COAXIAL

Directional Coupler ZCDC10-K0144-1+

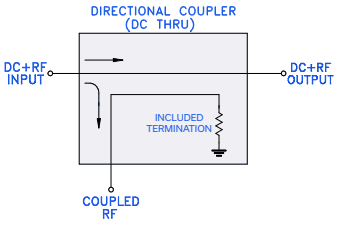
50Ω 10 dB Up to 19 W 1 to 40 GHz 2.92 mm Female

KEY FEATURES

- Wideband frequency range, 1 to 40 GHz
- Excellent coupling flatness, ±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

Generic photo used for illustration purposes only

FUNCTIONAL DIAGRAM



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.

ELECTRICAL SPECIFICATIONS AT +25°C

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Units
Frequency Range	-	1	-	40	GHz
Mainline Loss[1]	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 ± 1.2	-	dB
Coupling Flatness (±)	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[2]	-	-	-	19	W

1. Mainline loss includes coupling loss.
2. Up to 25 °C, derates linearly to 7 W at 100 °C.

ABSOLUTE MAXIMUM RATINGS[3]

Operating Case Temperature	-55°C to +100°C
Storage Temperature	-55°C to +100°C
Supplied Termination[4]	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

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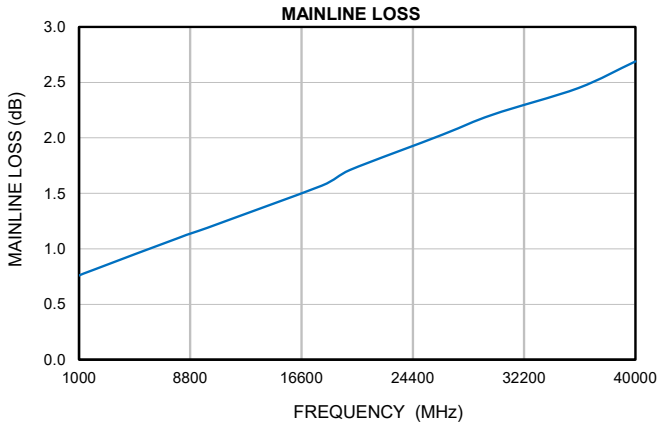
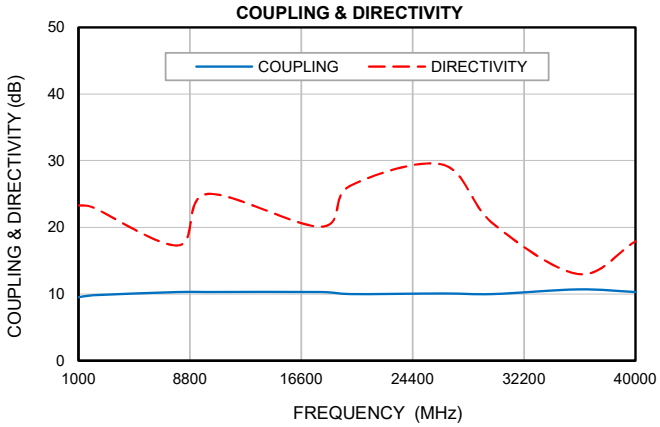
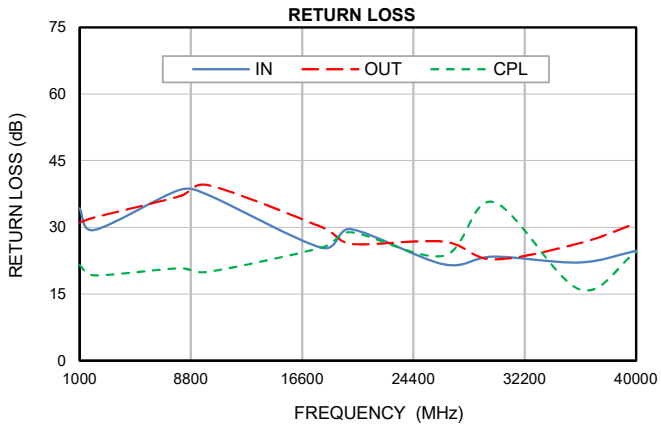
TYPICAL PERFORMANCE GRAPHS







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).

