



## COAXIAL

Directional Coupler **ZCDC10-K0144-1+**

50Ω 10 dB Up to 19 W 1 to 40 GHz 2.92 mm Female

## KEY FEATURES

- Wideband frequency range, 1 to 40 GHz
- Excellent coupling flatness,  $\pm 0.8$  dB typ.
- Excellent directivity, 16 dB typ. up to 40 GHz
- Excellent return loss, 22 dB typ. up to 40 GHz
- Power handling up to 19 W
- DC current pass through input to output

## APPLICATIONS

- 5G
- Mobile
- Fixed satellite
- Lab use

## PRODUCT OVERVIEW

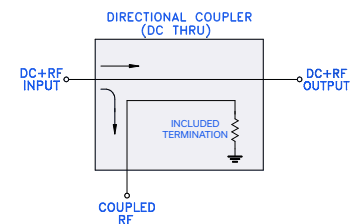
The Mini-Circuits ZCDC10-K0144-1+ wideband directional coupler offers exceptional performance operating over 1 to 40 GHz. This coupler has excellent coupling flatness, directivity, and power handling. It is ideal for lab testing applications as well as for power monitoring over wide bands, among other applications.

The ZCDC10-K0144-1+ is identical to Mini-Circuits model ZCDC10-K0144+, except for additional testing performed at Anritsu-specified data points (TD-3). Test data is provided with units for customer use with the Anritsu MS2840A Signal Analyzer Pulsed Radar Measurement Function (MX284059B). See page 2 for further information.



Generic photo used for illustration purposes only

## FUNCTIONAL DIAGRAM



## ELECTRICAL SPECIFICATIONS AT +25°C

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Units
Frequency Range	-	1	-	40	GHz
Mainline Loss <sup>1</sup>	1 - 8	-	0.9	1.6	dB
	8 - 18	-	1.3	2.0	
	18 - 26.5	-	1.7	2.3	
	26.5 - 40	-	2.2	3.0	
Coupling Nominal	1 - 40	-	10 $\pm$ 1.2	-	dB
Coupling Flatness ( $\pm$ )	1 - 40	-	0.8	1.0	dB
Directivity	1 - 8	16.0	29	-	dB
	8 - 18	14.0	23	-	
	18 - 26.5	12.0	21	-	
	26.5 - 40	10.0	16	-	
Return Loss (Input & Output)	1 - 8	15.5	33	-	dB
	8 - 18	14.0	29	-	
	18 - 26.5	12.7	25	-	
	26.5 - 40	11.7	22	-	
Return Loss (Coupled)	1 - 8	15.5	30	-	dB
	8 - 18	14.0	25	-	
	18 - 26.5	12.7	22	-	
	26.5 - 40	11.7	20	-	
Input Power <sup>2</sup>	-	-	-	19	W

1. Mainline loss includes coupling loss.

2. Up to 25 °C, derates linearly to 7 W at 100 °C.

ABSOLUTE MAXIMUM RATINGS<sup>3</sup>

Operating Case Temperature	-55°C to +100°C
Storage Temperature	-55°C to +100°C
Supplied Termination <sup>4</sup>	1 W
DC Current	0.6 A

