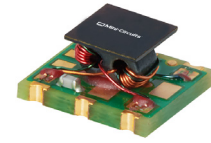


Surface Mount  **Directional Coupler**

RDC20-23-3WX1+

50Ω 20dB 30 to 2500 MHz



Generic photo used for illustration purposes only

CASE STYLE: TT2315

+RoHS Compliant

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

Applications

- Defense / Military
- Military / Radio Application

Electrical Specifications at -40° to 85°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		30		2500	MHz
Mainline Loss ¹	30 - 1000	—	—	0.8	dB
	1000 - 2000	—	—	1.1	
	2000-2500	—	—	1.5	
Coupling	30 - 2500	—	20.5±1.2	—	dB
Coupling Flatness (±)	30 - 2500	—	—	2	dB
Directivity	30 - 2500	—	12	—	dB
Return Loss (Input)	30 - 2000	12	—	—	dB
	2000-2500	10	—	—	
Return Loss (Output)	30 - 2000	12	—	—	dB
	2000-2500	10	—	—	
Input Power ²	30-2500	—	—	3	W

1. Mainline loss includes theoretical power loss at coupled port.
2. RDC20-23-3WX1+ can handle max. 3W up to +85°C over 30-2500 MHz

Maximum Ratings

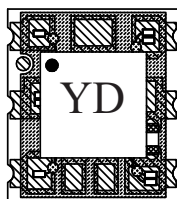
Parameter	Ratings
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C

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

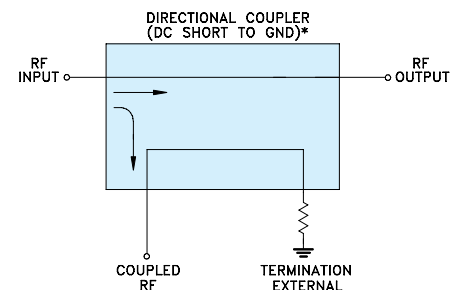
Pin Connections

Function	Pin Number
INPUT	1
OUTPUT	6
COUPLED	3
GROUND	2
50Ω TERM EXTERNAL	4
NOT USED	5

Product Marking

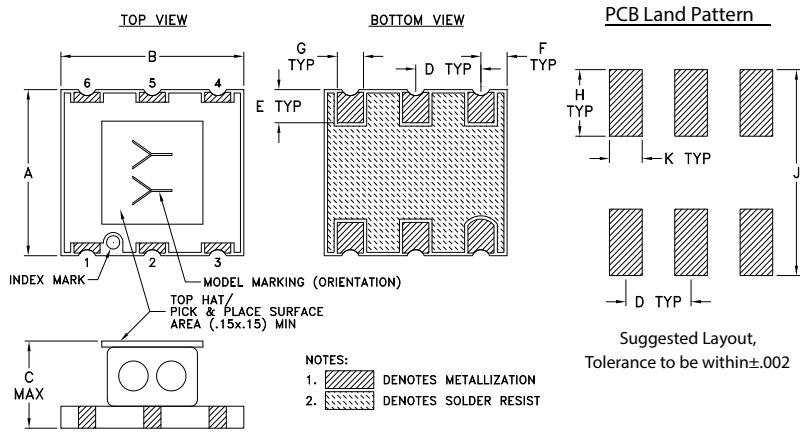


Electrical Schematic



* ELECTRICAL SCHEMATIC IS FOR DIRECTIONAL COUPLER WITH INTERNAL TRANSFORMER(S) AND EXTERNAL TERMINATION.

Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E	F
.250	.280	.140	.100	.050	.040
6.35	7.11	3.56	2.54	1.27	1.02
G	H	J	K	wt.	
.040	.100	.310	.050	grams	
1.02	2.54	7.87	1.27	0.35	

