Engineering Development Model

Directional Coupler ADC-ED12259/4

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 : CD636

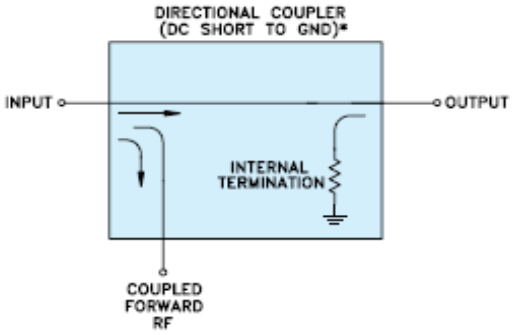
ELECTRICAL SPECIFICATIONS 50Ω @ +25°C					
Parameter		**Min.**	**Typ.**	**Max.**	**Units**
Frequency		.5		1600	MHz
Coupling	**Nominal**		9.8±0.6		dB
	Flatness		±0.34		dB
Mainline Loss **	**.5-5 MHz**		1.48		dB
	5-800 MHz		1.10		dB
	800-1600 MHz		1.47		dB
Directivity	**.5-5 MHz**		19		dB
	5-800 MHz		21		dB
	800-1600 MHz		18		dB
VSWR	**.5-1600 MHz**		1.18		(:1)
RF Power Input	**.5-1600 MHz**			1.0	W

Note: ** Mainline loss includes theoretical coupled power loss of 0.4804 dB at 9.8 dB coupling.

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

PIN CONNECTIONS	
INPUT	1
OUTPUT	6
COUPLED	3
GROUND	2,5
NOT USED	4

Electrical Schematic



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

Directional Coupler ADC-ED12259/4

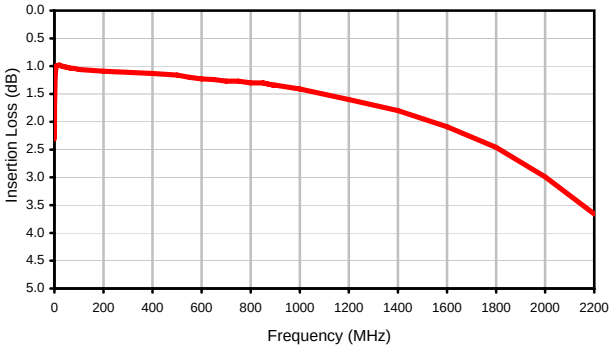
Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	COUPLING (dB)	DIRECTIVITY (dB)	RETURN LOSS (dB)		
				IN	OUT	CPL
0.3	2.31	10.42	15.88	7.89	7.93	8.61
0.5	1.90	10.30	17.98	10.51	11.04	11.29
0.7	1.72	10.23	18.75	12.21	13.08	12.85
1.0	1.56	10.17	19.35	13.84	15.21	14.41
3.0	1.17	9.97	21.43	17.95	22.61	18.22
5.0	1.06	9.91	22.18	19.40	26.44	19.73
7.0	1.01	9.89	22.55	19.73	29.42	20.08
9.0	0.99	9.88	22.70	20.08	32.26	20.44
10.0	0.99	9.88	22.79	20.08	32.26	20.44
20.0	0.98	9.87	22.92	20.44	46.06	20.44
30.0	1.00	9.87	22.92	20.08	46.06	20.44
40.0	1.01	9.88	22.81	20.08	40.09	20.44
50.0	1.02	9.89	22.73	20.08	36.61	20.44
60.0	1.03	9.91	22.57	20.44	36.61	20.44
70.0	1.04	9.92	22.45	20.44	36.61	20.44
80.0	1.04	9.92	22.30	20.83	36.61	20.44
100.0	1.06	9.91	22.12	20.44	34.15	20.44
200.0	1.09	9.90	21.08	20.44	27.32	20.08
300.0	1.11	9.87	20.26	20.08	24.29	20.44
400.0	1.13	9.76	19.67	19.73	21.66	20.83
500.0	1.16	9.70	19.32	20.44	20.44	21.66
550.0	1.20	9.73	19.03	23.13	20.83	22.61
600.0	1.23	9.73	19.17	23.13	19.73	23.13
650.0	1.24	9.70	19.15	25.66	20.44	23.13
700.0	1.27	9.70	19.34	23.69	20.08	23.69
750.0	1.27	9.68	19.31	24.29	20.83	22.61
800.0	1.30	9.66	19.52	24.94	20.83	22.61
850.0	1.30	9.64	19.00	24.94	21.23	21.66
860.0	1.31	9.63	18.87	24.94	20.83	21.66
870.0	1.32	9.62	18.90	24.29	21.23	21.66
880.0	1.33	9.63	19.14	24.29	21.23	21.23
890.0	1.34	9.64	19.47	24.29	21.66	20.83
900.0	1.34	9.64	19.81	24.94	22.12	20.44
1000.0	1.41	9.62	19.39	28.30	23.13	18.22
1200.0	1.60	9.64	17.70	30.71	21.66	15.21
1400.0	1.80	9.62	15.02	28.30	18.78	13.32
1600.0	2.09	9.72	13.42	25.66	17.21	12.74
1800.0	2.46	9.87	12.05	23.13	18.78	13.58
2000.0	2.99	10.13	10.92	18.49	23.13	15.94
2200.0	3.66	10.55	9.50	15.21	25.66	19.73

