Ceramic

Directional Coupler

DCW-9-432+

50Ω 2300 to 4300 MHz 9dB Coupling

The Big Deal

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

CASE STYLE: JC0603C

Product Overview

Mini-Circuits new directional coupler DCW-9-432+ 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-9-432+ 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-9-432+ makes this directional coupler a robust, rugged product that can be used effectively in either the transmit or receive paths.

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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

*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

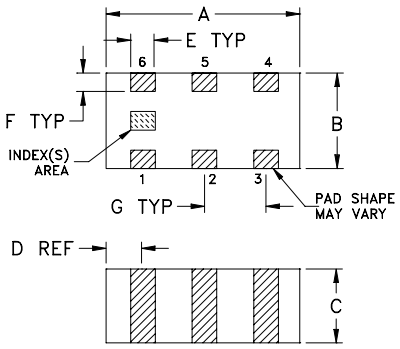
Features

- miniature size 0603
- low cost
- aqueous washable

Applications

- ISM Band
- Cellular
- Bluetooth
- Zigbee

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

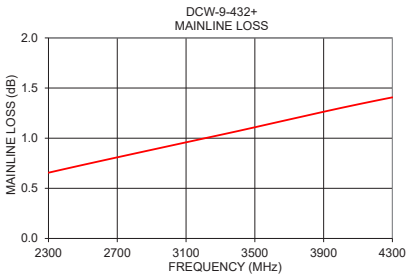
Electrical Specifications at 25°C

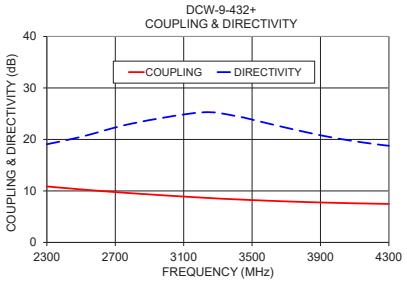
Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		2300		4300	MHz
Mainline Loss	2300 - 4300	—	1.3	1.7	dB
Coupling	2300 - 4300	—	9±2	—	dB
Directivity	2300 - 4300	14	17	—	dB
Return Loss (Input)	2300 - 4300	11	—	—	dB
Return Loss (Output)	2300 - 4300	11	—	—	dB
Input Power[1]	2300 - 4300	—	—	2	W

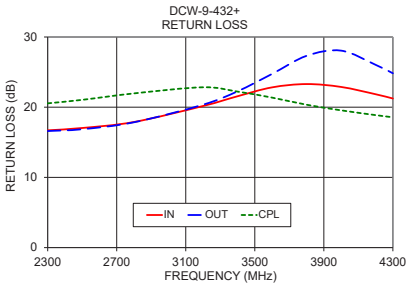
1. Derate linearly to 0.5W at 125°C.

Typical Performance Data

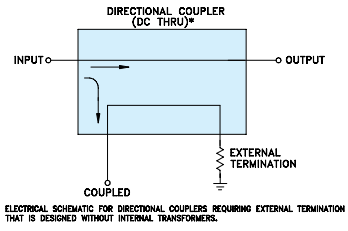
Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB) In	Return Loss (dB) Out	Return Loss (dB) Cpl
2300	0.66	10.87	19.07	16.71	16.60	20.55
2500	0.73	10.30	20.50	17.04	16.86	21.05
2800	0.85	9.54	23.10	17.89	17.86	21.97
3200	1.00	8.71	25.24	20.17	20.36	22.84
3400	1.07	8.38	24.57	21.56	22.26	22.22
3600	1.15	8.09	23.05	22.83	24.74	21.37
3800	1.23	7.86	21.52	23.30	27.32	20.35
4000	1.30	7.68	20.18	22.89	28.06	19.55
4200	1.37	7.54	19.18	21.85	26.04	18.87
4300	1.41	7.48	18.77	21.24	24.83	18.57



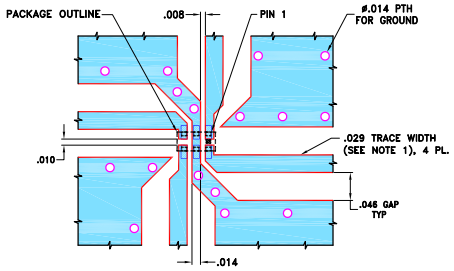




Electrical Schematic



Evaluation Board MCL P/N: TB-DCW-9-432+
Suggested PCB Layout (PL-572)



NOTES:
1. 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.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
3. 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.

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.
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