

Plug-In Directional Coupler

50Ω 5 to 1000 MHz

Maximum Ratings

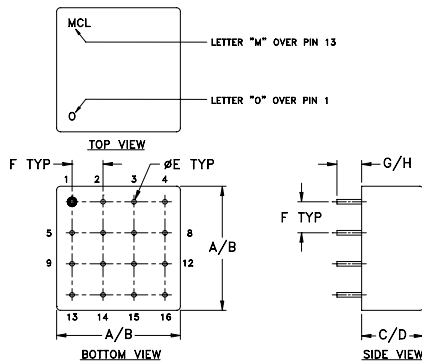
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
Permanent damage may occur if any of these limits are exceeded.	

Pin Connections

INPUT	8
OUTPUT	12
COUPLED	2,1,13,14*
CASE GROUND	all other pins

*4-coupled ports #1,#2,#3,#4 consecutively

Outline Drawing



Outline Dimensions (inch mm)

A	B	C	D	E	F	G	H	wt
.770	.810	.380	.410	.030	.200	.20	.14	grams
19.56	20.57	9.65	10.41	0.76	5.08	5.08	3.56	11.0

Features

- wideband, 5 to 1000 MHz
- 4 coupled ports
- low mainline loss, 0.7 dB typ.
- rugged welded construction

Applications

- cellular
- power levelling
- instrumentation
- military defense communications

P4DC-30A-2+
P4DC-30A-2



Generic photo used for illustration purposes only

CASE STYLE: C07

+RoHS Compliant

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

Directional Coupler Electrical Specifications

FREQ. (MHz)	COUPLING (dB)		MAINLINE LOSS ¹ (dB)						DIRECTIVITY (dB)						VSWR (:1)	POWER INPUT, W	
			L		M		U		L		M		U			L	MU
	f_L - f_U	Nom.	Flatness	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Min.	Typ.	Min.	Typ.		Min.	Typ.
5-1000	30.5±0.5	±1.0	0.7	1.2	0.7	1.2	0.8	1.5	30	15	32	20	20	10	1.15	1.0	2.0

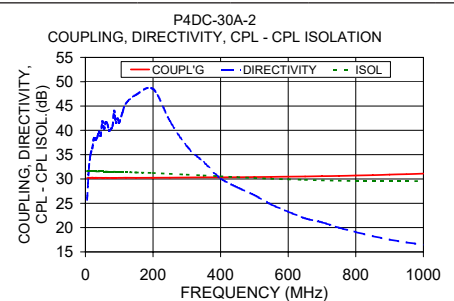
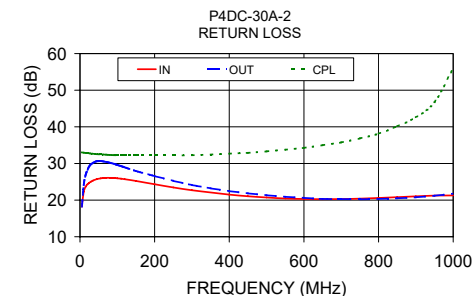
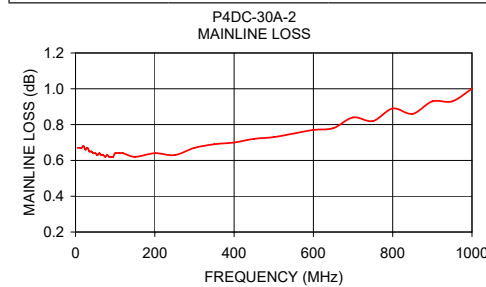
L = low range [f_L to $10 f_L$] M = mid range [$10 f_L$ to $f_U/2$] U = upper range [$f_U/2$ to f_U]

1. Mainline loss includes theoretical power loss at coupled port.

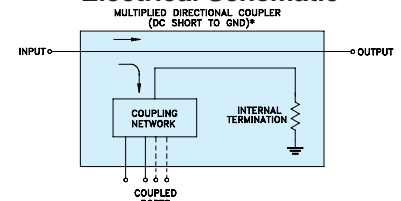
4-coupled ports, isolation between coupled ports, 25 dB min.

Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Isolation (dB) Cpl-Cpl	Return Loss (dB) In	Return Loss (dB) Out	Cpl
5.00	0.67	30.20	25.73	31.63	18.19	18.21	33.04
10.00	0.67	30.22	32.07	31.60	22.26	24.15	32.96
20.00	0.68	30.26	36.24	31.59	24.30	28.27	32.83
50.00	0.64	30.23	41.81	31.54	25.83	30.62	32.54
100.00	0.64	30.23	41.63	31.47	25.95	29.62	32.25
200.00	0.64	30.25	48.50	31.23	24.32	26.57	32.21
500.00	0.73	30.39	26.67	30.21	20.72	21.35	33.32
700.00	0.84	30.57	21.10	29.73	20.29	20.29	35.77
900.00	0.93	30.89	17.53	29.55	21.02	20.78	42.62
1000.00	1.00	31.11	16.48	29.58	21.28	21.76	56.05



Electrical Schematic



* ELECTRICAL SCHEMATIC IS FOR MULTIPLIED COUPLING PORTS OF DIRECTIONAL COUPLER WITH INTERNAL TRANSFORMERS THAT ROUTES DC FROM RF PORTS TO GROUND.

Notes

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
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REV. C
M151107
P4DC-30A-2
WZ/TD/CP/AM
200428

Directional Coupler

P4DC-30A-2+

Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	COUPLING (dB)	DIRECTIVITY (dB)	ISOLATION (dB) cpl-cpl	RETURN LOSS		
					IN	(dB) OUT	CPL
5.0	0.67	30.20	25.73	31.63	18.19	18.21	33.04
10.0	0.67	30.22	32.07	31.60	22.26	24.15	32.96
20.0	0.68	30.26	36.24	31.59	24.30	28.27	32.83
50.0	0.64	30.23	41.81	31.54	25.83	30.62	32.54
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REV. X1
P4DC-30A-2+
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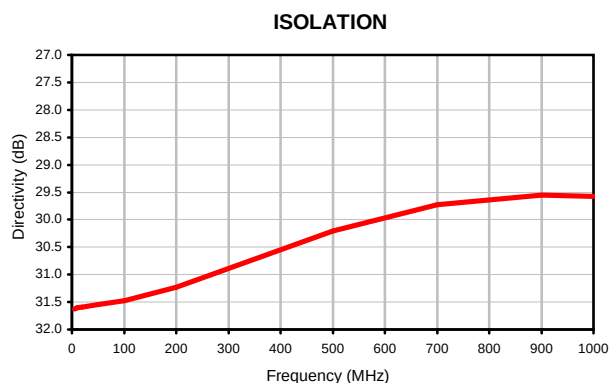
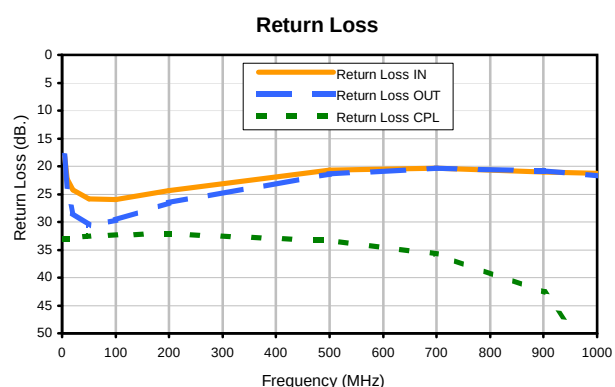
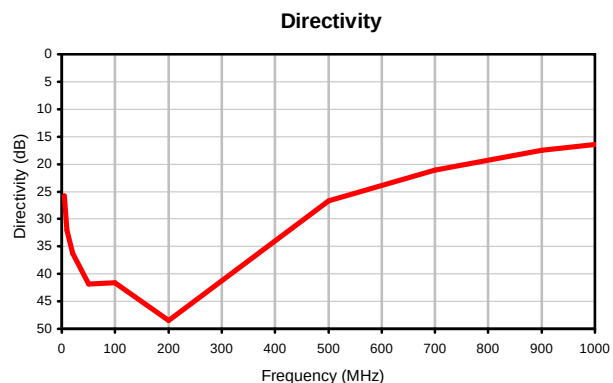
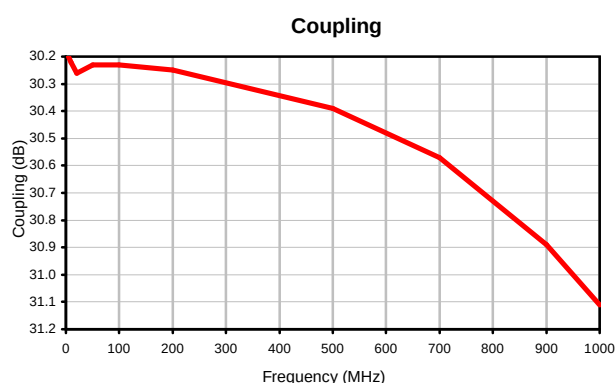
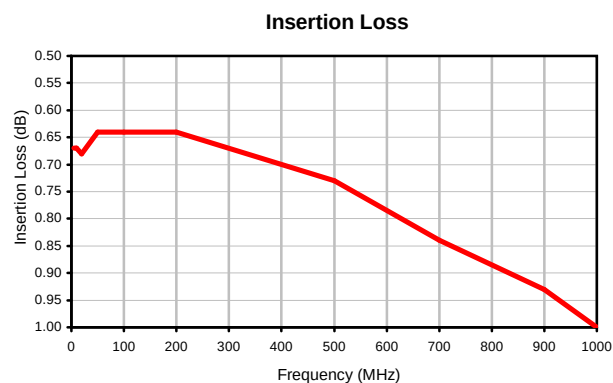
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Directional Coupler

