

Directional Coupler

TCD-ED10103/1

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 : AT224

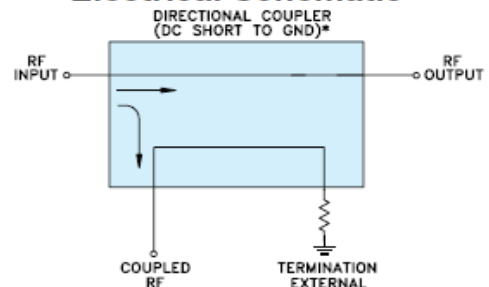
ELECTRICAL SPECIFICATIONS 75Ω @ +25°C					
Parameter		Min.	Typ.	Max.	Units
Frequency		5		800	MHz
Coupling	Nominal		7.5 ± 0.5		dB
	Flatness		± 0.5		dB
Mainline Loss **	5-50 MHz		1.70		dB
	50-400 MHz		1.80		dB
	400-800 MHz		2.00		dB
Directivity	5-50 MHz		20		dB
	50-400 MHz		17		dB
	400-800 MHz		13		dB
VSWR	5-800 MHz		1.3		(:1)
RF Power Input	5-800 MHz			1.0	W

Note:** Mainline loss includes theoretical coupled power loss of 0.850 dB at 7.5 dB coupling.

