



Mini-Circuits®

SURFACE MOUNT

Power Splitter/Combiner **SCA-4-10-75+**

4 Way-0° 75Ω 10 to 1000 MHz

FEATURES

- Wideband, 10-1000 MHz
- High isolation, 25 dB typ.
- Good amplitude unbalance, 0.5 dB typ.



Generic photo used for illustration purposes only

CASE STYLE: DZ943

+RoHS Compliant

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

APPLICATIONS

- Cellular
- UHF/VHF receivers/transmitters

ELECTRICAL SPECIFICATIONS AT 25°C¹

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		10		1000	MHz
Insertion Loss, above 6.0 dB	10-400		1.2	2.3	dB
	400-650		1.5	2.2	
	650-1000		2.0	2.5	
Isolation	10-400	22	30		dB
	400-650	18	25		
	650-1000	15	20		
Phase Unbalance	10-400			6	Degree
	400-650			9	
	650-1000			10	
Amplitude Unbalance	10-400			1.2	dB
	400-650			0.9	
	650-1000			0.9	

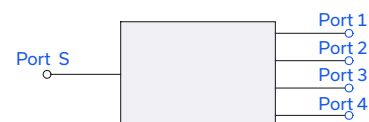
1. Tested on Evaluation Board TB-SCA-4-10-75+

MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	0.5W max.
Internal Dissipation	0.375W max.

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

ELECTRICAL SCHEMATIC



Mini-Circuits®

www.minicircuits.com P.O. Box 350166, Brooklyn, NY 11235-0003 (718) 934-4500 sales@minicircuits.com

REV. F
ECO-010710
ED-10856/1
SCA-4-10-75+
WZ/TD/CP/AM
230104
PAGE 1 OF 3



Power Splitter/Combiner **SCA-4-10-75+**

4 Way-0° 75Ω 10 to 1000 MHz

SUM PORT (PORT S)	3
PORT 1	6
PORT 2	7
PORT 3	9
PORT 4	10
GROUND	1,2,4,5,8

*Marking may contain other features or characters for internal lot control

NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350 WITH DIELECTRIC THICKNESS 0.030" $\pm$ 0.002", 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
 DENOTES COPPER LAND PATTERN FREE OF SOLDERMASK

The diagram shows a three-layered structure. The top layer is labeled 'F TYP' and contains five vertical bars. The middle layer is labeled 'K TYP' and contains five vertical bars. The bottom layer is labeled 'M TYP' and contains five vertical bars. Arrows indicate the direction of flow or force: from left to right through the top layer, from right to left through the middle layer, and from left to right through the bottom layer.

OUTLINE DIMENSIONS (Inches) mm

A	B	C	D	E	F	G
.30	.250	.190	.266	.050	.050	.012
7.62	6.35	4.83	6.76	1.27	1.27	0.30
H	J	K	L	M		wt
.029	.004	.085	.296	.030		grams
0.74	0.10	2.16	7.52	0.76		0.5

TAPE & REEL INFORMATION: F34



Mini-Circuits

SURFACE MOUNT

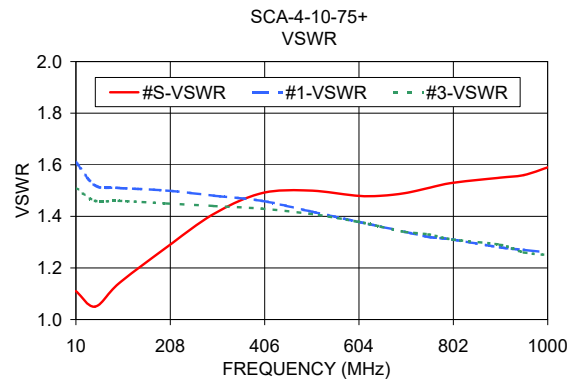
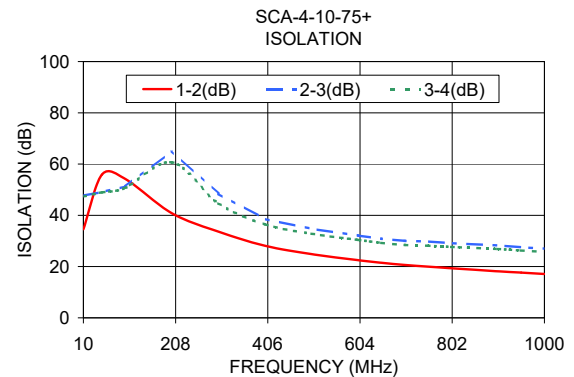
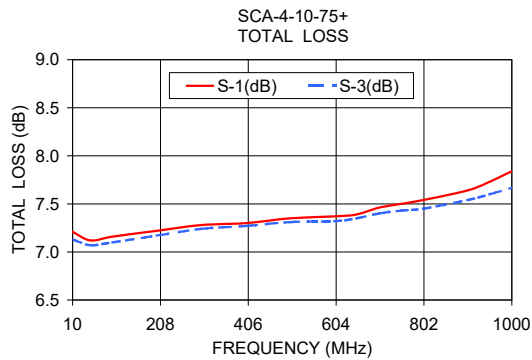
Power Splitter/Combiner **SCA-4-10-75+**

