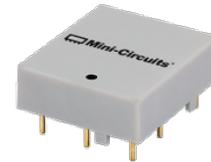


Plug-in

Diplexer

DPLC-2025A0+

75Ω DC to 1220 MHz
(DC-204, 258-1220 MHz)



Generic photo used for illustration purposes only
CASE STYLE: QB2223

The Big Deal

- Plug-in design
- Field replaceable
- Low insertion loss
- Excellent return loss, 24 dB typ.
- Low group delay variation in passband
- Mirrored version available for ease of routing
- DOCSIS 3.1 standard

Product Overview

DPLC-2025A0+ is a high performance field replaceable plug-in diplexer with the lowpass port at DC-204 MHz and highpass port at 258-1220 MHz. Excellent 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 | Ensures low signal loss through both the channels. |
| Excellent Stopband rejection | Co-channel rejection of 50dB typical ensures unwanted spurious are eliminated. |
| Excellent return loss at DC-204 and 258-1220 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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Plug-in Diplexer

75Ω DC to 1220 MHz (DC-204, 258-1220 MHz)

DPLC-2025A0+



Generic photo used for illustration purposes only
CASE STYLE: QB2223

+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 | 1 |
| COMMON PORT | 4 |
| GROUND | 2,3,5,6,8,9 |

Features

- Low insertion loss
- 75Ω Impedance
- Excellent return loss 24 dB typ.
- Low group delay variation
- High rejection

Applications

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

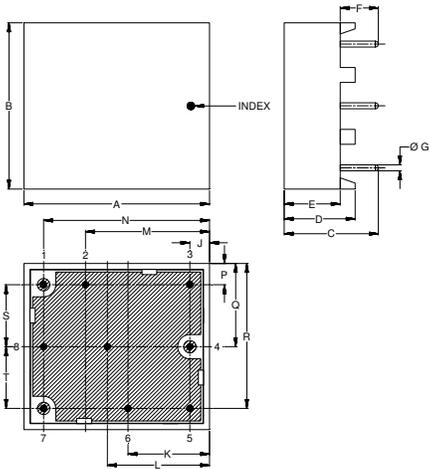


CAUTION NOTE: Not designed for reflow process.

Electrical Specifications at 25°C

| Parameter | Port | Frequency (MHz) | Min. | Typ. | Max. | Unit | |
|---------------------|----------------|-----------------|-----------|--------|------|------|----|
| Pass Band | Insertion Loss | Low Pass | DC-204 | - | 1.0 | 1.2 | dB |
| | | High Pass | 258-1220 | - | 1.0 | 1.2 | |
| | Return Loss | Low Pass | DC-204 | 20 | 24 | - | dB |
| | | | 258-1000 | 20 | 24 | - | |
| | | High Pass | 1000-1220 | 20 | 24 | - | |
| | | | Common | DC-204 | 20 | 24 | |
| Stop Band Isolation | Low Pass | 258-1220 | 42 | 45 | - | dB | |
| | | High Pass | DC-204 | 45 | 50 | | - |
| | Cross over | 204-258 | 35 | 40 | - | | |

Outline Drawing



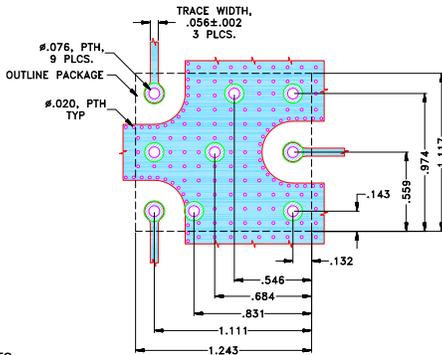
Outline Dimensions (inch/mm)

| A | B | C | D | E | F | G | H | J | K |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1.243 | 1.117 | .630 | .475 | .375 | .255 | .040 | -- | .132 | .546 |
| 31.56 | 28.36 | 16.00 | 12.07 | 9.53 | 6.48 | 1.02 | -- | 3.35 | 13.87 |
| L | M | N | P | Q | R | S | T | Wt. | |
| .684 | .831 | 1.111 | .143 | .559 | .974 | .417 | .415 | grams | |
| 17.37 | 21.10 | 28.22 | 3.63 | 14.21 | 24.74 | 10.58 | 10.53 | 7 | |

Note: Please refer to case style drawing for details

Demo Board MCL P/N: TB-897+ Suggested PCB Layout (PL-485)

SUGGESTED MOUNTING CONFIGURATION FOR
QB2223 CASE STYLE



NOTES:

1. TRACE WIDTH IS SHOWN FOR IT180, WITH DIELECTRIC THICKNESS .059"±.005". 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

