Engineering Development Model

Power Splitter/Combiner ADP-ED9653/1

2 Way-0°

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 75Ω @ +25°C					
Parameter		**Min.**	**Typ.**	**Max.**	**Units**
Frequency		0.5		1740	MHz
Isolation	**0.5 - 5 MHz**		15		dB
	5 - 870 MHz		22		dB
	870 - 1740 MHz		21		dB
Insertion Loss Above 3.0 dB	**0.5 - 5 MHz**		0.27		dB
	5 - 870 MHz		0.30		dB
	870 - 1740 MHz		1.48		dB
Phase Unbalance	**0.5 - 5 MHz**		0.026		deg.
	5 - 870 MHz		0.048		deg.
	870 - 1740 MHz		0.214		deg.
Amplitude Unbalance	**0.5 - 5 MHz**		0.005		dB
	5 - 870 MHz		0.011		dB
	870 - 1740 MHz		0.308		dB
VSWR	**SUM Port**		1.18		(:1)
	OUT Ports		1.31		(:1)

Note: Denotes 75 ohm model.

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

PIN CONNECTIONS	
SUM PORT	1
PORT 1	3
PORT 2	4
GND EXT	6
NOT USED	2, 5

Functional Diagram

2 Way-0° Power Splitter/Combiner ADP-ED9653/1

Typical Performance Data

FREQ. (MHz)	TOTAL LOSS[1] (dB) S-1	TOTAL LOSS[1] (dB) S-2	AMP. UNBAL. (dB)	ISOLATION (dB) 1-2	PHASE UNBAL. (deg.)	FREQ. (MHz)	VSWR (:1) S	VSWR (:1) 1	VSWR (:1) 2
0.5	3.31	3.30	0.01	11.85	0.02	0.5	1.17	1.89	1.89
0.6	3.29	3.30	0.00	12.38	0.00	0.6	1.15	1.81	1.81
0.7	3.30	3.29	0.01	12.85	0.06	0.7	1.14	1.75	1.74
0.8	3.29	3.29	0.00	13.27	0.03	0.8	1.13	1.70	1.69
0.9	3.29	3.29	0.00	13.66	0.04	0.9	1.12	1.66	1.65
1.0	3.30	3.29	0.01	14.01	0.03	1.0	1.12	1.62	1.62
2.0	3.25	3.25	0.00	16.54	0.02	2.0	1.09	1.42	1.42
3.0	3.22	3.22	0.00	18.13	0.02	3.0	1.08	1.34	1.33
4.0	3.21	3.20	0.01	19.23	0.02	4.0	1.07	1.29	1.29
5.0	3.21	3.20	0.01	19.98	0.02	5.0	1.07	1.26	1.26
14.0	3.19	3.20	0.01	22.13	0.04	14.0	1.06	1.19	1.19
23.0	3.19	3.20	0.00	22.35	0.01	23.0	1.06	1.18	1.18
32.0	3.20	3.19	0.01	22.35	0.02	32.0	1.05	1.18	1.18
41.0	3.21	3.21	0.01	22.33	0.04	41.0	1.05	1.18	1.18
50.0	3.22	3.21	0.00	22.29	0.02	50.0	1.05	1.18	1.18
190.0	3.26	3.27	0.01	22.08	0.11	190.0	1.05	1.17	1.17
330.0	3.29	3.29	0.00	21.91	0.12	330.0	1.05	1.17	1.15
470.0	3.33	3.33	0.00	22.07	0.08	470.0	1.05	1.15	1.12
610.0	3.39	3.38	0.01	22.54	0.04	610.0	1.06	1.14	1.10
750.0	3.46	3.44	0.02	23.12	0.01	750.0	1.08	1.14	1.08
800.0	3.49	3.47	0.02	23.24	0.06	800.0	1.09	1.13	1.07
850.0	3.54	3.51	0.04	23.30	0.05	850.0	1.10	1.13	1.07
900.0	3.56	3.53	0.04	23.25	0.15	900.0	1.11	1.13	1.07
950.0	3.61	3.56	0.05	23.17	0.18	950.0	1.12	1.13	1.07
1000.0	3.64	3.58	0.05	23.07	0.16	1000.0	1.12	1.13	1.08
1250.0	3.95	3.79	0.17	24.71	0.37	1250.0	1.08	1.17	1.16
1500.0	4.50	4.16	0.34	28.42	0.13	1500.0	1.19	1.24	1.29
1530.0	4.59	4.23	0.36	25.35	0.12	1530.0	1.24	1.25	1.30
1560.0	4.71	4.32	0.39	22.82	0.09	1560.0	1.29	1.25	1.31
1590.0	4.84	4.43	0.41	20.71	0.05	1590.0	1.35	1.25	1.32
1620.0	4.99	4.57	0.42	18.91	0.13	1620.0	1.43	1.26	1.33
1650.0	5.16	4.71	0.44	17.37	0.19	1650.0	1.51	1.27	1.34
1680.0	5.32	4.88	0.45	15.99	0.27	1680.0	1.60	1.28	1.35
1710.0	5.55	5.10	0.45	14.84	0.47	1710.0	1.70	1.29	1.36
1740.0	5.76	5.33	0.43	13.79	0.47	1740.0	1.82	1.30	1.37

