Engineering Development Model

Power Splitter/Combiner SCPJ-ED8294/1

2 Way-180°

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 : YY161

ELECTRICAL SPECIFICATIONS 50Ω @ +25°C					
Parameter		**Min.**	**Typ.**	**Max.**	**Units**
Frequency		30		1050	MHz
Isolation	**30 - 300 MHz**		25		dB
	300 - 525 MHz		21		dB
	525 - 1050 MHz		19		dB
Insertion Loss Above 3.0 dB	**30 - 300 MHz**		0.72		dB
	300 - 525 MHz		1.10		dB
	525 - 1050 MHz		1.60		dB
Phase Unbalance	**30 - 300 MHz**		0.035		deg.
	300 - 525 MHz		0.611		deg.
	525 - 1050 MHz		3.048		deg.
Amplitude Unbalance	**30 - 300 MHz**		0.353		dB
	300 - 525 MHz		0.208		dB
	525 - 1050 MHz		0.168		dB
VSWR	**SUM Port**		1.41		(:1)
	OUT Ports		1.40		(:1)

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

PIN CONNECTIONS	
SUM PORT	1
PORT 1	5
PORT 2	6
GND EXT	2, 3, 4, 7, 8
CASE GND	2, 3, 4, 7, 8

Functional Diagram

2 Way-180° Power Splitter/Combiner SCPJ-ED8294/1

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.)
30.0	3.33	3.70	0.37	27.10	180.16
100.0	3.43	3.81	0.39	25.96	179.90
150.0	3.51	3.89	0.37	24.96	179.87
200.0	3.58	3.93	0.35	23.95	179.93
250.0	3.67	4.00	0.33	23.04	179.91
300.0	3.74	4.05	0.31	22.22	180.02
350.0	3.83	4.11	0.28	21.51	180.19
400.0	3.94	4.18	0.24	20.91	180.32
425.0	3.99	4.21	0.22	20.65	180.54
450.0	4.01	4.21	0.20	20.38	180.67
475.0	4.10	4.26	0.16	20.18	180.85
500.0	4.16	4.30	0.14	20.01	181.04
525.0	4.17	4.28	0.11	19.80	181.26
550.0	4.23	4.31	0.08	19.67	181.44
575.0	4.33	4.38	0.06	19.59	181.71
600.0	4.36	4.38	0.02	19.47	178.09
615.0	4.35	4.35	0.00	19.39	177.92
630.0	4.39	4.37	0.02	19.36	177.68
645.0	4.45	4.41	0.04	19.34	177.63
660.0	4.51	4.45	0.06	19.36	177.40
675.0	4.56	4.48	0.08	19.37	177.18
690.0	4.58	4.47	0.11	19.36	176.98
705.0	4.60	4.47	0.13	19.33	176.83
720.0	4.60	4.45	0.15	19.31	176.65
735.0	4.62	4.46	0.17	19.33	176.41
750.0	4.68	4.51	0.17	19.38	176.15
825.0	4.84	4.55	0.29	19.50	175.25
900.0	5.25	4.82	0.44	19.65	173.76
975.0	5.66	5.14	0.52	19.12	172.14
1050.0	5.91	5.35	0.57	17.50	170.65

FREQ. (MHz)	VSWR (:1) S	VSWR (:1) 1	VSWR (:1) 2
30.0	1.07	1.16	1.26
100.0	1.10	1.16	1.25
150.0	1.13	1.17	1.26
200.0	1.17	1.18	1.27
250.0	1.20	1.20	1.29
300.0	1.25	1.22	1.30
350.0	1.29	1.25	1.32
400.0	1.34	1.27	1.34
425.0	1.36	1.29	1.35
450.0	1.38	1.30	1.36
475.0	1.40	1.31	1.37
500.0	1.42	1.32	1.38
525.0	1.44	1.34	1.39
550.0	1.46	1.35	1.40
575.0	1.47	1.37	1.41
600.0	1.49	1.38	1.41
615.0	1.50	1.39	1.42
630.0	1.50	1.40	1.42
645.0	1.51	1.41	1.43
660.0	1.51	1.42	1.43
675.0	1.52	1.43	1.44
690.0	1.52	1.45	1.44
705.0	1.52	1.46	1.45
720.0	1.52	1.47	1.45
735.0	1.52	1.48	1.46
750.0	1.52	1.50	1.46
825.0	1.52	1.58	1.49
900.0	1.53	1.69	1.55
975.0	1.58	1.80	1.61
1050.0	1.68	1.90	1.68

