

50Ω 810 to 960 MHz

A black, rectangular electronic component with four gold-colored pins extending from the bottom. The component has the Mini-Circuits logo and name printed on its top surface.

CASE STYLE: CA531

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

Reel Size	Devices/Reel
7"	20, 50, 100, 200, 500, 1000

Operating Temperature	-40°C to 85°C
Storage Temperature	-65°C to 150°C
Permanent damage may occur if any of these limits are exceeded.	

INPUT	4
OUTPUT	6
COUPLED	3
GROUND	1,2,5

PCB Land Pattern

INDEX MARK

6 5 4

1 2 3

J K

L M

N P

Q MAX

R

S

T

U

5' ± 1' TYP

R ± .003

S ± .006

5' ± 1' TYP

A	B	C	D	E	F	G	H	J
.052	.067	.106	.122	.035	.064	.087	.118	.067
1.32	1.70	2.69	3.10	0.89	1.63	2.21	3.00	1.70
K	L	M	N	P	Q	R	S	wt
.083	.033	.042	.012	.020	.012	.006	.018	grams
2.11	0.84	1.07	0.30	0.51	0.30	0.15	0.46	0.020

 DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
 DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

- low mainline loss, 0.3 dB typ.
- excellent VSWR, 1.1:1 typ.
- excellent repeatability
- miniature low profile package
- aqueous washable

- cellular
- PCS

FREQ. RANGE (MHz)	COUPLING (dB)	MAINLINE LOSS ¹ (dB)		DIRECTIVITY (dB)		VSWR (:1)	POWER INPUT ² (W)
		Typ.	Max.	Typ.	Min.		
810-960	19.4±1.4	0.3	0.5	15	7	1.1	1.0

1. Mainline loss includes theoretical power loss at coupled port.
2. 4W CW when operating with a 2.0:1 maximum VSWR on all ports at 25°C.

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB)		
				In	Out	Cpl
810.00	0.21	19.88	16.85	44.95	39.39	27.31
820.00	0.21	19.78	16.81	44.68	39.07	27.28
835.00	0.21	19.63	16.77	44.25	38.78	27.23
850.00	0.21	19.48	16.77	43.54	38.90	27.18
860.00	0.22	19.38	16.77	43.31	39.11	27.16
875.00	0.22	19.23	16.77	42.82	39.62	27.12
885.00	0.22	19.14	16.79	42.66	40.18	27.11
900.00	0.23	19.00	16.78	42.05	40.70	27.08
930.00	0.24	18.73	16.74	40.89	40.57	27.02
960.00	0.24	18.47	16.69	40.28	40.62	26.90

D20C+ MAINLINE LOSS

at RF level of -10 dBm

The graph shows Mainline Loss (dB) on the y-axis (0.0 to 0.4) versus Frequency (MHz) on the x-axis (810 to 960). A red line indicates the loss, which starts at approximately 0.21 dB at 810 MHz and increases slightly to about 0.24 dB at 960 MHz.

Frequency (MHz)	Mainline Loss (dB)
810	0.21
840	0.21
870	0.22
900	0.23
930	0.24
960	0.24

at RF level of -10 dBm

FREQUENCY (MHz)	COUPLING (dB)	DIRECTIVITY (dB)
810	20.0	16.8
840	19.8	16.7
870	19.5	16.7
900	19.2	16.7
930	18.8	16.7
960	18.4	16.6

D20C+ RETURN LOSS

at RF level of -10 dBm

The plot shows Return Loss (dB) on the Y-axis (10 to 60) versus Frequency (MHz) on the X-axis (810 to 960). Three curves are plotted: IN (red solid line), OUT (blue solid line), and CPL (green dashed line). The IN curve starts at approximately 45 dB at 810 MHz and decreases to about 40 dB at 960 MHz. The OUT curve starts at approximately 38 dB at 810 MHz and increases to about 40 dB at 960 MHz. The CPL curve is relatively flat, starting at approximately 28 dB at 810 MHz and ending at about 27 dB at 960 MHz.

Frequency (MHz)	IN (dB)	OUT (dB)	CPL (dB)
810	45	38	28
840	44	39	28
870	43	40	28
900	42	41	28
930	41	41	27
960	40	40	27

A block diagram of a Directional Coupler (DC Thru). The block is labeled "DIRECTIONAL COUPLER (DC THRU)*". It has a "DC+RF INPUT" on the left and a "DC+RF OUTPUT" on the right. Inside the block, a horizontal line with an arrow pointing right represents the main signal path. A vertical line branches off downwards from the input, leading to a terminal labeled "COUPLED". Another vertical line branches off downwards from the main path, leading to a resistor labeled "INTERNAL TERMINATION" which is connected to ground.

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

Machine Model (MM): Class M3 (200 v to < 400 v) in accordance with ANSI/ESD STM 5.2 - 1999

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-Circuits' applicable established test performance criteria and measurement instructions.
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