[1] Total Loss = Insertion Loss + 3dB Splitter Loss

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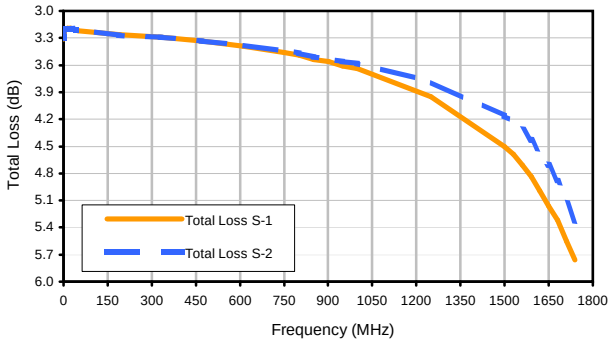
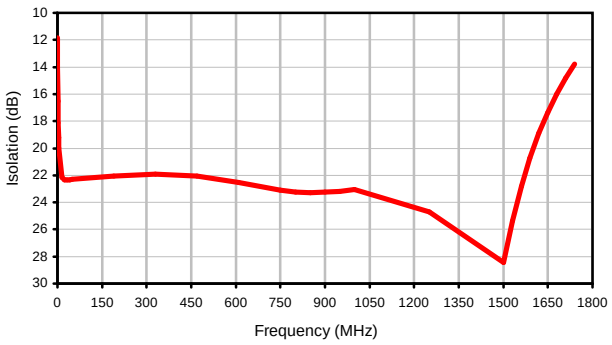
2 Way-0° Power Splitter/Combiner ADP-ED9653/1

