

Power Splitter/Combiner

SEPS-8-272+

8 Way-0° 50Ω 700 to 2700 MHz

Maximum Ratings

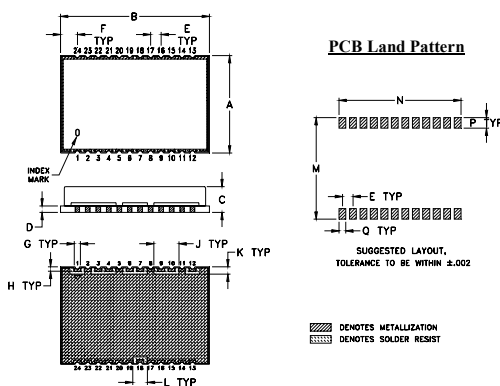
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	5W max.
Internal Dissipation	0.5W max.

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

Pin Connections

SUM PORT	18
PORT 1	1
PORT 2	3
PORT 3	4
PORT 4	6
PORT 5	7
PORT 6	9
PORT 7	10
PORT 8	12
GROUND	all others

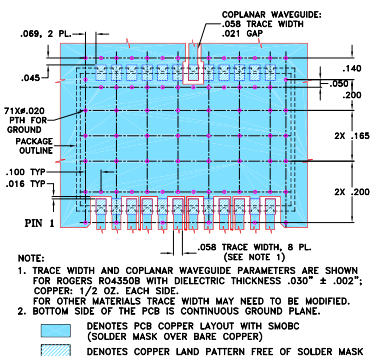
Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H
.93	1.42	.25	.063	.100	.160	.060	.040
23.62	36.07	6.35	1.60	2.54	4.06	1.52	1.02
J	K	L	M	N	P	Q	wt
.240	.070	.140	.970	1.165	.100	.065	grams
6.10	1.78	3.56	24.64	29.59	2.54	1.65	6.5

Demo Board MCL P/N: TB-583+ Suggested PCB Layout (PL-388)



Notes

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
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Features

- good isolation, 20 dB typ.
- good output matching, VSWR 1.35 typ.
- shielded case
- aqueous washable
- good coplanarity

Applications

- cellular
- ISM
- CATV
- GPS
- PCS
- wireless communication system



CASE STYLE: BL1543

+RoHS Compliant

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



Available Tape and Reel at no extra cost

Reel Size	Devices/Reel
13"	100

Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		700		2700	MHz
Insertion Loss (above theoretical 9.0 dB)	900-2400 700-2700	— —	1.8 2.8	2.8 4.9	dB
Isolation	900-2400 700-2700	14 10	20 14	— —	dB
Phase Unbalance	900-2400 700-2700	— —	7.0 10	16 19	Degree
Amplitude Unbalance	900-2400 700-2700	— —	0.6 1.2	1.2 2.1	dB
VSWR (Port S)	900-2400 700-2700	— —	1.7 1.7	— —	:1
VSWR (Port 1-8)	900-2400 700-2700	— —	1.35 1.35	— —	:1

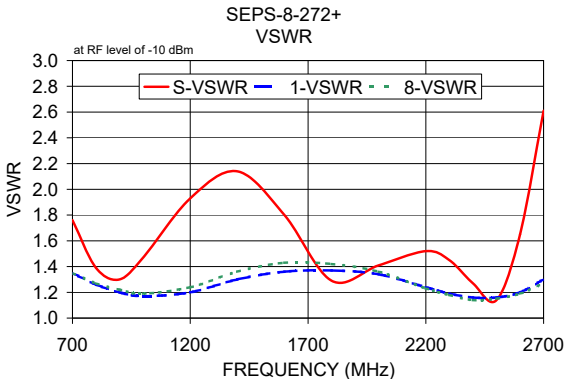
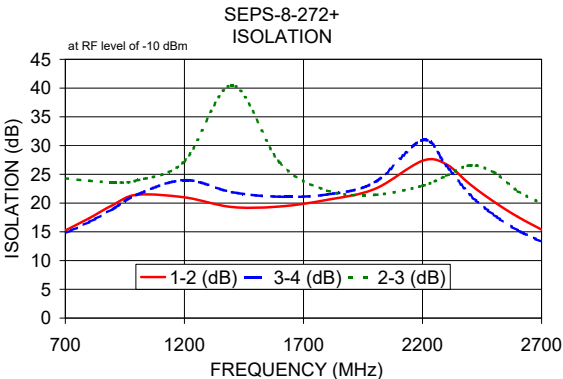
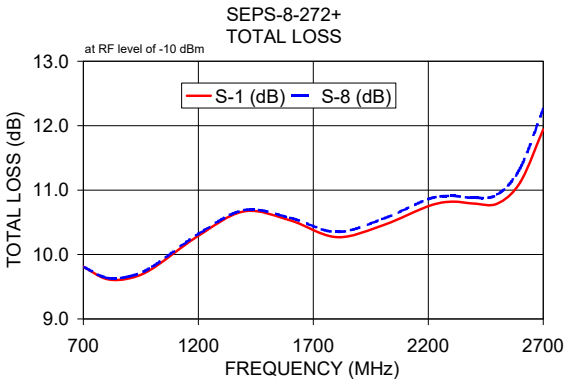
Electrical Schematic



