



**SURFACE MOUNT**

# Power Splitter/Combiner

**SP-2P+**

2 Way-0° 50Ω 1710 to 1990 MHz

## FEATURES

- Low insertion loss, 0.4 dB typ.
- Good isolation, 28 dB typ.
- Good output VSWR, 1.5:1 typ.
- Excellent power handling, 1.5W
- Small size
- Aqueous washable



Generic photo used for illustration purposes only

CASE STYLE: CA531

## +RoHS Compliant

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

## APPLICATIONS

- PCS/DCS
- Communication systems
- GSM

## ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Frequency Range		1710		1990	MHz
Insertion Loss (above 3.0 dB)	1710-1990	—	0.4	0.8	dB
Isolation	1710-1990	18	28	—	dB
Amplitude Unbalance	1710-1990	—	—	0.2	dB
Phase Unbalance	1710-1990	—	—	3.5	deg.
VSWR (Port S)	1710-1990	—	1.23	—	:1
VSWR (Port 1)	1710-1990	—	1.15	—	:1
VSWR (Port 2)	1710-1990	—	1.15	—	:1

## MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-65 °C to +150 °C
Input Power (as a splitter)	1.5 W max.
Internal Dissipation	0.75W max.

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

## ELECTRICAL SCHEMATIC





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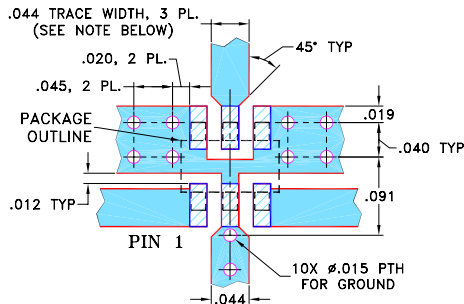
2 Way-0° 50Ω 1710 to 1990 MHz

**PIN CONNECTIONS**

SUM PORT	5
PORT 1	1
PORT 2	3
GROUND	2,4,6

**PRODUCT MARKING:** N/A

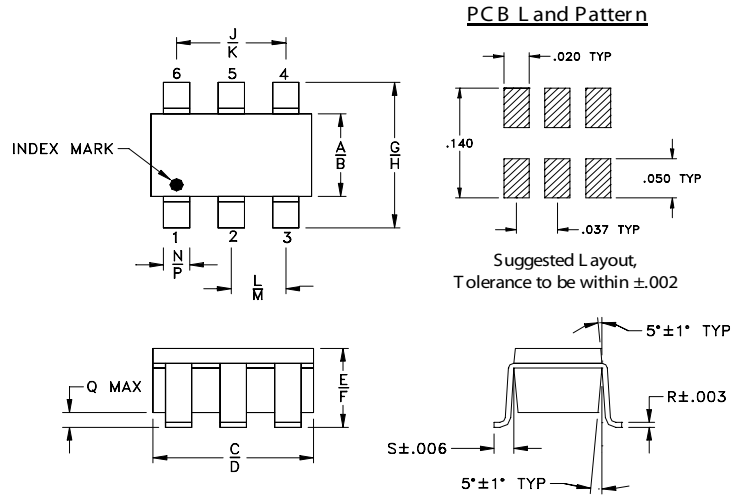
**DEMOBOARD MCL P/N:** TB-374  
**SUGGESTED PCB LAYOUT (PL-232)**



- NOTES:**
- TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" ± .0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
  - 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

**OUTLINE DRAWING**



**OUTLINE DIMENSIONS (Inch mm)**

A	B	C	D	E	F	G	H	J
.052	.067	.106	.122	.035	.064	.087	.118	.067
1.32	1.70	2.69	3.10	0.89	1.63	2.21	3.00	1.70
K	L	M	N	P	Q	R	S	wt
.083	.033	.042	.012	.020	.012	.006	.018	grams
2.11	0.84	1.07	0.30	0.51	0.30	0.15	0.46	0.020

