Wideband, DC Pass

Directional Coupler

ZUDC6-0283-S+

50Ω 6 dB Up to 50 W 2 to 8 GHz

The Big Deal

- Wideband, 2 to 8 GHz
- Power Handling up to 50 W

CASE STYLE: HT2446-1

Product Overview

The Mini-Circuits ZUDC6-0283-S+ wideband directional coupler offers exceptional performance operating over 2 to 8 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 2 to 8 GHz, ZUDC6-0283-S+ coupler is ideal for most lab testing applications, avoiding the need to switch components for different frequency bands.
Excellent Directivity • 27 dB typ. up to 8 GHz	High directivity allows sampling of input powers with minimal detrimental effects due to output mismatches.
Excellent Return Loss (In & Out) • 22 dB typ. up to 8 GHz	Good return loss over 2 to 8 GHz minimizes undesired reflections and resulting amplitude ripple.

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Generic photo used for illustration purposes only

CASE STYLE: HT2446-1

Connectors	Model
SMA Female	ZUDC6-0283-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 +85 °C
Storage Temperature	-55 °C to +100 °C
Supplied Termination*	1 W
DC Current	1 A

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

Coaxial Connections

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

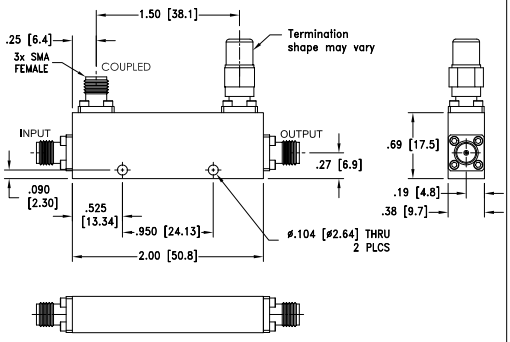
Features

- Wide frequency range, 2 to 8 GHz
- Good coupling flatness, ±0.6 dB typ.
- Excellent directivity, 27 dB typ. up to 8 GHz
- Excellent return loss, 22 dB typ. up to 8 GHz
- DC current pass through input to output

Applications

- mobile
- fixed satellite
- lab use
- WiFi
- radar

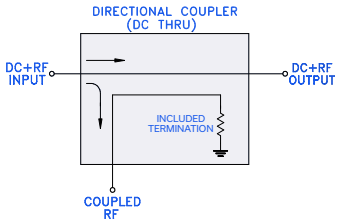
Outline Drawing



Weight: 28 grams;

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

Electrical Schematic



Electrical Specifications at +25 °C

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Units
Operating Frequency		2		8	GHz
Coupling	2-8	-	6.5±1.0	-	dB
Coupling Flatness (±)	2-8	-	±0.6	±1.25	dB
Mainline Loss[1]	2-8	-	1.3	2.2	dB
Directivity	2-8	18	29	-	dB
Return Loss (In & Out)	2-8	19	30	-	dB
Return Loss (Coupling)	2-8	19	30	-	dB
Input Power (In to Out)[2]	2-8	-	-	50	W
Input Power (Out to In)	2-8	-	-	3	

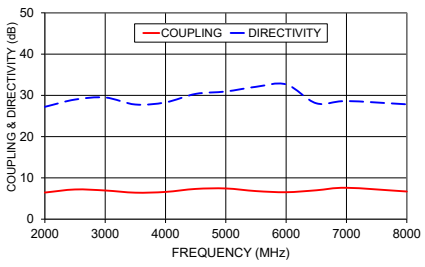
1. Mainline loss includes coupling loss
2. Up to +25 °C, derates linearly to 5 W at +100 °C.