Typical Performance Data

Freq. (MHz)	Total Loss ¹ (dB)						Amplitude Unbalance (dB)	Isolation (dB)				Phase Unbalance (deg.)	S	VSWR	
	S-1	S-2	S-3	S-4	S-6	S-8		1-2	2-3	3-4	5-6			1	8
700	9.81	9.85	9.82	9.85	9.77	9.81	0.08	15.23	24.31	14.78	14.44	2.83	1.76	1.35	1.35
800	9.62	9.66	9.64	9.69	9.60	9.64	0.09	17.37	23.87	16.70	16.28	3.30	1.39	1.26	1.27
900	9.63	9.68	9.65	9.71	9.62	9.66	0.09	19.67	23.63	18.97	18.45	3.80	1.30	1.20	1.22
1000	9.78	9.83	9.79	9.87	9.77	9.81	0.10	21.44	23.93	21.44	20.79	4.37	1.47	1.17	1.19
1200	10.29	10.34	10.25	10.35	10.23	10.32	0.13	20.99	27.25	24.01	23.62	5.37	1.93	1.20	1.24
1400	10.67	10.73	10.53	10.65	10.52	10.69	0.20	19.31	40.50	21.89	21.86	5.81	2.14	1.30	1.36
1600	10.53	10.60	10.38	10.52	10.35	10.57	0.25	19.40	27.02	21.11	21.14	5.55	1.80	1.36	1.43
1800	10.27	10.35	10.21	10.35	10.15	10.35	0.25	20.57	22.16	21.49	21.62	5.16	1.29	1.37	1.42
2000	10.45	10.50	10.42	10.54	10.34	10.55	0.28	22.47	21.42	23.62	23.69	4.93	1.41	1.34	1.36
2200	10.75	10.78	10.63	10.78	10.59	10.86	0.33	27.36	23.01	30.95	33.18	5.67	1.52	1.24	1.23
2300	10.82	10.83	10.69	10.87	10.66	10.91	0.36	26.73	24.76	26.46	28.78	6.07	1.45	1.19	1.18
2400	10.79	10.77	10.73	10.94	10.71	10.88	0.47	23.25	26.56	21.43	22.87	7.25	1.27	1.16	1.14
2500	10.79	10.75	10.90	11.13	10.91	10.93	0.68	20.22	25.34	17.94	19.08	8.51	1.14	1.16	1.15
2600	11.12	11.05	11.44	11.68	11.50	11.34	0.92	17.62	22.07	15.26	16.23	9.50	1.65	1.20	1.19
2700	11.94	11.83	12.47	12.70	12.61	12.26	1.22	15.38	19.96	13.28	14.14	10.63	2.61	1.30	1.27

1. Total Loss = Insertion Loss + 9dB splitter theoretical loss.



Notes

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8 Way-0° Power Splitter/Combiner