4 Way-0° 75Ω 10 to 1000 MHz

TYPICAL PERFORMANCE DATA

Frequency (MHz)	Total Loss ¹ (dB)				Amplitude Unbalance (dB)	Isolation (dB)			Phase Unbalance (deg.)	VSWR (:1)				
	S-1	S-2	S-3	S-4		1-2	1-3	2-3		S	1	2	3	4
10.00	7.21	6.78	7.13	7.53	0.74	34.55	47.68	47.34	1.86	1.11	1.61	1.48	1.51	1.64
50.00	7.12	6.75	7.07	7.43	0.68	55.90	49.10	48.97	0.85	1.05	1.52	1.42	1.46	1.57
100.00	7.16	6.77	7.10	7.48	0.71	54.20	51.26	50.69	0.94	1.14	1.51	1.43	1.46	1.55
200.00	7.22	6.87	7.17	7.53	0.66	40.79	65.07	60.68	1.45	1.28	1.50	1.44	1.45	1.52
300.00	7.28	6.95	7.24	7.56	0.61	33.63	48.42	44.66	2.13	1.41	1.48	1.45	1.44	1.49
400.00	7.30	7.01	7.27	7.56	0.55	28.11	38.54	36.47	2.40	1.49	1.46	1.46	1.43	1.45
500.00	7.35	7.03	7.31	7.59	0.56	24.85	34.71	32.80	2.83	1.50	1.42	1.44	1.41	1.41
600.00	7.37	7.02	7.32	7.60	0.58	22.50	32.13	30.41	2.98	1.48	1.38	1.40	1.38	1.36
650.00	7.39	7.04	7.35	7.63	0.59	21.50	30.85	29.23	3.11	1.48	1.36	1.39	1.36	1.34
700.00	7.46	7.11	7.40	7.67	0.56	20.63	30.04	28.44	3.53	1.49	1.34	1.37	1.34	1.33
750.00	7.50	7.14	7.43	7.70	0.56	19.98	29.78	28.11	3.53	1.51	1.32	1.34	1.33	1.31
800.00	7.54	7.15	7.45	7.75	0.59	19.37	29.15	27.66	3.59	1.53	1.31	1.32	1.31	1.30
900.00	7.64	7.26	7.54	7.82	0.56	18.17	28.23	26.83	4.14	1.55	1.28	1.27	1.29	1.29
950.00	7.73	7.31	7.60	7.88	0.57	17.63	27.54	26.25	4.30	1.56	1.27	1.25	1.26	1.29
1000.00	7.84	7.40	7.67	7.98	0.57	17.09	26.99	25.74	4.59	1.59	1.26	1.24	1.25	1.29

1. Total Loss = Insertion Loss + 6.0 dB splitter loss.



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-Circuit's applicable established test performance criteria and measurement instructions.
- C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the standard. Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/terms/viewterm.html



