DC Pass
Directional Coupler

ZADC-40-27HP+

50Ω Up to 40W 1400 to 2700 MHz

Generic photo used for illustration purposes only

CASE STYLE: F14

Connectors	Model
N-Type	ZADC-40-27HP+

+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	2A

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

Coaxial Connections

INPUT	1
OUTPUT	S
COUPLED	2

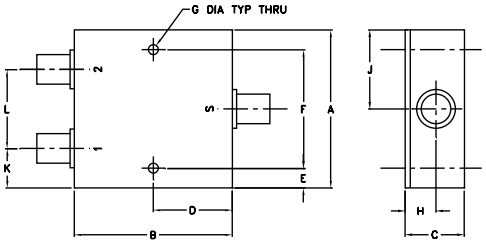
Features

- low mainline loss, 0.2 dB typ.
- excellent VSWR, 1.15:1 typ.
- coupling variation with temperature, from -55°C to 100°C is very small, ±0.1 dB typ.
- useable over 1400-2700 MHz
- DC current through input to output 2A Max. at 40 watt RF output power

Applications

- PCS
- GPS
- PCN

Outline Drawing

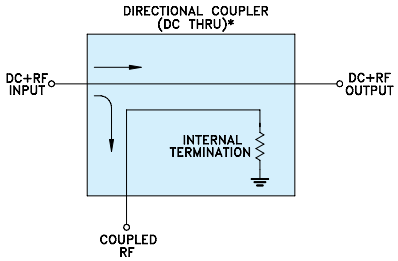


Outline Dimensions (inch / mm)

A	B	C	D	E	F	G
2.00	2.00	0.75	1.00	0.25	1.500	0.125
50.80	50.80	19.05	25.40	6.35	38.10	3.18

H	J	K	L	wt
0.39	1.00	0.50	1.00	grams
9.91	25.40	12.70	25.40	170.0

Electrical Schematic



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

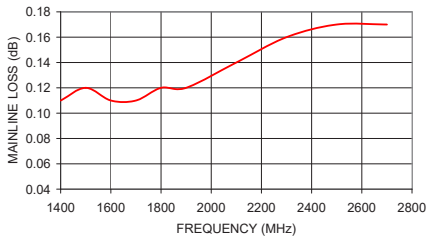
Electrical Specifications at 25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		1400	—	2700	MHz
Mainline Loss	1400 - 1700	—	0.15	0.30	dB
	1700 - 2000	—	0.17	0.30	
	2000 - 2300	—	0.19	0.35	
	2300 - 2700	—	0.22	0.35	
Coupling	1400 - 1700	—	41±1.5	—	dB
	1700 - 2000	—	40.5±1.5	—	
	2000 - 2300	—	40±1.5	—	
	2300 - 2700	—	40.5±1.5	—	
Coupling Flatness(±)	1400 - 1700	—	—	±0.8	dB
	1700 - 2000	—	—	±0.4	
	2000 - 2300	—	—	±0.2	
	2300 - 2700	—	—	±0.5	
Directivity	1400 - 1700	20	25	—	dB
	1700 - 2000	20	25	—	
	2000 - 2300	18	25	—	
	2300 - 2700	15	24	—	
Return Loss (Input)	1400 - 1700	—	26	—	dB
	1700 - 2000	—	25	—	
	2000 - 2300	—	24	—	
	2300 - 2700	—	20	—	
Return Loss (Output)	1400 - 1700	—	25	—	dB
	1700 - 2000	—	24	—	
	2000 - 2300	—	23	—	
	2300 - 2700	—	20	—	
Return Loss (Coupling)	1400 - 1700	—	24	—	dB
	1700 - 2000	—	20	—	
	2000 - 2300	—	20	—	
	2300 - 2700	—	20	—	
Input Power	1400 - 2700	—	—	40	W

