

Engineering Development Model

Bi-Directional Coupler

ZFBDC20-ED13224

Important Note

This model has been designed, built and tested in our engineering department. Performance data represents model capability. At present it is a non-catalog model. On request, we can supply a final specification sheet, part number and price/delivery information.

Please click "Back", and then click "Contact Us" for Applications support.



CASE STYLE : JD1252

ELECTRICAL SPECIFICATIONS 50Ω @ +25°C				
Parameter		Min.	Typ.	Max. Units
Frequency		14		1400 MHz
Coupling	Nominal		20 ± 1	dB
	Flatness		± 1.90	dB
Mainline Loss *	14-140 MHz		0.20	dB
	140-700 MHz		0.50	dB
	700-1400 MHz		0.70	dB
Directivity	14-140 MHz		18	dB
	140-700 MHz		24	dB
	700-1400 MHz		21	dB
VSWR	14-1400 MHz		1.3	(:1)
RF Power Input (1)	14-1400 MHz			10 W
	40-500 MHz			20

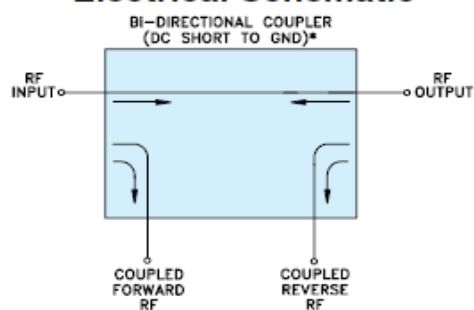
(1) Over +55°C derate linearly to 50% of rating at 100°C.

Note: * Mainline loss includes theoretical coupled power loss of 0.04 dB at 20 dB coupling.

MAXIMUM RATINGS	
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C

COAXIAL CONNECTIONS	
INPUT	1
OUTPUT	2
COUPLED FORWARD	4
COUPLED REVERSE	3

Electrical Schematic



* ELECTRICAL SCHEMATIC IS FOR BI-DIRECTIONAL COUPLER WITH INTERNAL TRANSFORMER(S) THAT ROUTES DC FROM RF PORTS TO GROUND.