Typical Performance Curves

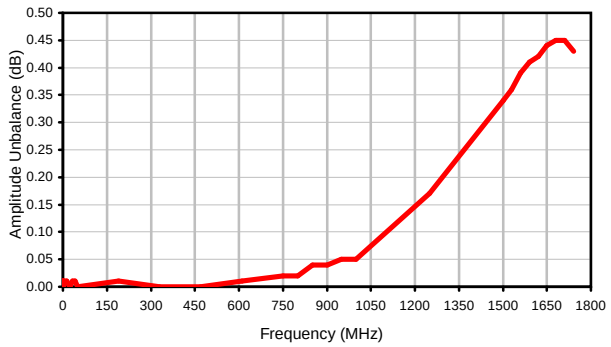
Total Loss



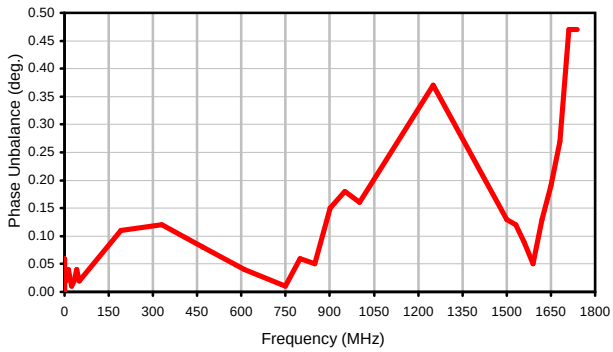
Isolation



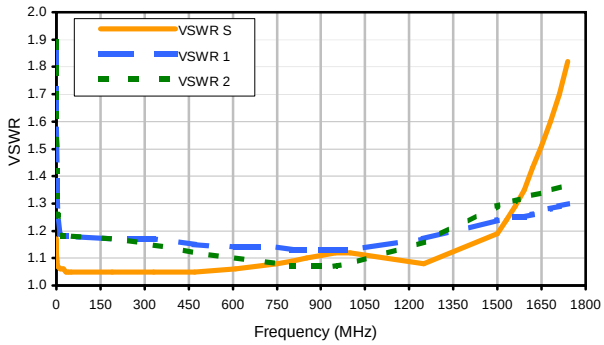
Amplitude Unbalance



Phase Unbalance



VSWR



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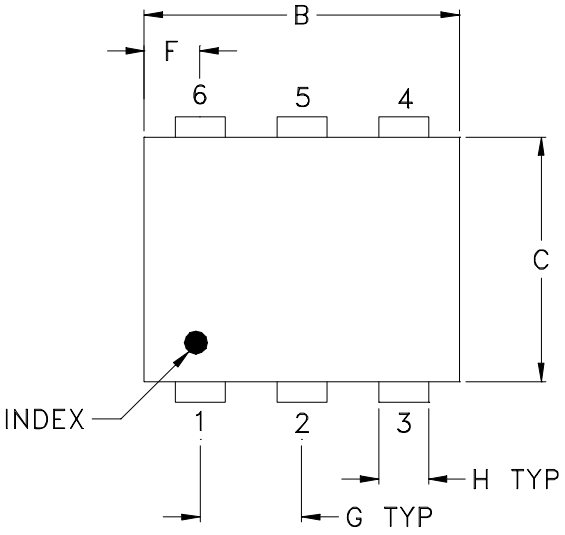
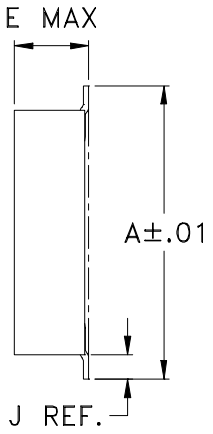
Case Style CD