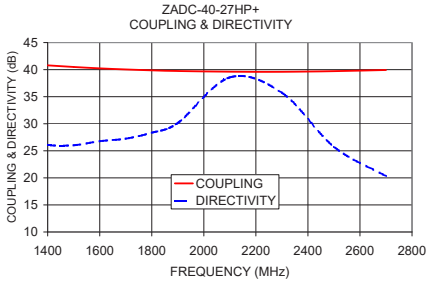
Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB) In	Return Loss (dB) Out	Return Loss (dB) Cpl
1400	0.11	40.79	25.99	29.82	27.84	21.24
1500	0.12	40.49	26.02	29.12	27.68	21.28
1600	0.11	40.23	26.78	29.53	28.06	20.86
1700	0.11	40.03	27.24	30.02	28.78	20.85
1800	0.12	39.87	28.34	28.98	29.66	20.9
1900	0.12	39.75	30.13	30.32	31.38	20.65
2100	0.14	39.62	38.57	33.37	36.95	20.37
2300	0.16	39.60	35.73	39.72	39.94	20.68
2500	0.17	39.72	25.74	35.55	32.18	20.83
2700	0.17	39.93	20.32	30.10	27.69	20.73

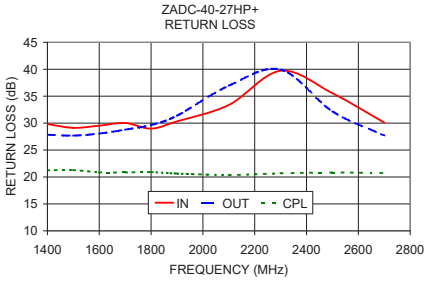
ZADC-40-27HP+
MAINLINE LOSS



ZADC-40-27HP+
COUPLING & DIRECTIVITY



ZADC-40-27HP+
RETURN LOSS



Notes

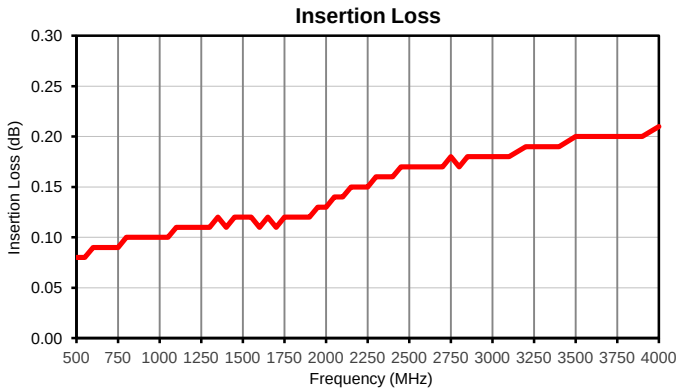
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's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