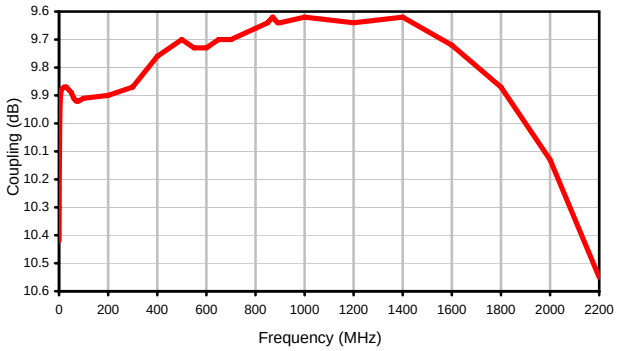
Directional Coupler ADC-ED12259/4

Typical Performance Curves

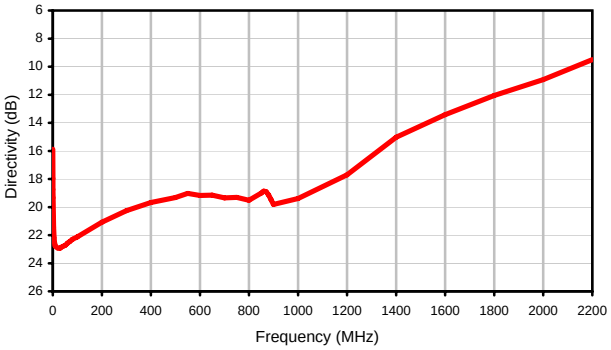
Insertion Loss



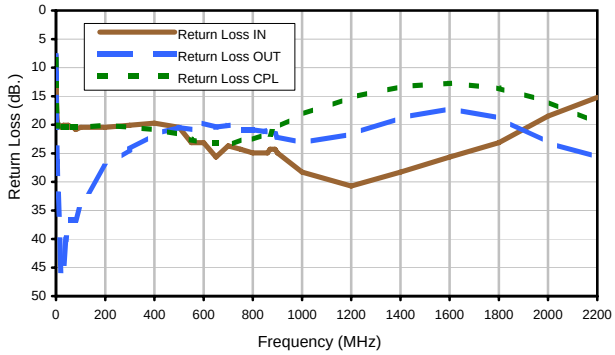
Coupling



Directivity



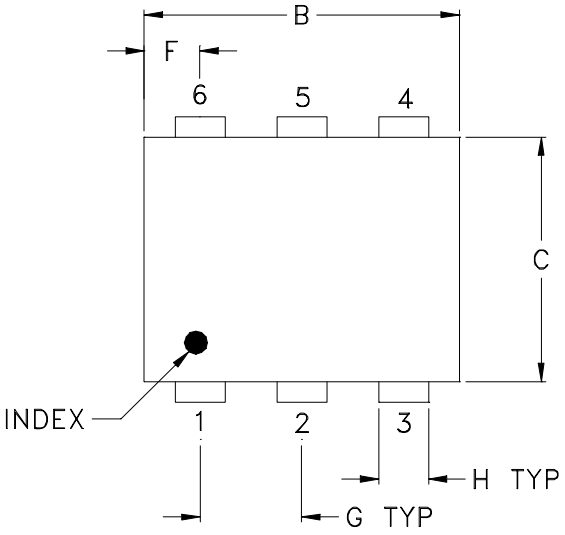
Return Loss

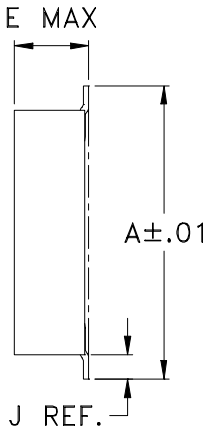


Case Style CD

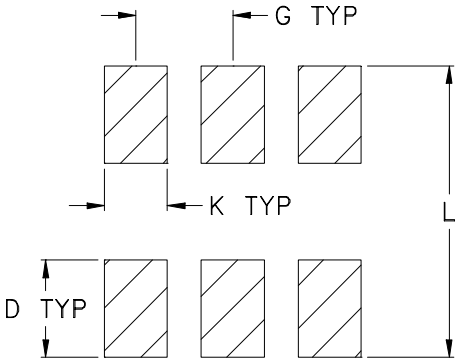
CD541
CD542
CD636
CD637

Outline Dimensions





PCB Land Pattern



Suggested Layout,
Tolerance to be within ±.002

CASE#	A	B	C	D	E	F	G	H	J	K	L	WT, GRAM
CD541	.272 (6.91)	.310 (7.87)	.220 (5.58)	.100 (2.54)	.082 (2.08)	.055 (1.40)	.100 (2.54)	.030 (0.76)	.026 (0.66)	.065 (1.65)	.300 (7.62)	.15
