

# Ceramic Diplexer

## LDPG-212-322+

50Ω DC to 5000 MHz (DC-2100, 2600-5000 MHz)

### The Big Deal

- Low insertion loss, 0.8 dB
- High stopband isolation, 18-22 dB
- Very small size, 0805
- Low cost



CASE STYLE: GE0805C-10

### Product Overview

Mini-Circuits' LDPG-212-322+ is a tiny, surface-mount diplexer with a low pass channel from DC to 2100 MHz and a high pass channel from 2600 to 5000 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, 0805 ceramic package with excellent thermal stability from -55 to +100°C.

### Key Features

Feature	Advantages
Low passband insertion loss, 0.8 dB	Ensures low signal loss through both channels
Good stopband isolation, 18-22	Eliminates unwanted spurious signals out of band.
Good return loss, 16 dB typ.	Ensures good matching in 50Ω systems and minimizes in-band reflection.
Tiny size, 0.08 x 0.05 x 0.02"	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 +100°C	Enables reliable performance in extreme environments.

#### 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](http://www.minicircuits.com/MCLStore/terms.jsp)



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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

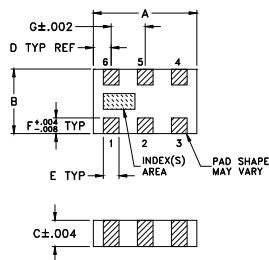
Operating Temperature	-55°C to 100°C
Storage Temperature*	-55°C to 100°C
RF Power Input**	2W at 25°C

\* passband rating, derate linearly to 1W at 100°C ambient.  
Permanent damage may occur if any of these limits are exceeded.

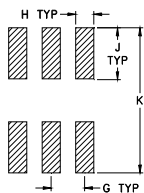
### Pad Connections

Low Pass Port	6
High Pass Port	4
Common Port	2
Ground	1,3,5

### Outline Drawing



### PCB Land Pattern

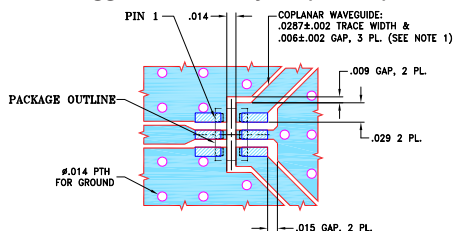


Suggested Layout,  
Tolerance to be within ±.002

### Outline Dimensions (inch mm)

A	B	C	D	E	F
.079	.049	.020	.014	.012	.012
2.01	1.24	0.51	0.36	0.30	0.30
G	H	J	K		wt
.026	.014	.039	.110		grams
0.66	0.36	1.00	2.80		.005

### Demo Board MCL P/N: TB-871+ Suggested PCB Layout (PL-489)



- NOTES:**
- TRACE WIDTH & GAP PARAMETERS ARE SHOWN FOR FR4, GRADE IT-180TC (ITEQ CORP.) WITH DIELECTRIC THICKNESS .037" ±.003"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
  - 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

### Features

- small size 0805(2.0 x 1.25 mm)
- low insertion loss, 0.8 dB typ.
- high rejection
- temperature stable
- LTCC construction

### Applications

- communication systems
- ISM
- WiFi

### Electrical Specifications<sup>1,2</sup> at 25°C

Parameter	Port	Frequency (MHz)	Min.	Typ.	Max.	Unit	
Pass Band	Insertion Loss	Low Pass	DC - 2100	—	0.5	2.5	dB
		High Pass	2600 - 5000	—	0.8	3.0	
	Return Loss	Low Pass	DC - 2100	—	16	—	dB
		High Pass	2600 - 5000	—	14	—	
Stop Band Isolation	Common	DC - 5000	—	16	—		
	High Pass	DC - 2040	10	18	—	dB	
	Low Pass	3200 - 5000	17	22	—	dB	

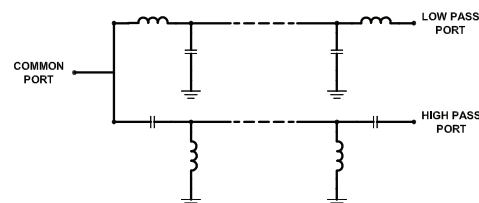
<sup>1</sup> In Application where DC voltage is present at either input or output port, coupling capacitors are required.