4 Way-0° Power Splitter/Combiner

SCA-4-10-75+

Typical Performance Data

FREQ. (MHz)	TOTAL LOSS ¹ (dB)				AMP. UNBAL. (dB)	ISOLATION (dB)			PHASE UNBAL. (deg.)	FREQ. (MHz)	VSWR (:1)				
	S-1	S-2	S-3	S-4		1-2	1-3	2-3			S	1	2	3	4
10.0	7.21	6.78	7.13	7.53	0.74	34.55	47.68	47.34	1.86	10.0	1.11	1.61	1.48	1.51	1.64
20.0	7.12	6.73	7.07	7.44	0.71	39.97	49.71	49.42	1.17	20.0	1.03	1.55	1.43	1.47	1.59
30.0	7.10	6.74	7.07	7.41	0.67	44.36	52.11	51.64	0.88	30.0	1.02	1.53	1.43	1.47	1.57
40.0	7.14	6.76	7.09	7.45	0.70	50.25	51.05	50.62	0.72	40.0	1.03	1.53	1.42	1.46	1.57
50.0	7.12	6.75	7.07	7.43	0.68	55.90	49.10	48.97	0.85	50.0	1.05	1.52	1.42	1.46	1.57
60.0	7.12	6.77	7.11	7.44	0.67	57.22	47.96	47.55	0.77	60.0	1.06	1.53	1.42	1.46	1.57
70.0	7.15	6.77	7.09	7.47	0.70	59.48	48.21	47.92	0.80	70.0	1.08	1.52	1.42	1.45	1.56
80.0	7.14	6.77	7.09	7.44	0.67	61.61	49.98	49.57	1.04	80.0	1.10	1.51	1.42	1.45	1.56
90.0	7.16	6.81	7.13	7.47	0.66	57.92	50.92	51.12	0.71	90.0	1.11	1.51	1.42	1.46	1.56
100.0	7.16	6.77	7.10	7.48	0.71	54.20	51.26	50.69	0.94	100.0	1.14	1.51	1.43	1.46	1.55
150.0	7.22	6.83	7.15	7.53	0.70	46.44	55.42	55.32	1.21	150.0	1.21	1.50	1.43	1.45	1.54
200.0	7.22	6.87	7.17	7.53	0.66	40.79	65.07	60.68	1.45	200.0	1.28	1.50	1.44	1.45	1.52
250.0	7.23	6.91	7.20	7.53	0.62	36.85	55.84	51.75	1.84	250.0	1.35	1.49	1.45	1.44	1.51
275.0	7.25	6.94	7.22	7.52	0.58	34.48	48.29	45.38	2.08	275.0	1.39	1.49	1.46	1.46	1.51
300.0	7.28	6.95	7.24	7.56	0.61	33.63	48.42	44.66	2.13	300.0	1.41	1.48	1.45	1.44	1.49
325.0	7.32	7.00	7.27	7.58	0.59	31.80	43.90	41.54	2.29	325.0	1.44	1.48	1.46	1.45	1.49
350.0	7.30	6.98	7.26	7.56	0.58	30.57	41.89	39.62	2.28	350.0	1.45	1.46	1.46	1.44	1.47
375.0	7.30	6.99	7.26	7.56	0.57	29.52	41.29	38.95	2.41	375.0	1.48	1.46	1.46	1.44	1.46
400.0	7.30	7.01	7.27	7.56	0.55	28.11	38.54	36.47	2.40	400.0	1.49	1.46	1.46	1.43	1.45
425.0	7.30	7.00	7.28	7.56	0.55	27.37	37.95	35.86	2.58	425.0	1.49	1.45	1.46	1.43	1.44
450.0	7.35	7.04	7.30	7.60	0.57	26.35	36.63	34.59	2.63	450.0	1.49	1.44	1.45	1.43	1.43
475.0	7.33	7.03	7.32	7.58	0.55	25.55	35.48	33.58	3.03	475.0	1.50	1.43	1.45	1.41	1.42
500.0	7.35	7.03	7.31	7.59	0.56	24.85	34.71	32.80	2.83	500.0	1.50	1.42	1.44	1.41	1.41
525.0	7.36	7.02	7.31	7.59	0.56	24.17	33.84	32.06	3.03	525.0	1.50	1.40	1.43	1.41	1.39
550.0	7.36	7.01	7.31	7.59	0.59	23.54	33.26	31.51	2.92	550.0	1.50	1.41	1.42	1.39	1.39
575.0	7.35	7.01	7.30	7.59	0.57	22.92	32.37	30.70	3.11	575.0	1.49	1.39	1.42	1.39	1.37
600.0	7.37	7.02	7.32	7.60	0.58	22.50	32.13	30.41	2.98	600.0	1.48	1.38	1.40	1.38	1.36
625.0	7.39	7.06	7.35	7.62	0.56	21.86	31.45	29.78	3.12	625.0	1.50	1.37	1.39	1.36	1.35
650.0	7.39	7.04	7.35	7.63	0.59	21.50	30.85	29.23	3.11	650.0	1.48	1.36	1.39	1.36	1.34
675.0	7.43	7.08	7.38	7.65	0.57	21.11	30.87	29.12	3.31	675.0	1.49	1.34	1.37	1.35	1.33
700.0	7.46	7.11	7.40	7.67	0.56	20.63	30.04	28.44	3.53	700.0	1.49	1.34	1.37	1.34	1.33
750.0	7.50	7.14	7.43	7.70	0.56	19.98	29.78	28.11	3.53	750.0	1.51	1.32	1.34	1.33	1.31
800.0	7.54	7.15	7.45	7.75	0.59	19.37	29.15	27.66	3.59	800.0	1.53	1.31	1.32	1.31	1.30
850.0	7.61	7.23	7.52	7.80	0.57	18.70	28.59	27.23	3.81	850.0	1.53	1.29	1.29	1.30	1.29
875.0	7.65	7.24	7.53	7.83	0.58	18.42	28.36	26.90	3.96	875.0	1.54	1.29	1.30	1.28	1.29
900.0	7.64	7.26	7.54	7.82	0.56	18.17	28.23	26.83	4.14	900.0	1.55	1.28	1.27	1.29	1.29
925.0	7.69	7.28	7.57	7.85	0.57	17.84	27.85	26.45	4.33	925.0	1.57	1.29	1.28	1.28	1.29
950.0	7.73	7.31	7.60	7.88	0.57	17.63	27.54	26.25	4.30	950.0	1.56	1.27	1.25	1.26	1.29
975.0	7.80	7.36	7.65	7.94	0.58	17.41	27.49	26.24	4.50	975.0	1.59	1.29	1.27	1.27	1.30
1000.0	7.84	7.40	7.67	7.98	0.57	17.09	26.99	25.74	4.59	1000.0	1.59	1.26	1.24	1.25	1.29

