

Ceramic

# Directional Coupler

DCW-14-472+

50Ω 3600 to 4700 MHz 14dB Coupling

## The Big Deal

- High Power handling
- Industry leading combination of size/ bandwidth



CASE STYLE: JC0603C

## Product Overview

Mini-Circuits new directional coupler DCW-14-472+ offers an industry leading combination of operating bandwidth and size. The low insertion loss makes this component a versatile building block for use in a variety of systems and sub-system designs.

## Key Features

Feature	Advantages
Small Size	Offered in the JC0603C package size, the DCW-14-472+ offers an industry leading combination of size, bandwidth and frequency. The small footprint allows for reduced parasitics in systems with improved performance and simplified layout.
High Power handling	Capable of operating up to 2W, the LTCC construction of the DCW-14-472+ makes this directional coupler a robust, rugged product that can be used effectively in either the transmit or receive paths.

### 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)



# Ceramic Directional Coupler

50Ω 3600 to 4700 MHz 14dB Coupling

## DCW-14-472+



Generic photo used for illustration purposes only

CASE STYLE: JC0603C

**+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

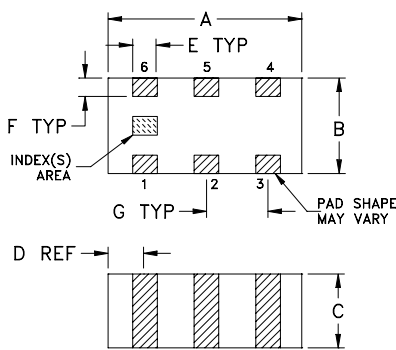
Storage Temperature\* -55°C to 125°C

\*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.

### Pad Connections

Input	1
GND	2
Coupled	3
Termination	4
GND	5
Output	6

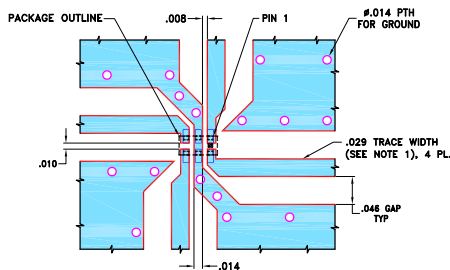
### Outline Drawing



### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	wt
.063	.031	.024	.012	.008	.006	.020	grams
1.60	0.79	0.61	0.30	0.20	0.15	0.51	0.005

### Evaluation Board MCL P/N: TB-DCW-14-472+ Suggested PCB Layout (PL-572)



- NOTES:
- TRACE WIDTH & GAP ARE SHOWN FOR FR4, GRADE IT-180TC (ITEQ CORP.) WITH DIELECTRIC THICKNESS .016±.0015. COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH & GAP MAY NEED TO BE MODIFIED.
  - BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
  - REFER TO MODEL DATASHEET FOR PIN OUTS.
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).  
■ DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

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### Features

- miniature size 0603
- low cost
- aqueous washable

### Applications

- ISM Band
- Cellular

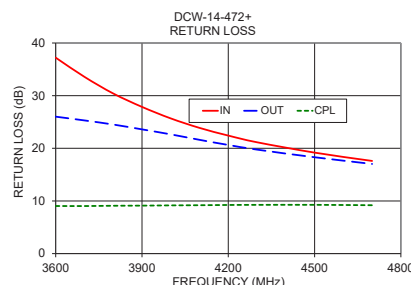
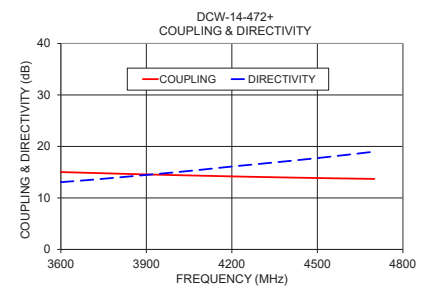
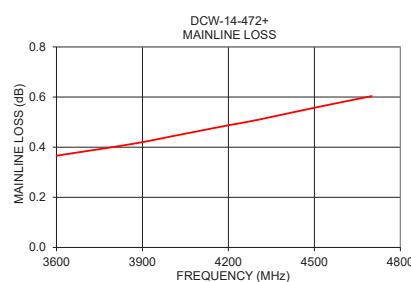
### Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		3600		4700	MHz
Mainline Loss	3600 - 4700	—	0.7	1	dB
Coupling	3600 - 4700	—	14±1.5	—	dB
Directivity	3600 - 4700	10	13	—	dB
Return Loss (Input)	3600 - 4700	10	—	—	dB
Return Loss (Output)	3600 - 4700	10	—	—	dB
Input Power <sup>1</sup>	3600 - 4700	—	—	2	W

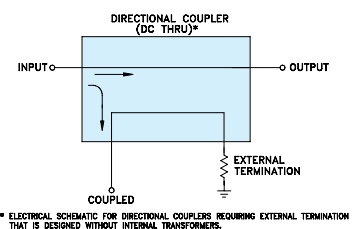
1. Derate linearly to 0.5W at 125°C.

### Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB)		
				In	Out	Cpl
3600	0.37	15.03	13.06	37.22	26.01	9.04
3700	0.38	14.87	13.49	33.57	25.30	9.03
3800	0.40	14.71	13.97	30.41	24.52	9.09
3900	0.42	14.57	14.47	27.87	23.60	9.11
4000	0.44	14.43	14.97	25.68	22.65	9.16
4100	0.47	14.31	15.52	23.88	21.61	9.19
4200	0.49	14.19	16.10	22.42	20.64	9.24
4300	0.51	14.07	16.63	21.15	19.75	9.26
4500	0.56	13.87	17.74	19.18	18.30	9.26
4700	0.60	13.69	18.99	17.60	17.03	9.19



### Electrical Schematic



\* ELECTRICAL SCHEMATIC FOR DIRECTIONAL COUPLERS REQUIRING EXTERNAL TERMINATION THAT IS DESIGNED WITHOUT INTERNAL TRANSFORMERS.

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