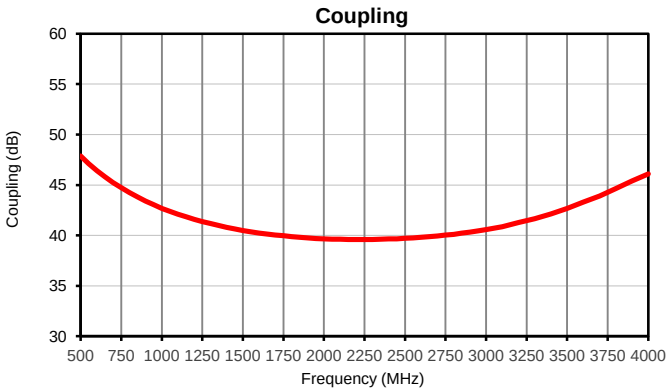
Directional Coupler ZADC-40-27HP+

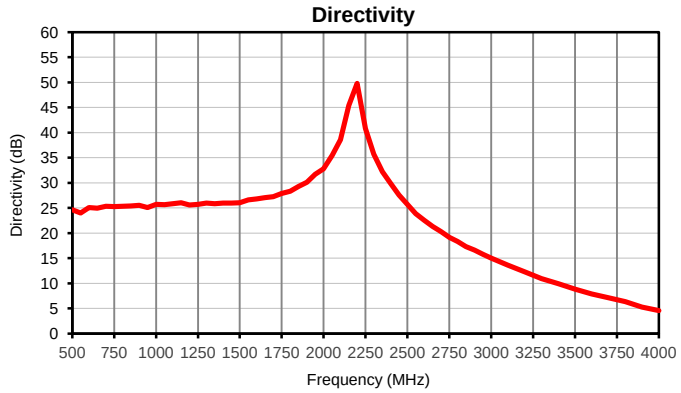
Typical Performance Data

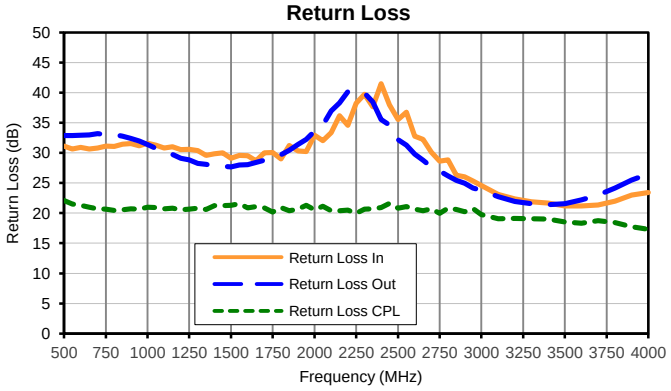
FREQUENCY (MHz)	INSERTION LOSS (dB)	COUPLING (dB)	DIRECTIVITY (dB)	RETURN LOSS (dB)		
				IN	OUT	CPL
500	0.08	47.87	24.61	31.11	32.86	22.08
550	0.08	47.11	24.01	30.62	32.86	21.51
600	0.09	46.42	25.06	30.89	32.94	21.31
650	0.09	45.82	24.94	30.64	32.97	20.99
700	0.09	45.25	25.32	30.79	33.21	20.70
750	0.09	44.72	25.28	31.11	33.01	20.63
800	0.10	44.26	25.35	31.09	33.04	20.44
850	0.10	43.81	25.39	31.45	32.76	20.57
900	0.10	43.41	25.55	31.55	32.40	20.72
950	0.10	43.04	25.06	31.19	31.95	20.64
1000	0.10	42.68	25.74	31.61	31.38	20.97
1050	0.10	42.38	25.69	31.30	30.74	20.92
1100	0.11	42.11	25.83	30.82	30.25	20.71
1150	0.11	41.84	26.04	31.02	29.74	20.82
1200	0.11	41.60	25.62	30.56	29.12	20.56
1250	0.11	41.38	25.74	30.57	28.82	20.63
1300	0.11	41.17	25.96	30.36	28.27	20.79
1350	0.12	40.98	25.85	29.57	28.11	20.58
1400	0.11	40.79	25.99	29.82	27.84	21.24
1450	0.12	40.63	25.97	29.99	27.78	21.23
1500	0.12	40.49	26.02	29.12	27.68	21.28
1550	0.12	40.35	26.62	29.59	27.98	21.56
1600	0.11	40.23	26.78	29.53	28.06	20.86
1650	0.12	40.13	27.05	28.69	28.43	21.09
1700	0.11	40.03	27.24	30.02	28.78	20.85
1750	0.12	39.96	27.89	30.08	29.34	20.17
1800	0.12	39.87	28.34	28.98	29.66	20.90
1850	0.12	39.82	29.27	31.25	30.44	20.40
1900	0.12	39.75	30.13	30.32	31.38	20.65
1950	0.13	39.70	31.69	30.21	32.21	21.27
2000	0.13	39.66	32.79	32.94	33.64	20.57
2050	0.14	39.62	35.47	32.03	34.62	21.15
2100	0.14	39.62	38.57	33.37	36.95	20.37
2150	0.15	39.59	45.42	36.18	38.28	20.38
2200	0.15	39.58	49.78	34.56	40.14	20.50
2250	0.15	39.58	40.84	38.26	40.38	19.97
2300	0.16	39.60	35.73	39.72	39.94	20.68
2350	0.16	39.61	32.23	37.64	38.46	20.71
2400	0.16	39.65	29.89	41.45	35.53	20.93
2450	0.17	39.67	27.58	37.96	34.60	21.62
2500	0.17	39.72	25.74	35.55	32.18	20.83
2550	0.17	39.75	23.90	36.75	31.28	21.10
2600	0.17	39.81	22.57	32.75	29.78	20.64
2650	0.17	39.87	21.33	32.22	28.79	20.37
2700	0.17	39.93	20.32	30.10	27.69	20.73
2750	0.18	40.03	19.18	28.60	26.99	19.99
2800	0.17	40.11	18.34	28.81	26.18	20.83
2850	0.18	40.22	17.29	26.26	25.44	20.62
2900	0.18	40.32	16.60	26.01	24.98	20.25
2950	0.18	40.46	15.77	25.34	24.18	20.78
3000	0.18	40.59	15.05	24.58	23.78	19.74
3100	0.18	40.87	13.64	23.08	22.74	19.05
3200	0.19	41.26	12.30	22.37	21.91	19.14
3300	0.19	41.65	10.94	21.88	21.54	19.08
3400	0.19	42.12	9.93	21.66	21.41	19.01
3500	0.20	42.68	8.87	21.20	21.56	18.51
3600	0.20	43.29	7.86	21.21	22.17	18.31
3700	0.20	43.92	7.12	21.35	23.01	18.75
3800	0.20	44.63	6.33	21.97	24.14	18.41
3900	0.20	45.41	5.25	22.99	25.51	17.73
4000	0.21	46.11	4.58	23.44	26.51	17.31

