

Surface Mount, Micro-Miniature Power Splitter/Combiner

SBTCJ-1W+

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, 0.15X0.15"X0.15"
- temperature stable, LTCC base
- low cost
- protected by US Patent, 6,806,790

Applications

- cellular
- UHF/VHF receivers/transmitters



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		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

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.

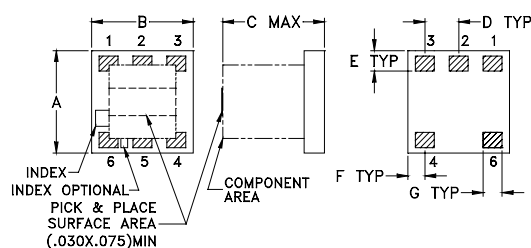
Pin Connections

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

Electrical Schematic

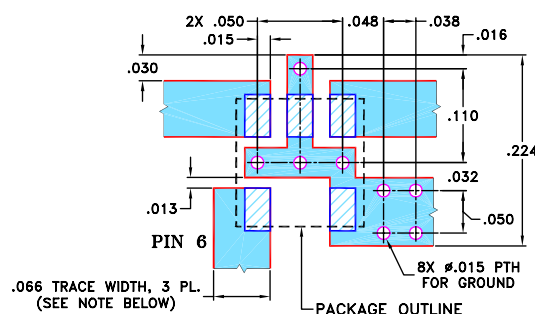


Outline Drawing



Outline Dimensions (inch mm)

A	B	C	D	E	F
.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	

Demo Board MCL P/N: TB-227
Suggested PCB Layout (PL-117)

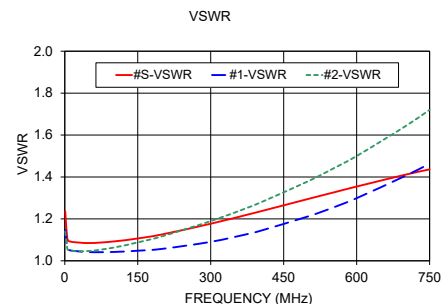
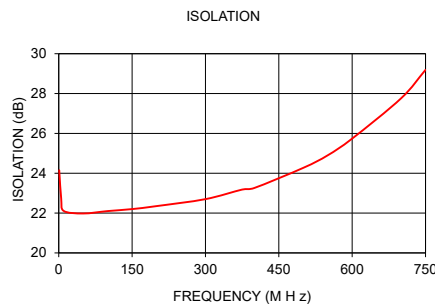
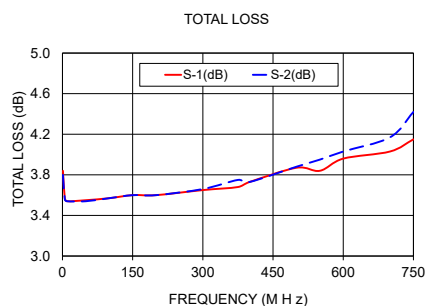
NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" \pm .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

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 ¹ (dB)		Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR S	VSWR 1	VSWR 2
	S-1	S-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

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



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