3. Permanent damage may occur if any of these limits are exceeded.

4. At +25°C derate linearly to 325 mW at +100°C.

REV OR  
ECO-023121  
ZCDC10-K0144-1+  
MCL NY  
240920



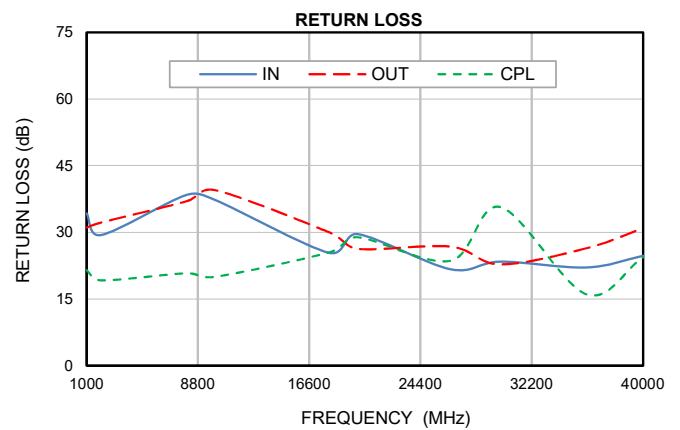
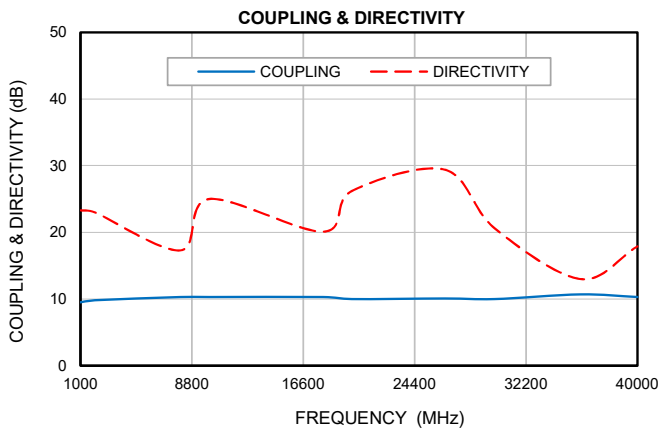
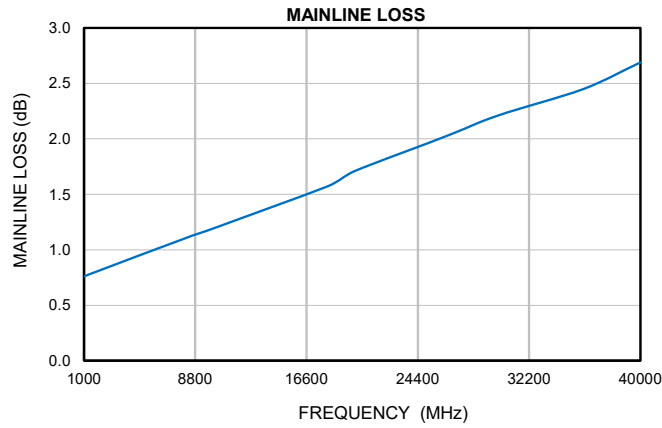


**COAXIAL**

# Directional Coupler **ZCDC10-K0144-1+**

50Ω 10 dB Up to 19 W 1 to 40 GHz 2.92 mm Female

**TYPICAL PERFORMANCE GRAPHS**



**FREQUENCIES & POINTS OF SERIALIZED DATA (TD-3) INCLUDED WITH PRODUCT\***

Frequency (GHz)	Step Size (GHz)	Number of Points
0.01 - 0.1	0.01	10
0.2 - 1	0.1	9
2 - 10	1	9
10 - 40	5	7
5.5	-	1
9.5	-	1
12	-	1
14	-	1

\*Tested parameters: Mainline loss, directivity, coupling, return loss (all points).





