Ceramic

Diplexer

LDPW-272-452+

50Ω 10 to 2700 MHz (4500 to 6000 MHz)

The Big Deal

- Low insertion loss
- High stopband isolation
- Very small size, 0603
- Low cost

CASE STYLE: JC0603C-3

Product Overview

Mini-Circuits' LDPW-272-452+ is a tiny, surface-mount diplexer with a low pass channel from 10 to 2700 MHz and a high pass channel from 4500 to 6000 MHz. This model provides low passband insertion loss, high stopband rejection, and RF input power handling up to 2W. Fabricated using LTCC technology, the unit comes housed in a tiny, 0603 ceramic package with excellent thermal stability from -55 to +125°C.

Key Features

Feature	Advantages
Good stopband isolation	Eliminates unwanted spurious signals out of band.
Tiny size	Saves space in dense circuit board layouts and minimizes the effects of parasitics.
Wrap-around terminations	Provides excellent solderability and easy visual inspection.
Wide operating temperature range, -55 to +125°C	Enables reliable performance in extreme environments.

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Generic photo used for illustration purposes only

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+RoHS Compliant

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

Available Tape and Reel at no extra cost

Reel Size	Devices/Reel
7"	20, 50, 100, 200, 500,1000, 4000

Maximum Ratings

Operating Temperature	-55°C to 125°C
Storage Temperature*	-55°C to 125°C
RF Power Input**	2W

*Refer to product storage temperature after installation.
Suggestion for T&R unused product storage condition: +5~+35°C, Humidity 45~75%RH, 12 Month max.
Permanent damage may occur if any of these limits are exceeded.
** Derate linearly to 0.5W at 125°C.

Pad Connections

Low Pass Port	1
Band Pass Port	3
Common Port	2
Ground	4

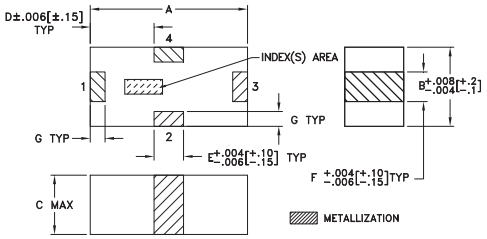
Features

- low insertion loss
- miniature size 0603
- low cost
- aqueous washable

Applications

- ISM Band
- WLAN
- Bluetooth
- Zigbee

Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	wt
.063	.032	.024	.026	.012	.012	.006	grams
1.60	0.81	0.61	0.66	0.30	0.30	0.15	.005

Electrical Specifications[1] at 25°C

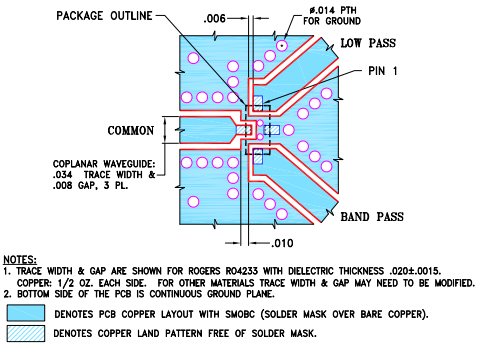
Parameter		Port	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	Low Pass	10 - 2700	-	1.3	1.8	dB
		Band Pass	4500 - 6000	-	1.2	1.7	
	Return Loss	Low Pass	10 - 2700	-	11	-	dB
		Band Pass	4500 - 6000	-	11	-	
		Common	10 - 2700	-	11	-	
			4500 - 6000	-	11	-	
Stop Band Rejection		Band Pass	10 - 2500	20	25	-	dB
			10000 - 11400	18	25	-	
		Low Pass	5000 - 7700	20	25	-	dB

[1] *Tested on Evaluation Board TB-LDPW-272452+*

Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)		Return Loss (dB)		
	Low Pass Port	Band Pass Port	Common Port	Low Pass Port	Band Pass Port
10	0.08	66.41	47.63	47.89	0.03
100	0.07	46.42	33.56	33.21	0.01
1000	0.35	29.89	14.34	14.49	0.07
1500	0.45	30.54	14.52	14.67	0.13
2000	0.45	33.35	24.81	23.51	0.21
2500	0.81	27.95	14.14	13.43	0.34
2700	1.17	22.15	10.62	9.98	0.45
3000	1.85	15.45	8.24	7.23	0.82
3500	2.80	8.44	11.02	8.07	2.88
4000	8.81	2.40	22.42	3.89	17.76
4500	19.85	1.03	17.89	0.88	18.82
5000	25.85	0.81	21.20	0.67	23.22
5500	26.81	0.79	24.59	0.65	26.78
6000	26.22	0.97	15.80	0.64	16.13
6500	25.99	1.35	11.55	0.61	11.35
7000	25.62	2.18	8.13	0.72	7.49
7700	28.54	5.29	3.73	0.68	3.05
8000	28.02	7.79	2.52	0.55	1.89
8500	22.85	13.31	1.49	0.56	0.99
10000	14.23	30.29	0.96	1.10	0.74
11000	10.14	25.55	1.29	2.52	1.08
11400	9.10	22.92	1.64	2.98	1.40

