

Impedance Matching

Power Splitter/Combiner

SBTC-2-10-7550+

2 Way-0° 50/75Ω 5 to 1000 MHz

Features

- 75 ohm input, 50 ohm output
- excellent isolation, 24 dB typ.
- very good phase unbalance, 1.0 deg. typ.
- small size, 0.15"x0.15"x0.15"
- temperature stable LTCC base
- small size
- low cost
- aqueous washable
- protected by US patent 6,963,255

Applications

- impedance matching
- balanced amplifiers



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		5		1000	MHz
Insertion Loss Above 3.0 dB	5 - 50	—	0.5	1.3	dB
	50 - 500	—	0.6	1.1	
	500 - 1000	—	0.7	1.5	
Isolation	5 - 50	13	23	—	dB
	50 - 500	20	24	—	
	500 - 1000	20	26	—	
Phase Unbalance	5 - 50	—	—	6	Degree
	50 - 500	—	—	3	
	500 - 1000	—	—	5	
Amplitude Unbalance	5 - 50	—	—	0.8	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.

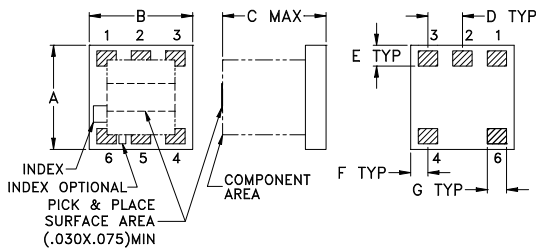
Pin Connections

Function	Pin Number
SUM PORT	6 (75 ohms)
PORT 1	3 (50 ohms)
PORT 2	4 (50 ohms)
GROUND	1,2
NOT USED	5

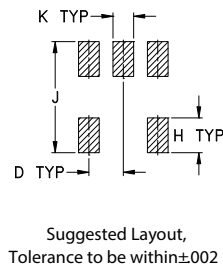
Electrical Schematic



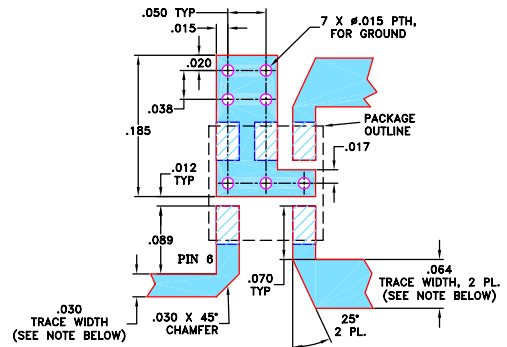
Outline Drawing



PCB Land Pattern



Demo Board MCL P/N: TB-147 Suggested PCB Layout (PL-092)



NOTE: TRACE WIDTH IS SHOWN FOR ROGERS R04350 WITH DIELECTRIC THICKNESS 0.030" ± 0.002", COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.

- DENOTES PCB COPPER LAYOUT
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Outline Dimensions (inch/mm)

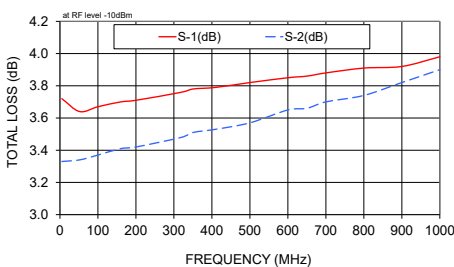
A	B	C	D	E	F	G	H	J	K	wt
.150	.150	.150	.050	.030	.025	.028	.050	.160	.030	grams
3.81	3.81	3.81	1.27	0.76	0.64	0.71	1.27	4.06	0.76	0.10

Typical Performance Data

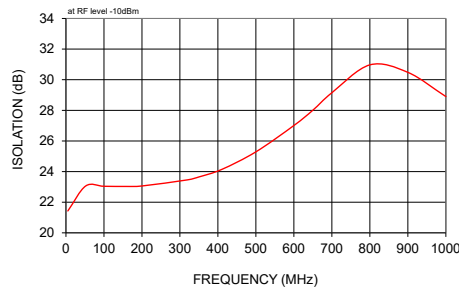
Frequency (MHz)	Total Loss ¹ (dB)		Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR S	VSWR 1	VSWR 2
	S-1	S-2						
5.00	3.72	3.33	0.39	21.43	1.97	1.19	1.29	1.17
52.00	3.64	3.34	0.29	23.06	0.18	1.15	1.18	1.11
100.00	3.67	3.37	0.30	23.04	0.08	1.15	1.17	1.11
160.00	3.70	3.41	0.29	23.03	0.35	1.14	1.17	1.11
200.00	3.71	3.42	0.28	23.06	0.43	1.15	1.17	1.12
320.00	3.76	3.48	0.28	23.46	0.73	1.17	1.18	1.16
350.00	3.78	3.51	0.27	23.65	0.72	1.18	1.18	1.17
410.00	3.79	3.53	0.26	24.14	0.91	1.20	1.18	1.19
500.00	3.82	3.57	0.25	25.29	1.00	1.23	1.19	1.22
600.00	3.85	3.65	0.20	27.01	1.12	1.27	1.20	1.25
650.00	3.86	3.66	0.20	28.01	1.15	1.29	1.20	1.26
700.00	3.88	3.70	0.18	29.15	1.15	1.31	1.20	1.27
800.00	3.91	3.74	0.17	30.97	1.23	1.37	1.21	1.29
900.00	3.92	3.82	0.11	30.48	1.25	1.39	1.23	1.31
1000.00	3.98	3.90	0.07	28.90	1.23	1.38	1.27	1.35

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

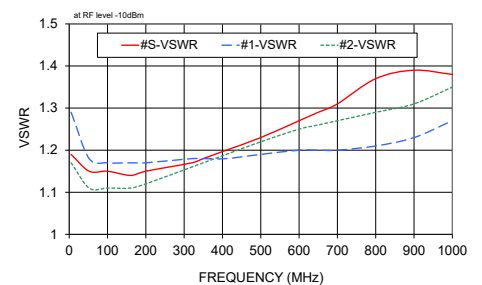
TOTAL LOSS



ISOLATION



VSWR



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-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/MCLStore/terms.jsp