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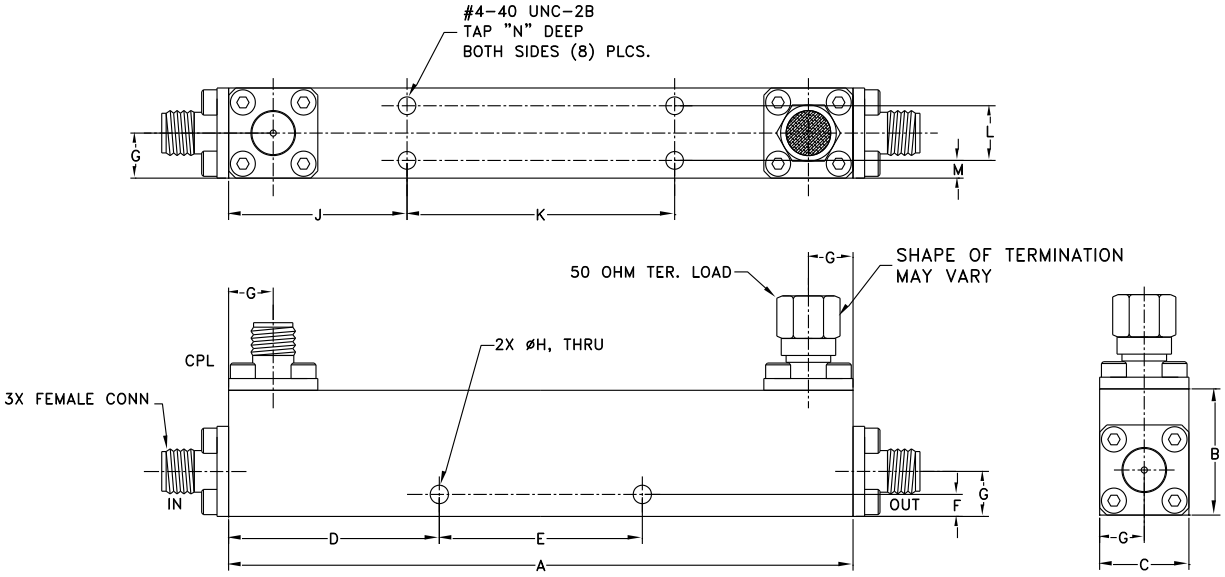
COAXIAL CONNECTIONS

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.

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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

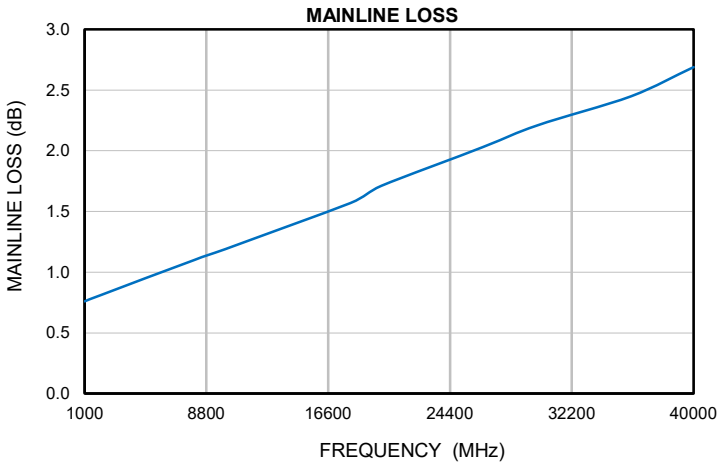
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's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

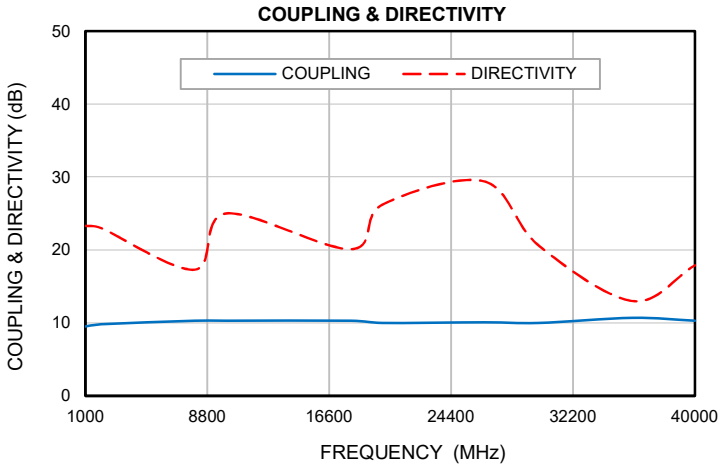
Wideband, DC Pass Directional Coupler — ZCDC10-K0144-1+

