



# Power Splitter/Combiner

## SBTC-2-10X+

2 Way-0° 50Ω 5 to 1000 MHz

### FEATURES

- Low Insertion Loss, 0.3 dB Typ.
- Excellent Amplitude Unbalance, 0.1 dB Typ.
- Very Good Phase Unbalance, 1.0 deg. Typ.
- Temperature Stable LTCC Base
- Small Size
- Low Cost
- Aqueous Washable
- Protected by US Patent 6,963,255



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

- UHF/VHF Receivers/Transmitters
- Cellular

### ELECTRICAL SPECIFICATIONS AT +25°C

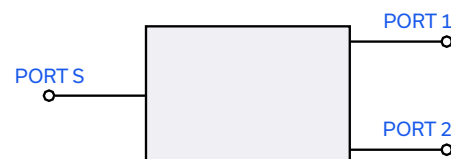
Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		5		1000	MHz
Insertion Loss Above 3.0 dB	5-50		0.3	0.7	dB
	50-500		0.3	0.8	
	500-1000		0.5	1.4	
Isolation	5-50	20	29		dB
	50-500	18	25		
	500-1000	16	21		
Phase Unbalance	5-50			3	Degree
	50-500			3	
	500-1000			5	
Amplitude Unbalance	5-50			0.6	dB
	50-500			0.5	
	500-1000			0.5	

### 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

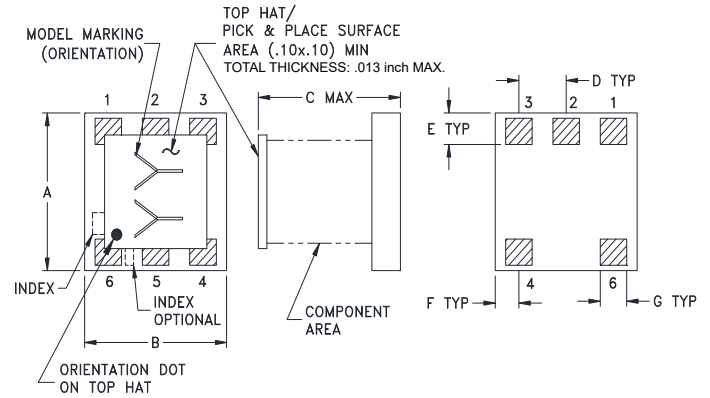




### PIN CONNECTIONS

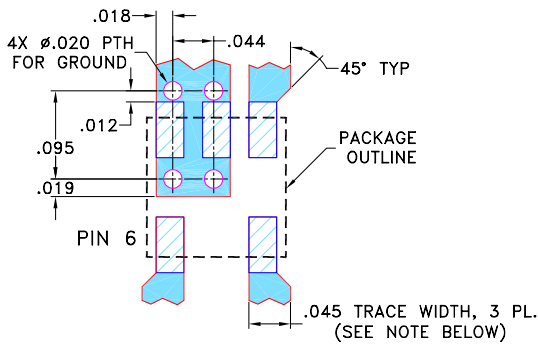
SUM PORT	6
PORT 1	3
PORT 2	4
GROUND	1,2
NOT USED	5

### OUTLINE DRAWING



### PRODUCT MARKING: PN

**DEMO BOARD MCL P/N: TB-274**  
**SUGGESTED PCB LAYOUT (PL-152)**

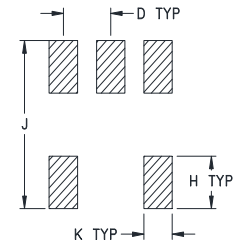


NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.020" ± 0.0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.

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

### 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



Mini-Circuits

top hat

SURFACE MOUNT



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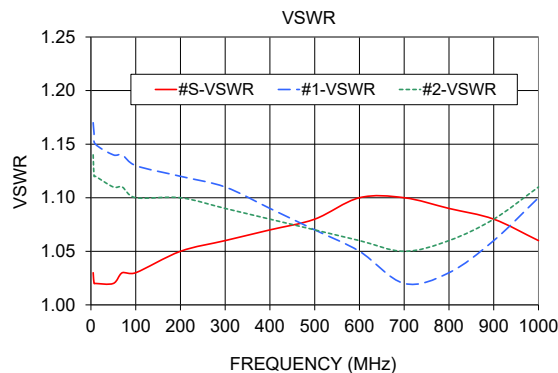
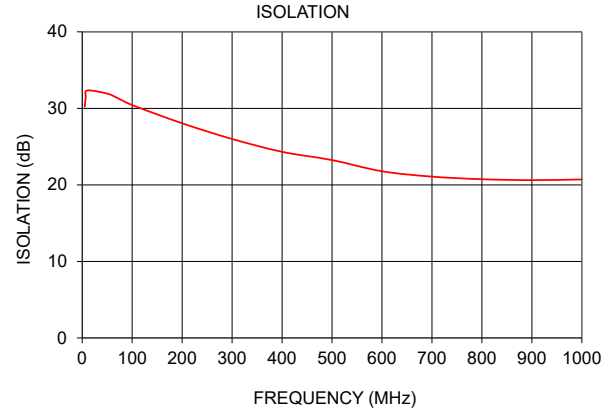
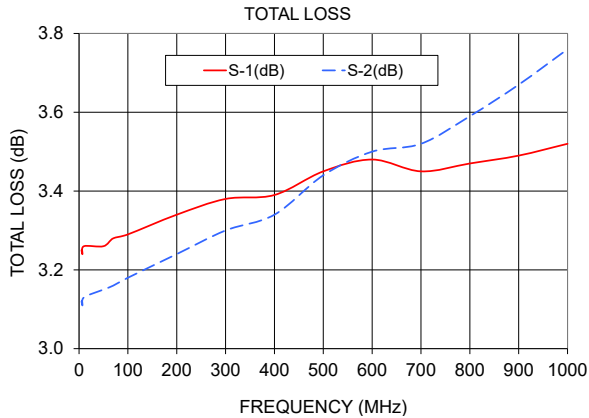
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### TYPICAL PERFORMANCE DATA

Frequency (MHz)	Total Loss <sup>1</sup> (dB)		Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR (:1)		
	S-1	S-2				S	1	2
5.00	3.25	3.12	0.13	30.21	0.41	1.03	1.17	1.14
7.00	3.24	3.11	0.13	31.41	0.32	1.02	1.16	1.12
10.00	3.26	3.13	0.13	32.34	0.13	1.02	1.15	1.12
50.00	3.26	3.15	0.12	31.93	0.06	1.02	1.14	1.11
70.00	3.28	3.16	0.12	31.37	0.07	1.03	1.14	1.11
100.00	3.29	3.18	0.11	30.43	0.12	1.03	1.13	1.10
200.00	3.34	3.24	0.10	28.05	0.20	1.05	1.12	1.10
300.00	3.38	3.30	0.08	26.00	0.24	1.06	1.11	1.09
400.00	3.39	3.34	0.05	24.32	0.26	1.07	1.09	1.08
500.00	3.45	3.44	0.02	23.24	0.28	1.08	1.07	1.07
600.00	3.48	3.50	0.02	21.78	0.28	1.10	1.05	1.06
700.00	3.45	3.52	0.07	21.08	0.21	1.10	1.02	1.05
800.00	3.47	3.59	0.12	20.74	0.09	1.09	1.03	1.06
900.00	3.49	3.67	0.18	20.62	0.06	1.08	1.06	1.08
1000.00	3.52	3.76	0.24	20.71	0.27	1.06	1.10	1.11

1. Total Loss = Insertion Loss + 3 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](http://www.minicircuits.com/terms/viewterm.html)

