

DC Pass

Directional Coupler

ZADC-13-73-S+

50Ω Up to 4W 2600 to 7000 MHz

The Big Deal

- Wideband, 2600 to 7000 MHz
- Input power handling up to 4 W
- Low mainline loss, 0.8 dB
- Excellent VSWR, 1.2:1



CASE STYLE: CC1266

Product Overview

Mini-Circuits' ZADC-13-73-S+ is a coaxial, wideband directional coupler providing 13 dB coupling with good coupling flatness across the 2600 to 7000 MHz frequency range. This model is capable of handling up to 4 W RF input power and passing up to 1.0 A DC current from input to output. 18 dB typical directivity allows accurate sampling of signal through the coupled port, and low mainline loss (0.8 dB typical) provides excellent transmission of signal power from input to output. The coupler comes housed in a rugged, compact aluminum alloy case (2.0 x 2.0 x 0.75") with SMA connectors.

Key Features

Feature	Advantages
Wideband, 2600 to 7000 MHz	One device supports a broad range of system and test lab applications.
Good directivity, 18 dB	High directivity allows accurate signal sampling through the coupled port with minimal measurement error.
RF input power handling up to 4W	Usable in systems with medium power requirements.
Flat coupling, ± 1.2 dB	Provides consistent coupling performance across frequency.
Low mainline loss, 0.8 dB typ.	Provides excellent through-path signal power transmission.
Good VSWR. 1.2:1 typ.	Well-matched for 50Ω systems with minimal signal reflection.
DC current passing up to 1.0 A	Suitable for use in systems where DC power is needed through the RF line.
Small size, 2.0 x 2.0 x 0.75"	Saves space in crowded spaces and dense system layouts.

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



DC Pass Directional Coupler

ZADC-13-73-S+

50Ω Up to 4W 2600 to 7000 MHz



Generic photo used for illustration purposes only

CASE STYLE: CC1266

Connectors Model
SMA ZADC-13-73-S+

+RoHS Compliant

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

Maximum Ratings

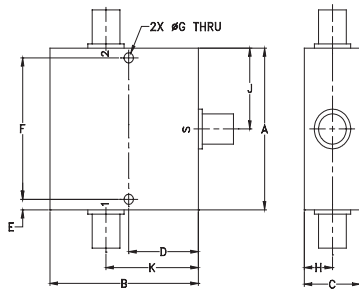
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
DC Current	1.0A

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

Coaxial Connections

INPUT	1
OUTPUT	2
COUPLED	S

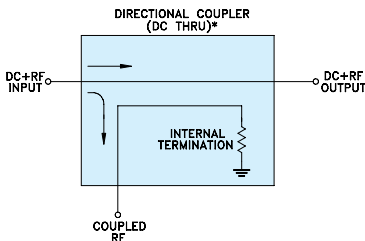
Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F	
2.00	2.00	.75	.938	.13	1.750	
50.80	50.80	19.05	23.83	3.30	44.45	
G	H	J	K			wt
.125	.38	1.00	1.25			grams
3.18	9.65	25.40	31.75			200.0

Electrical Schematic



* ELECTRICAL SCHEMATIC FOR DIRECTIONAL COUPLER THAT IS DESIGNED WITHOUT INTERNAL TRANSFORMERS.

Features

- excellent directivity, 18 dB typ.
- excellent VSWR, 1.20 typ.
- power input up to 4W
- low cost
- DC current through input to output 1.0A Max.

Applications

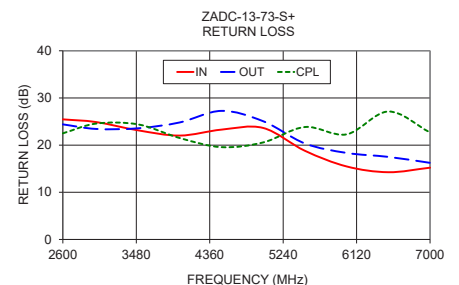
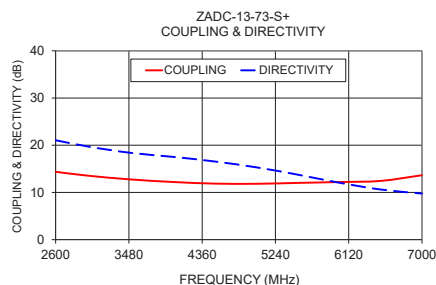
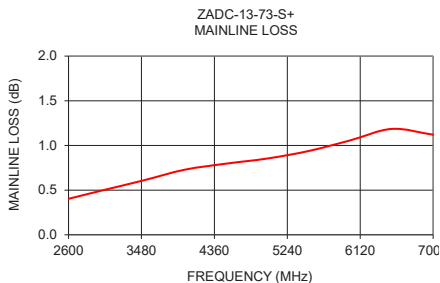
- instrumentation
- ISM
- defense communications
- federal communications
- fixed satellite

