

Surface Mount

# Power Splitter/Combiner

## SBTC-2-10-75L+

2 Way-0° 75Ω 10 to 1000 MHz

### Features

- low insertion loss, 0.8 dB typ.
- high isolation
- excellent amplitude unbalance, 0.15 dB typ.
- very good phase unbalance, 1.0 deg. typ.
- temperature stable LTCC base
- small size
- low cost
- aqueous washable

### Applications

- UHF/VHF receivers/transmitters
- cellular

For Model  
without Leads see  
SBTC-2-10-75+



Generic photo used for illustration purposes only

CASE STYLE: AT1029

### +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
7"	20, 50, 100, 200, 500
13"	1000, 2000

### Electrical Specifications

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		10		1000	MHz
Insertion Loss Above 3.0 dB	10 - 100	—	0.7	1.2	dB
	100 - 500	—	0.6	1.2	
	500 - 1000	—	0.7	1.4	
Isolation	10 - 100	20	35	—	dB
	100 - 500	20	28	—	
	500 - 1000	21	21	—	
Phase Unbalance	10 - 100	—	—	3	Degree
	100 - 500	—	—	3	
	500 - 1000	—	—	5	
Amplitude Unbalance	10 - 100	—	—	0.7	dB
	100 - 500	—	—	0.6	
	500 - 1000	—	—	0.6	

### 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	0.125W max

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

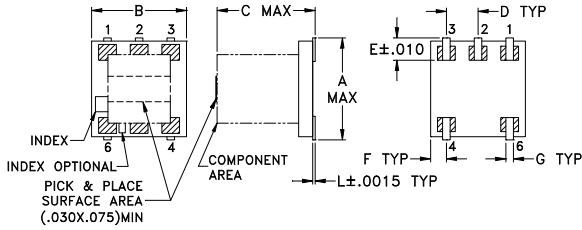
### Pin Connections

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

### Electrical Schematic



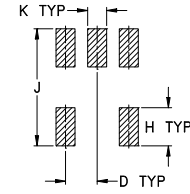
## Outline Drawing



## Outline Dimensions (inch/mm)

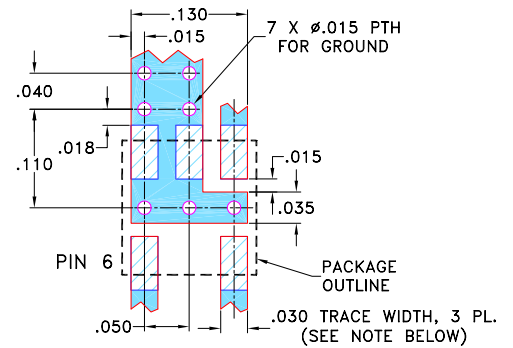
A	B	C	D	E	F	G	H	J	K	L	wt
.166	.150	.155	.050	.037	.025	.012	.060	.184	.030	.004	grams
4.22	3.81	3.94	1.27	0.94	0.64	0.30	1.52	4.67	0.76	0.10	0.10

## PCB Land Pattern



Suggested Layout,  
Tolerance to be within ±.002

## Demo Board MCL P/N: TB-277 Suggested PCB Layout (PL-153)



NOTE: 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.

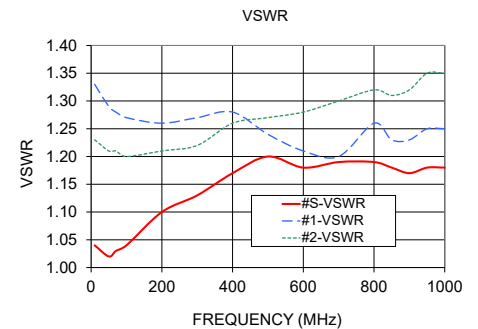
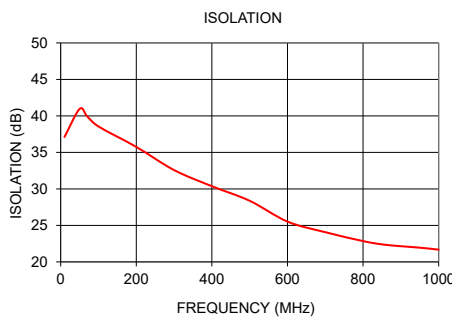
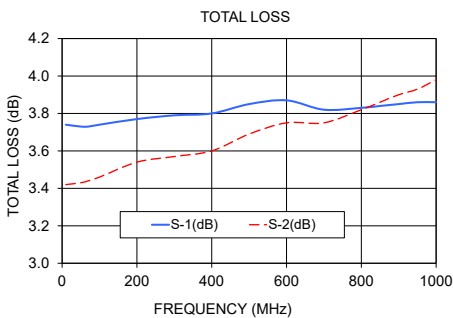
DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

## Typical Performance Data

Frequency (MHz)	Total Loss <sup>1</sup> (dB)		Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR S	VSWR 1	VSWR 2
	S-1	S-2						
10	3.74	3.42	0.31	37.11	0.66	1.04	1.33	1.23
50	3.73	3.43	0.3	40.95	0.14	1.02	1.29	1.21
70	3.73	3.44	0.29	39.94	0.14	1.03	1.28	1.21
100	3.74	3.46	0.29	38.55	0.13	1.04	1.27	1.2
200	3.77	3.54	0.22	35.75	0.09	1.1	1.26	1.21
300	3.79	3.57	0.22	32.58	0.54	1.13	1.27	1.22
400	3.8	3.6	0.2	30.37	0.6	1.17	1.28	1.26
500	3.85	3.69	0.16	28.37	0.64	1.2	1.24	1.27
600	3.87	3.75	0.12	25.52	0.74	1.18	1.21	1.28
700	3.82	3.75	0.07	24.07	0.75	1.19	1.2	1.3
800	3.83	3.82	0.03	22.85	0.77	1.19	1.26	1.32
850	3.84	3.86	0.03	22.4	0.73	1.18	1.23	1.31
900	3.85	3.9	0.06	22.15	0.69	1.17	1.23	1.32
950	3.86	3.93	0.08	21.95	0.64	1.18	1.25	1.35
1000	3.86	3.98	0.11	21.68	0.58	1.18	1.25	1.35

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



## Additional 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-Circuits' applicable established test performance criteria and measurement instructions.
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