# **Diplexer**

# **DPLB-6585A0+**

**75**0 5 to 1220 MHz (5-65, 85-1220 MHz)

## CASE STYLE: NU1620

# The Big Deal

- Low insertion loss, 1dB Typ.
- High rejection, 50dB Typ.
- Very good return loss, 24dB Typ.
- 75Ω Impedance
- Used for DOCSIS 3.1 standard

## **Product Overview**

DPLB-6585A0+ is a high performance low cost diplexer with the lowpass port at 5-65 MHz and highpass port at 85-1220 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 1dB 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 5-65 and 85-1220 MHz | This makes signal transmission with very less reflection and well-matched with the adjacent component used in the system. |  |  |  |  |

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# Diplexer

## DPLB-6585A0+

### 5 to 1220 MHz (5-65, 85-1220 MHz) $75\Omega$

## **Maximum Ratings**

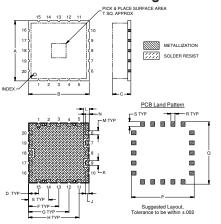
| Operating Temperature | -40° to 85°C   |
|-----------------------|----------------|
| Storage Temperature   | -55°C to 100°C |
| RF Power Input        | 30dBm Max.     |

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 |

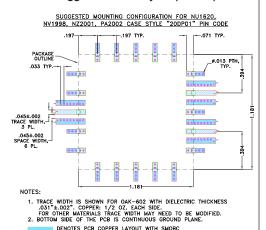
## **Outline Drawing**



## Outline Dimensions (inch )

| Α          | В     | (           |             | D     | Е     | F     | G     | н     | J    | к     |
|------------|-------|-------------|-------------|-------|-------|-------|-------|-------|------|-------|
| -<br>1.181 | 1.181 | Max<br>.280 | Min<br>.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          | М     |             | N           | Р     | Q     | R     | S     | Т     |      | 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)



DENOTES COPPER LAND PATTERN FREE OF SOLDERMASK

## **Features**

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

CASE STYLE: NU1620

## +RoHS Compliant

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

## **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.

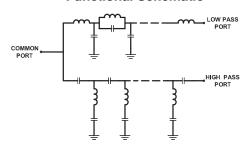
## Electrical Specifications at 25°C

| Parameter             |                     | Port                  | Frequency (MHz) | Min. | Тур. | Max.       | Unit |
|-----------------------|---------------------|-----------------------|-----------------|------|------|------------|------|
|                       | Insertion Loss      | Low Pass<br>High Pass | 5-65<br>85-1220 |      | 1.0  | 1.5<br>1.5 | dB   |
|                       |                     | Low Pass              | 5-65            | 21   | 24   | -          |      |
| Pass Band             | Return Loss         | High Pass             | 85-1220         | 20   | 24   | -          | dB   |
|                       |                     | Common                | 5-65            | 21   | 24   | -          |      |
|                       |                     |                       | 85-1220         | 20   | 24   | -          |      |
| Stop Bond los         | Step Bond Indiction |                       | 85-1220         | 43   | 50   | -          | dB   |
| Stop Band Isolation   |                     | High Pass             | 5-65            | 45   | 55   | -          | uБ   |
| Group Delay Variation |                     | Low Pass              | 59-65           | -    | 20   | -          | ns   |
|                       |                     | High Pass             | 85-91           | -    | 13   | -          | 115  |
| Crossover Isolation   |                     | LP-HP                 | 65-85           | 35   | 40   | -          | dB   |