SEPS-8-272+

Typical Performance Data

FREQ. (MHz)	TOTAL LOSS ¹						AMP. UNBAL. (dB)	ISOLATION				PHASE UNBAL. (deg.)	FREQ. (MHz)	VSWR		
	S-1	S-2	S-3	S-4	S-6	S-8		1-2	2-3	3-4	5-6			S	1	8
700.0	9.81	9.85	9.82	9.85	9.77	9.81	0.08	15.23	24.31	14.78	14.44	2.83	700.0	1.76	1.35	1.35
750.0	9.69	9.73	9.70	9.74	9.66	9.70	0.08	16.26	24.10	15.70	15.31	3.07	750.0	1.55	1.30	1.31
800.0	9.62	9.66	9.64	9.69	9.60	9.64	0.09	17.37	23.87	16.70	16.28	3.30	800.0	1.39	1.26	1.27
850.0	9.60	9.65	9.62	9.68	9.59	9.63	0.09	18.53	23.72	17.79	17.33	3.53	850.0	1.30	1.22	1.24
900.0	9.63	9.68	9.65	9.71	9.62	9.66	0.09	19.67	23.63	18.97	18.45	3.80	900.0	1.30	1.20	1.22
950.0	9.69	9.74	9.70	9.78	9.68	9.72	0.10	20.68	23.72	20.19	19.60	4.06	950.0	1.37	1.18	1.20
1000.0	9.78	9.83	9.79	9.87	9.77	9.81	0.10	21.44	23.93	21.44	20.79	4.37	1000.0	1.47	1.17	1.19
1100.0	10.02	10.07	10.01	10.10	9.99	10.05	0.11	21.81	25.02	23.53	22.87	4.90	1100.0	1.71	1.17	1.20
1200.0	10.29	10.34	10.25	10.35	10.23	10.32	0.13	20.99	27.25	24.01	23.62	5.37	1200.0	1.93	1.20	1.24
1300.0	10.53	10.59	10.44	10.55	10.43	10.55	0.16	19.98	31.66	23.03	22.90	5.70	1300.0	2.09	1.25	1.30
1400.0	10.67	10.73	10.53	10.65	10.52	10.69	0.20	19.31	40.50	21.89	21.86	5.81	1400.0	2.14	1.30	1.36
1500.0	10.66	10.72	10.49	10.63	10.48	10.68	0.24	19.13	33.03	21.23	21.24	5.76	1500.0	2.03	1.33	1.41
1600.0	10.53	10.60	10.38	10.52	10.35	10.57	0.25	19.40	27.02	21.11	21.14	5.55	1600.0	1.80	1.36	1.43
1700.0	10.38	10.47	10.28	10.41	10.22	10.41	0.24	19.95	23.87	21.28	21.33	5.29	1700.0	1.52	1.37	1.43
1800.0	10.27	10.35	10.21	10.35	10.15	10.35	0.25	20.57	22.16	21.49	21.62	5.16	1800.0	1.29	1.37	1.42
1900.0	10.32	10.39	10.29	10.42	10.22	10.40	0.27	21.27	21.43	22.09	22.20	5.07	1900.0	1.29	1.36	1.40
2000.0	10.45	10.50	10.42	10.54	10.34	10.55	0.28	22.47	21.42	23.62	23.69	4.93	2000.0	1.41	1.34	1.36
2050.0	10.53	10.57	10.48	10.60	10.41	10.64	0.29	23.41	21.62	24.99	25.06	4.86	2050.0	1.46	1.32	1.33
2100.0	10.61	10.65	10.53	10.67	10.47	10.72	0.30	24.66	21.95	26.91	27.05	5.14	2100.0	1.50	1.30	1.30
2150.0	10.70	10.72	10.59	10.73	10.53	10.81	0.31	26.08	22.40	29.32	29.92	5.39	2150.0	1.52	1.27	1.27
2200.0	10.75	10.78	10.63	10.78	10.59	10.86	0.33	27.36	23.01	30.95	33.18	5.67	2200.0	1.52	1.24	1.23
2250.0	10.81	10.82	10.67	10.83	10.63	10.90	0.34	27.69	23.78	29.49	32.60	5.87	2250.0	1.50	1.21	1.20
2300.0	10.82	10.83	10.69	10.87	10.66	10.91	0.36	26.73	24.76	26.46	28.78	6.07	2300.0	1.45	1.19	1.18
2350.0	10.82	10.81	10.71	10.90	10.69	10.89	0.38	25.01	25.76	23.68	25.44	6.48	2350.0	1.38	1.17	1.16
2400.0	10.79	10.77	10.73	10.94	10.71	10.88	0.47	23.25	26.56	21.43	22.87	7.25	2400.0	1.27	1.16	1.14
2450.0	10.77	10.74	10.78	11.00	10.78	10.87	0.57	21.63	26.46	19.55	20.81	7.90	2450.0	1.15	1.16	1.14
2500.0	10.79	10.75	10.90	11.13	10.91	10.93	0.68	20.22	25.34	17.94	19.08	8.51	2500.0	1.14	1.16	1.15
2550.0	10.89	10.84	11.10	11.34	11.14	11.07	0.79	18.87	23.64	16.52	17.56	9.07	2550.0	1.33	1.18	1.16
2600.0	11.12	11.05	11.44	11.68	11.50	11.34	0.92	17.62	22.07	15.26	16.23	9.50	2600.0	1.65	1.20	1.19
2650.0	11.48	11.39	11.91	12.14	12.00	11.76	1.06	16.42	20.78	14.17	15.07	10.07	2650.0	2.08	1.24	1.23
2700.0	11.94	11.83	12.47	12.70	12.61	12.26	1.22	15.38	19.96	13.28	14.14	10.63	2700.0	2.61	1.30	1.27