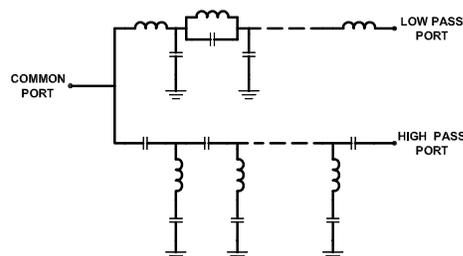
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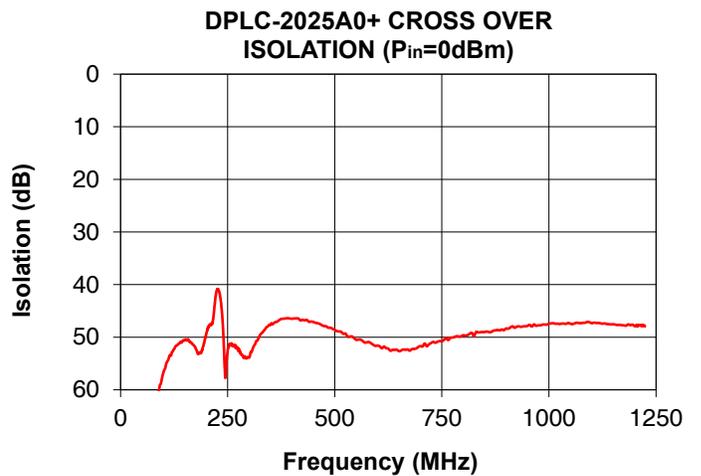
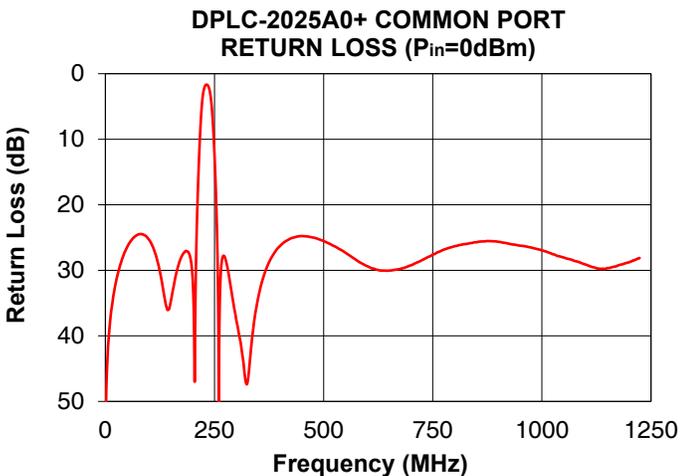
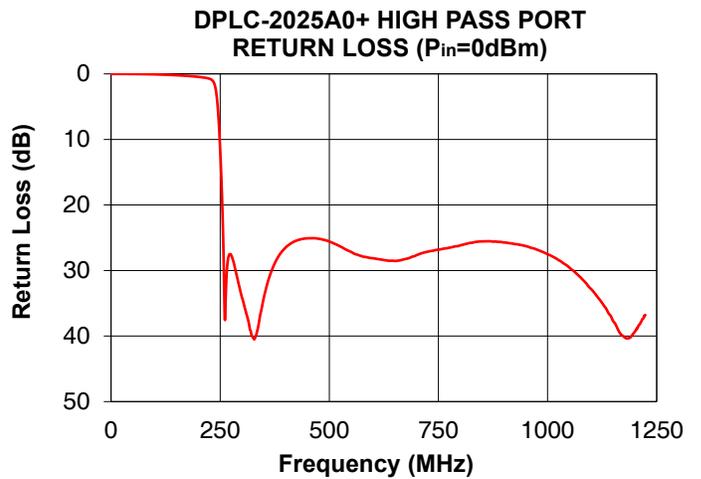
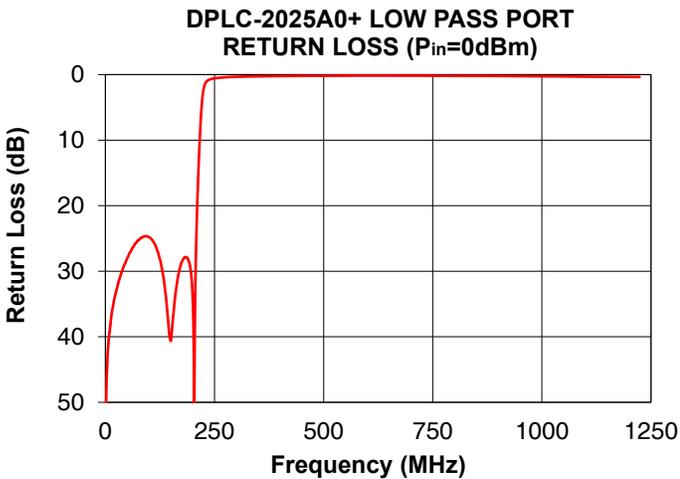
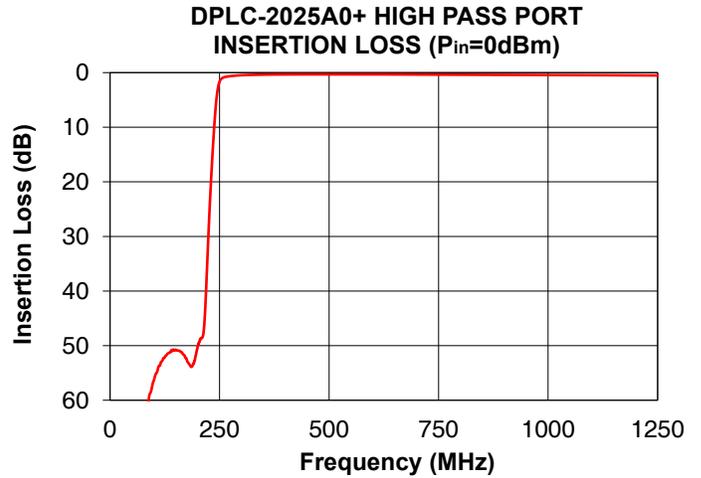
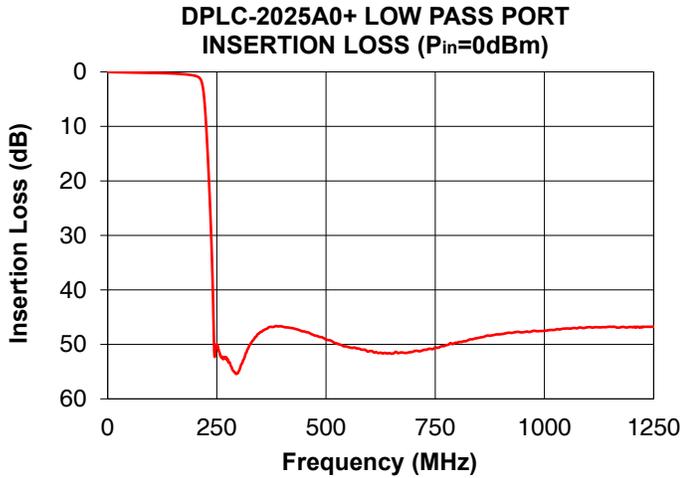
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Typical Performance Data at 25°C

