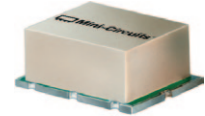


# Surface Mount Power Splitter/Combiner

## SYPJ-2-13+

2 Way-180° 50Ω 10 to 1000 MHz



### Maximum Ratings

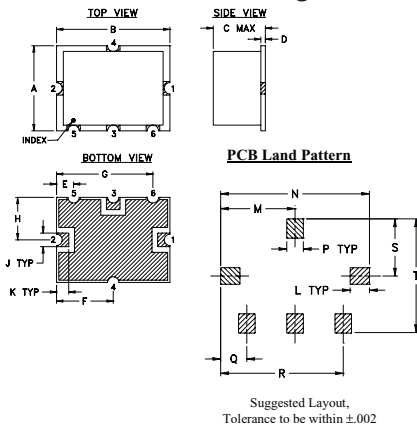
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	0.5W max.
Internal Dissipation	0.125W max.

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

### Pin Connections

SUM PORT	3
PORT 1 (0°)	1
PORT 2 (180°)	2
GROUND	4,5,6

### Outline Drawing

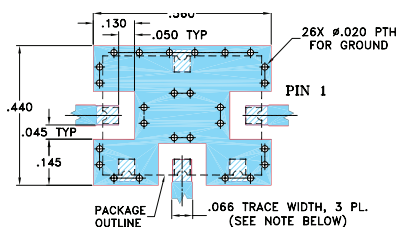


### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J
.38	.50	.15	.020	.075	.250	.425	.187	.050
9.65	12.70	3.81	0.51	1.91	6.35	10.80	4.75	1.27
K	L	M	N	P	Q	R	S	T
.050	.070	.270	.540	.060	.095	.445	.208	.415
1.27	1.78	6.86	13.72	1.52	2.41	11.30	5.28	10.54

grams  
0.8

### Demo Board MCL P/N: TB-12 Suggested PCB Layout (PL-079)



- TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
  - THE USE OF SOLDER MASK OVER THE GROUND AREA UNDER THE UNIT AS SHOWN IS RECOMMENDED TO PREVENT POTENTIAL SHORTING. IF USER CHOOSES TO EXPOSE METAL UNDER THE ENTIRE UNIT GROUND PAD FOR IMPROVED GROUNDING, IT IS RECOMMENDED A SOLDER MASK DAM BE APPLIED AROUND EACH GROUND PAD TO ENSURE FILLET AND CONNECTION AT GROUND PADS.
  - BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER), SEE NOTE 2.  
 ▨ DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

### Features

- wideband, 10 to 1000 MHz
- good isolation, 22 dB typ.
- excellent amplitude unbalance, 0.3 dB typ.

### Applications

- VHF/UHF
- cellular
- communication systems

### Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
<b>Frequency</b>		10		1000	MHz
<b>Insertion Loss (above theoretical 3.0 dB)</b>	10-100	—	1.2	1.7	dB
	100-500	—	1.3	1.8	
	500-1000	—	1.7	2.3	
<b>Isolation</b>	10-100	20	24	—	dB
	100-500	18	22	—	
	500-1000	18	21	—	
<b>Phase Unbalance</b>	10-100	—	1.0	4.0	Degree
	100-500	—	4.0	8.0	
	500-1000	—	6.0	12.0	
<b>Amplitude Unbalance</b>	10-100	—	0.2	0.5	dB
	100-500	—	0.25	0.5	
	500-1000	—	0.3	0.7	
<b>VSWR (Port S)</b>	10-100	—	1.1	—	:1
	100-500	—	1.3	—	
	500-1000	—	1.6	—	
<b>VSWR (Port 1-2)</b>	10-100	—	1.4	—	:1
	100-500	—	1.5	—	
	500-1000	—	1.7	—	

CASE STYLE: TTT166

PRICE: \$6.95 ea. QTY (10-49)

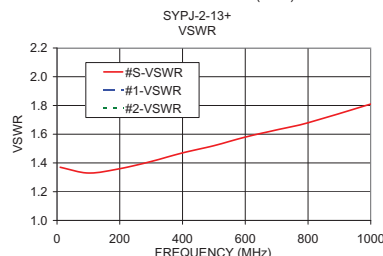
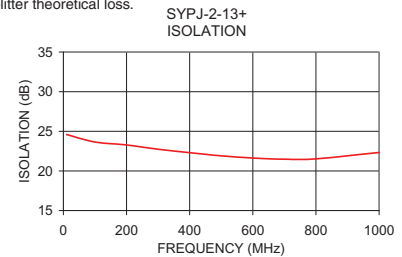
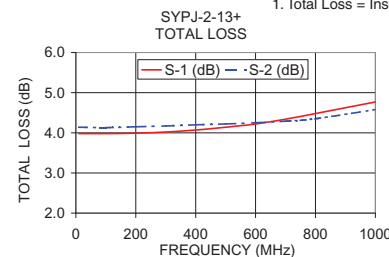
**+RoHS Compliant**

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

### 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						
10	3.98	4.14	0.15	24.59	180.00	1.08	1.34	1.37
100	3.98	4.13	0.15	23.65	179.19	1.09	1.29	1.33
200	3.99	4.15	0.16	23.27	178.46	1.15	1.27	1.36
300	4.02	4.17	0.15	22.74	177.82	1.21	1.26	1.41
400	4.07	4.20	0.13	22.30	177.27	1.26	1.25	1.47
500	4.14	4.22	0.09	21.90	176.79	1.32	1.25	1.52
600	4.22	4.25	0.03	21.63	176.33	1.37	1.26	1.58
700	4.34	4.29	0.05	21.48	175.82	1.43	1.30	1.63
800	4.48	4.35	0.13	21.52	175.23	1.48	1.36	1.68
1000	4.77	4.58	0.20	22.33	173.64	1.61	1.54	1.81

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



### Electrical Schematic



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