Electrical Specifications at 25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		2600	—	7000	MHz
Mainline Loss (above theoretical 0.2 dB)	2600	—	0.3	0.65	dB
	4500	—	0.7	1.0	
	6000	—	0.8	1.2	
	7000	—	0.9	1.3	
	2600 - 4500	—	13±2	—	
4500 - 6000	—	12±1	—		
6000 - 7000	—	13±2	—		
Coupling Flatness (±)	2600 - 4500	—	1.2	1.7	dB
	4500 - 6000	—	0.4	0.7	
	6000 - 7000	—	0.5	1.0	
Directivity	2600	15	21	—	dB
	4500	14	18	—	
	6000	10	15	—	
	7000	7	10	—	
	2600 - 4500	20	29	—	
4500 - 6000	18	26	—		
6000 - 7000	13	18	—		
7000	10	15	—		
Return Loss (Input)	2600	20	29	—	dB
	4500	18	26	—	
	6000	15	20	—	
	7000	10	15	—	
Return Loss (Output)	2600	15	18	—	dB
	4500	15	21	—	
	6000	15	19	—	
	7000	15	25	—	
Return Loss (Coupling)	2600	15	18	—	dB
	4500	15	21	—	
	6000	15	19	—	
	7000	15	25	—	
Input Power	2600 - 7000	—	—	4.0	W

Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)		Return Loss (dB) In/Out		Cpl
			In	Out	In	Out	
2600	0.40	14.37	21.06	25.46	24.40	22.50	
3000	0.50	13.53	19.69	24.88	23.43	24.57	
3500	0.61	12.76	18.39	23.14	23.56	24.40	
4000	0.73	12.22	17.55	22.02	24.80	21.51	
4500	0.80	11.88	16.58	23.28	27.26	19.57	
5000	0.85	11.83	15.35	23.64	25.07	20.57	
5500	0.94	12.02	13.79	18.80	20.36	23.84	
6000	1.06	12.20	12.08	15.48	18.35	22.28	
6500	1.19	12.44	10.63	14.26	17.51	27.12	
7000	1.12	13.64	9.76	15.22	16.24	22.69	