**COAXIAL**

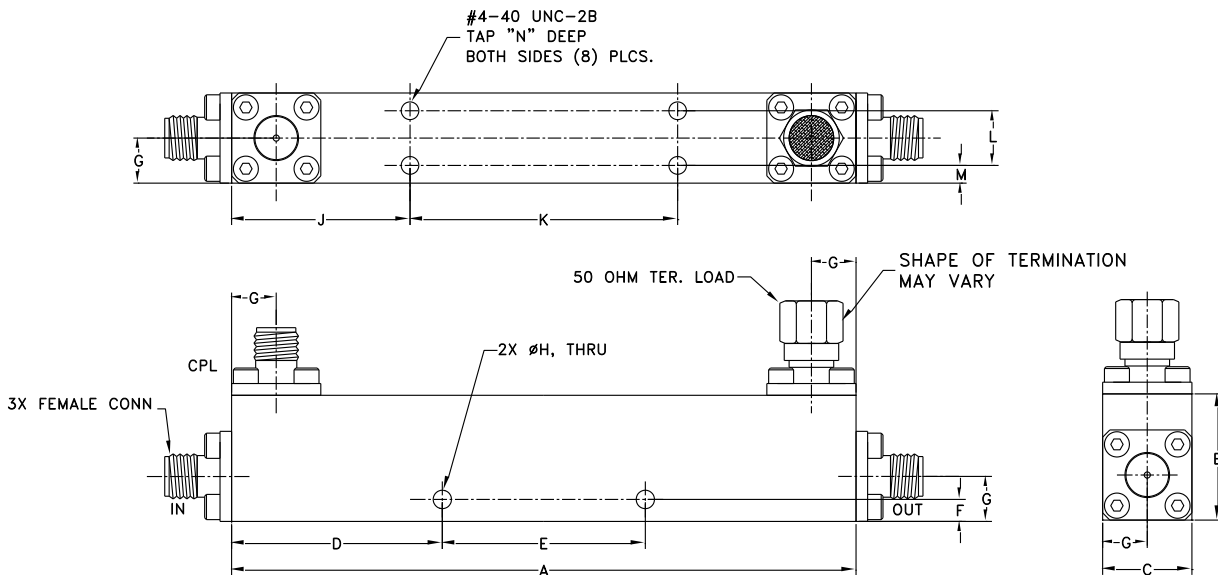
# Directional Coupler **ZCDC10-K0144-1+**

50Ω 10 dB Up to 19 W 1 to 40 GHz 2.92 mm Female

**COAXIAL CONNECTIONS**

Ports	Marking
Input	IN
Output	OUT
Coupled	CPL
Termination (50Ω) Included	TERM

**CASE STYLE DRAWING**



CASE #	A	B	C	D	E	F	G	H	J	K
HT2679	3.50 (88.90)	.70 (17.78)	.50 (12.70)	1.181 (30.00)	1.138 (28.90)	.122 (3.10)	.25 (6.35)	.102 (2.60)	1.000 (25.40)	1.500 (38.10)

CASE #	L	M	N	WT.GRAM
HT2679	.303 (7.70)	.098 (2.50)	.20 (5.08)	80

Dimensions are in inches (mm). Tolerances: 2Pl. ± .03; 3Pl. ± .015

**PRODUCT MARKING\*:** ZCDC10-K0144+

\*Marking may contain other features or characters for internal lot control.





COAXIAL

# Directional Coupler **ZCDC10-K0144-1+**

50Ω 10 dB Up to 19 W 1 to 40 GHz 2.92 mm Female

ADDITIONAL INFORMATION IS AVAILABLE ON OUR DASHBOARD [CLICK HERE](#)

Performance Data & Graphs	Data
	Graphs
	S3P & TD-3 Data Set (.zip file)
Case Style	HT2679
Connectors	2.92 mm Female
RoHS Status	Compliant
Environmental Ratings	ENV28