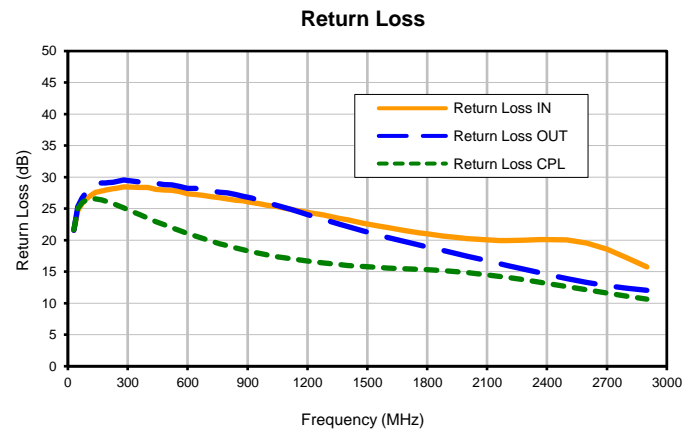
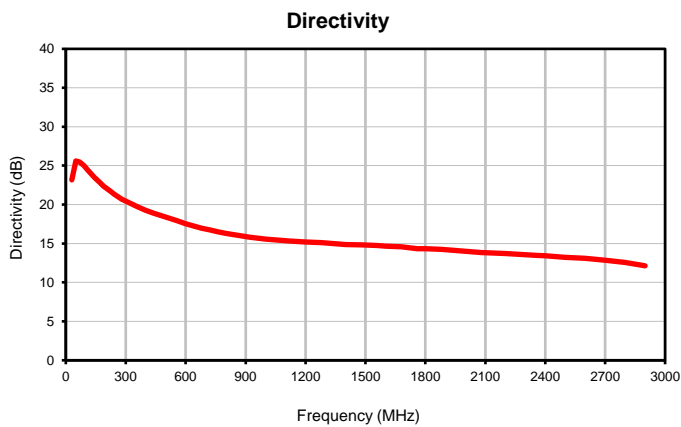
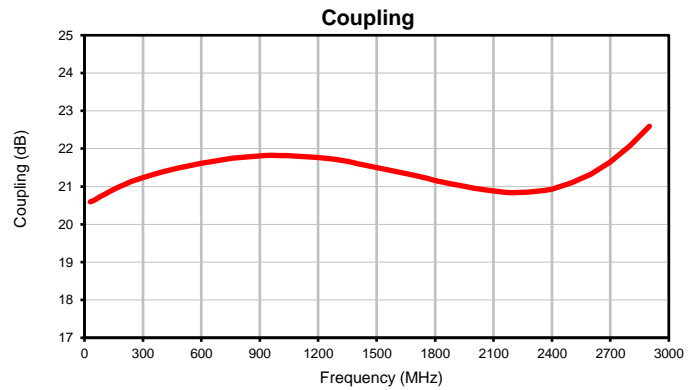
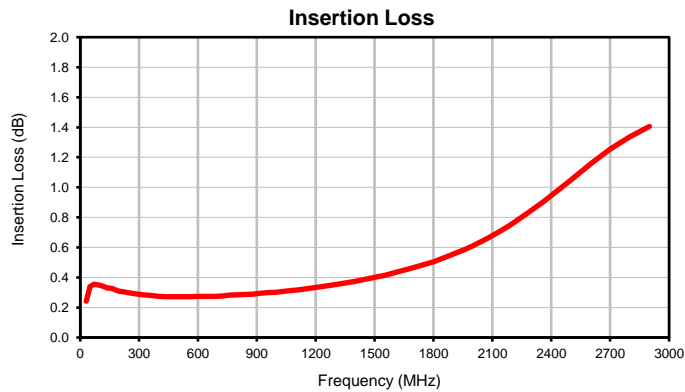
Typical Performance Data