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

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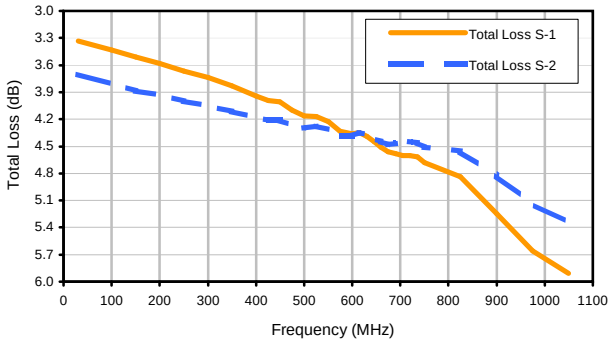
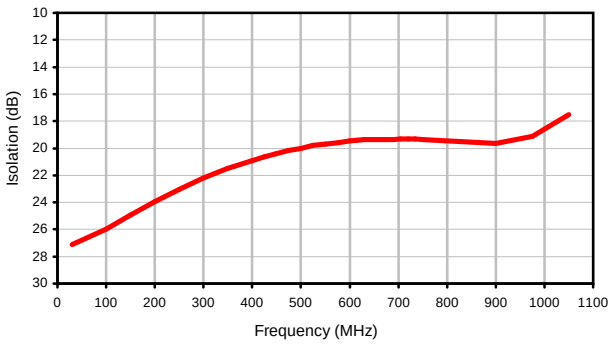
Typical Performance Curves

