Plug-in

Diplexer

DPLC-2025A0M+

75Ω 5 to 1220 MHz (5-204, 258-1220 MHz)

Generic photo used for illustration purposes only

CASE STYLE: QC2228

The Big Deal

- Plug-in design
- Field replaceable
- Low insertion loss
- Excellent return loss, 24 dB typ.
- Low group delay variation in passband
- DOCSIS 3.1 standard

Product Overview

DPLC-2025A0M+ is a high performance field replaceable plug-in diplexer with the lowpass port at 5-204 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

DPLC-2025A0+ and DPLC-2025A0M+ are both mirrored versions of each other to enable easy routing.

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 5-204 and 258-1220 MHz	This makes signal transmission with very less reflection and well-matched with the adjacent component used in the system.

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+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	1
LOW PASS PORT	7
COMMON PORT	4
GROUND	2,3,5,6,8,9

Features

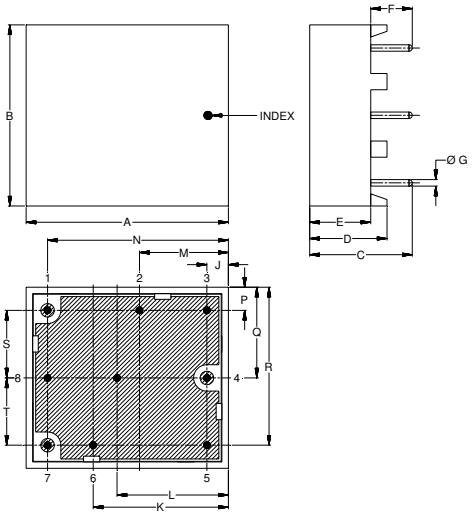
- Low insertion loss
- 75Ω Impedance
- Excellent return loss 24 dB typ.
- Low group delay variation
- High rejection

Applications

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

CAUTION NOTE: *Not designed for reflow process.*

Outline Drawing



Outline Dimensions (inch / mm)

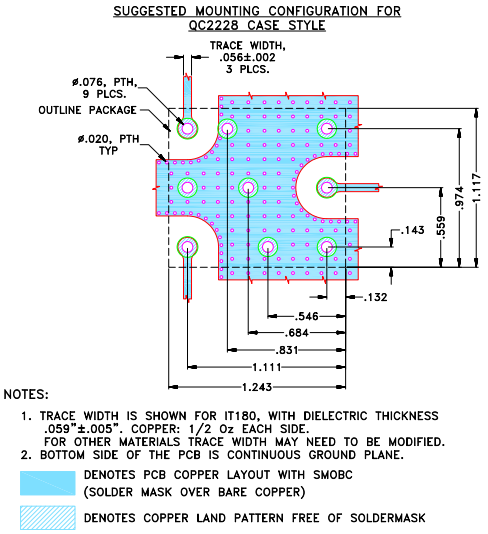
A	B	C	D	E	F	G	H	J	K
1.243	**1.117**	**.630**	**.475**	**.375**	**.255**	**.040**	**--**	**.132**	**.831**
31.56	28.36	16.00	12.07	9.53	6.48	1.02	--	3.35	21.10

L	M	N	P	Q	R	S	T	Wt.
.684	**.546**	**1.111**	**.143**	**.559**	**.974**	**.417**	**.415**	grams
17.37	13.87	28.22	3.63	14.21	24.74	10.53	10.53	7

Note: Please refer to case style drawing for details

Demo Board MCL P/N: TB-929+

Suggested PCB Layout (PL-495)



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

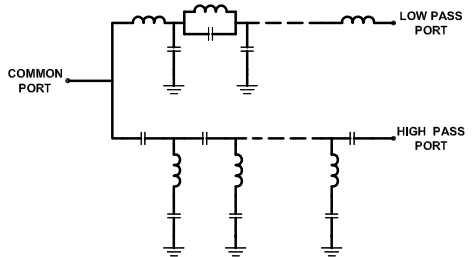
Electrical Specifications at 25°C

Parameter		Port	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	Low Pass	5-204	-	1.0	1.2	dB
		High Pass	258-1220	-	1.0	1.2	
	Return Loss	Low Pass	5-204	20	24	-	dB
		High Pass	258-1000	20	24	-	
			1000-1220	20	24	-	
		Common	5-204	20	24	-	
			258-1000	20	24	-	
			1000-1220	20	24	-	
Stop Band Isolation		Low Pass	258-1220	42	45	-	dB
		High Pass	5-204	45	50	-	
		Cross over	204-258	35	40	-	