CD542					.112 (2.84)							.20
CD636					.162 (4.11)							.25
CD637					.206 (5.23)							.40

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

Notes:

1. Case material: Plastic.
2. Termination finish:
   For RoHS Case Styles: Tin plate over Nickel plate. All models, (+) suffix.
   For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.

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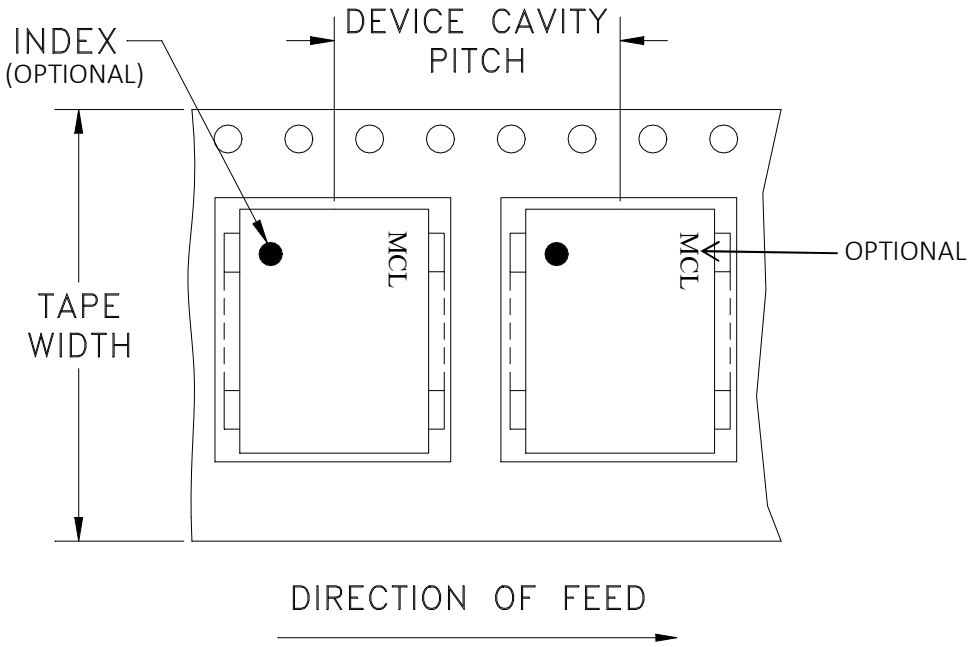
Tape & Reel Packaging TR-F34

DEVICE ORIENTATION IN T&R



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.

