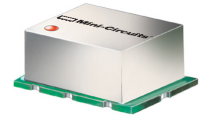


Surface Mount

# Power Splitter/Combiner

SYPJ-2-33+

2 Way-180° 50Ω 500 to 3000 MHz



CASE STYLE:AH202-1

## The Big Deal

- Low amplitude unbalance, 0.5 dB typ.
- Low phase unbalance, 2° typ.

## Product Overview

Mini-Circuits SYPJ-2-33+ is a wideband, 2 way, 180° surface mount splitter/combiner. This model provides very low amplitude and phase unbalance with good isolation and insertion loss over the full frequency range. It handles up to 0.5W of input power and comes in a small plastic case with excellent thermal performance (- 40°C to 85°C operating).

## Key Features

Feature	Advantages
Wideband	Wide frequency coverage from 500 to 3000 MHz supports many applications.
10 MHz signal pass at port 2	Provides 10 MHz control signal.
Low AU and PU	SYPJ-2-33+ produces nearly equal output signals.
Good insertion loss: •1.4 dB typ., 500 – 2000 MHz •2.1 dB typ., 3000 – 3000 MHz	Well matched for 50Ω systems.
Good isolation •17 dB typ., 500 – 2000 MHz •25 dB typ., 2000 – 3000 MHz	Good isolation over the entire band minimizes effect of load changes at one output port on another output port.
0.5W max. input power	High power handling accommodates a wide range of system power requirements.
Small size, 0.38 x 0.50 x 0.25 in.	Accommodates dense PCB layouts.

\*Does not include coupling loss

### Notes

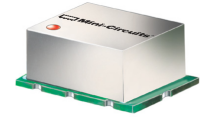
- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
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# Surface Mount Power Splitter/Combiner

## SYPJ-2-33+

2 Way-180° 50Ω 500 to 3000 MHz



CASE STYLE: AH202-1

### Maximum Ratings

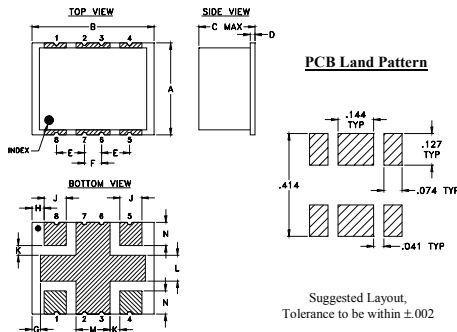
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	0.5W max.
Internal Dissipation	0.25W max.

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

### Pin Connections

SUM PORT	8
PORT 1 (180°)	5
PORT 2 (0°)	4
GROUND	1,2,3,6,7

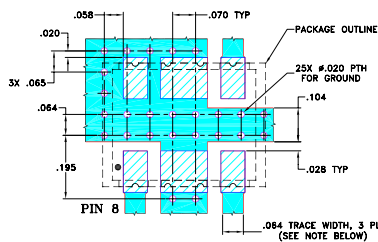
### Outline Drawing



### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.38	.50	.25	.020	.115	.070	.035
9.65	12.70	6.35	0.51	2.92	1.78	0.89
H	J	K	L	M	N	wt
.050	.090	.040	.105	.140	.095	grams
1.27	2.29	1.02	2.67	3.56	2.41	0.80

### Demo Board MCL P/N: TB-427 Suggested PCB Layout (PL-274)



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### Features

- wideband, 500 to 3000 MHz
- low amplitude unbalance, 0.5 dB typ.
- low phase unbalance, 2.0 deg. typ.
- 10 MHz signal pass @ port 2: with 1.5 dB/max IL

### Applications

- VHF/UHF
- cellular, GPS, PCS
- communication systems
- receivers & transmitters
- instrumentation
- CATV

### Electrical Specifications at 25°C

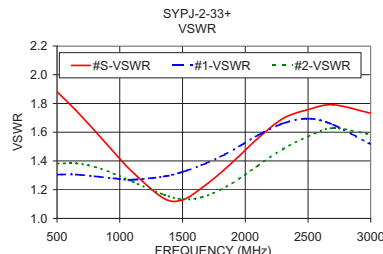
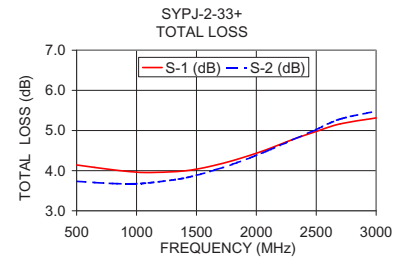
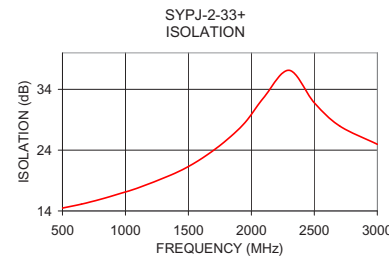
Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
<b>Frequency</b>		500		3000	MHz
<b>Insertion Loss (above theoretical 3.0 dB)</b>	500-2000	—	1.4	2.2	dB
	2000-3000	—	2.1	3.2	
<b>Isolation</b>	500-2000	11.0	17	—	dB
	2000-3000	19	25	—	
<b>Phase Unbalance (out of 180°C)</b>	500-2000	—	2.0	9.0	Degree
	2000-3000	—	5.0	14.0	
<b>Amplitude Unbalance</b>	500-2000	—	0.8	1.2	dB
	2000-3000	—	0.3	0.9	
<b>VSWR (Port S)</b>	500-3000	—	1.7	—	:1
<b>VSWR (Port 1-2)</b>	500-3000	—	1.7	—	:1

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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						
500	4.14	3.74	0.81	14.47	0.29	1.88	1.30	1.38
650	4.08	3.70	0.75	15.12	0.76	1.75	1.30	1.38
800	4.02	3.68	0.68	15.90	1.12	1.61	1.29	1.36
950	3.97	3.67	0.61	16.82	1.42	1.46	1.28	1.31
1100	3.95	3.69	0.52	17.79	1.61	1.32	1.27	1.26
1350	3.98	3.79	0.38	19.82	1.81	1.14	1.29	1.17
1500	4.04	3.88	0.31	21.30	1.88	1.13	1.32	1.13
1650	4.13	4.01	0.24	23.25	1.89	1.21	1.37	1.15
1800	4.25	4.16	0.18	25.60	1.86	1.31	1.43	1.20
1950	4.39	4.32	0.12	28.54	1.80	1.43	1.50	1.28
2100	4.54	4.50	0.08	32.70	1.78	1.56	1.58	1.37
2300	4.77	4.76	0.02	37.13	1.76	1.69	1.66	1.48
2500	4.98	5.03	0.10	31.79	1.66	1.76	1.69	1.57
2700	5.17	5.29	0.24	27.99	1.83	1.79	1.65	1.63
3000	5.31	5.48	0.33	24.97	3.08	1.73	1.52	1.58

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



### Electrical Schematic