MAXIMUM RATINGS	
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C

PIN CONNECTIONS	
INPUT	3
OUTPUT	4
COUPLED FORWARD	1
75Ω TERM. EXTERNAL	6
GROUND	2

Electrical Schematic



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

Directional Coupler

TCD-ED10103/1

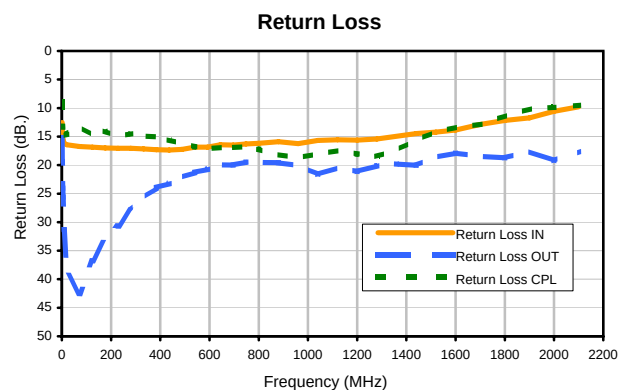
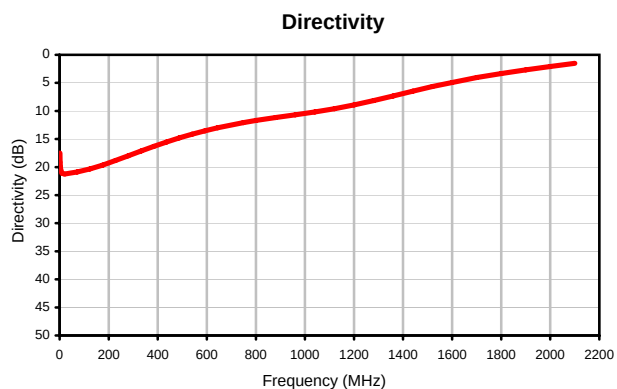
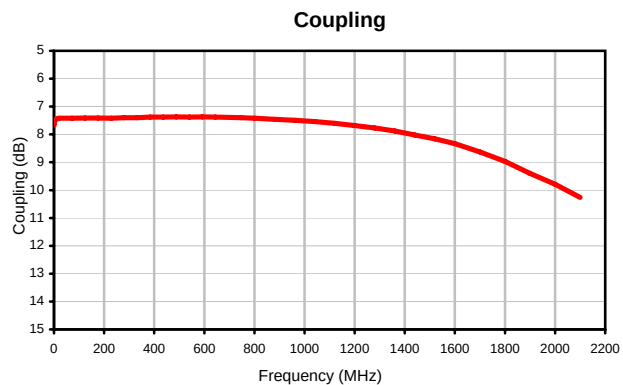
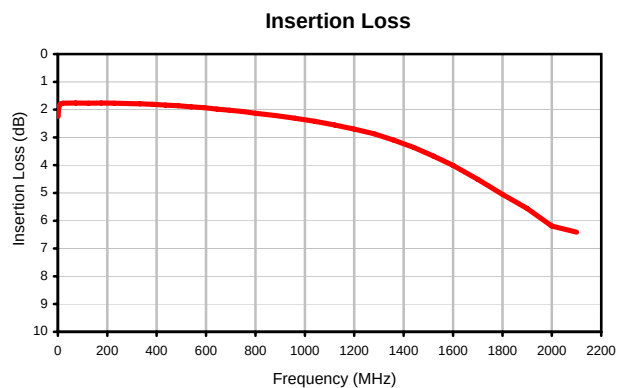
Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	COUPLING (dB)	DIRECTIVITY (dB)	RETURN LOSS		
				IN	(dB) OUT	CPL
1.0	2.24	7.66	17.50	12.54	15.17	8.88
2.0	2.02	7.55	19.17	14.24	19.37	11.88
3.0	1.94	7.51	19.93	15.00	22.02	13.19
4.0	1.89	7.48	20.35	15.40	24.04	13.85
5.0	1.86	7.47	20.60	15.66	25.60	14.23
10.0	1.80	7.44	21.11	16.17	31.32	14.83
20.0	1.77	7.42	21.25	16.42	38.85	14.58
72.0	1.76	7.42	20.88	16.75	42.51	13.21
124.0	1.77	7.41	20.33	16.84	36.77	14.81
176.0	1.76	7.41	19.63	16.99	33.01	14.05
228.0	1.77	7.42	18.82	17.06	30.69	14.96
280.0	1.78	7.40	17.98	17.06	27.92	14.50
332.0	1.79	7.40	17.13	17.16	25.74	14.89
384.0	1.81	7.38	16.30	17.30	23.94	15.05
436.0	1.84	7.38	15.53	17.35	23.23	15.60
488.0	1.86	7.37	14.80	17.25	22.14	16.22
540.0	1.90	7.38	14.14	16.85	21.28	16.79
592.0	1.93	7.37	13.55	16.85	20.73	17.10
644.0	1.98	7.38	13.00	16.44	19.98	16.93
696.0	2.02	7.39	12.53	16.48	19.99	16.90
748.0	2.07	7.40	12.09	16.30	19.45	16.77
800.0	2.13	7.42	11.70	16.18	19.54	17.23
880.0	2.21	7.46	11.18	15.89	19.56	18.18
960.0	2.31	7.49	10.69	16.25	20.07	18.68
1040.0	2.42	7.54	10.18	15.67	21.64	18.05
1120.0	2.55	7.60	9.60	15.56	20.43	17.47
1200.0	2.70	7.68	8.93	15.61	21.15	18.07
1280.0	2.87	7.77	8.15	15.43	20.10	18.49
1360.0	3.10	7.88	7.33	14.96	19.79	17.40
1440.0	3.36	8.02	6.47	14.46	20.05	15.63
1520.0	3.67	8.16	5.65	14.22	18.63	14.15
1600.0	4.01	8.33	4.94	13.85	17.89	13.37
1700.0	4.51	8.63	4.06	12.86	18.45	12.83
1800.0	5.05	8.97	3.33	12.16	18.72	11.33
1900.0	5.56	9.40	2.68	11.73	17.60	10.16
2000.0	6.19	9.79	2.07	10.57	19.23	9.86
2100.0	6.41	10.26	1.52	9.80	17.60	9.52

Directional Coupler

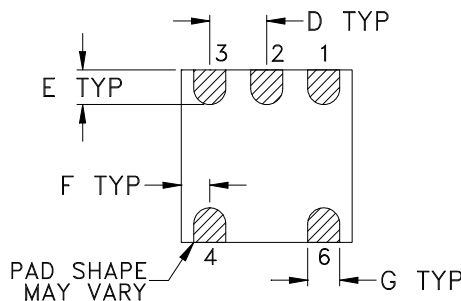
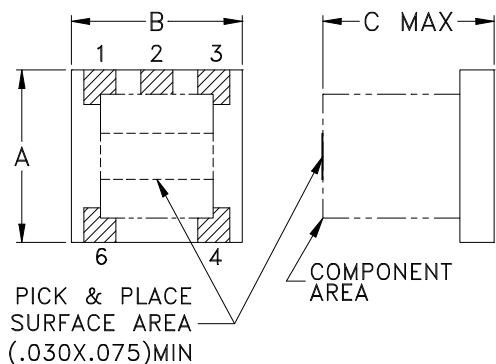
Typical Performance Curves