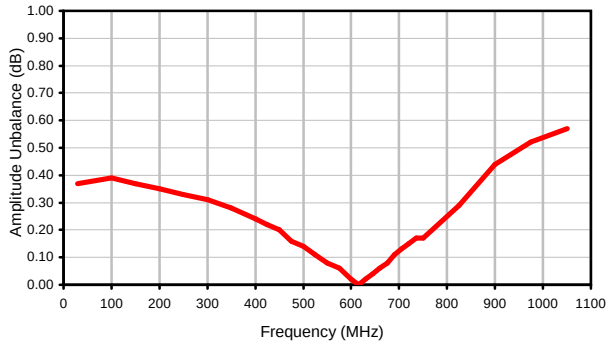
Total Loss



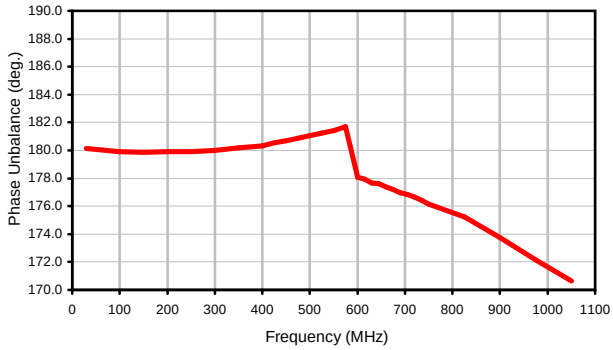
Isolation



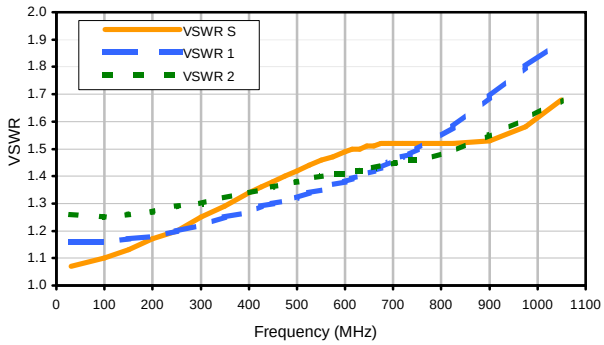
Amplitude Unbalance



Phase Unbalance



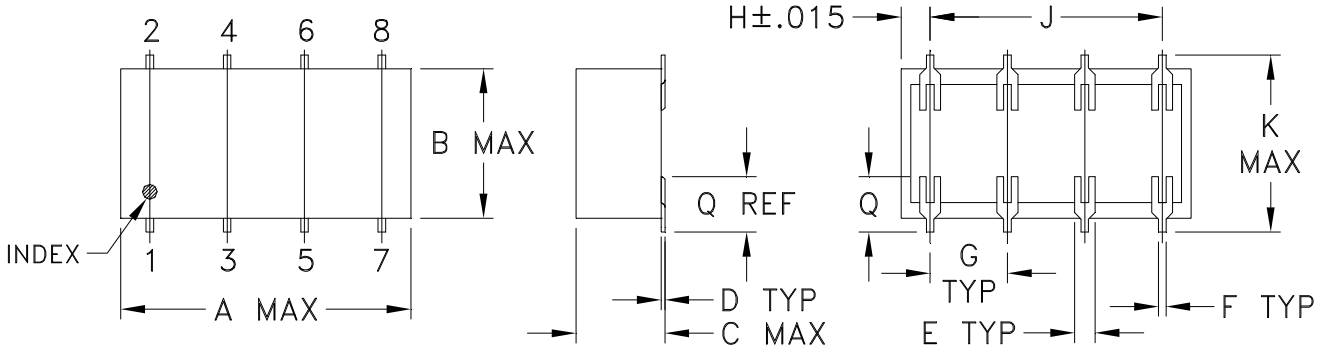
VSWR



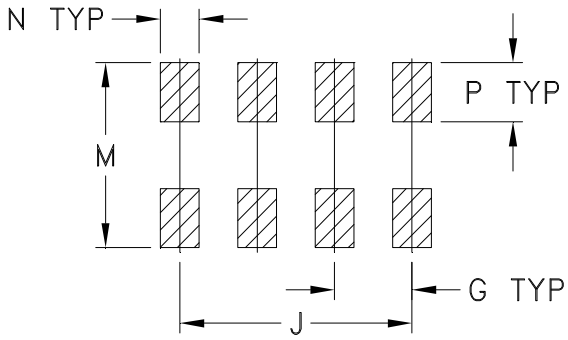
Case Style YY

Outline Dimensions

YY101
YY109
YY161



PCB Land Pattern



Suggested Layout
Tolerance to be within ±.002

CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	WT. GRAMS
YY101*	.75 (19.05)	.38 (9.65)	.20 (5.08)	.010 (0.25)	.050 (1.27)	.020 (0.51)	.200 (5.08)	.075 (1.91)	.600 (15.24)	.450 (11.43)	-- --	.470 (11.94)	.100 (2.54)	.150 (3.81)	.148 (3.76)	1.6
YY109*			.20 (5.08)							.720 (18.29)	-- --	.740 (18.80)				1.6
YY161			.28 (7.11)							.450 (11.43)	-- --	.470 (11.94)				1.6

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.
   For RoHS-5 Case Styles: Tin-Lead plate.
3. Special Tolerances: Termination thickness ± .003 inch.
4. * Denotes: For SCM mixers, long termination version (case YY109) is available upon request, consult factory. To order short termination version (case YY101) add -NL suffix.