¹Total Loss = Insertion Loss + 9dB Splitter Loss



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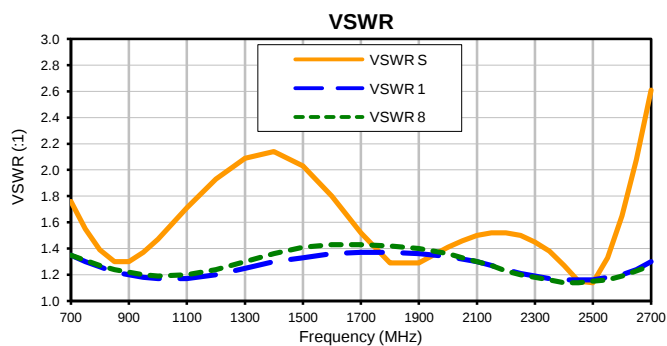
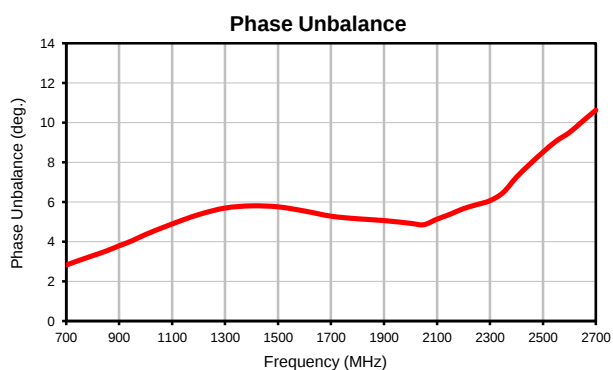
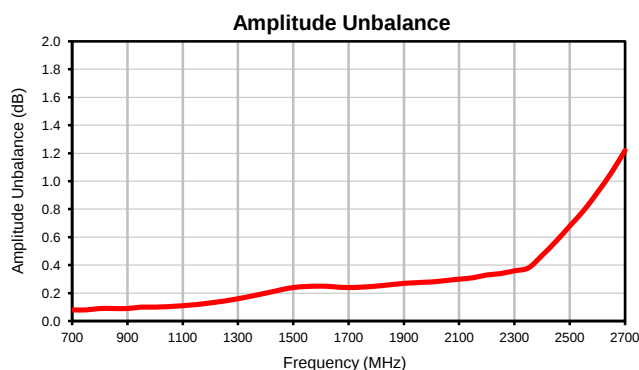
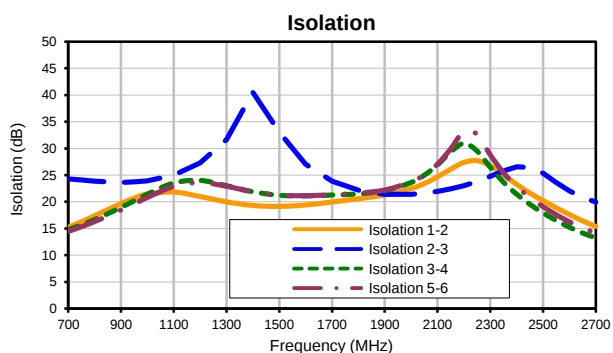
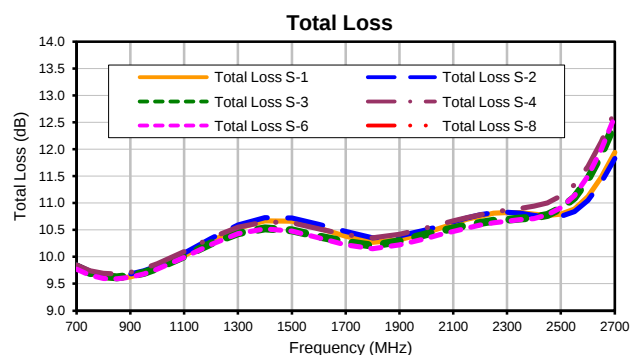


