

# Surface Mount Power Splitter/Combiner

## SYPS-2-1+

2 Way-0° 50Ω 2 to 500 MHz



Generic photo used for illustration purposes only

CASE STYLE: TTT167

**+RoHS Compliant**

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

### Maximum Ratings

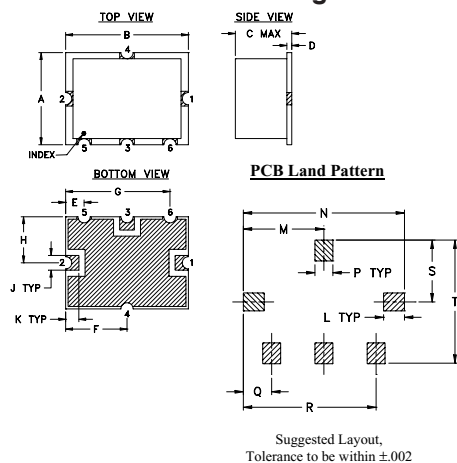
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	1W max.
Internal Dissipation	0.125W max.

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

### Pin Connections

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

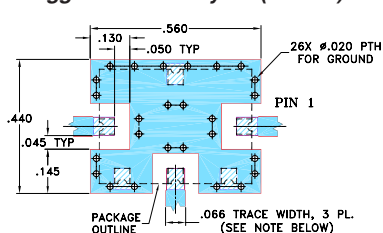
### Outline Drawing



### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J	K
.38	.50	.23	.020	.075	.250	.425	.187	.050	.050
9.65	12.70	5.84	0.51	1.91	6.35	10.80	4.75	1.27	1.27
L	M	N	P	Q	R	S	T	wt.	
.070	.270	.540	.060	.095	.445	.208	.415	grams	
1.78	6.86	13.72	1.52	2.41	11.30	5.28	10.54	0.8	

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



#### NOTE:

- 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

#### Notes

- 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.
- 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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### Features

- wideband, 2 to 500 MHz
- low insertion loss, 0.3 dB typ.
- high isolation, 32 dB typ.

### Applications

- VHF/UHF
- communications systems
- receivers & transmitters
- instrumentation

### Electrical Specifications

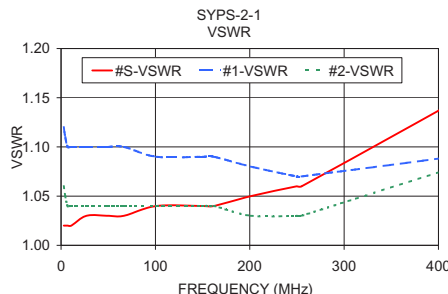
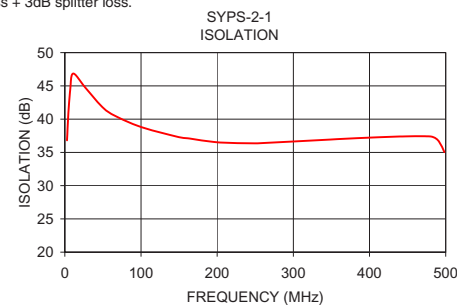
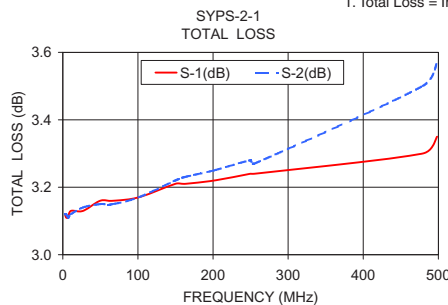
FREQ. RANGE (MHz)	ISOLATION (dB)						INSERTION LOSS (dB) ABOVE 3.0 dB						PHASE UNBALANCE (Degrees)			AMPLITUDE UNBALANCE (dB)		
	L		M		U		L		M		U		L	M	U	L	M	U
f <sub>L</sub> -f <sub>U</sub>	Typ.	Min	Typ.	Min	Typ.	Min	Typ.	Max.	Typ.	Max.	Typ.	Max.	Max.	Max.	Max.	Max.	Max.	Max.
2-500	40	20	32	20	30	20	0.2	0.6	0.3	0.75	0.6	1.0	2.0	3.0	4.0	0.2	0.3	0.5

L = low range [f<sub>L</sub> to 10 f<sub>L</sub>] M = mid range [10 f<sub>L</sub> to f<sub>U</sub>/2] U = upper range [f<sub>U</sub>/2 to f<sub>U</sub>]

### 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						
2.84	3.12	3.12	0.00	36.81	0.01	1.02	1.12	1.06
4.47	3.11	3.12	0.00	40.46	0.02	1.02	1.11	1.05
7.03	3.11	3.11	0.00	44.30	0.01	1.02	1.10	1.04
10.86	3.13	3.12	0.01	46.85	0.03	1.02	1.10	1.04
26.91	3.13	3.14	0.00	44.74	0.07	1.03	1.10	1.04
49.59	3.16	3.15	0.00	41.78	0.08	1.03	1.10	1.04
66.66	3.16	3.15	0.00	40.46	0.18	1.03	1.10	1.04
100.87	3.17	3.17	0.00	38.79	0.28	1.04	1.09	1.04
149.64	3.21	3.22	0.01	37.29	0.35	1.04	1.09	1.04
161.93	3.21	3.23	0.01	37.11	0.39	1.04	1.09	1.04
201.16	3.22	3.25	0.03	36.51	0.47	1.05	1.08	1.03
249.89	3.24	3.28	0.04	36.36	0.52	1.06	1.07	1.03
254.97	3.24	3.27	0.03	36.38	0.59	1.06	1.07	1.03
479.07	3.30	3.50	0.20	37.41	0.80	1.18	1.10	1.10
498.34	3.35	3.57	0.22	35.04	0.75	1.20	1.12	1.12

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



### electrical schematic