Typical Performance Curves





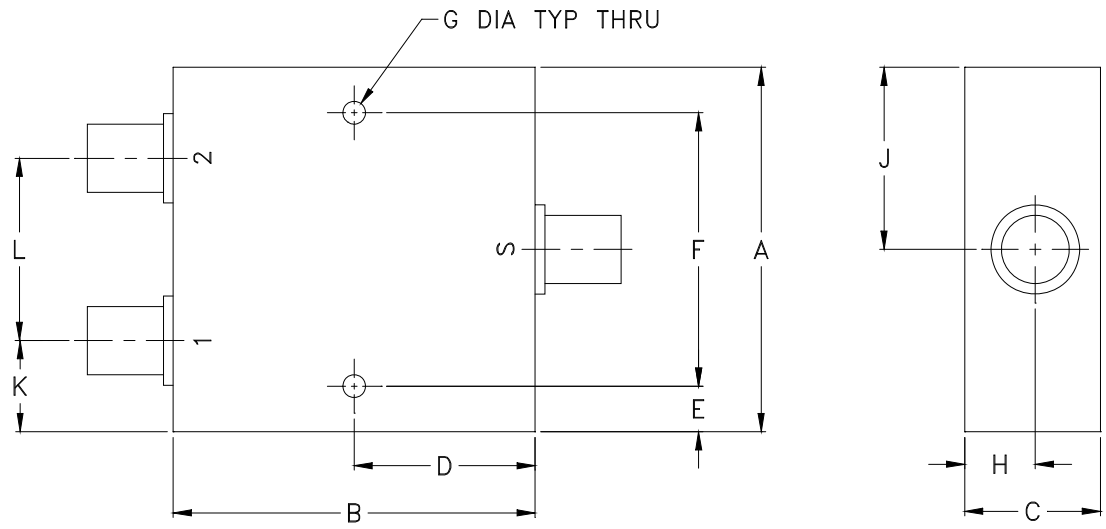




Case Style F

F14

Outline Dimensions



CASE #	A	B	C	D	E	F	G	H	J	K	L	WT. GRAM
F14	2.00 (50.80)	2.00 (50.80)	.75 (19.05)	1.00 (25.40)	.25 (6.35)	1.500 (38.10)	.125 (3.18)	.39 (9.91)	1.00 (25.40)	.50 (12.70)	1.00 (25.40)	170.0

Dimensions are in inches (mm). Tolerances: 2Pl. ± .03; 3Pl. ± .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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INTERNET http://www.minicircuits.com
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661
Distribution Centers NORTH AMERICA 800-654-7949 • 417-335-5935 • Fax 417-335-5945 • EUROPE 44-1252-832600 • Fax 44-1252-837010
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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

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