

top hat®
Surface Mount
Power Splitter/Combiner

SBTC-2-10LX+

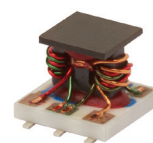
2 Way-0° 50Ω 5 to 1000 MHz

Features

- low insertion loss, 0.3 dB typ.
- excellent amplitude unbalance, 0. 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



Generic photo used for illustration purposes only

CASE STYLE: AT1739

+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		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	

Maximum Ratings

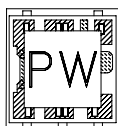
Parameter	Ratings
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	0.5W max.
Internal Dissipation	0.125W max

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

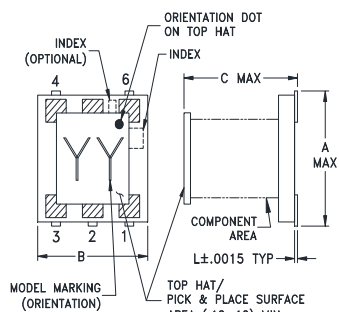
Product Marking



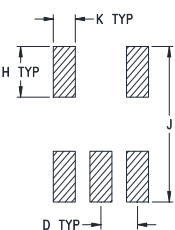
Electrical Schematic



Outline Drawing



PCB Land Pattern

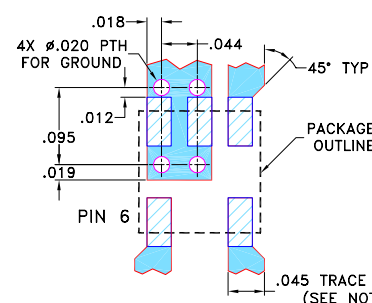


Suggested Layout,
Tolerance to be within ± 0.002

Outline Dimensions (inch/mm)

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

Demo Board MCL P/N: TB-274 Suggested PCB Layout (PL-152)



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

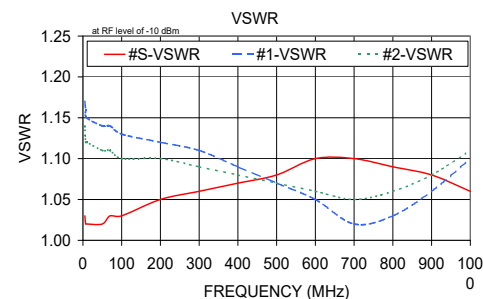
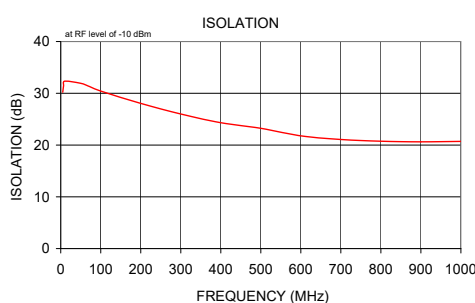
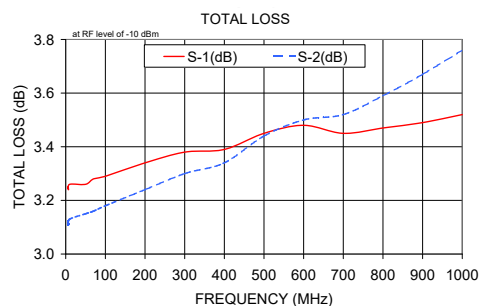
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

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

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-Circuit's applicable established test performance criteria and measurement instructions.
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