IF/RF MICROWAVE COMPONENTS



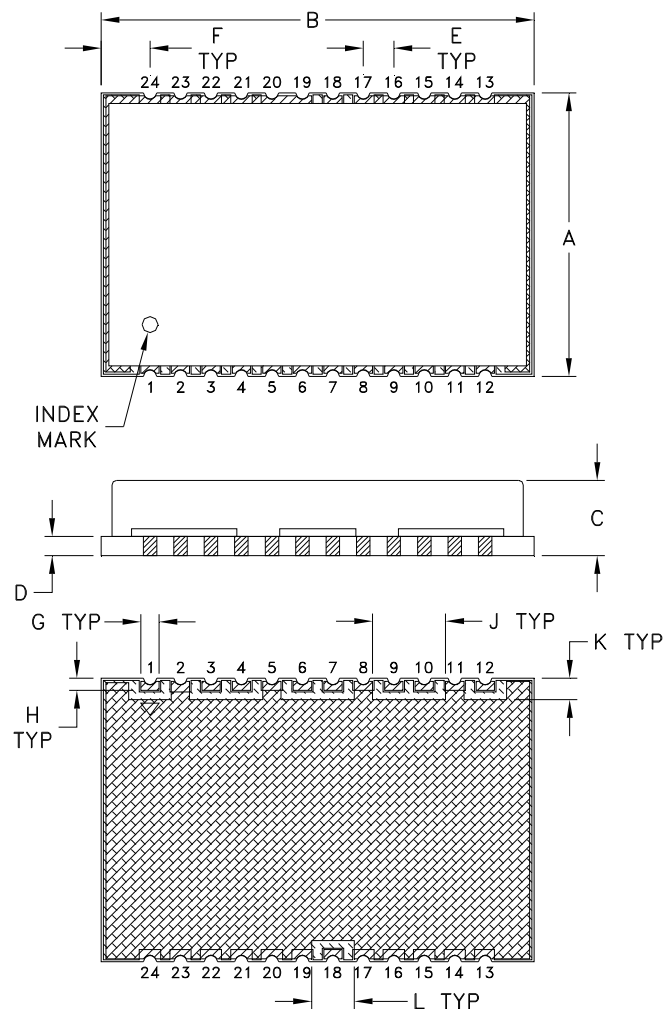
REV. OR
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Page 1 of 1

Typical Performance Curves

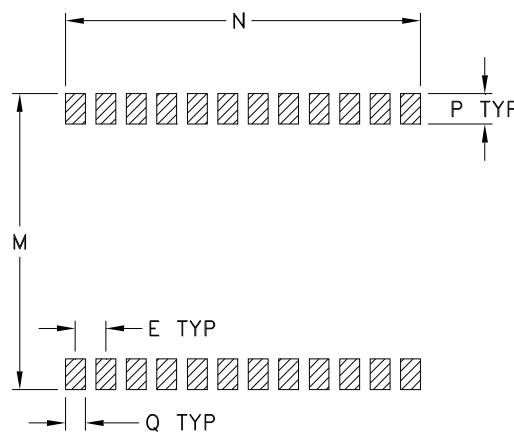


Outline Dimensions

BL1543



PCB Land Pattern



SUGGESTED LAYOUT
TOLERANCE TO BE WITHIN ± 0.002

DENOTES METALLIZATION
 DENOTES SOLDER RESIST

CASE #	A	B	C	D	E	F	G	H	J	K	L	M
BL1543	.93 (23.62)	1.42 (36.07)	.25 (6.35)	.063 (1.60)	.100 (2.54)	.160 (4.06)	.060 (1.52)	.040 (1.02)	.240 (6.10)	.070 (1.78)	.140 (3.56)	.970 (24.64)

CASE #	N	P	Q	WT. GRAM
BL1543	1.165 (29.59)	.100 (2.54)	.065 (1.65)	6.5

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

Notes:

- Case material: Copper-Nickel alloy.
- Base material: Printed wiring laminate.
- Termination finish: 3-5µinch (.08-.13 microns) Gold over 120-240µinch (3.05-6.10 microns) Nickel plate.
All models, (+) suffix.