¹ Total Loss = Insertion Loss+ 6dB Splitter Loss

REV. X2
SCA-4-10-75+
100627
Page 1 of 1

Mini-Circuits®

IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS9100 CERTIFIED • RoHS compliant

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661



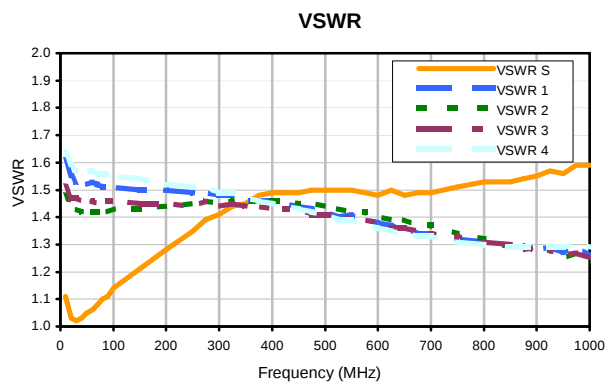
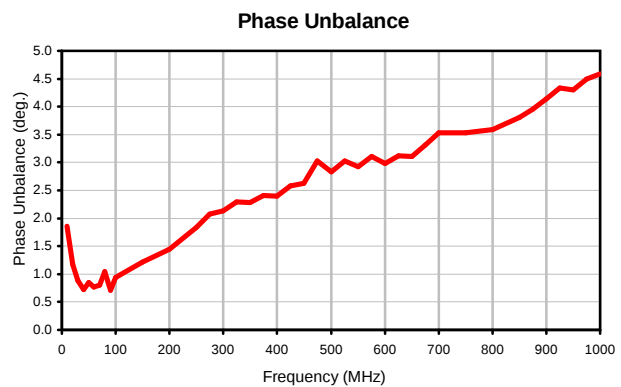
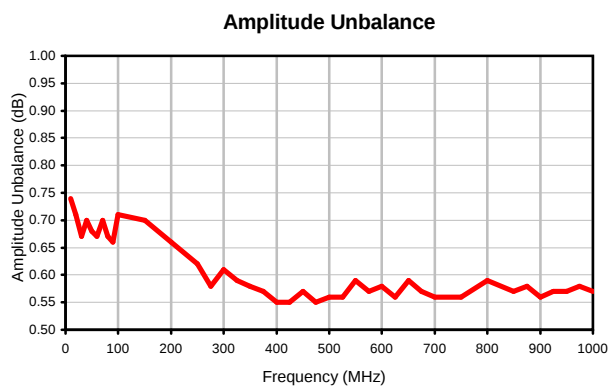
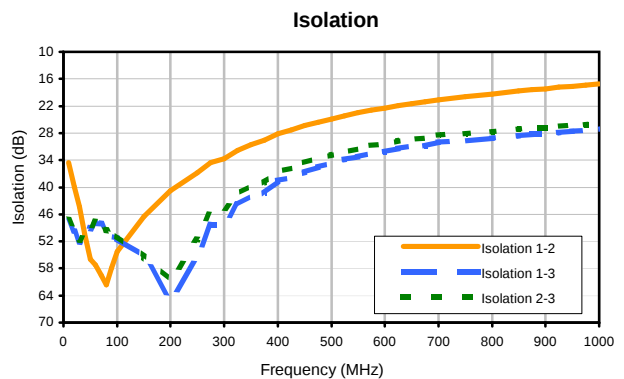
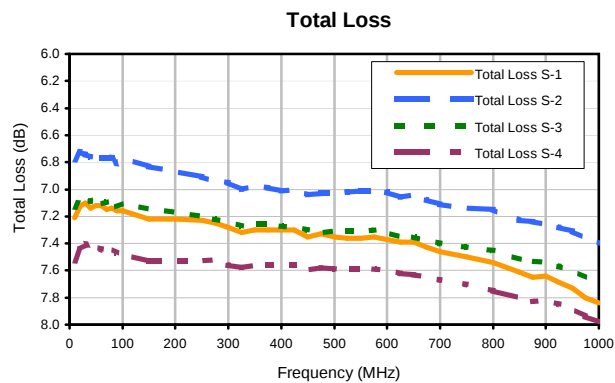
The Design Engineers Search Engine finds the model you need, instantly • For detailed performance specs & shopping online see