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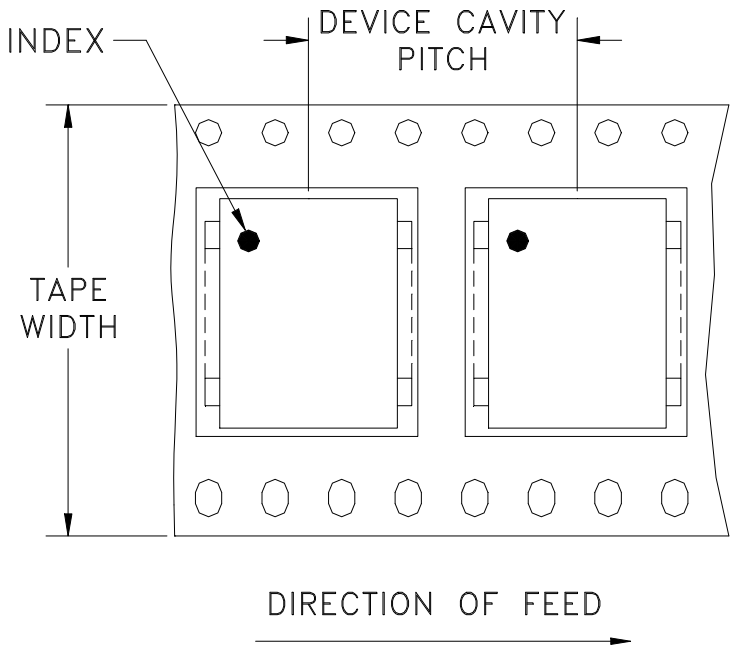
Tape & Reel Packaging TR-F5

DEVICE ORIENTATION IN T&R



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel
32	16	13	500

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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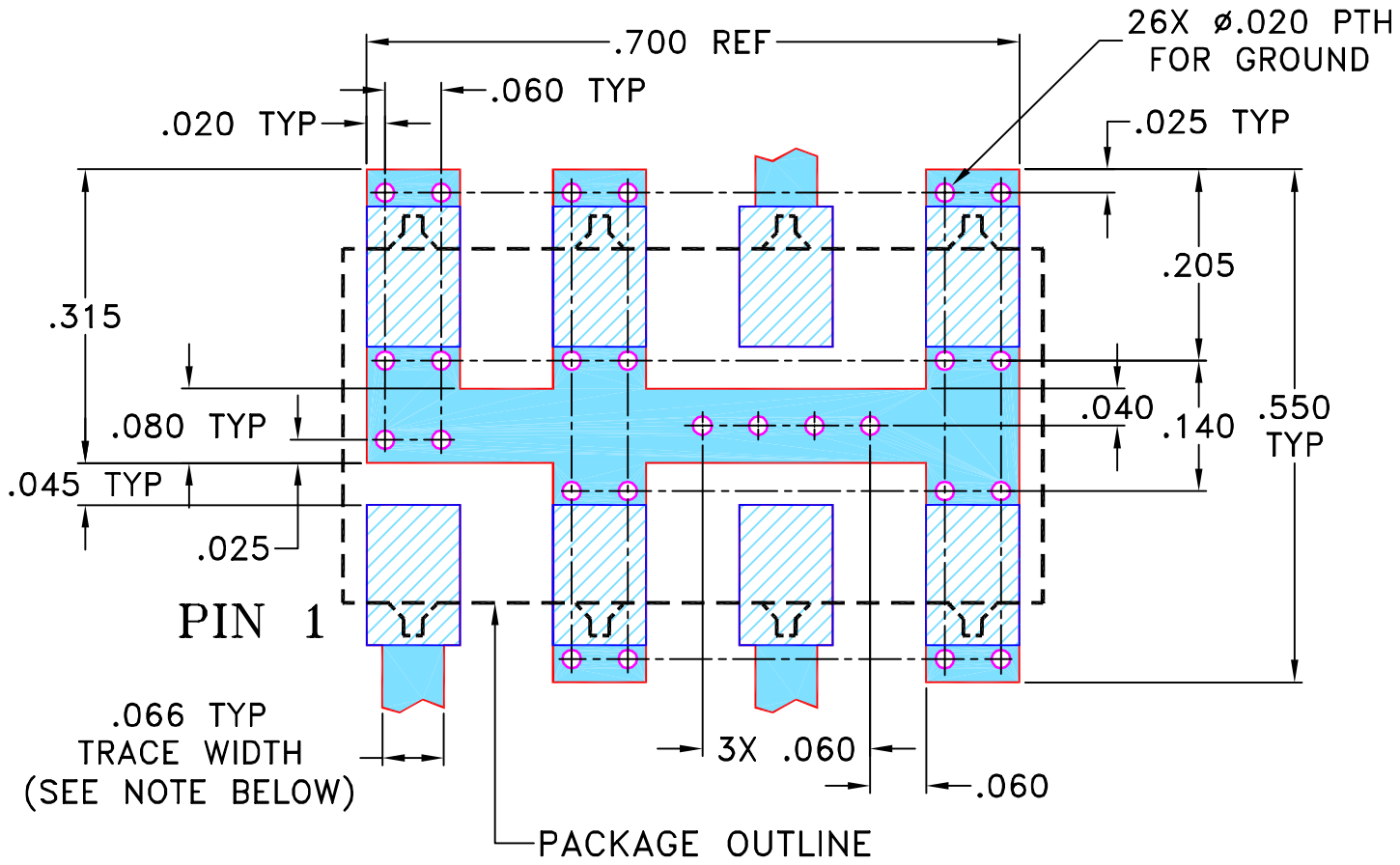
THIRD ANGLE PROJECTION