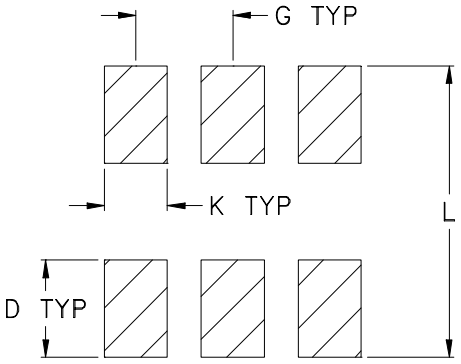
CD541
CD542
CD636
CD637

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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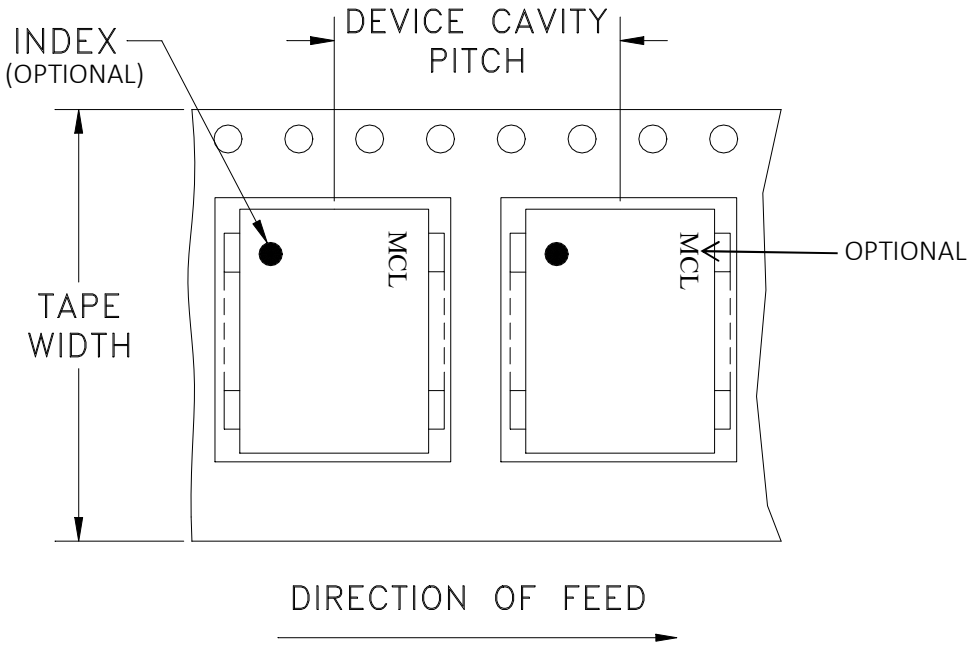
Tape & Reel Packaging TR-F34

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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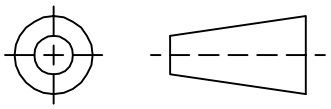
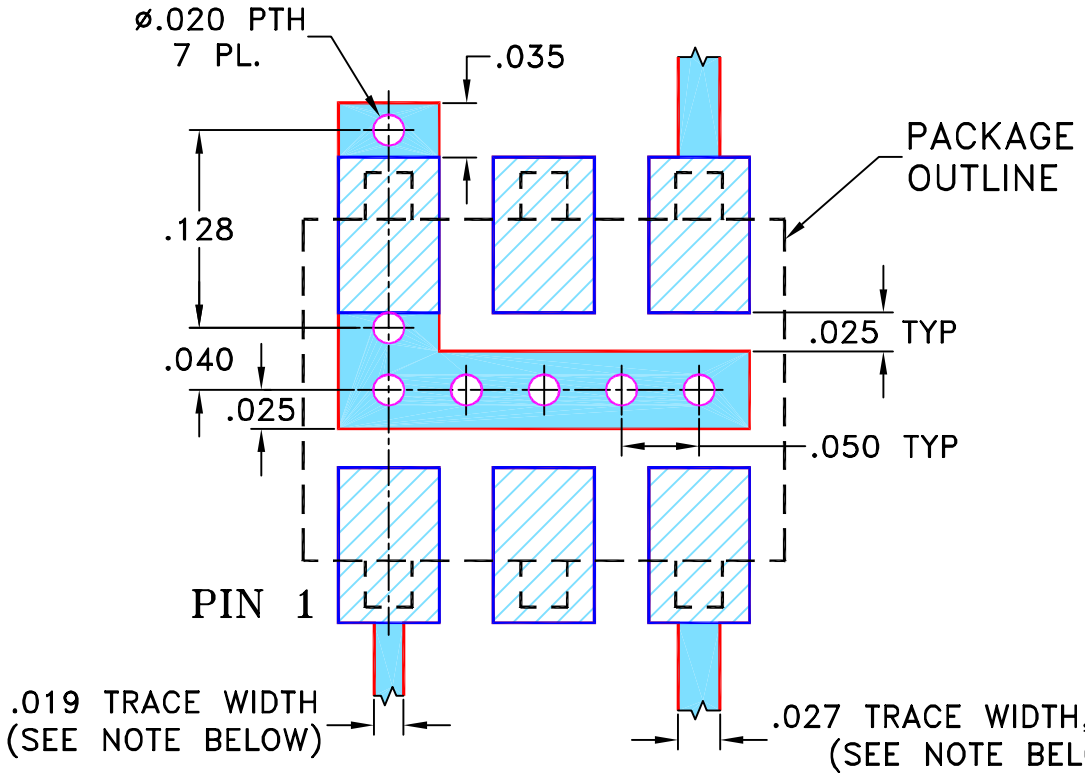
THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M88803	NEW RELEASE	10/20/03	GF	HY
A	M102713	ADDED "...WITH SMOBC"	01/17/06	MMG	IL