4 Way-0° Power Splitter/Combiner

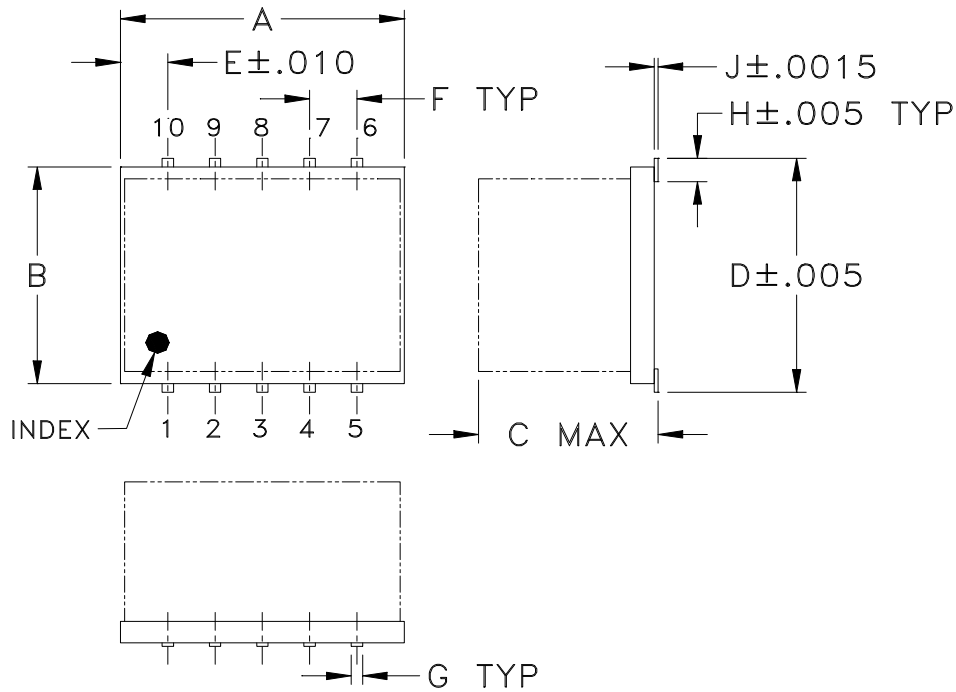
SCA-4-10-75+

Typical Performance Curves

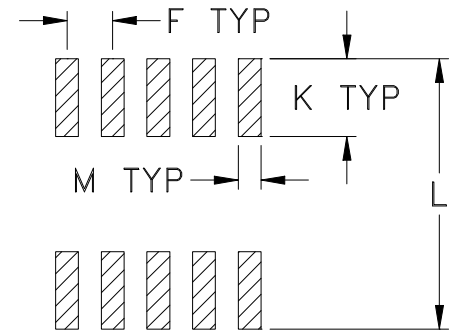


REV. X2
SCA-4-10-75+
100627
Page 1 of 1

Outline Dimensions



PCB Land Pattern



Suggested Layout,
Tolerance to be within $\pm .002$

CASE#	A	B	C	D	E	F	G	H	J	K	L	M	WT. GRAMS
DZ943	.30 (7.62)	.250 (6.35)	.190 (4.83)	.266 (6.76)	.050 (1.27)	.050 (1.27)	.012 (0.30)	.029 (0.74)	.004 (0.10)	.085 (2.16)	.296 (7.52)	.030 (0.76)	0.5

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

Notes:

- Case material: Plastic.
- Base: Ceramic.
- Termination finish:
 - For RoHS Case Styles: Tin plate. All models, (+) suffix.
 - For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.