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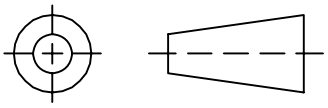
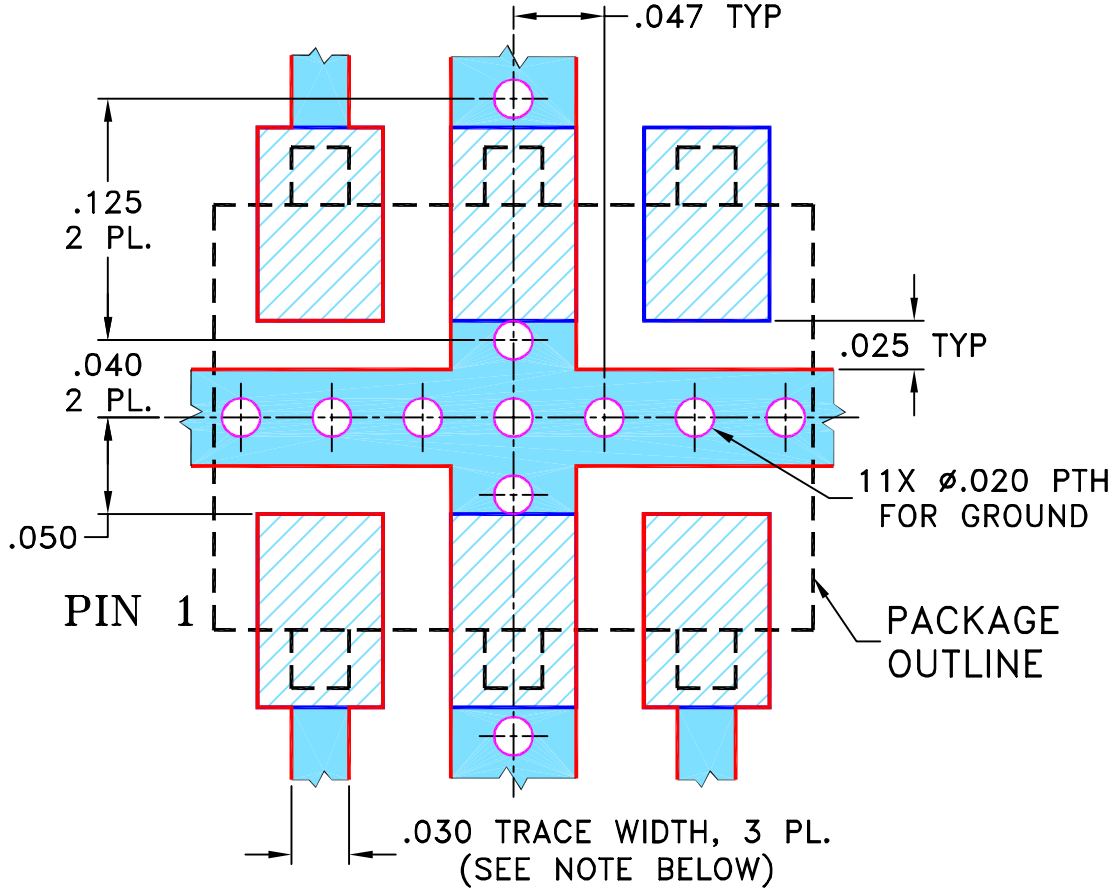
THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M100739	NEW RELEASE	02/14/06	MMG	DY

SUGGESTED MOUNTING CONFIGURATION FOR CD636 CASE STYLE, "hz" PIN CONNECTION



NOTES:
1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

DENOTES PCB COPPER LAYOUT WITH SMOBS (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

UNLESS OTHERWISE SPECIFIED		INITIALS	DATE
DIMENSIONS ARE IN INCHES	DRAWN	MMG	12/30/05
TOLERANCES ON:	CHECKED	AV	02/14/06
2 PL DECIMALS ±	APPROVED	DY	02/14/06
3 PL DECIMALS ± .005			
ANGLES ±			
FRACTIONS ±			

ASHEETA1.DWG REV:A DATE:01/12/95

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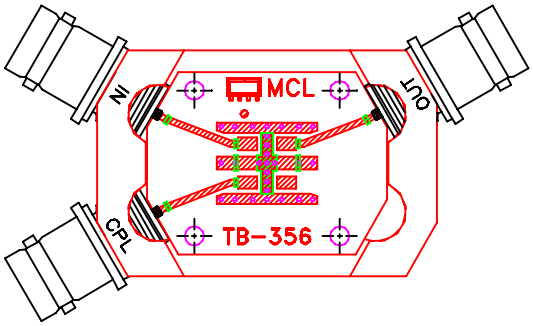
PL, hz, 75, CD636, ADC, TB-356

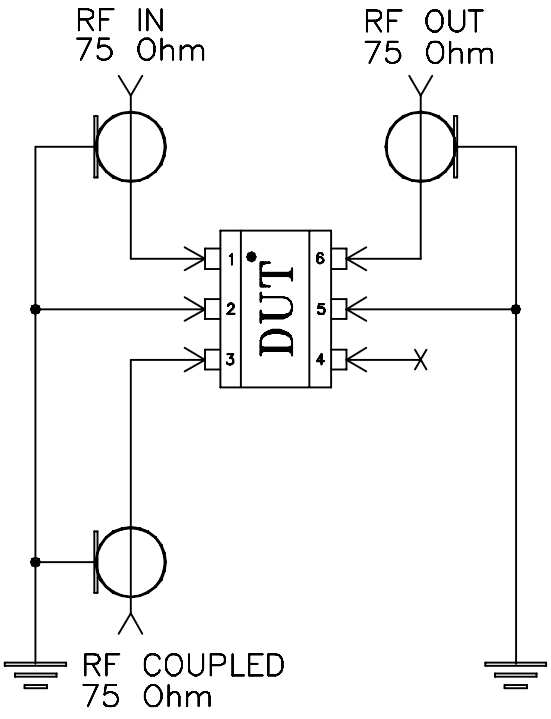
SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-213	OR

FILE:	SCALE:	SHEET:
98PL213	10:1	1 OF 1

Evaluation Board and Circuit



TB-356



Schematic Diagram

Notes:

1. 75 Ohm BNC Female connectors.
2. PCB Material: Rogers RO4350 or equivalent, Dielectric Constant=3.5, Thickness=.030 inch.

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Environmental Specifications ENV02T1

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