

Surface Mount Power Splitter/Combiner

SBTC-2-20+

2 Way-0° 50Ω 200 to 2000 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

Applications

- UHF/VHF receivers/transmitters
- cellular

For Model
with Leads see
[SBTC-2-20L+](#)



Generic photo used for illustration purposes only

CASE STYLE: AT790

+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
13"	500, 1000, 2000

Electrical Specifications

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		200		2000	MHz
Insertion Loss Above 3.0 dB	200 - 2000	—	0.8	2.2	dB
	800 - 1000	—	0.5	0.9	
	500 - 1500	—	0.5	1.5	
	1800 - 2000	—	1.2	2.2	
Isolation	200 - 2000	14	20	—	dB
	800 - 1000	16	22	—	
	500 - 1500	15	22	—	
	1800 - 2000	15	20	—	
Phase Unbalance	200 - 2000	—	—	10	Degree
	800 - 1000	—	—	3	
	500 - 1500	—	—	5	
	1800 - 2000	—	—	10	
Amplitude Unbalance	200 - 2000	—	—	0.8	dB
	800 - 1000	—	—	0.5	
	500 - 1500	—	—	0.7	
	1800 - 2000	—	—	0.6	

Maximum Ratings

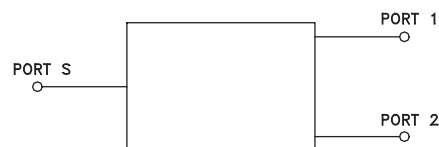
Parameter	Ratings
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	0.5W max.
Internal Dissipation	0.125W max

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

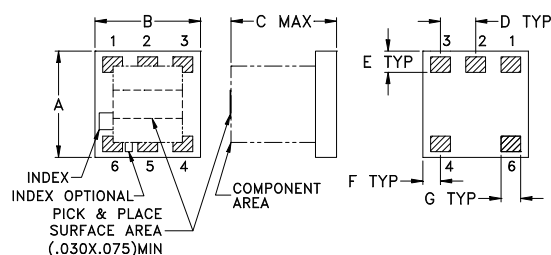
Pin Connections

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

Electrical Schematic



Outline Drawing



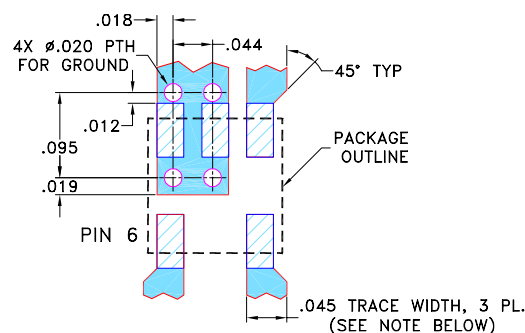
Outline Dimensions (inch mm)

A	B	C	D	E	F	G	H	J	K	wt
.150	.150	.150	.050	.030	.025	.028	.050	.160	.030	grams
3.81	3.81	3.81	1.27	0.76	0.64	0.71	1.27	4.06	0.76	0.10

PCB Land Pattern

Suggested Layout,
Tolerance to be within ±0.002

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.

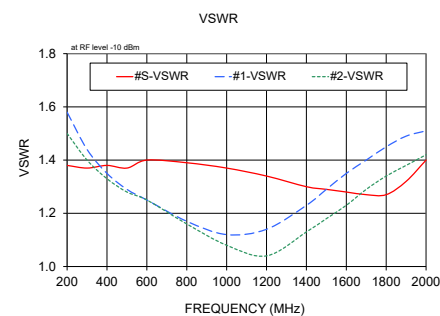
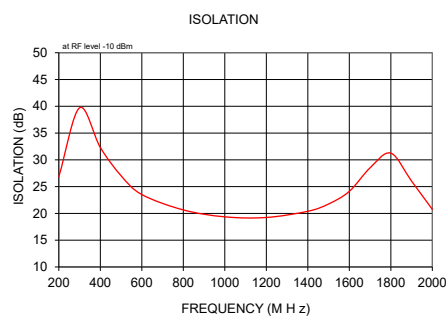
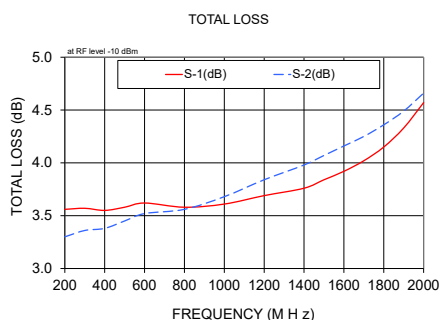
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

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

Typical Performance Data

Frequency (MHz)	Total Loss ¹ (dB)	Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR S	VSWR 1	VSWR 2
	S-1	S-2					
200.00	3.56	3.30	0.26	26.85	1.44	1.38	1.50
300.00	3.57	3.36	0.21	39.72	0.88	1.37	1.44
400.00	3.55	3.38	0.17	32.31	0.56	1.38	1.35
500.00	3.58	3.45	0.13	27.04	0.36	1.37	1.29
600.00	3.62	3.52	0.10	23.52	0.22	1.40	1.25
800.00	3.58	3.56	0.03	20.65	0.20	1.39	1.17
1000.00	3.61	3.68	0.07	19.36	0.41	1.37	1.12
1200.00	3.69	3.84	0.15	19.24	0.93	1.34	1.14
1400.00	3.76	3.98	0.22	20.40	1.78	1.30	1.23
1500.00	3.84	4.07	0.23	21.76	2.34	1.29	1.18
1600.00	3.92	4.16	0.24	24.12	2.94	1.28	1.35
1700.00	4.02	4.25	0.24	28.51	3.61	1.27	1.40
1800.00	4.15	4.36	0.21	31.25	4.31	1.27	1.45
1900.00	4.33	4.49	0.18	26.03	4.98	1.32	1.49
2000.00	4.57	4.66	0.16	20.75	5.63	1.40	1.51

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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