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Directional Coupler

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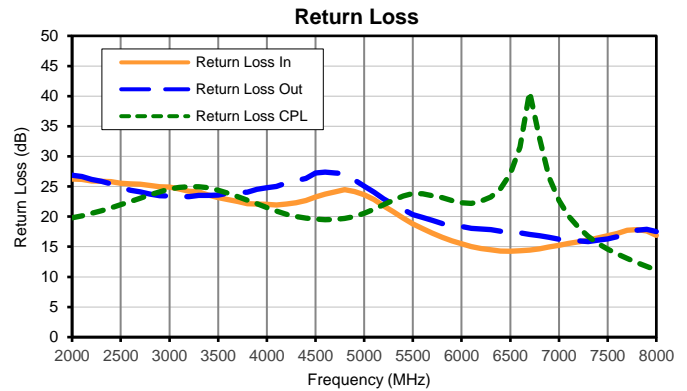
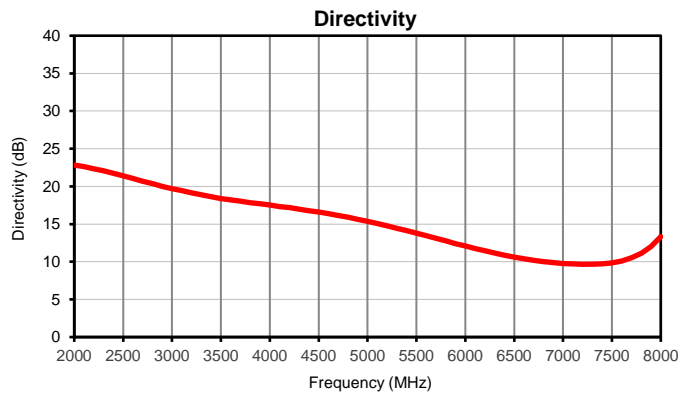
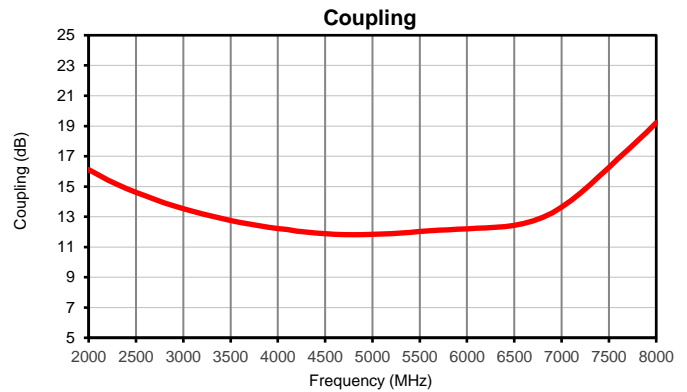
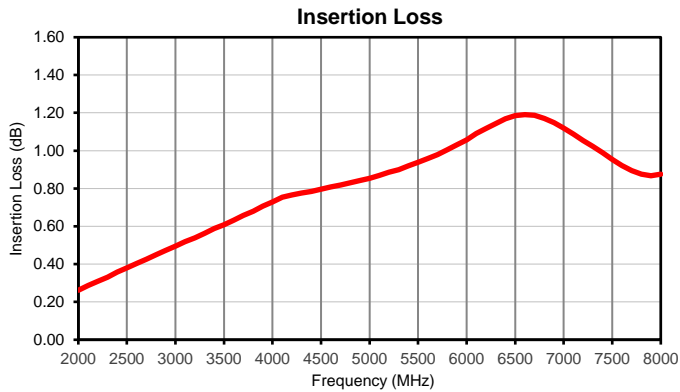
Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	COUPLING (dB)	DIRECTIVITY (dB)	RETURN LOSS		
				IN	OUT (dB)	CPL
2000	0.26	16.10	22.83	26.24	26.87	19.81
2100	0.29	15.77	22.62	26.17	26.67	20.15
2200	0.31	15.45	22.35	25.90	26.17	20.53
2300	0.33	15.15	22.08	25.87	25.85	20.97
2400	0.36	14.87	21.74	25.79	25.43	21.45
2500	0.38	14.61	21.41	25.55	24.86	21.96
2600	0.40	14.37	21.06	25.46	24.40	22.50
2700	0.43	14.14	20.67	25.38	24.10	23.06
2800	0.45	13.92	20.38	25.17	23.75	23.62
2900	0.47	13.72	20.01	24.95	23.46	24.12
3000	0.50	13.53	19.69	24.88	23.43	24.57
3100	0.52	13.36	19.44	24.59	23.38	24.83
3200	0.54	13.19	19.14	24.21	23.30	24.98
3300	0.56	13.03	18.90	24.08	23.53	24.97
3400	0.59	12.89	18.64	23.56	23.54	24.78
3500	0.61	12.76	18.39	23.14	23.56	24.40
3600	0.63	12.63	18.21	22.85	23.89	23.91
3700	0.66	12.52	18.03	22.49	24.02	23.32
3800	0.68	12.41	17.82	22.15	24.06	22.74
3900	0.71	12.31	17.70	22.11	24.53	22.12
4000	0.73	12.22	17.55	22.02	24.80	21.51
4100	0.75	12.15	17.33	21.94	25.02	20.93
4200	0.77	12.06	17.18	22.11	25.57	20.40
4300	0.78	11.99	16.98	22.31	25.96	20.02
4400	0.78	11.93	16.75	22.66	26.34	19.77
4500	0.80	11.88	16.58	23.28	27.26	19.57
4600	0.81	11.84	16.37	23.72	27.39	19.49
4700	0.82	11.82	16.13	24.13	27.24	19.51
4800	0.83	11.81	15.92	24.46	27.12	19.70
4900	0.84	11.82	15.62	24.16	26.08	20.04
5000	0.85	11.83	15.35	23.64	25.07	20.57
5100	0.87	11.86	15.06	22.85	24.07	21.22
5200	0.89	11.89	14.75	21.77	22.92	21.97
5300	0.90	11.93	14.45	20.83	22.01	22.74
5400	0.92	11.97	14.13	19.78	21.19	23.43
5500	0.94	12.02	13.79	18.80	20.36	23.84
5600	0.96	12.06	13.45	18.01	19.84	23.79
5700	0.98	12.10	13.12	17.24	19.38	23.48
5800	1.00	12.14	12.78	16.56	18.85	23.16
5900	1.03	12.18	12.41	15.96	18.57	22.66
6000	1.06	12.20	12.08	15.48	18.35	22.28
6100	1.09	12.24	11.75	15.03	18.05	22.21
6200	1.12	12.26	11.46	14.71	17.96	22.55
6300	1.14	12.30	11.15	14.48	17.82	23.23
6400	1.17	12.35	10.88	14.29	17.60	24.65
6500	1.19	12.44	10.63	14.26	17.51	27.12
6600	1.19	12.56	10.38	14.33	17.33	31.54
6700	1.19	12.73	10.17	14.43	17.03	40.69
6800	1.17	12.97	10.00	14.67	16.84	33.05
6900	1.15	13.27	9.87	14.97	16.57	26.50
7000	1.12	13.64	9.76	15.22	16.24	22.69
7100	1.09	14.08	9.71	15.54	16.11	20.08
7200	1.05	14.57	9.66	15.84	15.99	18.19
7300	1.02	15.11	9.67	16.07	15.85	16.73
7400	0.99	15.68	9.71	16.44	16.06	15.57
7500	0.95	16.27	9.86	16.84	16.31	14.61
7600	0.92	16.85	10.11	17.22	16.68	13.81
7700	0.89	17.43	10.51	17.74	17.27	13.04
7800	0.88	18.01	11.10	17.86	17.74	12.35
7900	0.87	18.60	12.01	17.64	17.88	11.71
8000	0.88	19.22	13.33	16.86	17.51	11.12