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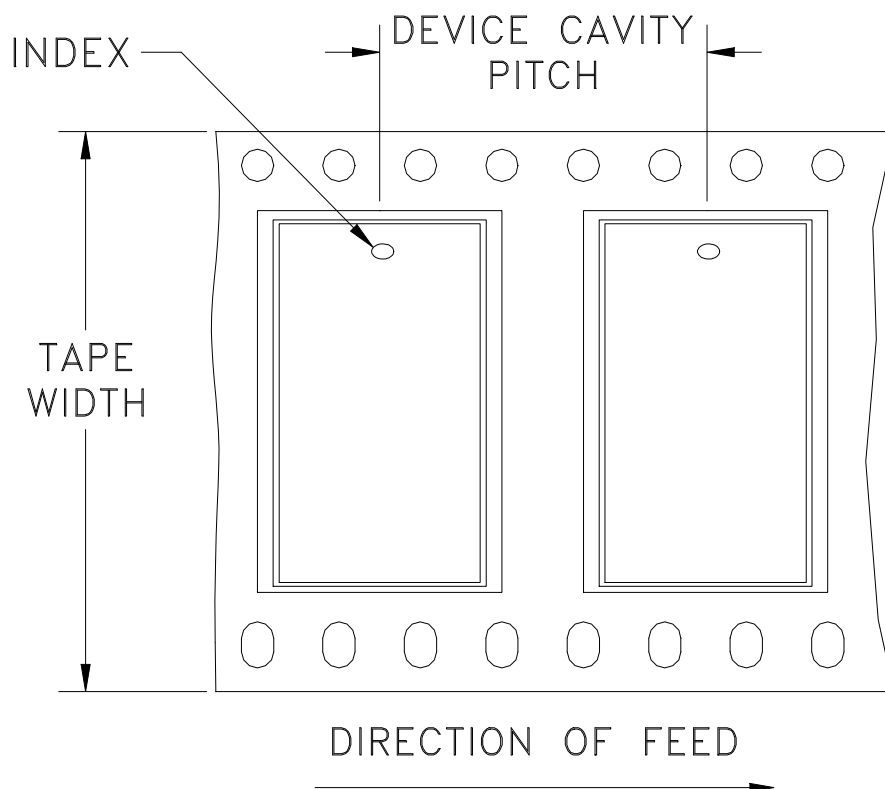


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RF/IF MICROWAVE COMPONENTS

Tape & Reel Packaging TR-F89

DEVICE ORIENTATION IN T&R



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel
56	32	13	100

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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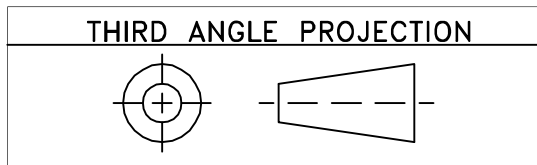