P4DC-30A-2+

Typical Performance Curves



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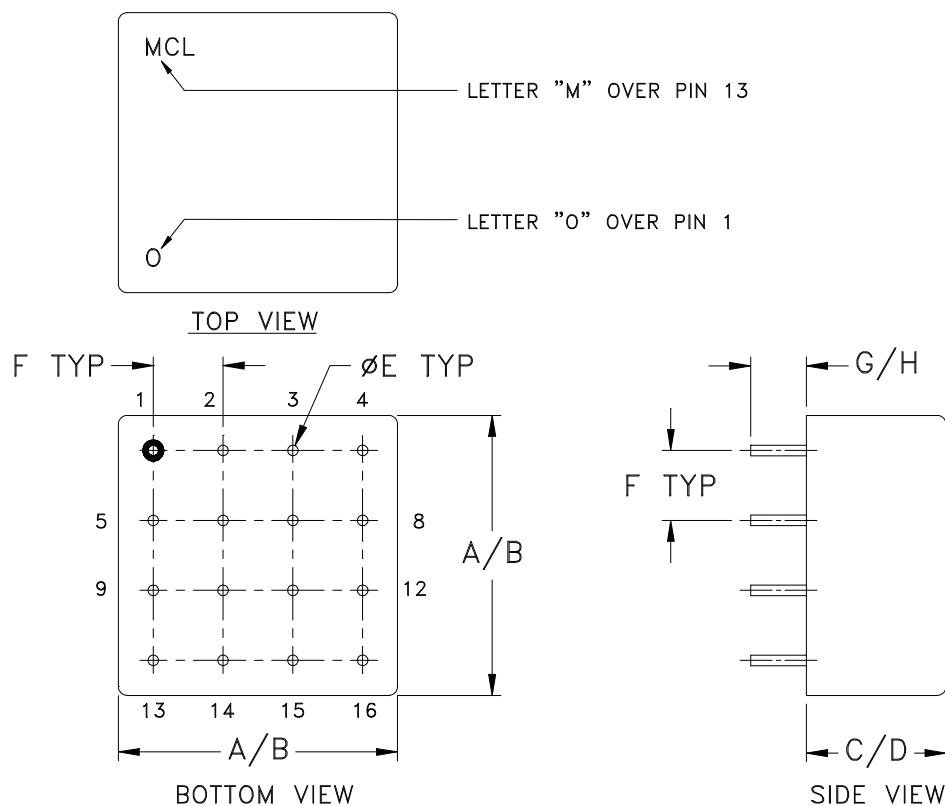
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Outline Dimensions

C07



CASE#	A	B	C	D	E	F	G	H	WT. GRAM
C07	.770 (19.56)	.810 (20.57)	.380 (9.65)	.410 (10.41)	.030 (.76)	.200 (5.08)	.20 (5.08)	.14 (3.56)	11.0

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

Notes:

- Header material: C.R.S.
Pin material: #52 alloy.
Cover material: Cupro-Nickel.
- Pin finish: Electro Tin-Silver..
- Tolerance on pin diameter $\pm .005$ inch.
- Glass meniscus 0.015 inch max.
- Blue bead indicates Pin 1. Pin numbers do not appear on unit, for reference only.



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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
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
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	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A
Moisture Resistance	10 cycles, 24 hours per cycle	MIL-STD-202, Method 106, Condition A, except 50°C and end point electrical test done within 12 hours
Solderability	10X Magnification	J-STD-002, 95% Coverage
Resistance to Solder Heat	260°C for 10 seconds	MIL-STD-202, Method 210, Condition B
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215
Terminal Strength	4 1/2 Pound Pull	MIL-STD-202, Method 211, Condition A



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Specification	Test/Inspection Condition	Reference/Spec
Gross Leak	125°C Bubble Test	MIL-STD-202, Method 112, Condition D
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D