TCD-ED10103/1

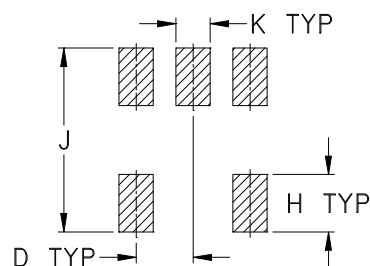


Outline Dimensions

AT224



PCB Land Pattern



Suggested Layout,
Tolerance to be within ± 0.002

CASE #	A	B	C	D	E	F	G	H	J	K	L	WT. GRAMS
AT224	.150 (3.81)	.150 (3.81)	.150 (3.81)	.050 (1.27)	.030 (0.76)	.025 (0.64)	.028 (0.71)	.065 (1.65)	.190 (4.83)	.030 (0.76)	-- --	.10

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

Notes:

- Open style, ceramic base.
- Termination finish:
For RoHS Case Styles: 2-10 μ inch (.05-.25 microns) Gold over 100-300 μ inch (2.54-7.62 microns) Nickel plate.
All models, (+) suffix.
For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site

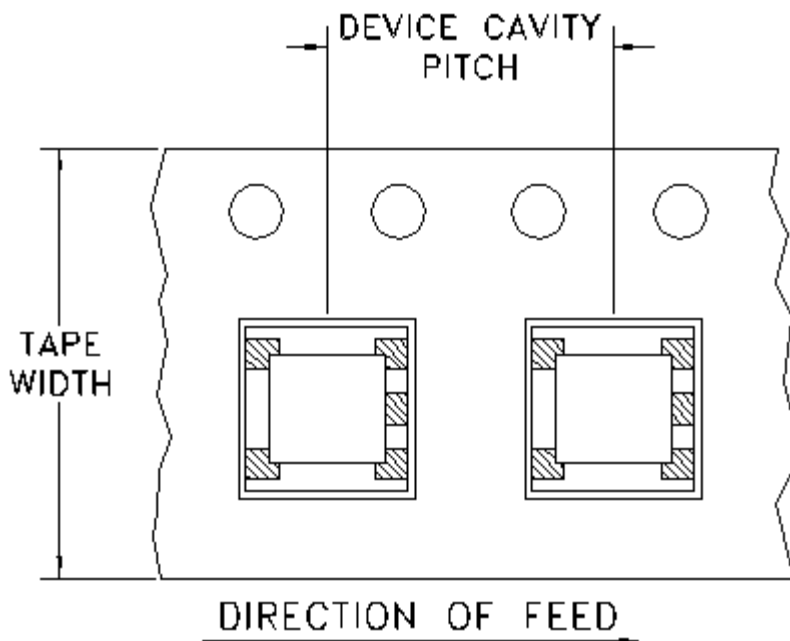


The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

RF/IF MICROWAVE COMPONENTS

Tape & Reel Packaging TR-F17

DEVICE ORIENTATION IN T&R



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel	
12	8	7	Small quantity standards (see note)	20
				50
				100
				200
				500
		13	Standard	1000
				2000

Note: Please Consult individual model data sheet to determine device per reel availability.

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



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

RF/IF MICROWAVE COMPONENTS



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	-40° to 85°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Humidity	90 to 95% RH, 240 hours, 50°C	MIL-STD-202, Method 103, Condition A, Except 50°C and end-point electrical test done within 12 hours
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Solder Reflow Heat	Sn-Pb Eutetic Process: 225°C peak Pb-Free Process 245° - 250°C peak	J-STD-020, Table 4-1, 4-2 and 5-2, Figure 5-1
Solderability	10X Magnification	J-STD-002, 95% Coverage
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
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