FREQ. (MHz)	INSERTION LOSS (dB)	COUPLING (dB)	DIRECTIVITY (dB)	RETURN LOSS		
				IN	OUT	CPL
30	0.24	20.60	23.16	21.57	21.55	21.69
50	0.34	20.64	25.60	24.72	25.31	25.00
70	0.35	20.70	25.49	25.79	26.63	25.94
90	0.35	20.76	25.02	26.49	27.50	26.34
110	0.34	20.81	24.42	27.01	27.85	26.53
140	0.33	20.90	23.58	27.59	28.78	26.54
150	0.33	20.92	23.33	27.68	28.99	26.50
170	0.32	20.97	22.84	27.79	29.08	26.37
180	0.32	21.00	22.59	27.87	29.08	26.29
190	0.31	21.02	22.36	27.96	29.07	26.20
200	0.31	21.04	22.16	28.03	29.12	26.10
225	0.30	21.10	21.67	28.18	29.19	25.82
240	0.30	21.13	21.36	28.22	29.26	25.63
280	0.29	21.20	20.71	28.46	29.55	25.11
320	0.28	21.27	20.21	28.43	29.40	24.57
360	0.28	21.33	19.71	28.39	29.21	24.03
400	0.27	21.38	19.25	28.34	29.28	23.48
440	0.27	21.44	18.89	28.07	29.04	22.96
480	0.27	21.48	18.54	27.94	28.85	22.46
520	0.27	21.53	18.22	27.89	28.79	21.98
560	0.27	21.57	17.90	27.70	28.50	21.50
600	0.27	21.61	17.53	27.37	28.22	21.07
640	0.27	21.65	17.23	27.24	28.22	20.65
680	0.27	21.68	16.96	27.11	28.02	20.22
720	0.28	21.72	16.75	26.90	27.78	19.83
760	0.28	21.75	16.52	26.76	27.60	19.45
800	0.29	21.76	16.32	26.56	27.50	19.11
840	0.29	21.78	16.16	26.35	27.24	18.78
880	0.29	21.80	15.98	26.24	26.95	18.46
920	0.30	21.82	15.80	25.98	26.67	18.17
960	0.30	21.82	15.67	25.77	26.30	17.92
1000	0.30	21.82	15.54	25.53	25.95	17.68
1040	0.31	21.82	15.48	25.37	25.60	17.43
1120	0.32	21.79	15.32	24.87	24.85	17.06
1200	0.33	21.77	15.19	24.39	24.07	16.68
1280	0.35	21.72	15.10	23.98	23.27	16.37
1360	0.37	21.66	14.95	23.44	22.53	16.12
1400	0.37	21.61	14.85	23.24	22.15	16.00
1480	0.40	21.52	14.82	22.68	21.44	15.81
1560	0.42	21.44	14.72	22.24	20.81	15.65
1600	0.43	21.40	14.67	22.00	20.46	15.59
1680	0.46	21.31	14.56	21.58	19.86	15.49
1760	0.49	21.21	14.33	21.18	19.25	15.36
1800	0.50	21.16	14.32	21.01	18.95	15.31
1880	0.54	21.08	14.23	20.65	18.37	15.15
1960	0.59	20.99	14.07	20.39	17.78	14.96
2000	0.61	20.95	14.00	20.26	17.47	14.84
2080	0.66	20.89	13.86	20.08	16.88	14.57
2160	0.72	20.85	13.77	19.96	16.27	14.26
2200	0.76	20.84	13.73	19.96	15.98	14.10
2280	0.83	20.85	13.60	19.98	15.41	13.75
2360	0.90	20.89	13.48	20.07	14.84	13.35
2400	0.95	20.93	13.43	20.09	14.55	13.15
2500	1.05	21.10	13.22	20.03	13.89	12.65
2600	1.16	21.32	13.09	19.55	13.29	12.13
2700	1.25	21.65	12.85	18.55	12.77	11.60
2800	1.34	22.07	12.55	17.18	12.35	11.10
2900	1.41	22.59	12.14	15.76	12.04	10.64