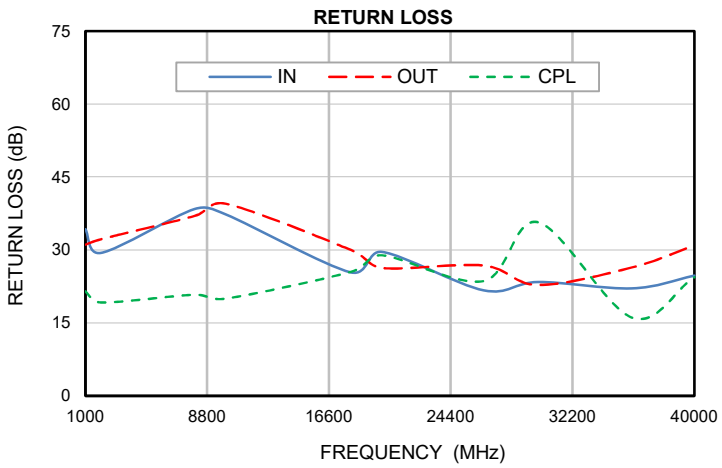
Typical Performance Data

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



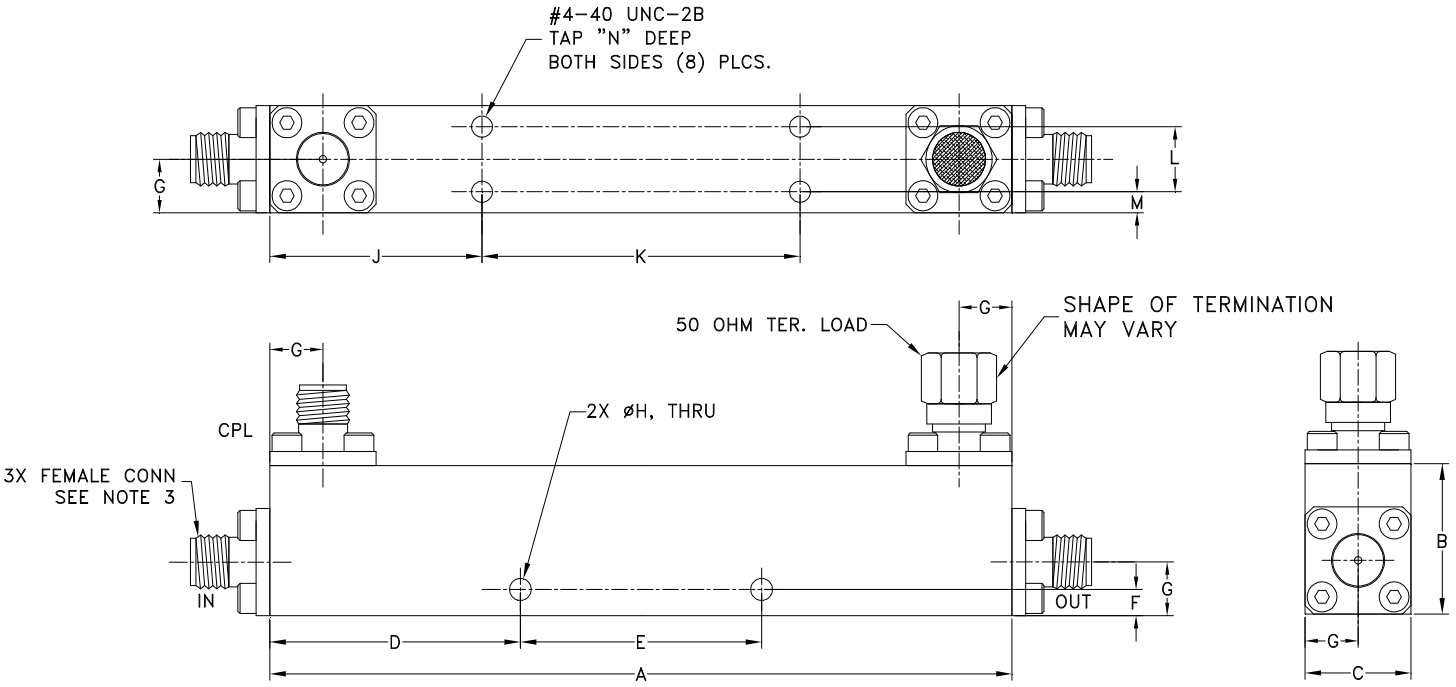




Case Style HT

HT2679

Outline Dimensions



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

Mini-Circuits

Environmental Specifications ENV28

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.

Specification	Test/Inspection Condition	Reference/Spec
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