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Typical Performance Data

FREQ. (MHz)	INSERTION LOSS		COUPLING		DIRECTIVITY		RETURN LOSS			
	(dB)		(dB)		(dB)		(dB)			
	IN-OUT	FWD-REV	IN-FWD	OUT-REV	IN-REV	OUT-FWD	IN	OUT	FWD	REV
14.0	0.45	0.66	19.10	20.54	11.33	11.53	10.99	10.82	9.19	9.05
18.0	0.30	0.44	19.23	20.16	13.38	13.15	13.07	12.89	11.18	11.04
22.0	0.23	0.32	19.32	19.95	14.99	14.54	14.81	14.61	12.87	12.72
26.0	0.18	0.25	19.37	19.83	16.28	15.76	16.31	16.10	14.33	14.17
30.0	0.15	0.20	19.41	19.75	17.34	16.82	17.63	17.42	15.63	15.47
34.0	0.13	0.17	19.43	19.69	18.24	17.76	18.84	18.62	16.81	16.65
40.0	0.11	0.14	19.45	19.63	19.34	18.97	20.48	20.24	18.42	18.26
50.0	0.10	0.11	19.46	19.56	20.71	20.62	22.95	22.68	20.85	20.68
90.0	0.11	0.12	19.38	19.43	23.15	25.01	33.24	32.82	30.73	30.69
100.0	0.13	0.14	19.37	19.43	23.24	25.87	36.29	36.23	33.44	33.87
200.0	0.22	0.25	19.44	19.61	23.15	30.40	32.98	32.87	31.98	31.96
300.0	0.27	0.30	19.57	19.77	23.36	33.08	26.91	26.08	25.78	25.27
400.0	0.32	0.34	19.71	19.96	23.79	37.14	23.58	22.88	22.34	21.82
500.0	0.37	0.38	19.86	20.14	24.59	46.58	21.33	20.59	20.10	19.44
540.0	0.41	0.40	19.93	20.23	25.06	43.21	20.60	19.98	19.34	18.73
560.0	0.42	0.40	19.97	20.27	25.36	41.11	20.27	19.64	18.99	18.36
600.0	0.42	0.41	20.00	20.32	25.89	38.80	19.73	18.94	18.52	17.77
640.0	0.47	0.46	20.08	20.43	26.65	35.10	19.21	18.46	17.92	17.20
680.0	0.48	0.43	20.14	20.48	27.60	31.37	18.73	18.04	17.50	16.76
720.0	0.49	0.48	20.20	20.55	28.51	30.38	18.38	17.53	17.19	16.33
760.0	0.55	0.50	20.30	20.67	30.04	27.89	18.03	17.19	16.86	15.91
800.0	0.53	0.49	20.34	20.68	31.65	26.00	17.74	16.92	16.61	15.68
840.0	0.58	0.54	20.45	20.80	33.69	24.89	17.53	16.57	16.46	15.31
880.0	0.60	0.60	20.52	20.89	36.17	23.14	17.31	16.35	16.21	15.10
920.0	0.61	0.56	20.61	20.89	36.88	21.83	17.18	16.15	16.16	14.86
960.0	0.66	0.68	20.72	21.04	35.13	20.72	17.09	15.98	16.13	14.66
1000.0	0.69	0.68	20.83	21.08	32.27	19.32	17.01	15.83	16.08	14.52
1100.0	0.79	0.85	21.15	21.29	26.14	16.47	17.04	15.70	16.28	14.20
1200.0	0.91	1.01	21.55	21.50	21.94	14.00	17.24	15.60	16.61	13.94
1300.0	1.02	1.17	22.04	21.63	18.80	11.64	17.56	15.64	17.13	13.70
1400.0	1.18	1.50	22.93	21.46	14.59	9.74	17.89	15.73	18.12	13.70