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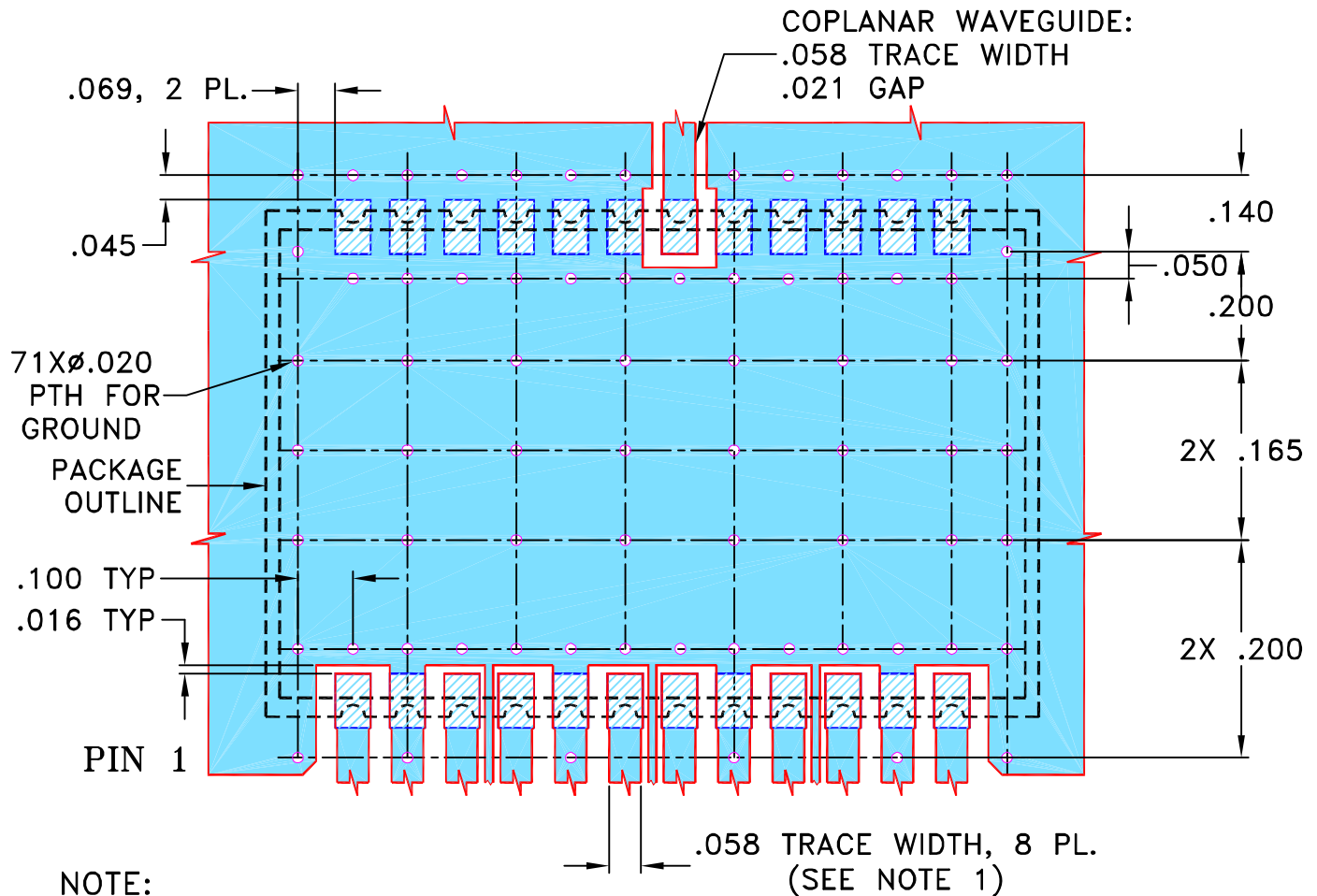
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REVISIONS					
REV OR	ECN No.	DESCRIPTION	DATE	DR	AUTH
	M144563	NEW RELEASE	04/24/14	CA	JC

**SUGGESTED MOUNTING CONFIGURATION FOR
BL1543 CASE STYLE, "24SP03" PIN CONNECTION**



NOTE:

- TRACE WIDTH AND COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS $.030" \pm .002"$; COPPER: 1/2 OZ. EACH SIDE.
FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
- 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 TOLERANCES ON: 2 PL DECIMALS $\pm$ 3 PL DECIMALS $\pm$.005 ANGLES $\pm$ FRACTIONS $\pm$	DRAWN	CA	04/07/14
	CHECKED	GF	04/24/14
	APPROVED	JC	04/24/14