**TAPE & REEL INFORMATION: F31**



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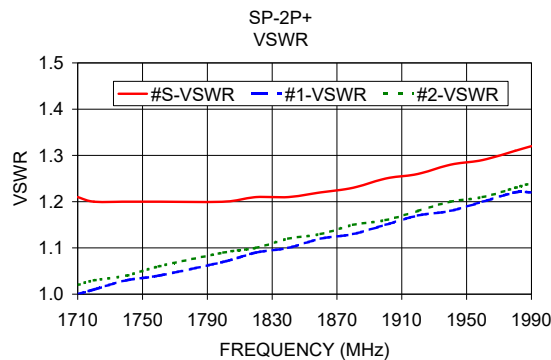
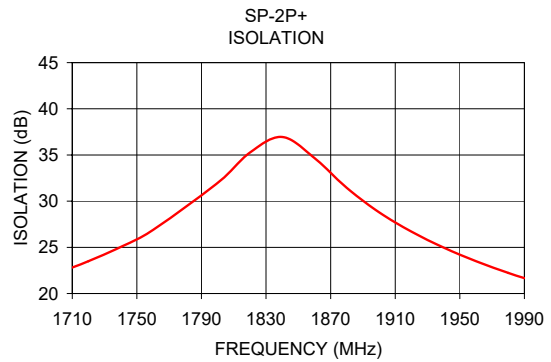
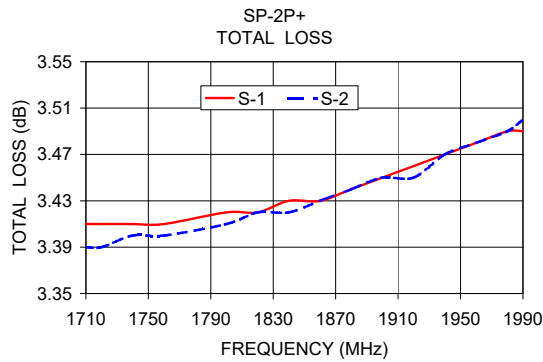
## SP-2P+

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### TYPICAL PERFORMANCE DATA AND CHARTS

Frequency (MHz)	Total Loss <sup>1</sup> (dB)		Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR (:1)		
	S-1	S-2				S	1	2
1710.00	3.41	3.39	0.01	22.82	0.43	1.21	1.00	1.02
1720.00	3.41	3.39	0.01	23.50	0.44	1.20	1.01	1.03
1740.00	3.41	3.40	0.01	25.04	0.44	1.20	1.03	1.04
1760.00	3.41	3.40	0.01	26.88	0.45	1.20	1.04	1.06
1800.00	3.42	3.41	0.01	31.98	0.46	1.20	1.07	1.09
1820.00	3.42	3.42	0.01	35.26	0.47	1.21	1.09	1.10
1840.00	3.43	3.42	0.01	36.95	0.48	1.21	1.10	1.12
1860.00	3.43	3.43	0.01	34.67	0.48	1.22	1.12	1.13
1880.00	3.44	3.44	0.00	31.44	0.49	1.23	1.13	1.15
1900.00	3.45	3.45	0.00	28.80	0.50	1.25	1.15	1.16
1920.00	3.46	3.45	0.00	26.70	0.50	1.26	1.17	1.18
1940.00	3.47	3.47	0.00	24.97	0.51	1.28	1.18	1.20
1960.00	3.48	3.48	0.00	23.50	0.52	1.29	1.20	1.21
1980.00	3.49	3.49	0.00	22.23	0.54	1.31	1.22	1.23
1990.00	3.49	3.50	0.00	21.67	0.56	1.32	1.22	1.24

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



#### ESD Rating

Human Body Model (HBM): Class 1A (250 v to <500 v) in accordance with ANSI/ESD STM 5.1 - 2001  
Machine Model (MM): Class M1 (< 100 v) in accordance with ANSI/ESD STM 5.2 - 1999 (pass 50V)

#### 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/terms/viewterm.html](http://www.minicircuits.com/terms/viewterm.html)

