

# Surface Mount Power Splitter/Combiner

## BP4P+

4 Way-0° 50Ω 1710 to 1990 MHz



Generic photo used for illustration purposes only

### Maximum Ratings

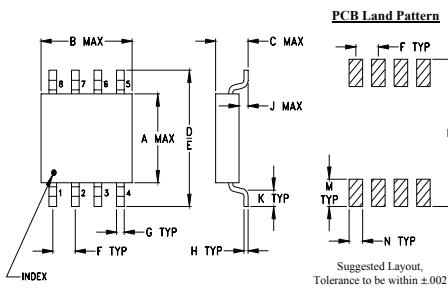
Operating Temperature	-40°C to 85°C
Storage Temperature	-65°C to 150°C
Power Input (as a splitter)	1.5W max.
Internal Dissipation	0.375W max.

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

### Pin Connections

SUM PORT	2
PORT 1	1
PORT 2	8
PORT 3	5
PORT 4	4
GROUND	3,6,7

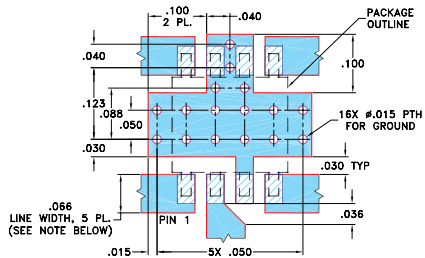
### Outline Drawing



### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.163	.210	.077	.250	.220	.050	.017
4.14	5.33	1.96	6.35	5.59	1.27	0.43
H	J	K	M	N	P	wt
.009	.025	.030	.050	.030	.270	grams
0.23	0.64	0.76	1.27	0.76	6.86	0.10

### Demo Board MCL P/N: TB-231 Suggested PCB Layout (PL-113)



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

### Features

- low insertion loss, 0.8 dB typ.
- excellent output VSWR, 1.25:1 typ.
- aqueous washable
- excellent power handling, 1.5W

### Applications

- PCS/DCS
- GSM
- WCDMA

CASE STYLE: XX211

**+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, 1000
13"	2000

### Electrical Specifications

FREQ. RANGE (MHz)	ISOLATION (dB)		INSERTION LOSS (dB) ABOVE 6 dB		PHASE UNBALANCE (Degrees)	AMPLITUDE UNBALANCE Δ (dB)	VSWR (∶) Typ.	
	Typ.	Min.	Typ.	Max.			Ports S	Ports 1,2,3,4
f <sub>L</sub> -f <sub>U</sub>					Max.	Max.		
1710-1990	23	19*	0.8	1.3	15	0.5	1.2	1.25

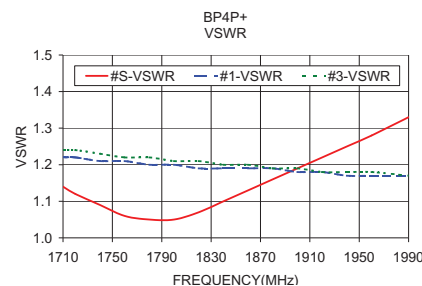
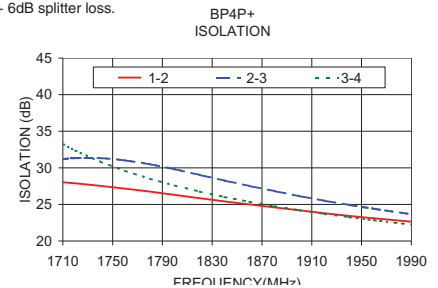
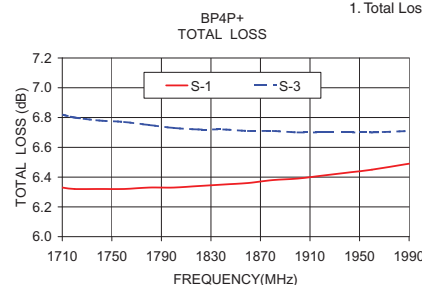
\*18 dB min. above 1900 MHz.

Δ Measurements relative to port 2.

### Typical Performance Data

Freq. (MHz)	Total Loss <sup>1</sup> (dB)				Amp. Unbal. (dB)	Isolation (dB)			Phase Unbal. (deg.)	VSWR S	VSWR 1	VSWR 2	VSWR 3	VSWR 4
	S-1	S-2	S-3	S-4		1-2	2-3	3-4						
1710.00	6.33	6.64	6.82	6.82	0.50	28.02	31.20	33.25	6.48	1.14	1.22	1.28	1.24	1.29
1720.00	6.32	6.63	6.80	6.81	0.49	27.88	31.33	32.37	6.67	1.12	1.22	1.28	1.24	1.29
1740.00	6.32	6.61	6.78	6.80	0.48	27.54	31.32	30.86	7.05	1.09	1.21	1.27	1.23	1.28
1760.00	6.32	6.59	6.77	6.78	0.46	27.16	31.01	29.59	7.43	1.06	1.21	1.27	1.22	1.27
1780.00	6.33	6.57	6.75	6.77	0.45	26.75	30.48	28.51	7.82	1.05	1.20	1.26	1.22	1.26
1800.00	6.33	6.56	6.73	6.76	0.43	26.31	29.80	27.58	8.19	1.05	1.20	1.26	1.21	1.26
1820.00	6.34	6.55	6.72	6.76	0.42	25.85	29.03	26.75	8.56	1.07	1.19	1.25	1.21	1.25
1840.00	6.35	6.54	6.72	6.76	0.41	25.41	28.25	26.01	8.93	1.10	1.19	1.25	1.20	1.24
1860.00	6.36	6.54	6.71	6.76	0.39	25.00	27.52	25.36	9.30	1.13	1.19	1.24	1.20	1.24
1880.00	6.38	6.54	6.71	6.76	0.38	24.59	26.83	24.76	9.67	1.16	1.19	1.24	1.19	1.23
1900.00	6.39	6.53	6.70	6.76	0.36	24.20	26.14	24.21	10.04	1.19	1.18	1.24	1.19	1.23
1920.00	6.41	6.53	6.70	6.76	0.35	23.80	25.51	23.71	10.41	1.22	1.18	1.23	1.18	1.22
1940.00	6.43	6.53	6.70	6.77	0.34	23.43	24.93	23.25	10.77	1.25	1.17	1.23	1.18	1.22
1960.00	6.45	6.54	6.70	6.78	0.32	23.11	24.40	22.83	11.13	1.28	1.17	1.22	1.18	1.21
1990.00	6.49	6.54	6.71	6.79	0.30	22.65	23.66	22.24	11.70	1.33	1.17	1.22	1.17	1.21

1. Total Loss = Insertion Loss + 6dB splitter loss.



### electrical schematic



### 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.
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