



Mini-Circuits®

SURFACE MOUNT



Power Splitter/Combiner

SBTCJ-1WX+

2 Way-180° 50Ω 1 to 750 MHz

FEATURES

- Low Insertion Loss, 0.7 dB Typ.
- Good Isolation, 23 dB Typ.
- Good VSWR, 1.25 Typ. All Ports
- Small Size, 0.15x0.15x0.15"
- Temperature Stable, LTCC Base
- Low Cost
- Protected by US Patent, 6,806,790



Generic photo used for illustration purposes only

CASE STYLE: AT1667

+RoHS Compliant

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

APPLICATIONS

- Cellular
- UHF/VHF Receivers/Transmitters

ELECTRICAL SPECIFICATIONS AT +25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		1		750	MHz
Insertion Loss Above 3.0 dB	1-100		0.6	1.7	dB
	100-375		0.6	1.2	
	375-750		0.9	1.8	
Isolation ¹	1-100	20	23		dB
	100-375	20	22		
	375-750	20	24		
Phase Unbalance	1-100			3	Degree
	100-375			7	
	375-750			10	
Amplitude Unbalance	1-100			0.2	dB
	100-375			0.4	
	375-750			0.9	

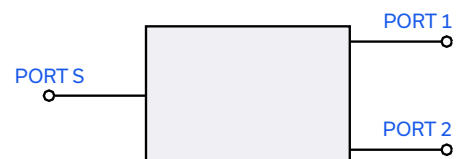
1. Isolation, 17 dB min. at 1-3 MHz

ABSOLUTE MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +100°C
Power Input (as a Splitter)	0.5 W max.
Internal Dissipation	0.125 W max.

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

ELECTRICAL SCHEMATIC





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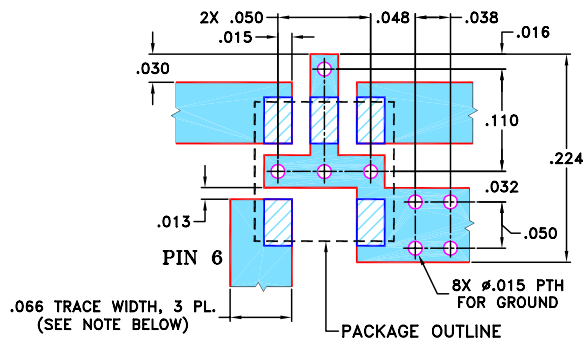
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PIN CONNECTIONS



SUM PORT	6
PORT 1	1
PORT 2	3
GROUND	2,4
NOT USED	5

PRODUCT MARKING: SB

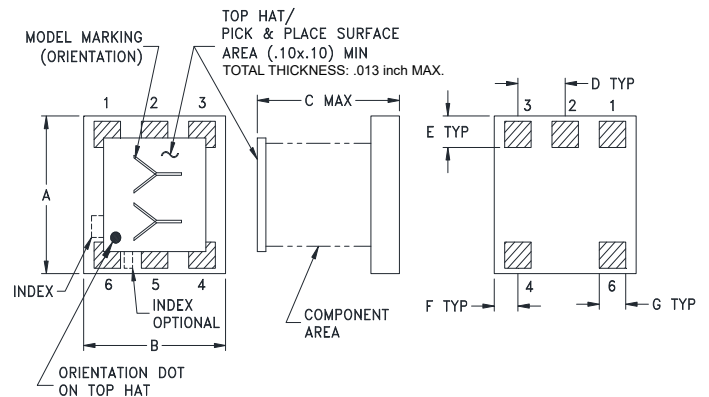
DEMO BOARD MCL P/N: TB-227
SUGGESTED PCB LAYOUT (PL-117)



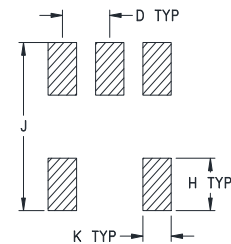
NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .030" ± .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

-  DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
-  DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

OUTLINE DRAWING



PCB Land Pattern



Suggested Layout,
Tolerance to be within ±.002

OUTLINE DIMENSIONS (Inches mm)

