

DC Pass

# Directional Coupler

ZADC-15-252+

50Ω Up to 8W 850 to 2500 MHz

## The Big Deal

- Wideband, 850 to 2500 MHz
- Input power handling up to 8W
- Low mainline loss, 0.7 dB
- Excellent VSWR, 1.15:1



CASE STYLE: CC51-1

## Product Overview

Mini-Circuits' ZADC-15-252+ is a coaxial directional coupler providing 15 dB coupling with good VSWR across the 850 to 2500 MHz frequency range. This model is capable of handling up to 8 W RF input power and passing up to 0.3 A DC current from input to output. 18 dB typical directivity allows accurate sampling of signal through the coupled port, and low mainline loss (0.9 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, 850 to 2500 MHz	One device supports a variety of system and test lab applications.
Good directivity, 15 dB	High directivity allows accurate signal sampling through the coupled port with minimal measurement error.
RF input power handling up to 8 W	Usable in systems with medium power requirements.
Flat coupling, $\pm 1.2$ dB	Provides consistent coupling performance across frequency.
Low mainline loss, 0.7 dB typ.	Provides excellent through-path signal power transmission.
Good VSWR, 1.15:1 typ.	Well-matched for 50Ω systems with minimal signal reflection.
DC current passing up to 0.5 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](http://www.minicircuits.com/MCLStore/terms.jsp)



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## ZADC-15-252+

50Ω Up to 8W 850 to 2500 MHz



CASE STYLE: CC51-1

Connectors	Model
SMA	ZADC-15-252-S+
N-Type	ZADC-15-252-N+

**+RoHS Compliant**

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

### Maximum Ratings

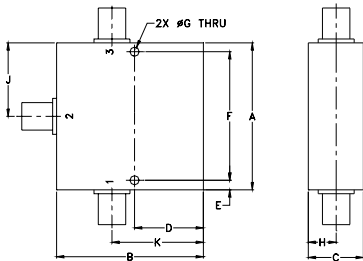
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
DC Current	0.5A

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

### Coaxial Connections

INPUT	1
OUTPUT	3
COUPLED	2

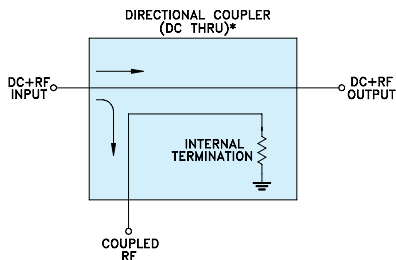
### Outline Drawing



### 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	145.0	

### Electrical Schematic



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

### Features

- excellent directivity, 18 dB typ.
- excellent VSWR, 1.15 typ.
- power input up to 8 W
- low cost
- DC current through input to output 0.5A Max.

### Applications

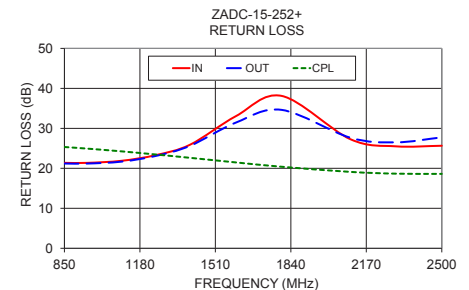
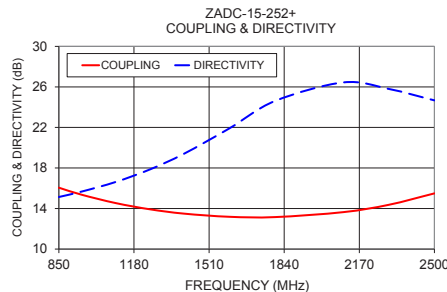
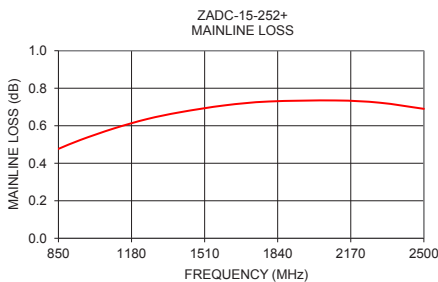
- UMTC
- PCS/DCS
- ISM/GPS
- CDMA
- TDMA

### Electrical Specifications at 25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		850	—	2500	MHz
Mainline Loss (above theoretical 0.15 dB)	850	—	0.5	0.6	dB
	950	—	0.6	0.7	
	2200	—	0.75	0.9	
	2500	—	0.7	0.9	
Coupling	950-2300	—	14±1.2	—	dB
	850-2500	—	14.5±1.5	—	
Coupling Flatness(±)	950-2300	—	1.1	1.4	dB
	850-2500	—	1.5	1.7	
Directivity	950-2300	12.5	18	—	dB
	850-2500	12	16	—	
Return Loss (Input)	850-2500	18	22	—	dB
Return Loss (Output)	850-2500	18	22	—	dB
Return Loss (Coupling)	850-2500	16	20	—	dB
Input Power	850-2500	—	—	8	W

### Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB)		
				In	Out	Cpl
850	0.48	16.06	15.14	21.37	21.20	25.33
950	0.52	15.36	15.67	21.37	21.20	24.93
1100	0.59	14.53	16.62	21.89	21.68	24.24
1250	0.64	13.92	17.86	23.32	23.11	23.46
1400	0.67	13.49	19.41	25.93	25.66	22.63
1600	0.71	13.18	21.92	33.06	31.45	21.48
1800	0.73	13.15	24.61	38.11	34.61	20.39
2100	0.73	13.64	26.44	27.29	27.66	19.11
2300	0.72	14.37	25.80	25.50	26.50	18.67
2500	0.69	15.49	24.67	25.65	27.74	18.61



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