

# Surface Mount <sup>top hat</sup> Power Splitter/Combiner

## TCP-2-10-75X+

2 Way-0° 75Ω 5 to 1000 MHz



CASE STYLE: DB1627

**+RoHS Compliant**

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Available Tapes and Reel at no extra cost

Reel Size	Devices/Reel
7"	20, 50, 100, 200, 500
13"	1000, 2000

### Maximum Ratings

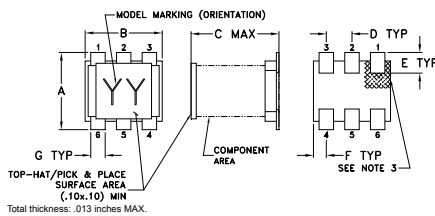
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	0.5W max.

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

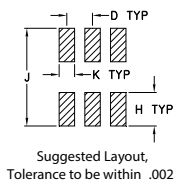
### Pin Connections

SUM PORT	6
PORT 1	3
PORT 2	4
GROUND	1
CONNECT	2,5
EXT. RESISTOR 150Ω	3,4
EXT. CAPACITOR 1.5pF	2 OR 5 TO GND

### Outline Drawing



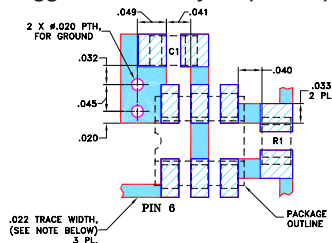
### PCB Land Pattern



### Outline Dimensions (inch/mm)

A	B	C	D	E	F
.160	.150	.160	.050	.040	.025
4.06	3.81	4.06	1.27	1.02	0.64
G	H	J	K	wt	
.028	.065	.190	.030	grams	
0.71	1.65	4.83	0.76	0.15	

### Demo Board MCL P/N: TB-124 Suggested PCB Layout (PL-002)



RESISTOR R1: 150 Ohm, 0805 SIZE  
CAPACITOR C1: 1.5 pF, 0805 SIZE

- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.030" ± 0.002"; COPPER: 1 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

### 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-Circuit's 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-Circuit's website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)

### Features

- low insertion, 0.3 dB typ.
- excellent amplitude unbalance, 0.2 dB typ.
- very good phase unbalance, 1.0 deg. typ.
- external resistor & capacitor required
- aqueous washable
- leads for excellent solderability
- low cost

### Applications

- CATV
- cellular

### Electrical Specifications

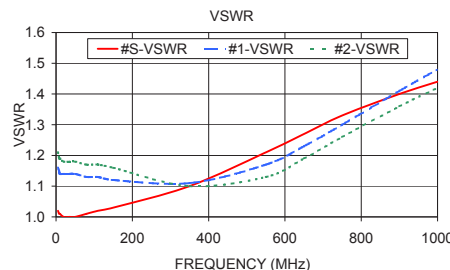
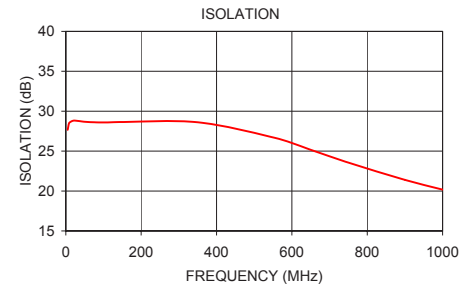
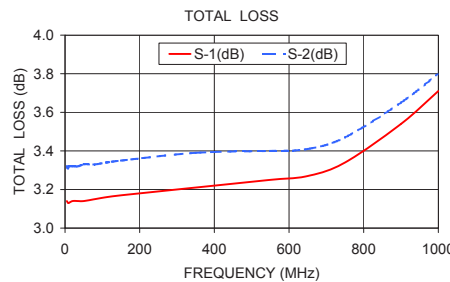
FREQ. RANGE (MHz)	ISOLATION (dB)						INSERTION LOSS (dB) ABOVE 3.0 dB						PHASE UNBALANCE (Degrees)			AMPLITUDE UNBALANCE (dB)		
	L		M		U		L		M		U		L	M	U	L	M	U
$f_L$ - $f_U$	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Max.	Max.	Max.	Max.	Max.	Max.
5-1000	24	14	29	19	30	16	0.3	1.4	0.3	0.9	0.6	1.3	6.0	4.0	3.0	1.2	0.6	0.5

L = low range [ $f_L$  to 10  $f_L$ ] M = mid range [10  $f_L$  to  $f_U/2$ ] U = upper range [ $f_U/2$  to  $f_U$ ]

### 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						
5.00	3.14	3.32	0.19	27.67	0.39	1.02	1.16	1.21
8.00	3.13	3.31	0.18	28.39	0.22	1.01	1.15	1.19
10.00	3.13	3.32	0.18	28.59	0.14	1.01	1.14	1.19
20.00	3.14	3.32	0.18	28.82	0.06	1.00	1.14	1.18
35.00	3.14	3.32	0.19	28.77	0.04	1.00	1.14	1.18
50.00	3.14	3.33	0.18	28.68	0.01	1.00	1.14	1.18
80.00	3.15	3.33	0.18	28.61	0.08	1.01	1.13	1.17
110.00	3.16	3.34	0.18	28.60	0.16	1.02	1.13	1.17
150.00	3.17	3.35	0.18	28.65	0.12	1.03	1.12	1.16
350.00	3.21	3.39	0.18	28.62	0.20	1.10	1.11	1.10
550.00	3.25	3.40	0.15	26.72	0.34	1.21	1.17	1.13
650.00	3.27	3.41	0.14	25.16	0.31	1.27	1.23	1.19
750.00	3.34	3.47	0.13	23.56	0.39	1.33	1.30	1.26
900.00	3.54	3.65	0.11	21.40	0.55	1.40	1.41	1.36
1000.00	3.71	3.80	0.09	20.18	0.68	1.44	1.48	1.42

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



### electrical schematic