<sup>2</sup> Measured on Mini-Circuits Characterization Test Board TB-871+ with auto port extension

### 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
100	0.09	35.93	42.56	43.84	0.03
200	0.11	29.93	40.50	43.25	0.04
400	0.14	24.02	37.51	46.43	0.06
600	0.18	20.73	35.09	57.73	0.11
1000	0.27	17.26	33.03	35.97	0.27
1400	0.35	16.59	33.22	31.28	0.43
1800	0.43	22.54	26.47	26.83	0.58
2050	0.77	19.99	17.79	17.39	1.07
2100	0.97	15.81	16.27	15.15	1.35
2600	11.78	1.24	15.00	1.79	16.88
3000	21.22	0.50	19.86	0.72	23.10
3200	21.17	0.43	20.31	0.60	21.88
3400	20.32	0.40	20.63	0.53	21.14
3800	20.12	0.34	23.23	0.42	22.79
4200	21.23	0.30	31.23	0.33	30.26
4600	22.35	0.29	29.55	0.29	29.44
5000	21.64	0.35	19.85	0.30	19.05

### Functional Schematic



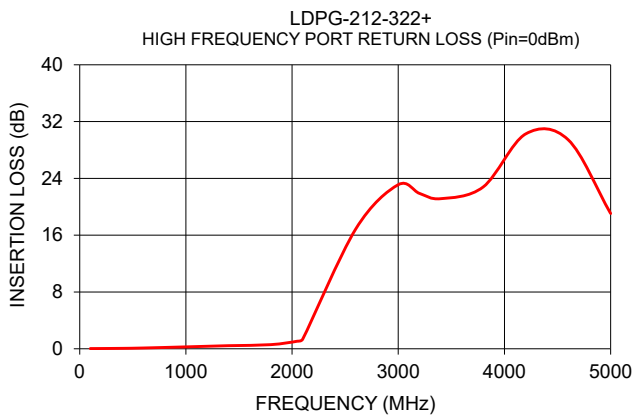
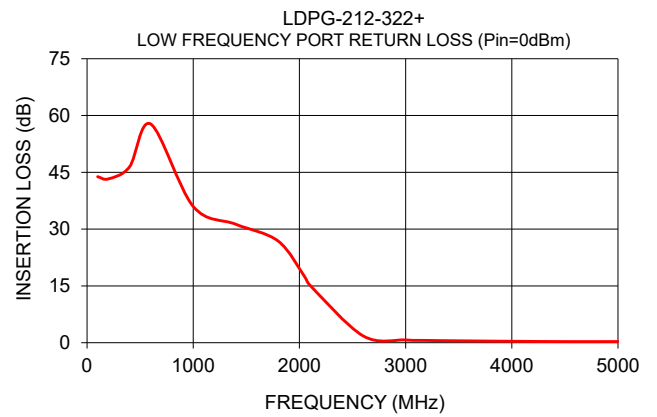
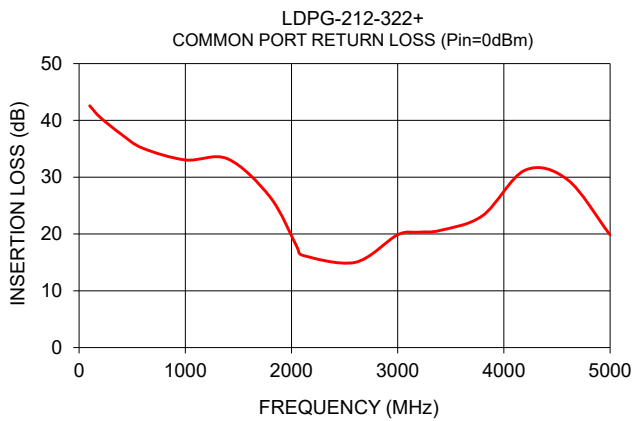
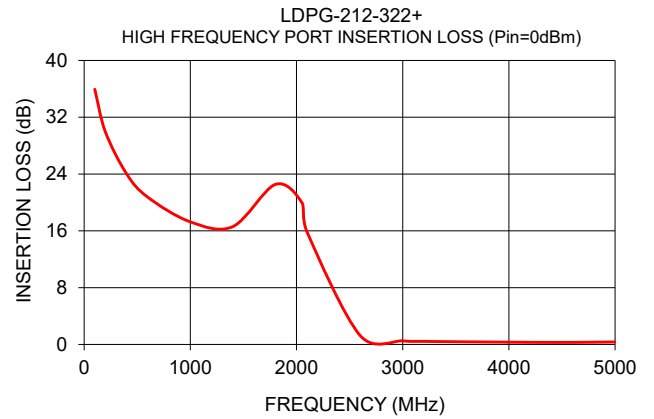
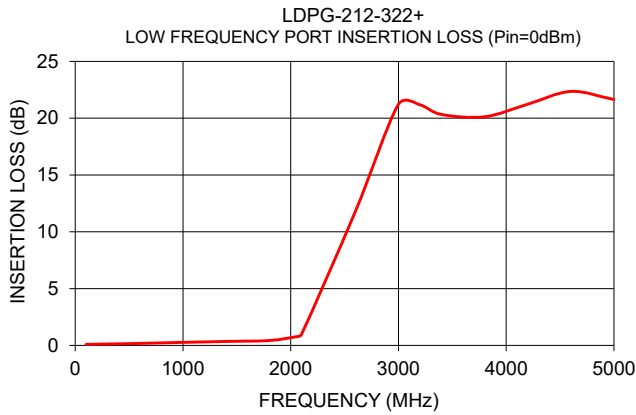
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