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	0.04	89.49	50.90	52.51	0.04
5.0	0.06	83.48	41.96	42.34	0.03
201.0	0.71	52.91	28.24	28.81	0.38
202.5	0.74	52.36	28.49	30.83	0.39
204.0	0.79	52.12	27.89	32.55	0.40
217.0	3.33	40.75	6.33	6.05	0.51
222.0	8.21	30.10	2.64	2.29	0.57
225.0	12.49	24.22	1.79	1.41	0.62
227.0	15.71	20.71	1.55	1.11	0.67
229.5	20.11	16.70	1.47	0.89	0.76
235.0	31.61	9.13	2.16	0.68	1.22
242.0	51.87	3.01	6.54	0.57	3.58
245.0	55.27	1.87	10.23	0.54	5.85
250.0	55.59	1.08	18.91	0.50	11.59
258.0	51.84	0.75	35.99	0.44	26.03
259.0	51.27	0.73	32.97	0.44	28.81
263.0	50.16	0.67	27.93	0.42	54.19
265.0	49.93	0.64	26.89	0.41	38.73
269.0	49.73	0.60	25.71	0.39	32.52
271.0	49.65	0.58	25.35	0.39	31.42
275.0	49.89	0.55	24.80	0.37	30.52
500.0	49.18	0.23	35.52	0.11	27.26
600.0	52.12	0.23	31.32	0.04	31.47
750.0	52.74	0.25	25.32	0.02	31.10
1000.0	49.54	0.30	26.16	0.08	26.53
1100.0	49.40	0.31	30.45	0.16	26.14
1150.0	49.42	0.32	33.82	0.20	25.93
1218.0	49.94	0.33	33.50	0.25	25.70
1220.0	50.11	0.33	33.39	0.25	25.70

Functional Schematic



Notes

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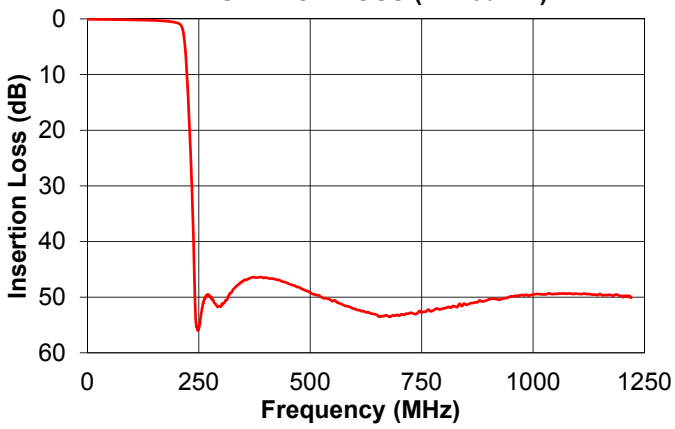
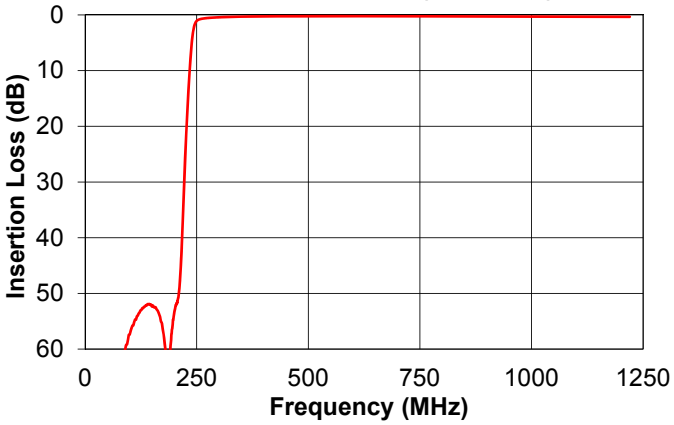
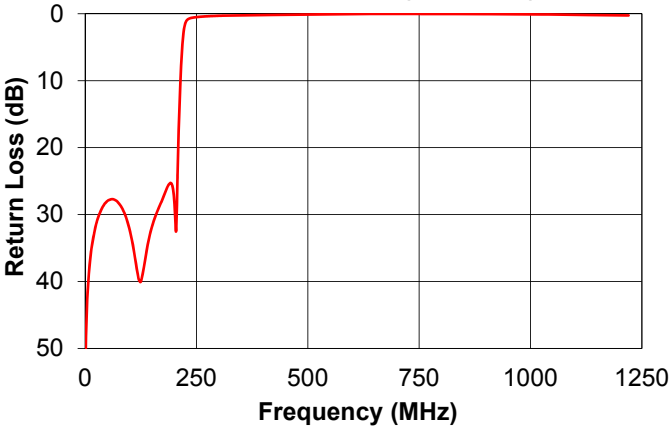
DPLC-2025A0M+ LOW PASS PORT
INSERTION LOSS (P_{in}=0dBm)