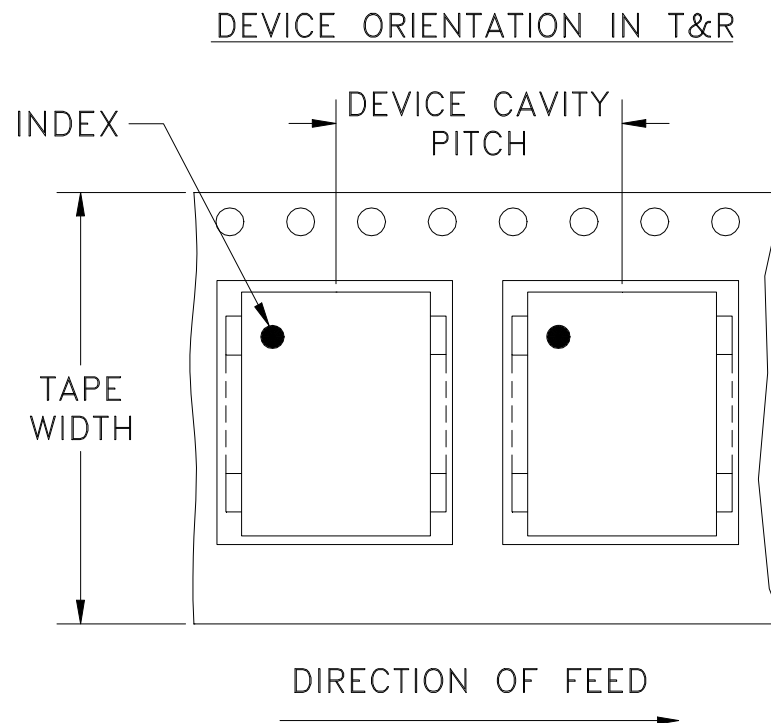
INTERNET <http://www.minicircuits.com>

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

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



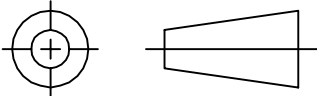
INTERNET <http://www.minicircuits.com>

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

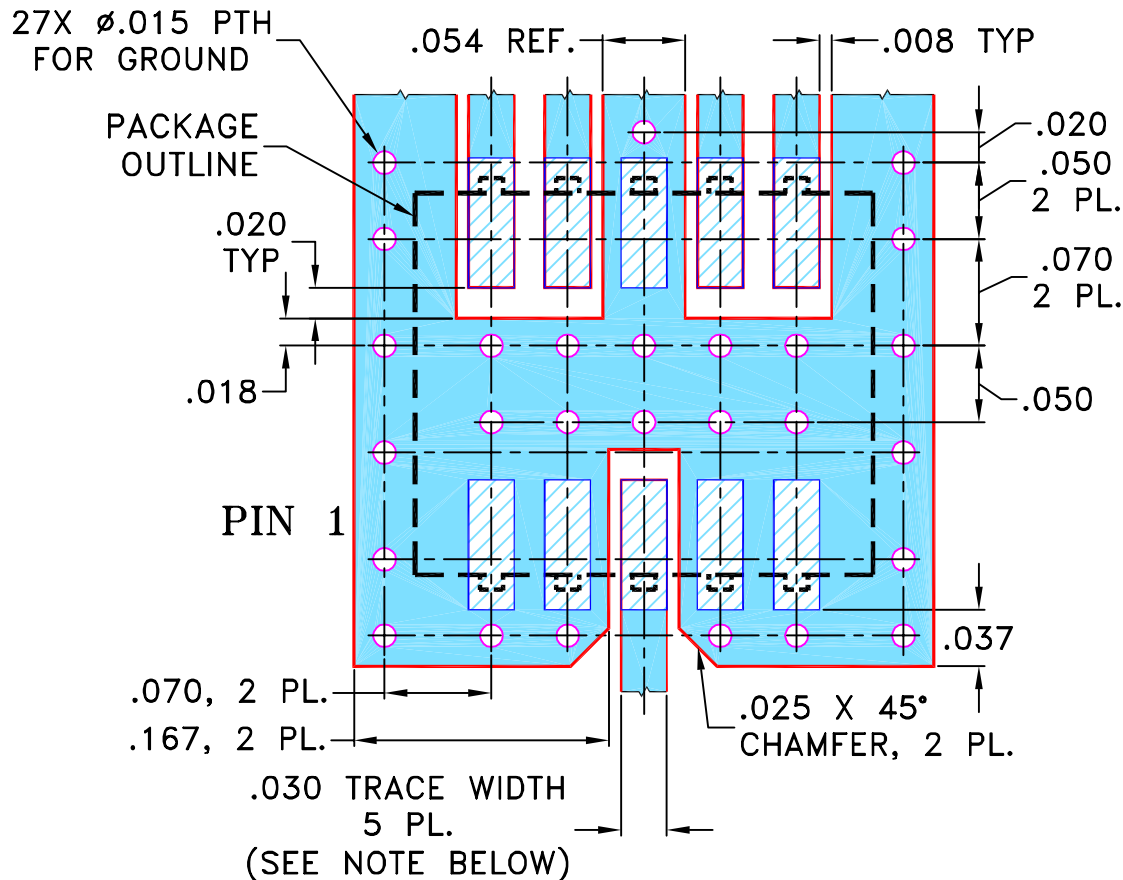
THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M87224	NEW RELEASE	05/22/03	MMG	WP
A	M91639	REMOVED NOTE 2, UPDATED DIMENSIONS	04/14/04	AV	DJ
B	M102713	CORRECTED TRACE WIDTH, ADDED "...WITH SMOBC"	01/16/06	GF	IL

**SUGGESTED MOUNTING CONFIGURATION
FOR DZ943 CASE STYLE, "ny" PIN CONNECTION.**

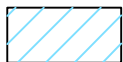


NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS $0.030'' \pm 0.002''$; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.

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	MMG
TOLERANCES ON:	CHECKED	AV
2 PL DECIMALS $\pm$	APPROVED	WP
3 PL DECIMALS $\pm$.005		
ANGLES $\pm$		
FRACTIONS $\pm$		

Mini-Circuits®

THIS DOCUMENT AND ITS CONTENTS ARE THE PROPERTY OF MINI-CIRCUITS. EXCEPT FOR USE EXPRESSLY GRANTED, IN WRITING, TO ITS VENDORS, VENDEE AND THE UNITED STATES GOVERNMENT, MINI-CIRCUITS RESERVES ALL PROPRIETARY DESIGN, USE, MANUFACTURING AND REPRODUCTION RIGHTS THERETO. THESE CONTENTS SHALL NOT BE USED, DUPLICATED OR DISCLOSED TO ANY OUTSIDE PARTY, IN WHOLE OR IN PART, WITHOUT WRITTEN PERMISSION OF MINI-CIRCUITS.

