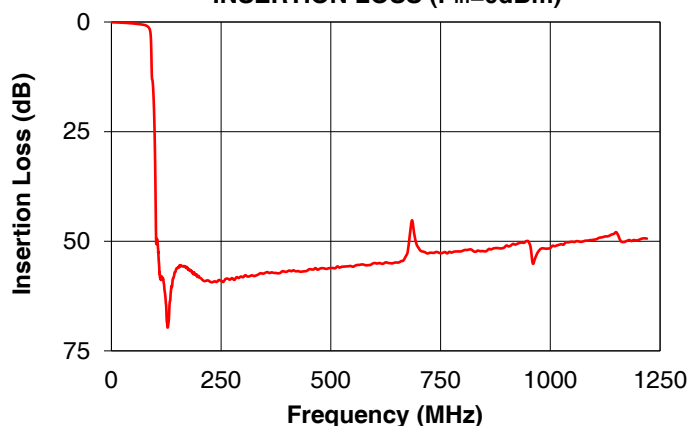
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

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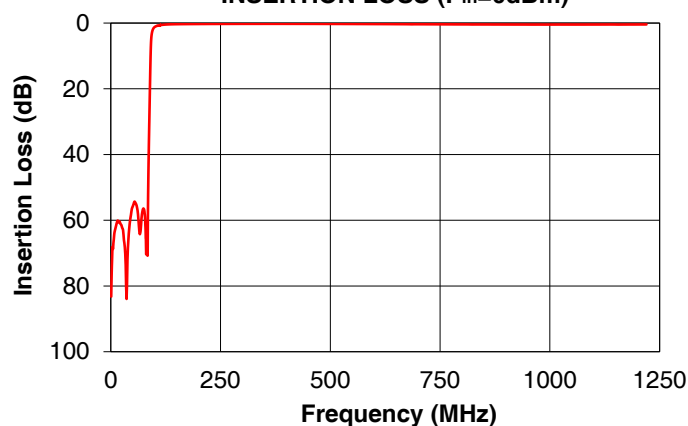
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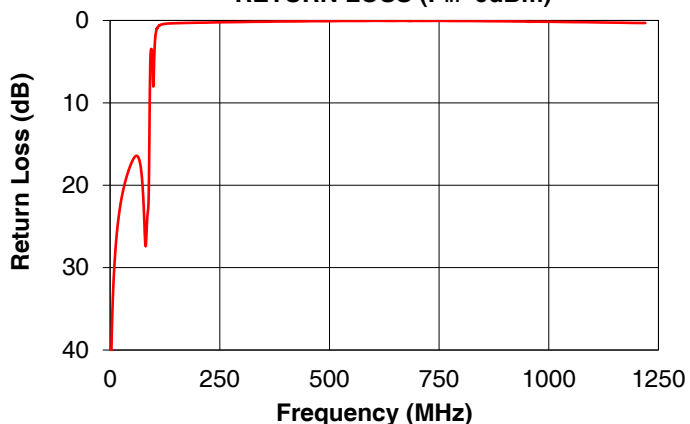
**DPLB-8510A01+ LOW PASS PORT
INSERTION LOSS ($P_{in}=0\text{dBm}$)**



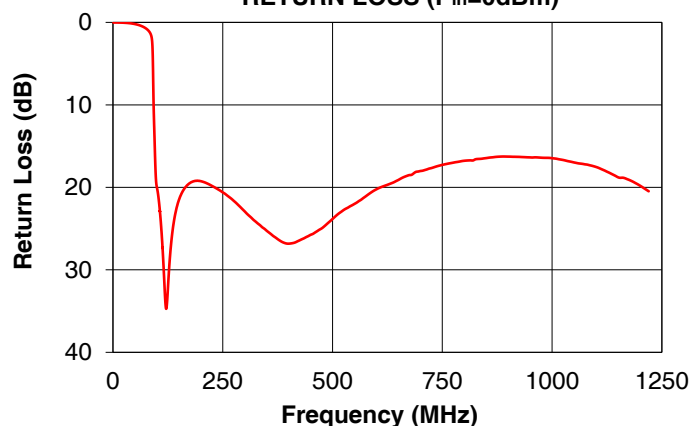
**DPLB-8510A01+ HIGH PASS PORT
INSERTION LOSS ($P_{in}=0\text{dBm}$)**



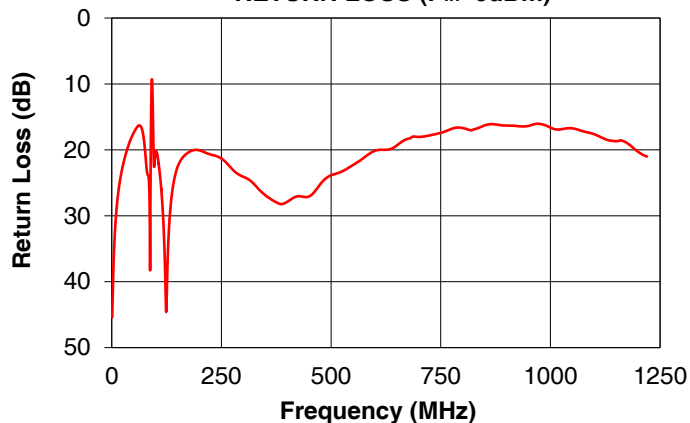
**DPLB-8510A01+ LOW PASS PORT
RETURN LOSS ($P_{in}=0\text{dBm}$)**



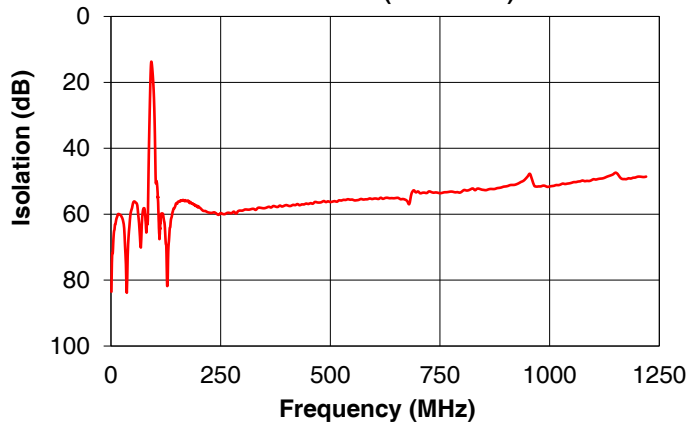
**DPLB-8510A01+ HIGH PASS PORT
RETURN LOSS ($P_{in}=0\text{dBm}$)**



**DPLB-8510A01+ COMMON PORT
RETURN LOSS ($P_{in}=0\text{dBm}$)**



**DPLB-8510A01+ CROSS OVER
ISOLATION ($P_{in}=0\text{dBm}$)**



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