Typical Performance Data

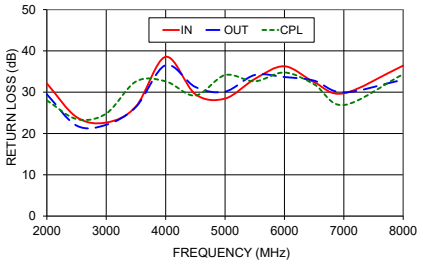
Frequency (MHz)	Mainline Loss[1] (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB) In	Return Loss (dB) Out	Return Loss (dB) Cpl
2000	1.30	6.45	27.22	32.11	29.49	28.01
2500	1.14	7.19	28.98	23.97	21.91	23.50
3000	1.23	6.95	29.49	22.65	22.11	24.82
3500	1.38	6.42	27.78	26.55	26.44	32.59
4000	1.33	6.60	28.30	38.56	36.54	32.63
4500	1.17	7.33	30.36	29.51	31.26	29.17
5000	1.16	7.44	30.94	28.45	30.13	34.15
5500	1.33	6.80	32.07	33.20	34.16	32.64
6000	1.43	6.53	32.66	36.27	33.67	34.77
6500	1.32	6.99	28.08	32.42	32.79	31.90
7000	1.19	7.60	28.62	29.73	29.94	26.88
8000	1.45	6.70	27.83	36.44	33.04	34.37

1. Mainline loss includes coupling loss

ZUDC6-0283-S+
COUPLING & DIRECTIVITY



ZUDC6-0283-S+
RETURN LOSS



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

Directional Coupler ZUDC6-0283-S+

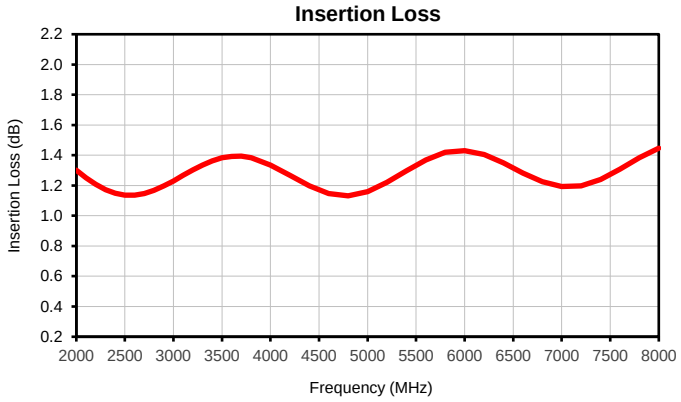
Typical Performance Data

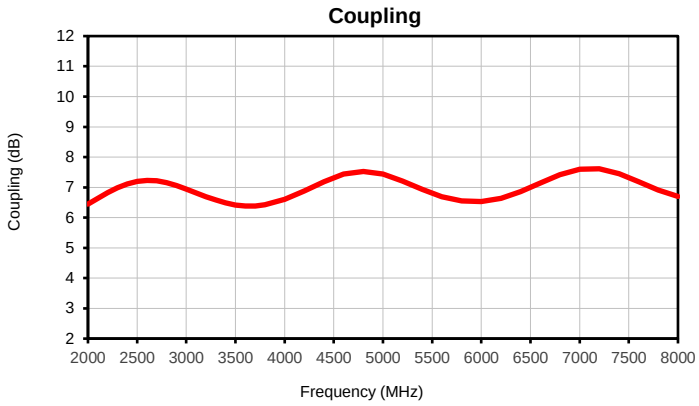
FREQUENCY (MHz)	INSERTION LOSS[1] (dB)	COUPLING (dB)	DIRECTIVITY (dB)	RETURN LOSS (dB)		
				IN	OUT	CPL
2000	1.30	6.45	27.22	32.11	29.49	28.01
2100	1.25	6.64	27.64	30.00	28.23	26.45
2200	1.21	6.82	27.90	27.80	25.96	25.30
2300	1.17	6.98	28.25	26.18	24.21	24.44
2400	1.15	7.11	28.54	24.86	22.90	23.83
2500	1.14	7.19	28.98	23.97	21.91	23.50