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

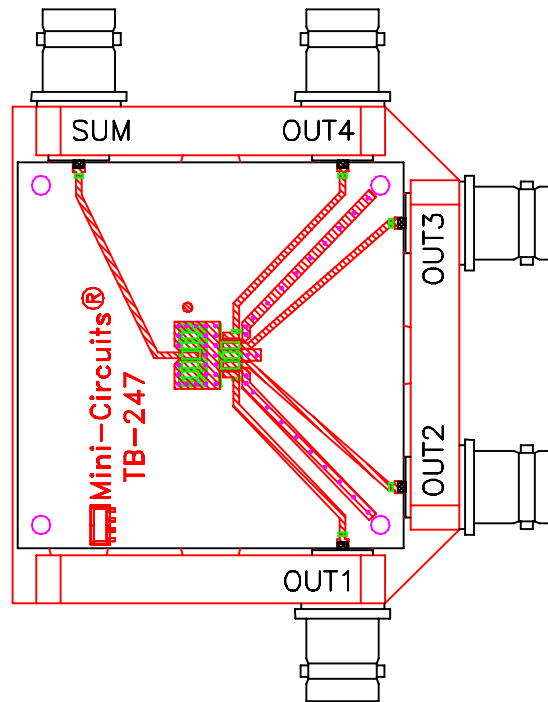


Mini-Circuits® 13 Neptune Avenue
Brooklyn NY 11235

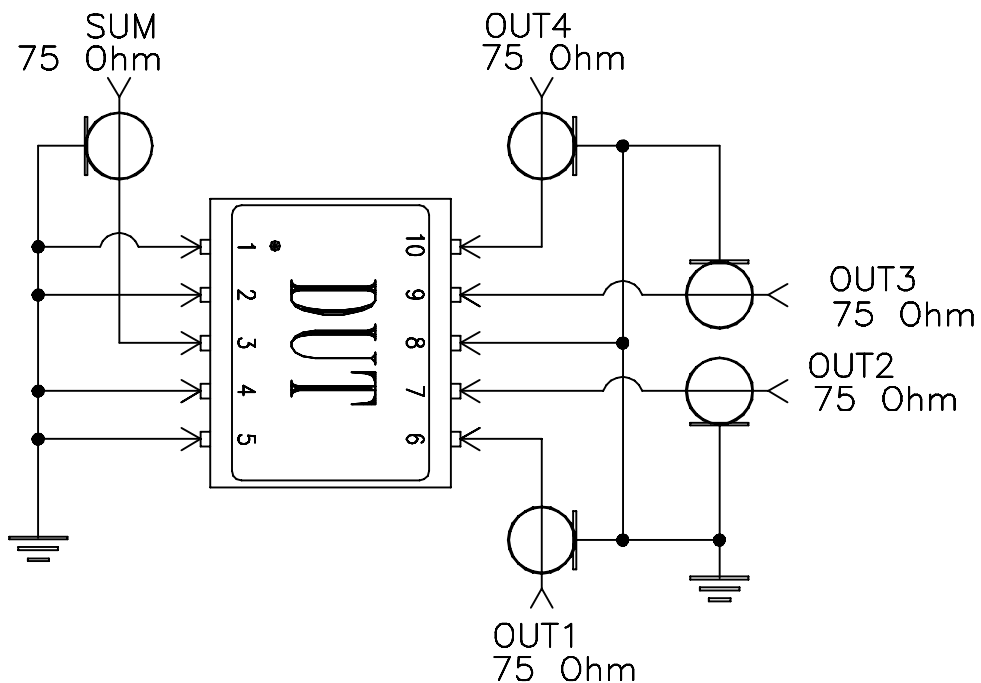
PL, ny, 75, DZ943, SCA, TB-247

SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-133	B
FILE:	98PL133	SCALE:	SHEET:
		8:1	1 OF 1

Evaluation Board and Circuit



TB-247



Schematic Diagram

Notes:

1. BNC Female connectors.
2. PCB Material: Rogers R04350 or equivalent,
Dielectric Constant=3.5, Thickness=.030 inch.

 **Mini-Circuits®**



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
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
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
Autoclave	15 psig, 100% RH, 121°C, 96 hours	JESD22-A102-C, Condition C
Solderability	10X Magnification	J-STD-002, Para 4.2.5, Test S, 95% Coverage
Solder Reflow Heat	Sn-Pb Eutectic Process: 225°C peak Pb-Free Process: 250°C peak	J-STD-020, Table 4-1, 4-2 and 5-2; Figure 5-1
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