## Typical Performance Data at 25°C

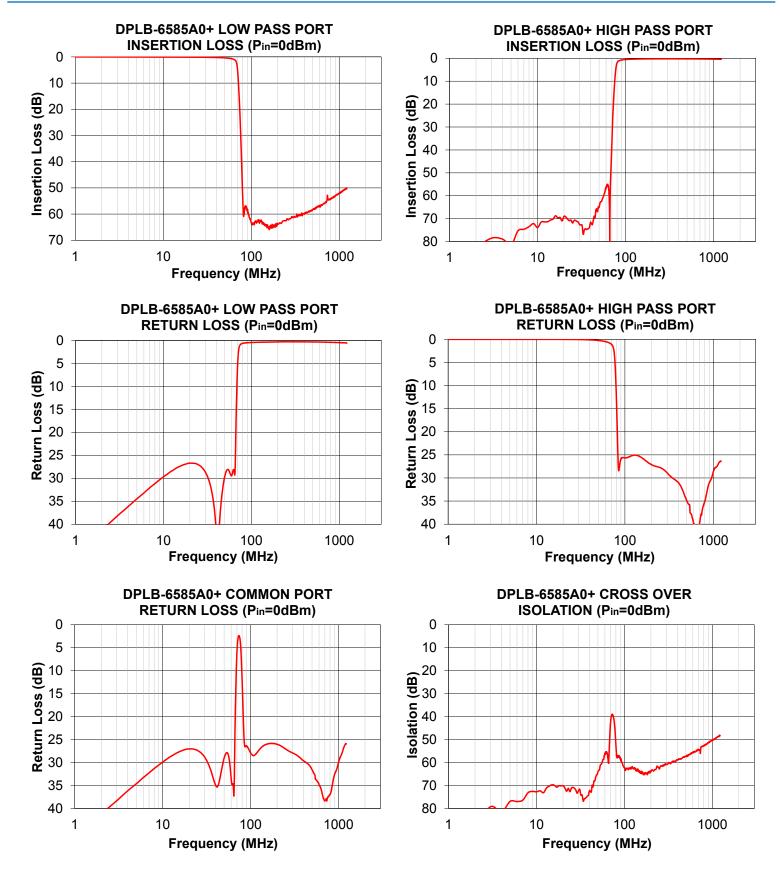
| FREQUENCY<br>(MHz) |               | INSERTION LOSS<br>(dB) |             | RETURN LOSS<br>(dB) |                |  |  |
|--------------------|---------------|------------------------|-------------|---------------------|----------------|--|--|
|                    | Low Pass Port | High Pass Port         | Common Port | Low Pass Port       | High Pass Port |  |  |
| 1.0                | 0.00          | 88.00                  | 46.43       | 46.25               | 0.00           |  |  |
| 5.0                | 0.04          | 81.45                  | 34.64       | 34.45               | 0.00           |  |  |
| 40.0               | 0.22          | 71.55                  | 34.95       | 41.46               | 0.10           |  |  |
| 50.0               | 0.37          | 65.13                  | 29.04       | 29.49               | 0.23           |  |  |
| 59.0               | 0.64          | 57.29                  | 31.60       | 29.39               | 0.44           |  |  |
| 65.0               | 1.12          | 59.03                  | 36.08       | 29.14               | 0.68           |  |  |
| 69.0               | 3.23          | 43.46                  | 9.09        | 7.99                | 0.93           |  |  |
| 71.0               | 7.96          | 29.25                  | 3.95        | 2.95                | 1.13           |  |  |
| 72.5               | 13.53         | 21.07                  | 2.64        | 1.58                | 1.37           |  |  |
| 74.0               | 20.03         | 14.67                  | 2.38        | 1.06                | 1.81           |  |  |
| 76.0               | 30.10         | 8.07                   | 3.29        | 0.80                | 3.23           |  |  |
| 78.0               | 41.91         | 3.91                   | 6.32        | 0.67                | 6.64           |  |  |
| 80.0               | 53.29         | 2.05                   | 11.65       | 0.60                | 12.43          |  |  |
| 85.0               | 57.36         | 1.00                   | 25.89       | 0.51                | 28.42          |  |  |
| 91.0               | 58.79         | 0.73                   | 26.47       | 0.46                | 25.76          |  |  |
| 100.0              | 63.06         | 0.54                   | 27.85       | 0.43                | 25.65          |  |  |
| 250.0              | 62.50         | 0.23                   | 27.04       | 0.28                | 27.76          |  |  |
| 500.0              | 58.37         | 0.25                   | 31.58       | 0.31                | 34.94          |  |  |
| 750.0              | 54.29         | 0.29                   | 37.78       | 0.38                | 36.86          |  |  |
| 1000.0             | 52.25         | 0.35                   | 30.02       | 0.45                | 28.63          |  |  |
| 1100.0             | 50.97         | 0.37                   | 27.88       | 0.49                | 27.47          |  |  |
| 1220.0             | 50.05         | 0.42                   | 25.87       | 0.54                | 26.37          |  |  |

## **Functional Schematic**



(SOLDER MASK OVER BARE COPPER)

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