2600	1.14	7.23	29.28	23.22	21.39	23.34
2700	1.15	7.21	29.70	22.77	21.18	23.41
2800	1.17	7.15	30.17	22.46	21.25	23.64
2900	1.20	7.06	30.15	22.46	21.55	24.10
3000	1.23	6.95	29.49	22.65	22.11	24.82
3100	1.27	6.82	28.93	23.01	22.85	25.77
3200	1.30	6.69	28.38	23.59	23.63	27.14
3300	1.34	6.58	28.07	24.31	24.52	28.91
3400	1.36	6.48	27.94	25.29	25.48	30.84
3500	1.38	6.42	27.78	26.55	26.44	32.59
3600	1.39	6.38	27.73	28.18	27.65	33.93
3700	1.39	6.39	27.79	30.17	29.04	34.48
3800	1.38	6.42	27.91	32.94	30.95	35.26
4000	1.33	6.60	28.30	38.56	36.54	32.63
4200	1.27	6.88	29.04	37.32	37.21	30.25
4400	1.20	7.19	29.94	30.84	33.13	29.23
4600	1.15	7.44	30.66	28.62	29.88	29.56
4800	1.13	7.53	30.86	27.96	28.99	31.47
5000	1.16	7.44	30.94	28.45	30.13	34.15
5200	1.22	7.21	31.08	29.89	32.32	34.56
5400	1.30	6.93	31.72	32.04	32.91	33.41
5600	1.37	6.69	32.60	33.88	34.74	32.33
5800	1.42	6.55	33.01	36.19	33.81	32.94
6000	1.43	6.53	32.66	36.27	33.67	34.77
6200	1.40	6.64	30.73	34.74	33.56	34.82
6400	1.35	6.86	28.76	33.05	34.44	33.13
6600	1.28	7.14	27.54	31.62	31.96	30.46
6800	1.23	7.42	26.99	30.46	30.63	28.03
7000	1.19	7.60	28.62	29.73	29.94	26.88
7200	1.20	7.61	26.47	29.43	30.55	26.79
7400	1.24	7.45	25.09	29.77	32.80	27.95
7600	1.31	7.19	25.40	31.00	32.49	30.50
7800	1.38	6.91	27.07	33.57	32.21	35.94
8000	1.45	6.70	27.83	36.44	33.04	34.37