#### NOTES

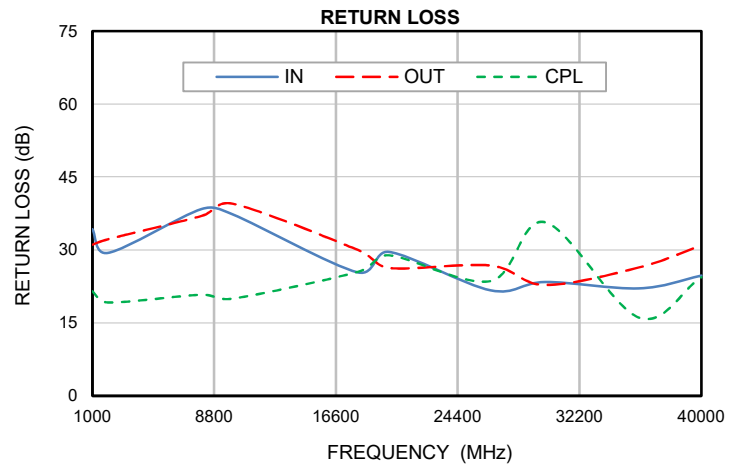
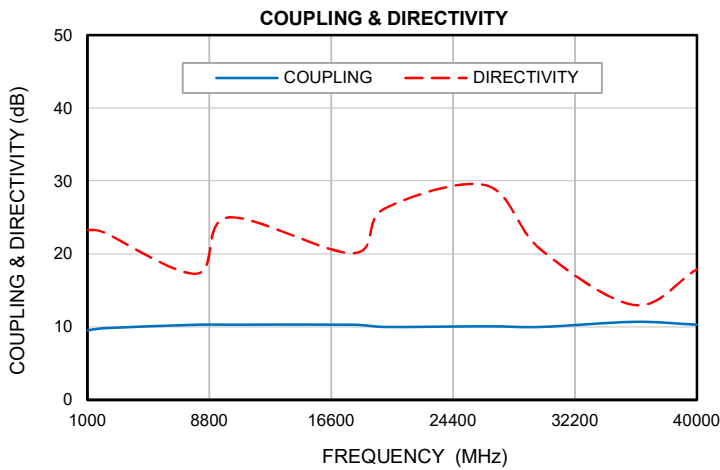
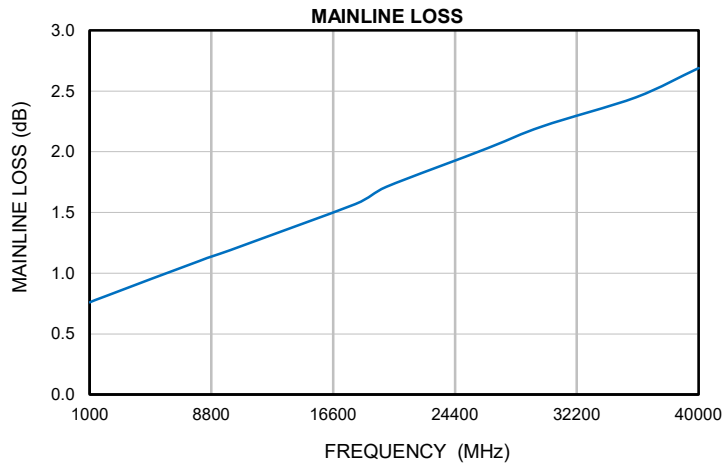
- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- 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/terms/viewterm.html](http://www.minicircuits.com/terms/viewterm.html)