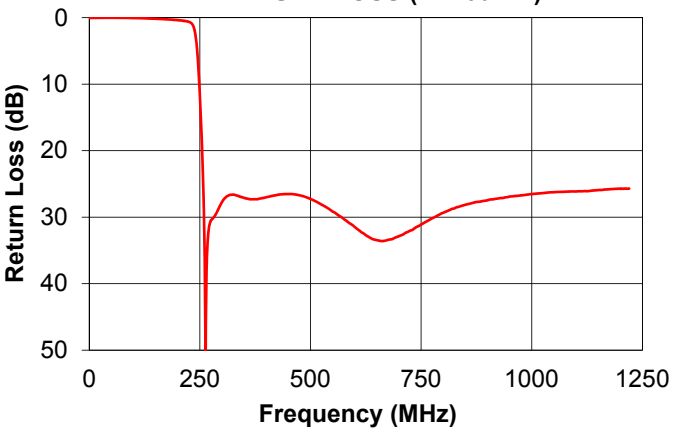
DPLC-2025A0M+ HIGH PASS PORT
INSERTION LOSS (P_{in}=0dBm)



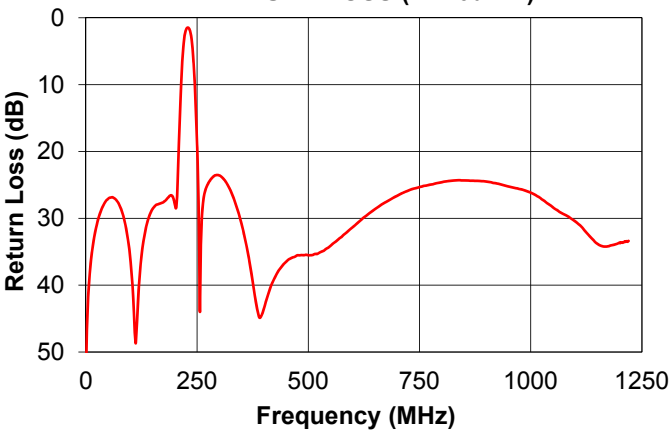
DPLC-2025A0M+ LOW PASS PORT
RETURN LOSS (P_{in}=0dBm)



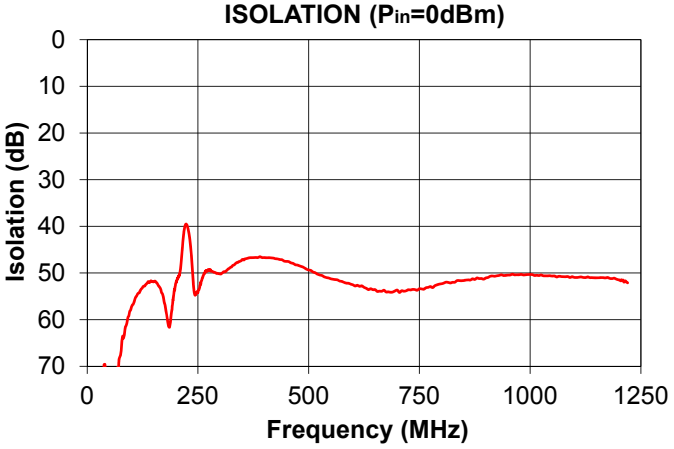
DPLC-2025A0M+ HIGH PASS PORT
RETURN LOSS (P_{in}=0dBm)



DPLC-2025A0M+ COMMON PORT
RETURN LOSS (P_{in}=0dBm)



DPLC-2025A0M+ CROSS OVER
ISOLATION (P_{in}=0dBm)



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