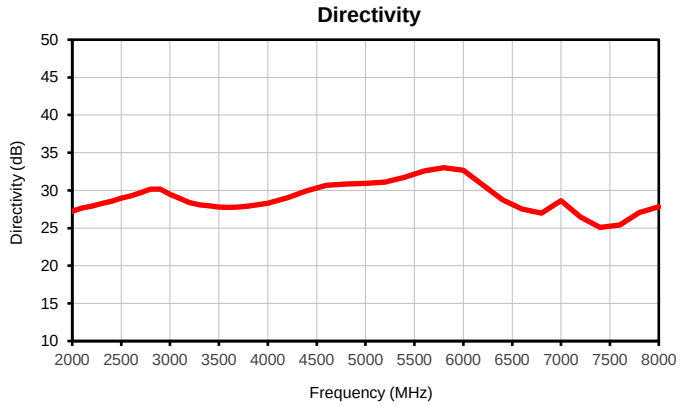
[1]Mainline loss includes coupling loss

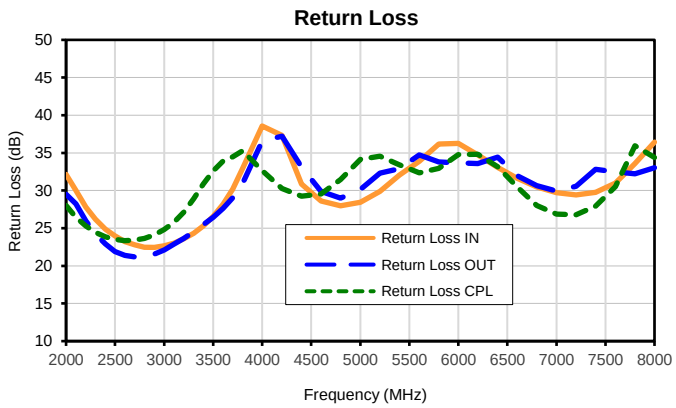
Directional Coupler ZUDC6-0283-S+

Typical Performance Curves



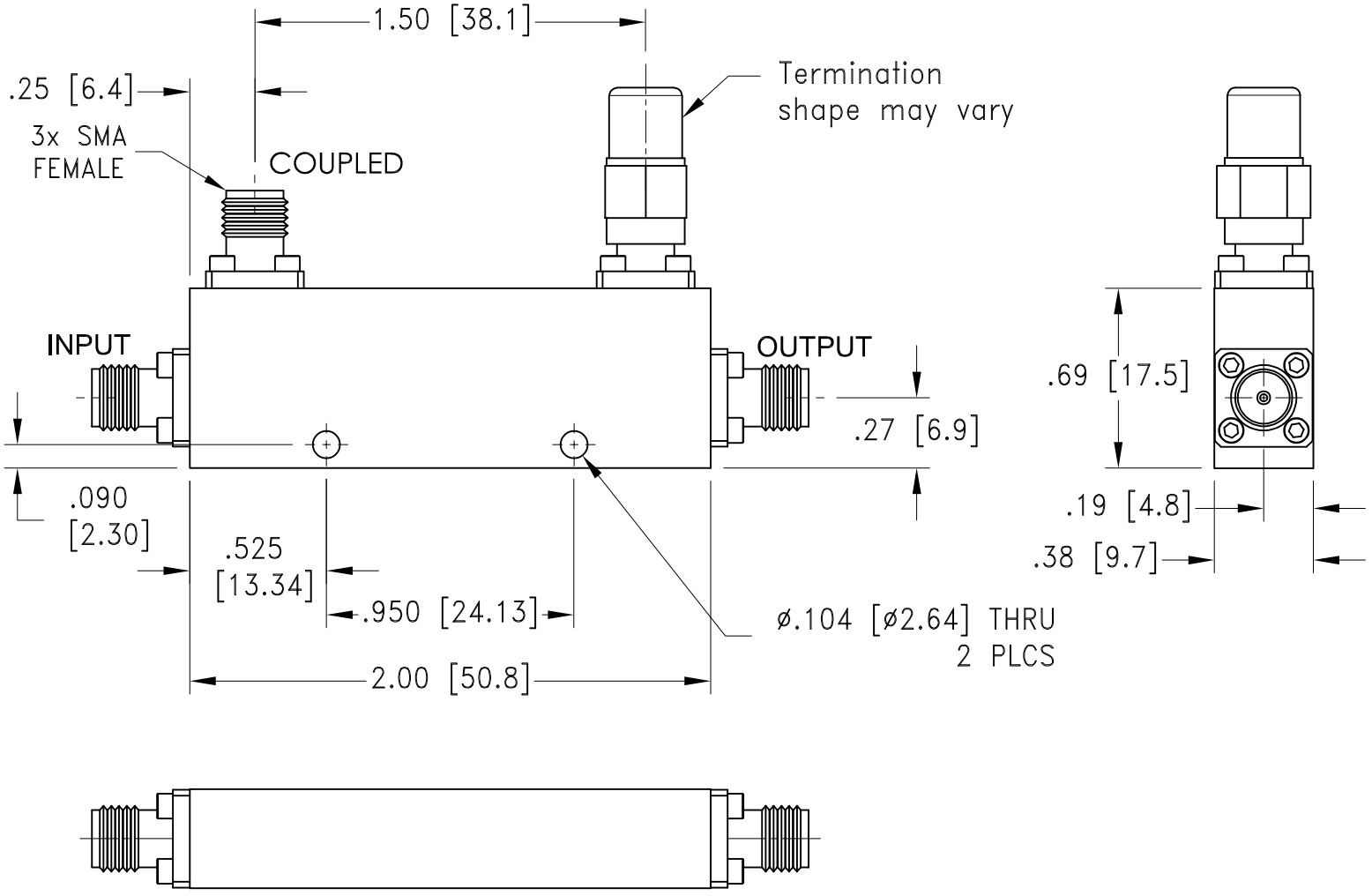






Case Style HT

Outline Dimensions HT2446-1



Weight: 28 grams;

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

Notes:

1. Case Material: Aluminum Alloy
2. Case Finish: Blue Painting, Pantone 286

Mini-Circuits

Environmental Specifications ENV77

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 +85 °C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C