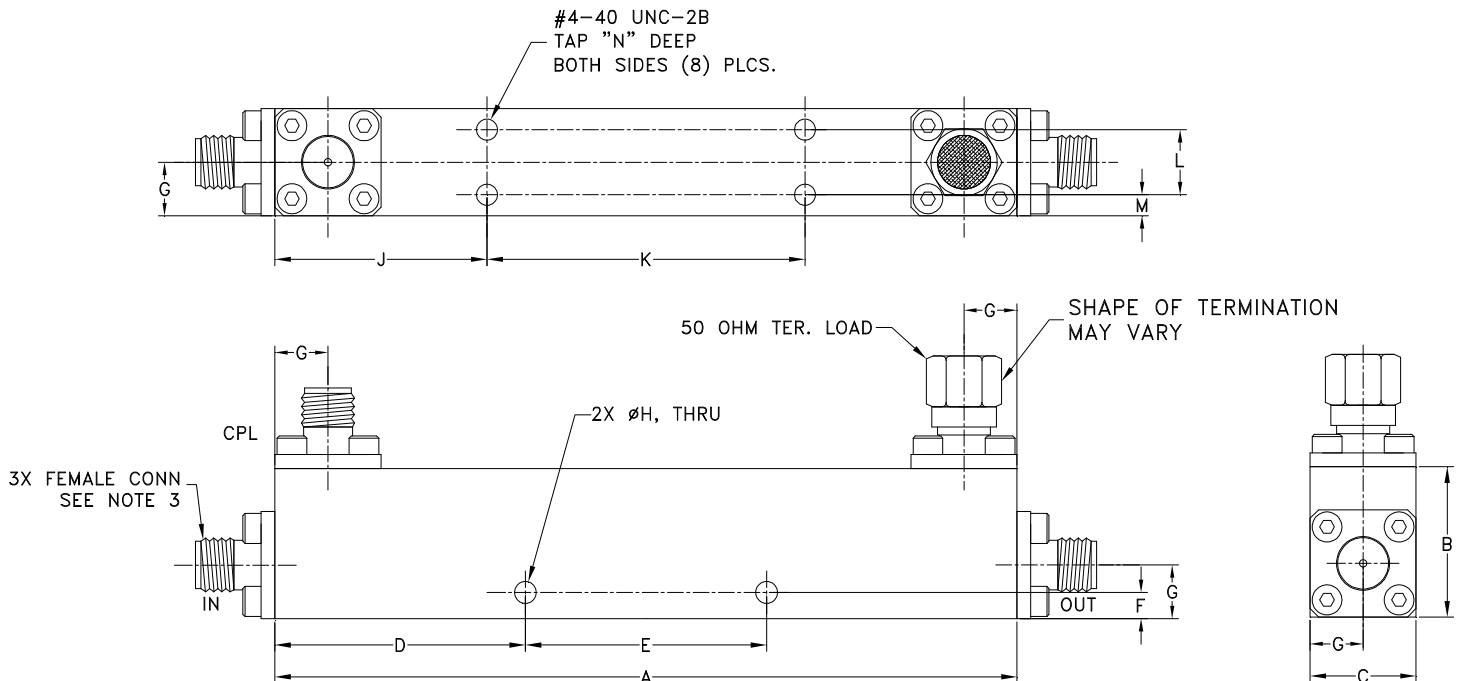
## Typical Performance Data

FREQ.	MAINLINE LOSS	COUPLING	DIRECTIVITY	RETURN LOSS (IN)	RETURN LOSS (OUT)	RETURN LOSS (CPL)
(MHz)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)
1000	0.76	9.50	23.30	34.30	31.10	21.50
2000	0.81	9.80	23.00	29.40	32.20	19.20
8000.0	1.10	10.30	17.30	38.40	37.00	20.80
10000.0	1.19	10.30	25.00	37.30	39.50	20.00
18000.0	1.57	10.30	20.10	25.40	30.00	25.50
20000.0	1.71	10.00	26.20	29.60	26.30	28.90
26500.0	2.03	10.10	29.40	21.70	26.80	23.60
30000.0	2.21	10.00	20.60	23.40	22.80	35.70
36000.0	2.45	10.70	13.00	22.10	26.40	16.10
40000.0	2.69	10.30	17.90	24.70	30.90	24.40

## Typical Performance Curves



### Outline Dimensions



CASE #	A	B	C	D	E	F	G	H	J	K
HT2679	3.50 (88.90)	.70 (17.78)	.50 (12.70)	1.181 (30.00)	1.138 (28.90)	.122 (3.10)	.25 (6.35)	.102 (2.60)	1.000 (25.40)	1.500 (38.10)

CASE #	L	M	N	WT. GRAM
HT2679	.0303 (7.70)	0.098 (2.50)	0.20 (5.08)	80

Dimensions are in inches (mm). Tolerances: 2Pl.  $\pm .03$ ; 3Pl.  $\pm .015$

#### Notes:

1. Case material: Aluminum alloy.
2. Case finish: Painting. Color: Blue.
3. Refer to the individual model data sheet for the type of connectors available.



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: [www.minicircuits.com](http://www.minicircuits.com)

RF/IF MICROWAVE COMPONENTS



All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

<b>Specification</b>	<b>Test/Inspection Condition</b>	<b>Reference/Spec</b>
Operating Temperature	-55° to 100°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D
Humidity	90% RH, 65°C Units may require bake-out after humidity to restore full performance.	MIL-STD-202, Method 103
Thermal Shock	-65° to 125°C, 5 cycles	MIL-STD-202, Method 107, Condition B
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D
Mechanical Shock	100g, 6ms sawtooth, 3 shocks each direction 3 axes (total 18)	MIL-STD-202, Method 213, Condition I