Wideband, DC Pass

Directional Coupler

ZCDC10-K0144+

50Ω 10dB Up to 19W 1 to 40 GHz

The Big Deal

- Wideband, 1 to 40 GHz
- Excellent Coupling Flatness, ±0.8 dB typ.
- Power Handling up to 19W



CASE STYLE: HT2679

Product Overview

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

Key Features

Feature	Advantages
Wide bandwidth	With a bandwidth spanning 1 to 40 GHz, ZCDC10-K0144+ coupler is ideal for most lab testing applications, avoiding the need to switch components for different frequency bands.
Excellent Directivity • 13 dB typ. up to 40 GHz	High directivity allows sampling of input powers with minimal detrimental effects due to output mismatches.
Excellent coupling flatness, ±0.8 dB typ	Excellent coupling flatness over the entire frequency range minimizes the need for compensation circuits in most cases.
Good Return Loss (In & Out) • 16 dB typ. up to 40 GHz	Good return loss over 1 to 40 GHz minimizes undesired reflections and resulting amplitude ripple.

Notes
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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

Wideband, DC Pass

Directional Coupler

ZCDC10-K0144+

50Ω 10dB Up to 19W 1 to 40 GHz



Generic photo used for illustration purposes only

CASE STYLE: HT2679

Connectors	Model
2.92mm Female	ZCDC10-K0144+

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Maximum Ratings

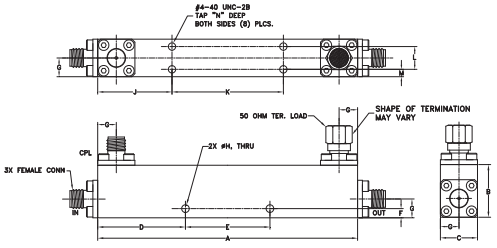
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
Supplied Termination*	1 W
DC Current	0.6A

Permanent damage may occur if any of these limits are exceeded
* up to 25°C, derates linearly to 325mW at 100°C.

Coaxial Connections

INPUT	IN
OUTPUT	OUT
COUPLED	CPL
TERMINATION (50Ω) INCLUDED	—

Outline Drawing

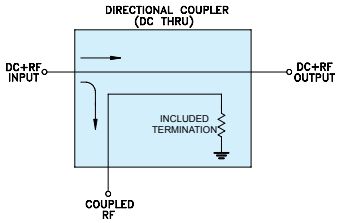


Outline Dimensions (inch / mm)

A	B	C	D	E	F	G
3.50	0.70	0.50	1.181	1.138	0.122	0.25
88.90	17.78	12.70	30.00	28.91	3.10	6.35

H	J	K	L	M	N	wt
0.102	1.00	1.50	0.303	0.098	0.2	grams
2.59	25.40	38.10	7.70	2.5	5.08	80

Electrical Schematic



Features

- Wide frequency range, 1 to 40 GHz
- Good coupling flatness, ±0.8 dB typ.
- Good directivity, 13 dB typ. up to 40 GHz
- Good return loss, 16 dB typ. up to 40 GHz
- DC current pass through input to output

Applications

- 5G
- Mobile
- Fixed satellite
- Lab use

Electrical Specifications at 25°C

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Units
Operating Frequency		1		40	GHz
Nominal Coupling	1-40		10±1.5		dB
Coupling Flatness (±)	1-40		0.8	1.0	dB
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	
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 (In & Out)	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 (Coupling)	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**				19	W

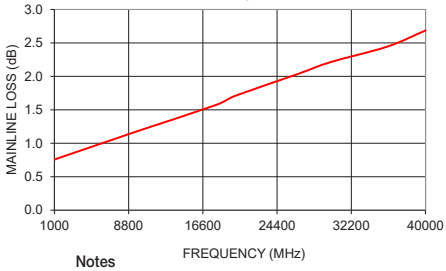
1. Mainline loss includes coupling loss
** up to 25°C, derates linearly to 7W at 100°C.

Typical Performance Data

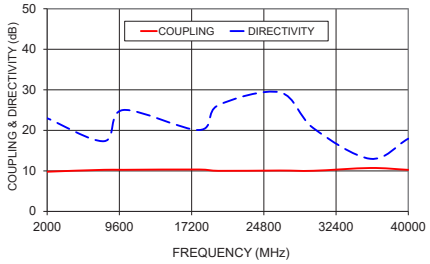
Frequency (MHz)	Mainline Loss[1] (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB) In	Return Loss (dB) Out	Return Loss (dB) Cpl
1000	0.76	9.5	23.3	34.3	31.1	21.5
2000	0.81	9.8	23.0	29.4	32.2	19.2
8000	1.10	10.3	17.3	38.4	37.0	20.8
10000	1.19	10.3	25.0	37.3	39.5	20.0
18000	1.57	10.3	20.1	25.4	30.0	25.5
20000	1.71	10.0	26.2	29.6	26.3	28.9
26500	2.03	10.1	29.4	21.7	26.8	23.6
30000	2.21	10.0	20.6	23.4	22.8	35.7
36000	2.45	10.7	13.0	22.1	26.4	16.1
40000	2.69	10.3	17.9	24.7	30.9	24.4

1. Mainline loss includes coupling loss

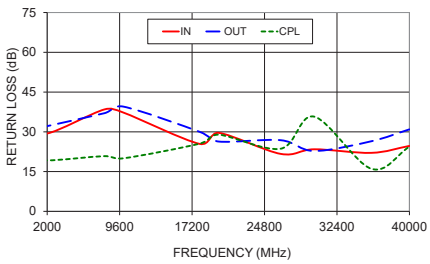
ZCDC10-K0144+
MAINLINE LOSS



ZCDC10-K0144+
COUPLING & DIRECTIVITY



ZCDC10-K0144+
RETURN LOSS



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