REVISIONS					
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M82272	NEW RELEASE	08/05/02	MMG	DJ
A	M102713	UPDATED NOTES, ADDED "...WITH SMOBC"	01/16/06	GT	IL

SUGGESTED MOUNTING CONFIGURATION
FOR YY101/161 CASE STYLE, "aq/az" PIN CONNECTIONS



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	MMG	07/18/02
TOLERANCES ON:	CHECKED	HY	08/01/02
2 PL DECIMALS ±	APPROVED	DJ	08/05/02
3 PL DECIMALS ± .005			
ANGLES ±			
FRACTIONS ±			

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

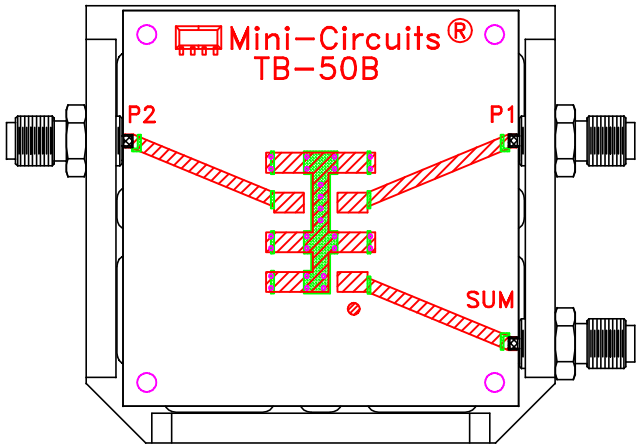
Mini-Circuits® 13 Neptune Avenue Brooklyn NY 11235

PL, aq/az YY101/161 SCP/SCPJ TB-50

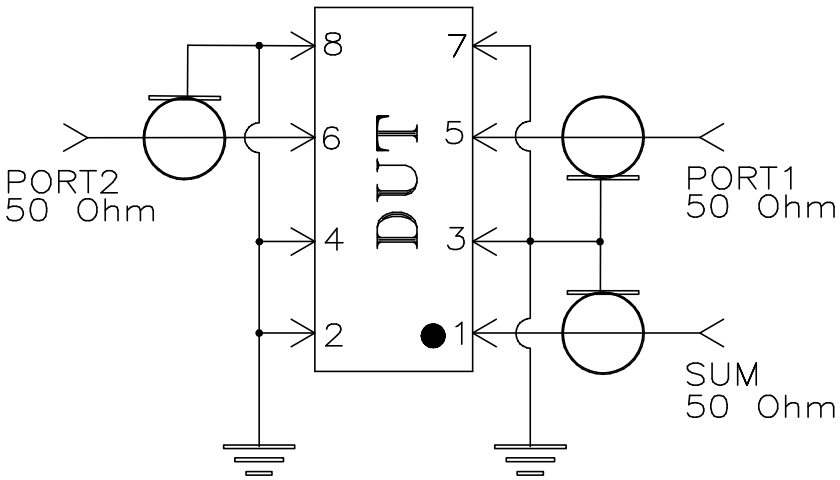
SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-060	A

FILE:	SCALE:	SHEET:
98PL060	5:1	1 OF 1

Evaluation Board and Circuit



TB-50+



Schematic Diagram

Notes:

1. SMA 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