Evaluation Board MCL P/N: TB-LDPW-272452+
Suggested PCB Layout (PL-570)

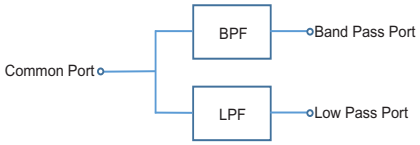


NOTES:
1. TRACE WIDTH & GAP ARE SHOWN FOR ROGERS RO4233 WITH DIELECTRIC THICKNESS .020±.0015. COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH & GAP MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

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

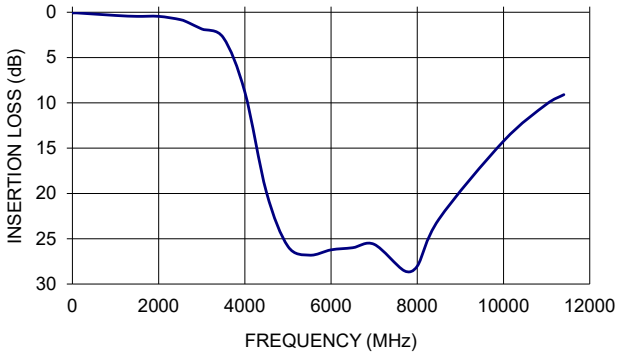
DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

Block Diagram

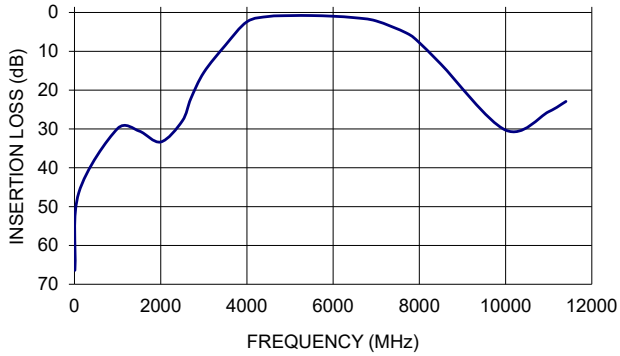


Notes
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's 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

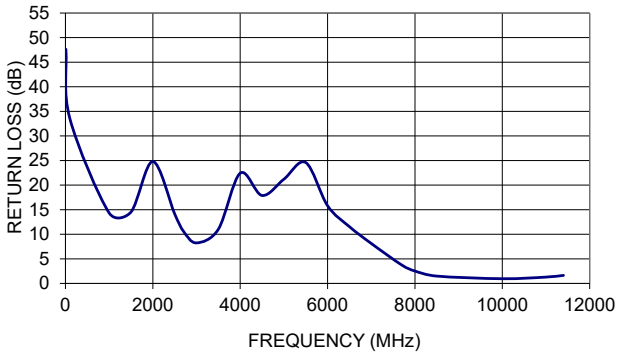
LDPW-272-452R+
LOW PASS PORT INSERTION LOSS



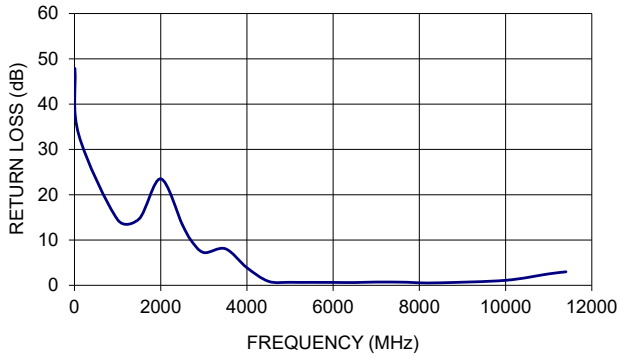
LDPW-272-452R+
BAND PASS PORT INSERTION LOSS



LDPW-272-452R+
COMMON PORT RETURN LOSS



LDPW-272-452R+
LOW PASS PORT RETURN LOSS



LDPW-272-452R+
BAND PASS PORT RETURN LOSS