| FREQUENCY (MHz) | INSERTION LOSS (dB) | | | RETURN LOSS (dB) | |
|-----------------|---------------------|----------------|-------------|------------------|----------------|
| | Low Pass Port | High Pass Port | Common Port | Low Pass Port | High Pass Port |
| 1.0 | 0.00 | 96.64 | 52.15 | 51.18 | 0.00 |
| 50.0 | 0.11 | 73.04 | 26.42 | 28.01 | 0.02 |
| 100.0 | 0.19 | 56.36 | 25.32 | 24.80 | 0.07 |
| 204.0 | 0.80 | 49.29 | 44.50 | 47.76 | 0.48 |
| 219.0 | 3.39 | 40.23 | 6.70 | 6.31 | 0.63 |
| 224.0 | 7.93 | 30.76 | 2.97 | 2.60 | 0.71 |
| 230.0 | 16.62 | 20.55 | 1.72 | 1.19 | 0.88 |
| 232.0 | 20.02 | 17.56 | 1.66 | 1.02 | 0.99 |
| 236.0 | 27.74 | 12.09 | 1.94 | 0.83 | 1.42 |
| 237.0 | 29.95 | 10.84 | 2.11 | 0.80 | 1.60 |
| 237.5 | 31.11 | 10.23 | 2.21 | 0.78 | 1.71 |
| 240.0 | 37.68 | 7.44 | 2.96 | 0.72 | 2.46 |
| 242.0 | 44.38 | 5.56 | 3.94 | 0.68 | 3.42 |
| 245.0 | 52.33 | 3.44 | 6.23 | 0.63 | 5.63 |
| 246.0 | 51.72 | 2.93 | 7.23 | 0.62 | 6.60 |
| 254.0 | 50.94 | 1.13 | 19.88 | 0.53 | 18.43 |
| 255.0 | 51.28 | 1.06 | 22.27 | 0.52 | 20.54 |
| 258.0 | 52.04 | 0.92 | 32.90 | 0.50 | 28.65 |
| 259.0 | 52.20 | 0.89 | 40.27 | 0.49 | 32.30 |
| 260.0 | 52.37 | 0.86 | 56.49 | 0.49 | 36.14 |
| 300.0 | 54.95 | 0.48 | 37.64 | 0.33 | 34.13 |
| 500.0 | 49.11 | 0.33 | 25.52 | 0.18 | 25.58 |
| 600.0 | 51.23 | 0.33 | 29.36 | 0.15 | 28.13 |
| 750.0 | 50.58 | 0.37 | 27.61 | 0.17 | 26.81 |
| 1000.0 | 47.49 | 0.44 | 26.93 | 0.25 | 27.51 |
| 1050.0 | 47.09 | 0.46 | 28.04 | 0.27 | 29.56 |
| 1150.0 | 46.77 | 0.48 | 29.66 | 0.33 | 37.71 |
| 1200.0 | 46.84 | 0.50 | 28.77 | 0.35 | 39.33 |
| 1220.0 | 46.87 | 0.51 | 28.23 | 0.36 | 37.22 |

Functional Schematic





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