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IF/RF MICROWAVE COMPONENTS



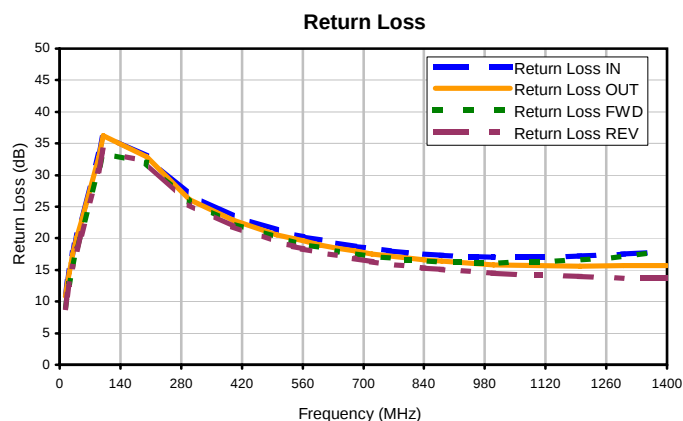
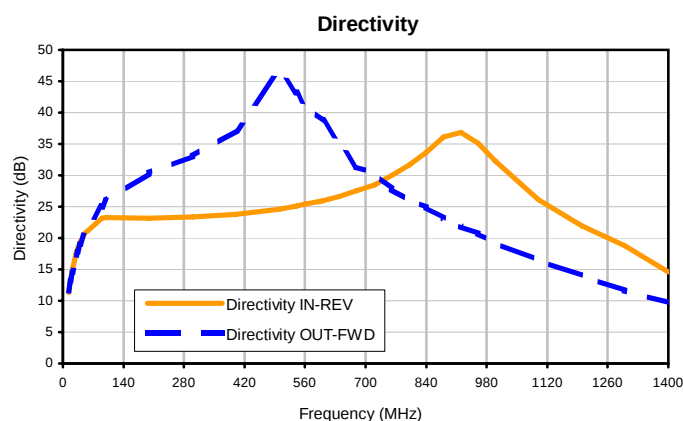
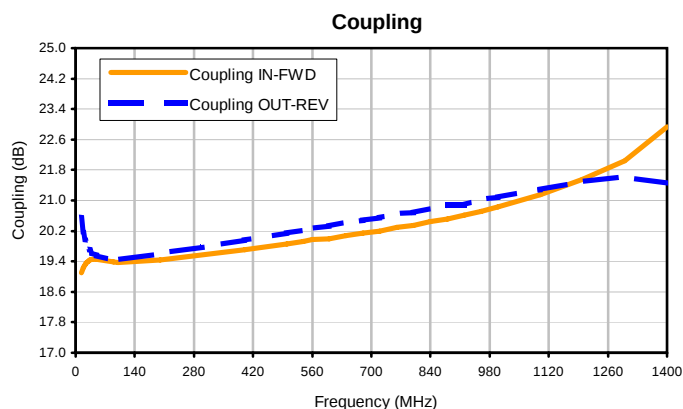
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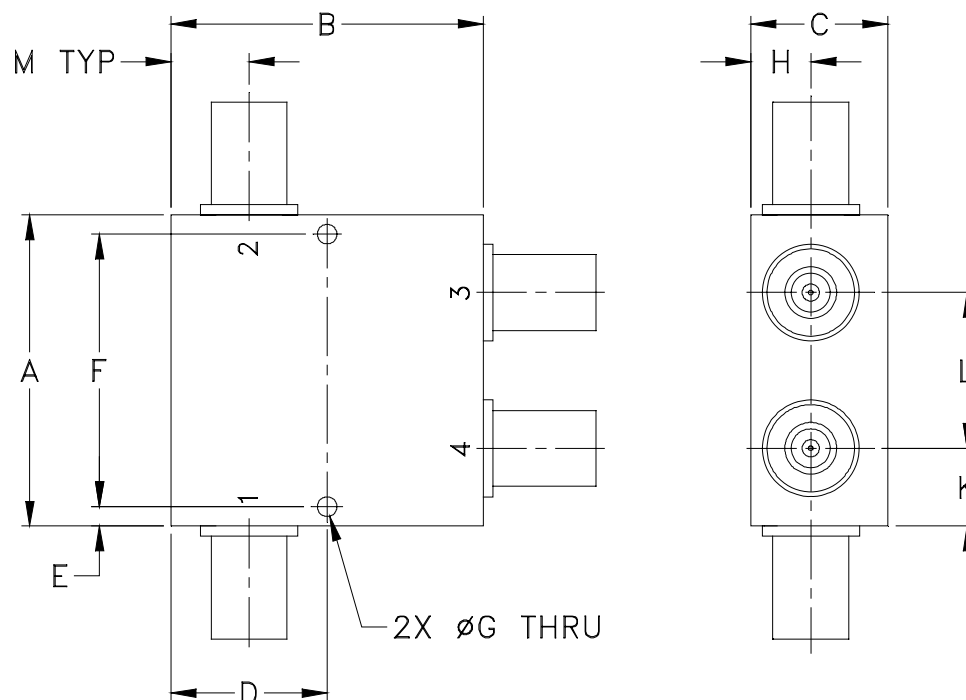
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Page 1 of 1

Typical Performance Curves



Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	WT, GRAM
JD1252	2.00 (50.80)	2.00 (50.80)	0.88 (22.35)	1.000 (25.40)	0.13 (3.18)	1.750 (44.45)	0.125 (3.18)	0.38 (9.65)	-- --	0.50 (12.70)	1.00 (25.40)	0.50 (12.70)	250.00

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

Notes:

- Case material: Aluminum alloy.
- Case finish:
For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.



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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