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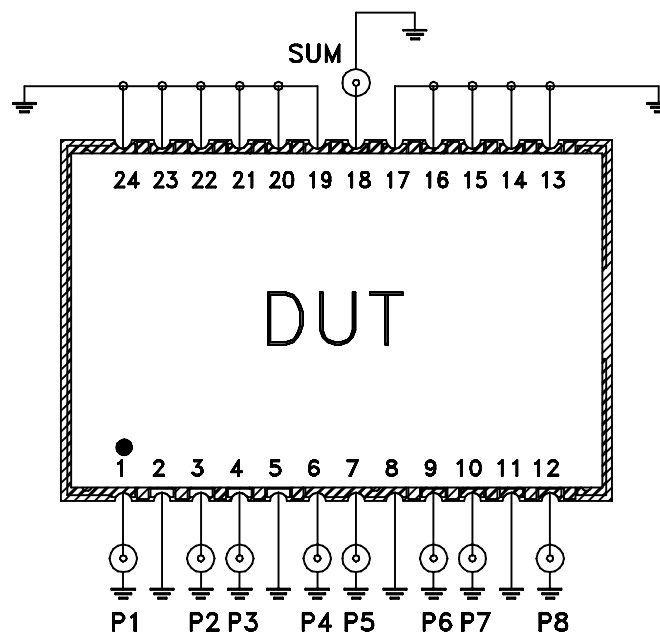
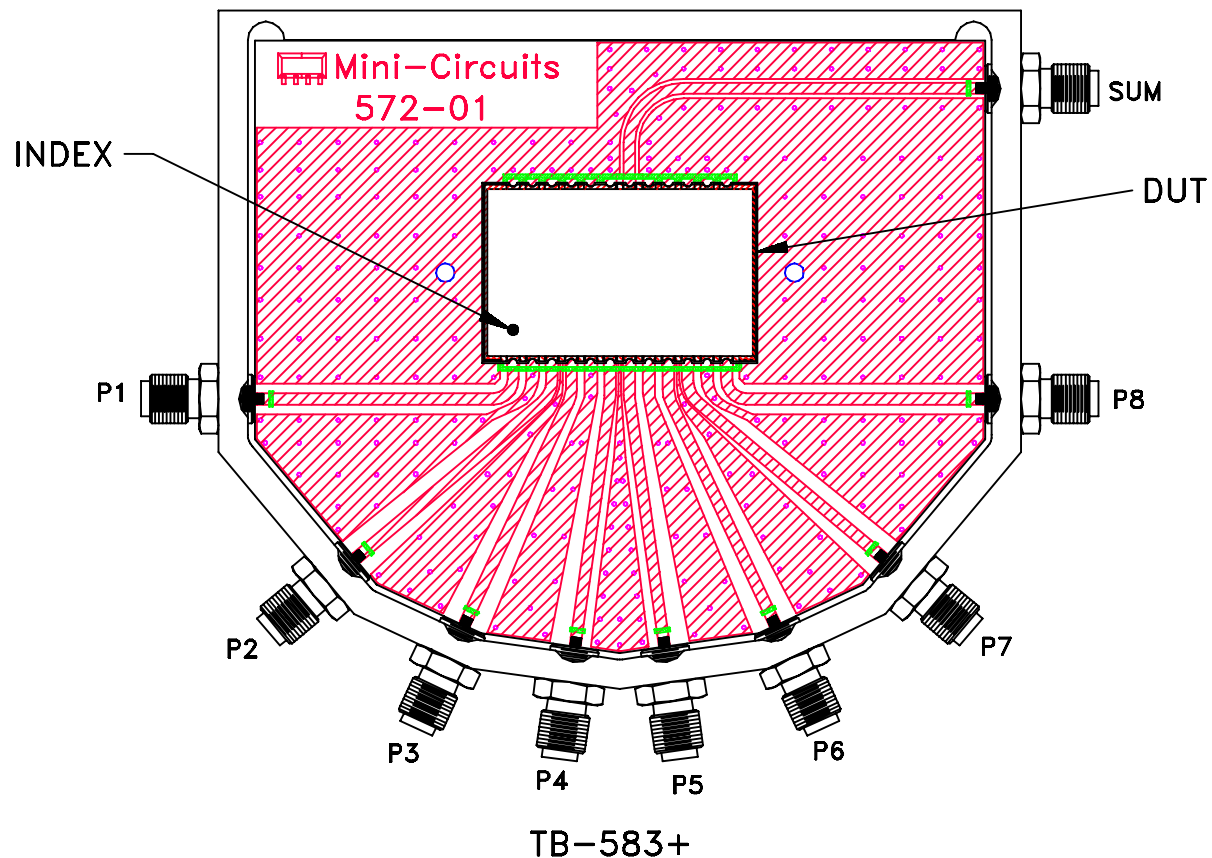
**PL, 24SP03, BL1543,
TB-583+, 50 OHM**

SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-388	OR
FILE:	98PL388	SCALE:	SHEET:
		3:1	1 OF 1

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

Evaluation Board and Circuit



Schematic Diagram

NOTES:

1. SMA Female connectors.
2. PCB material: Rogers R04350 or equivalent, dielectric constant=3.5, dielectric 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
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