Directional Coupler

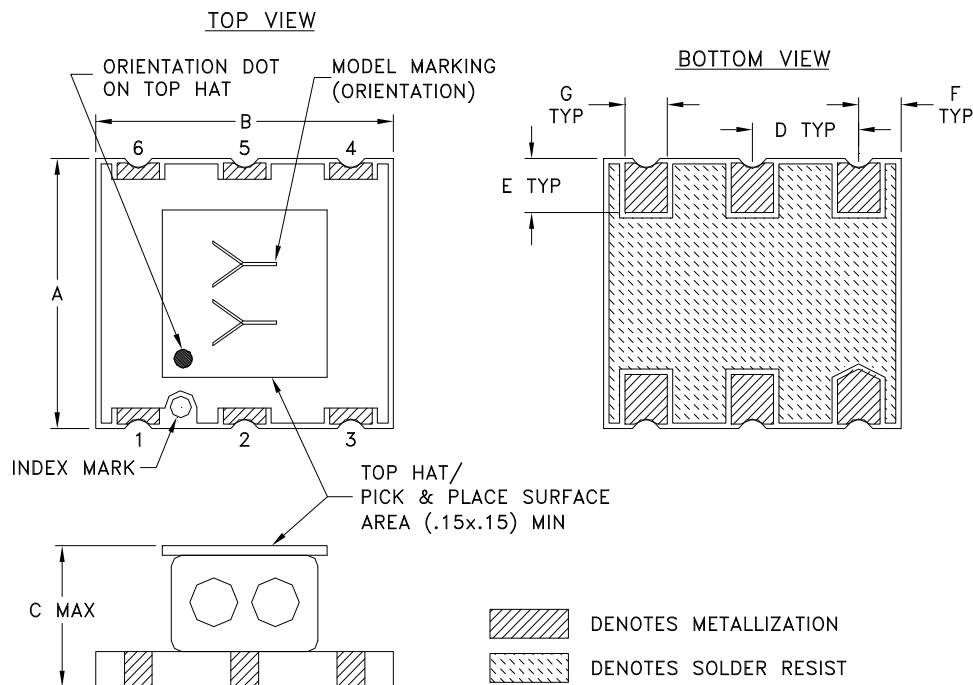
Typical Performance Curves

RDC20-23-3WX1+

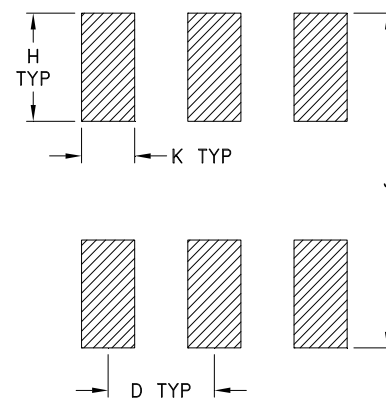


Outline Dimensions

TT2315



PCB Land Pattern



SUGGESTED LAYOUT
TOLERANCE TO BE WITHIN ± 0.02

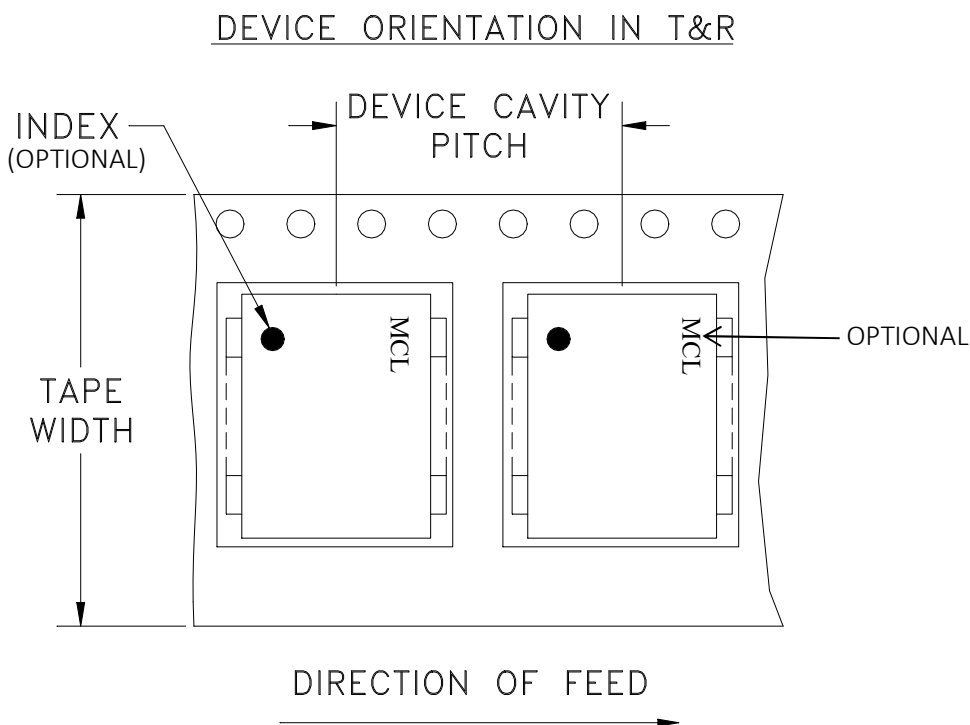
CASE #	A	B	C	D	E	F	G	H	J	K	WT. GRAMS
TT2315	.250 (6.35)	.280 (7.11)	.140 (3.56)	.100 (2.54)	.050 (1.27)	.040 (1.02)	.040 (1.02)	.100 (2.54)	.310 (7.87)	.050 (1.27)	.35

Dimensions are in inches (mm). Tolerances: 2Pl. $\pm .01$; 3 Pl. $\pm .005$

Notes:

1. Open style, Base material: Printed wiring laminate.
2. Termination finish: 3-5 μ inch (.08-.13 microns) Gold over 120-240 μ inch (3.05-6.10 microns) Nickel plate.
All models, (+) suffix.
3. Top-Hat total thickness: .013 inches MAX.
4. Orientation Dot on Top Hat & PCB corresponds to Pin #1.

Tape & Reel Packaging TR-F34



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel see note	
16	12	7	Small quantity standard (see note)	20
				50
				100
				200
		13	Standard	500
				1000

Note: Availability of small reel quantity varies by model.
Refer to pricing and availability on individual model dashboard.

Mini-Circuits carrier tape materials provide protection from ESD (Electro-Static Discharge) during handling and transportation. Tapes are static dissipative and comply with industry standards EIA-481/EIA-541.

Go to: www.minicircuits.com/pages/pdfs/tape.pdf



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

Mini-Circuits ISO 9001 & ISO 14001 Certified