SUGGESTED MOUNTING CONFIGURATION FOR CD542 CASE STYLE, "hv" 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 SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

UNLESS OTHERWISE SPECIFIED		INITIALS	DATE
DIMENSIONS ARE IN INCHES	DRAWN	GF	09/18/03
TOLERANCES ON:	CHECKED	IL	10/20/03
2 PL DECIMALS ±	APPROVED	HY	10/20/03
3 PL DECIMALS ± .005			
ANGLES ±			
FRACTIONS ±			

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

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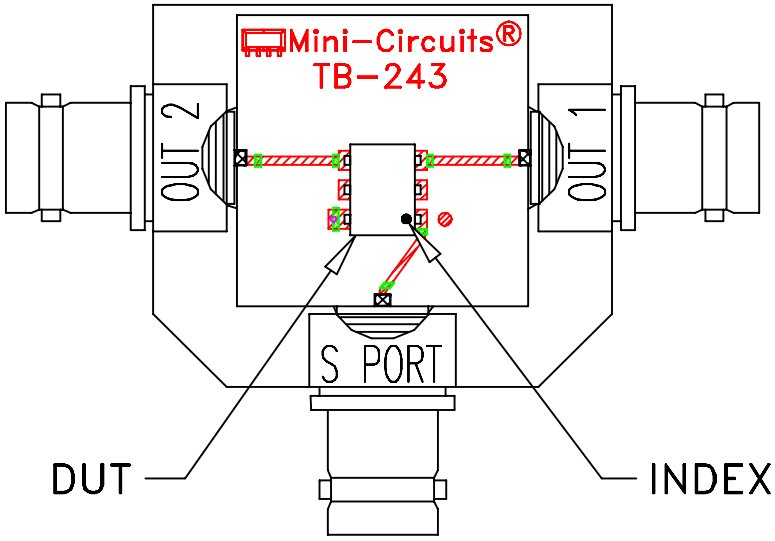
PL, hv, 75, CD542, ADP, TB-243

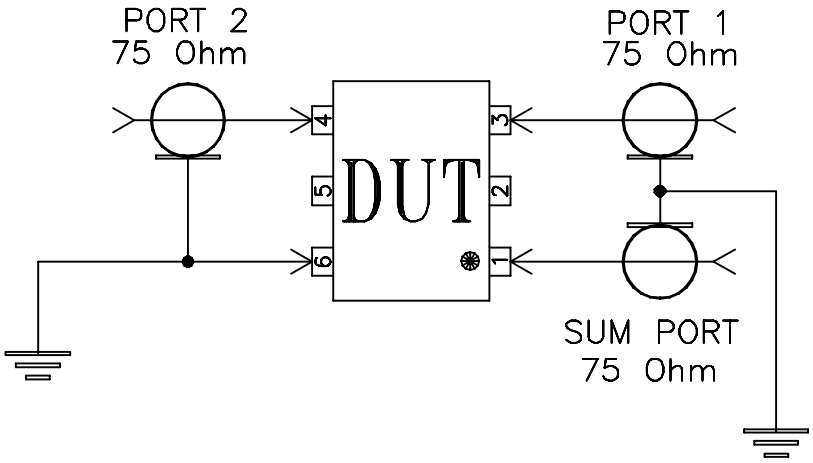
SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-141	A

FILE:	SCALE:	SHEET:
98PL141	8:1	1 OF 1

Evaluation Board and Circuit



TB-243



Schematic Diagram

Notes:

1. 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

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