Directional Coupler

Typical Performance Curves

ZADC-13-73-S+



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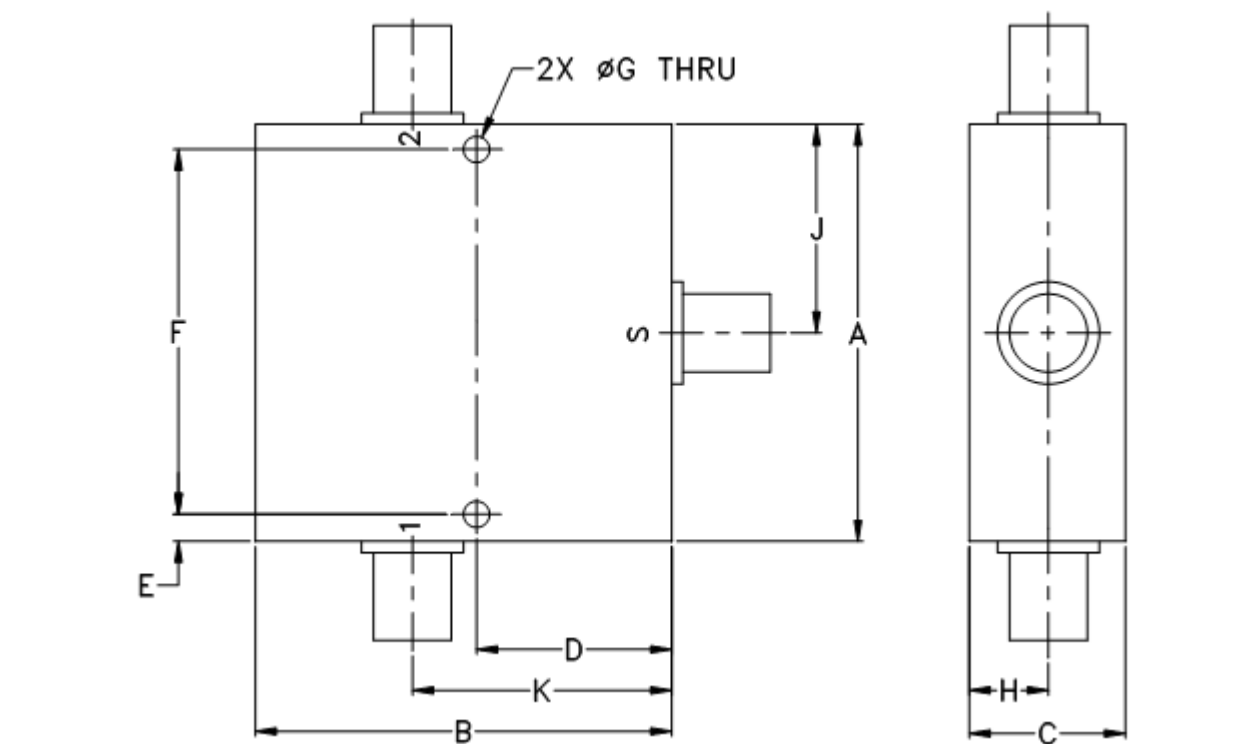


IF/RF MICROWAVE COMPONENTS

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 ZADC-13-73-S+
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Outline Dimensions

CC1266



CASE#	A	B	C	D	E	F	G	H	J	K	WT. GRAMS
CC1266	2.00 (50.80)	2.00 (50.80)	.75 (19.05)	.938 (23.83)	.13 (3.30)	1.750 (44.45)	.125 (3.17)	.38 (9.65)	1.00 (25.40)	1.25 (31.75)	200

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

Notes:

1. Case material: Aluminum alloy.
2. Case finish:
For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.
3. Refer to the individual model data sheet for the type of connectors available.



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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.

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