.150	.150	.150	.050	.030	.025
3.81	3.81	3.81	1.27	0.76	0.64
G	H	J	K		wt
.028	.050	.160	.030		grams
0.71	1.27	4.06	0.76		0.10

TAPE & REEL INFORMATION: F15





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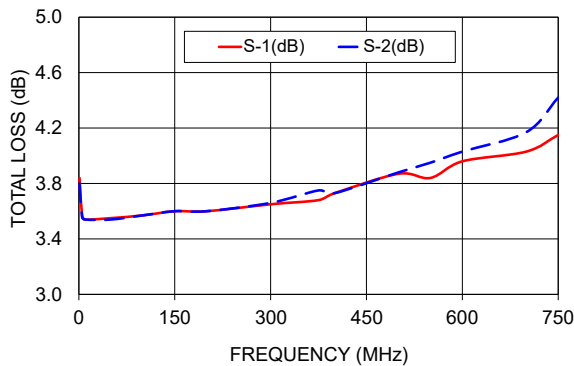
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TYPICAL PERFORMANCE DATA

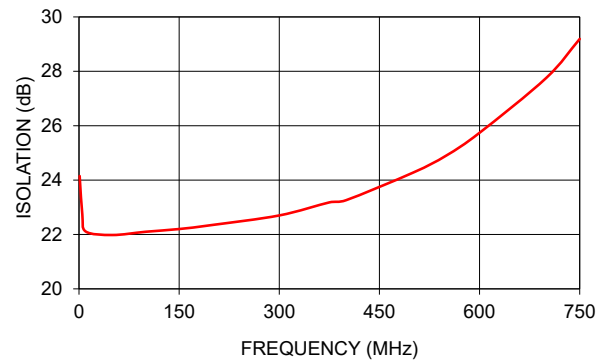
Frequency (MHz)	Total Loss ² (dB)		Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR (:1)		
	S-1	S-2				S	1	2
1.00	3.84	3.80	0.04	24.15	179.96	1.24	1.15	1.14
5.00	3.57	3.56	0.01	22.73	179.96	1.11	1.07	1.06
10.00	3.54	3.54	0.00	22.11	179.95	1.09	1.05	1.05
50.00	3.55	3.54	0.00	21.98	179.53	1.08	1.04	1.05
100.00	3.57	3.57	0.00	22.10	179.01	1.09	1.04	1.06
150.00	3.60	3.60	0.01	22.20	178.54	1.11	1.05	1.09
200.00	3.60	3.60	0.00	22.35	178.04	1.13	1.06	1.12
300.00	3.65	3.66	0.01	22.70	177.08	1.18	1.09	1.19
375.00	3.68	3.75	0.07	23.18	176.60	1.22	1.13	1.25
400.00	3.73	3.73	0.01	23.26	176.18	1.23	1.14	1.28
500.00	3.87	3.88	0.01	24.27	175.75	1.29	1.21	1.38
550.00	3.84	3.95	0.11	24.90	175.68	1.32	1.25	1.44
600.00	3.96	4.03	0.07	25.74	175.59	1.35	1.30	1.50
700.00	4.03	4.17	0.14	27.76	175.20	1.41	1.41	1.64
750.00	4.15	4.42	0.27	29.19	175.46	1.44	1.46	1.72

2. Total Loss = Insertion Loss + 3 dB splitter loss.

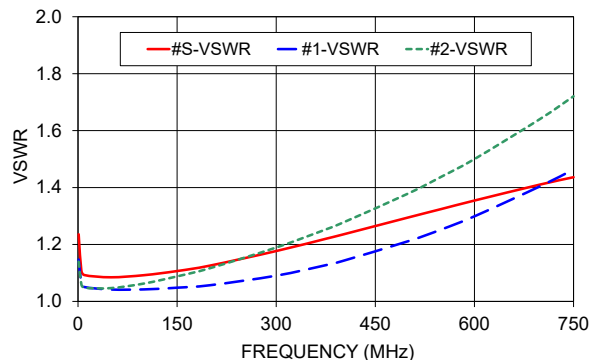
TOTAL LOSS



ISOLATION



VSWR



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

