



## SURFACE MOUNT

# Power Splitter/Combiner **SYPS-3-182-75+**

3 Way-0° 75Ω 5 to 1800 MHz

### THE BIG DEAL

- Wideband, 5 to 1800 MHz
- Low insertion loss, 2.5 dB
- Good return loss, 20 dB typ.
- Low amplitude unbalance, 0.4 dB typ.
- Low phase unbalance, 2.0 deg. typ.



Generic photo used for illustration purposes only

CASE STYLE: AH202

#### +RoHS Compliant

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

### APPLICATIONS

- CATV
- DOCSIS® 4.0 system

### PRODUCT OVERVIEW

Mini-Circuits' SYPS-3-182-75+ is a 75Ω 3-way 0° surface mount splitter/combiner covering the 5 to 1800 MHz frequency range, supporting bandwidth requirements for DOCSIS® 4.0 systems and equipment as well as other broadband applications. This model can handle up to 1W RF input power as a splitter and provides low insertion loss, high isolation, and low phase and amplitude unbalance. It comes housed in a miniature, 8-lead plastic package (0.38 x 0.50 x 0.25") with wrap-around terminations for excellent solderability and gold over nickel plate termination finish.

### KEY FEATURES

Feature	Advantages
Wideband, 5 to 1800 MHz	Suitable for many broadband applications including DOCSIS® 4.0 systems and equipment.
Low insertion loss, 2.5 dB	The combination of 1W power handling and low insertion loss makes this model a suitable candidate for distributing signals while maintaining signal power.
Low unbalance: <ul style="list-style-type: none"> <li>• 0.4 dB amplitude unbalance</li> <li>• 2.0° phase unbalance</li> </ul>	SYPS-3-182-75+ produces nearly equal output signals, ideal for parallel path / multichannel systems.
Good isolation, 20 dB typ.	Minimizes interference between input ports.
Good Return Loss, 20 dB typ.	Provides excellent thru-path transmission with low signal reflection.





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### ELECTRICAL SPECIFICATIONS AT +25°C

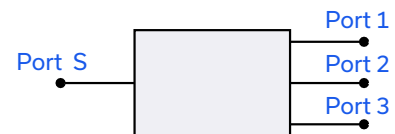
Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		5		1800	MHz
Insertion Loss, above 4.8 dB	5-50	—	0.6	1.1	dB
	50-1220	—	1.2	1.9	
	1220-1800	—	2.5	4.5	
Isolation	5-50	23	27	—	dB
	50-1220	15	20	—	
	1220-1800	12	16	—	
Phase Unbalance	5-870	—	1.5	5.0	Degree
	870-1800	—	5.0	12	
Amplitude Unbalance	5-50	—	0.2	0.40	dB
	50-1220	—	0.4	0.60	
	1220-1800	—	0.7	1.50	
Return Loss (Port S)	5-50	—	18	—	dB
	50-1220	—	20	—	
	1220-1800	—	16	—	
RET LOSS (Port 1 to Port 3)	5-50	—	18	—	dB
	50-1220	—	20	—	
	1220-1800	—	16	—	

### ABSOLUTE MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +100°C
Power Input (as a splitter)	1 W max.
Internal Dissipation	0.15 W max.

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

### ELECTRICAL SCHEMATIC





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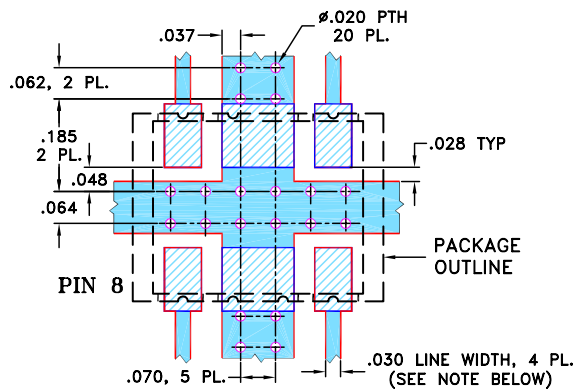
3 Way-0° 75Ω 5 to 1800 MHz

**PIN CONNECTIONS**

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



**PRODUCT MARKING:** N/A

**DEMO BOARD MCL P/N:** TB-SYPS3182-75+  
**SUGGESTED PCB LAYOUT (PL-229)**

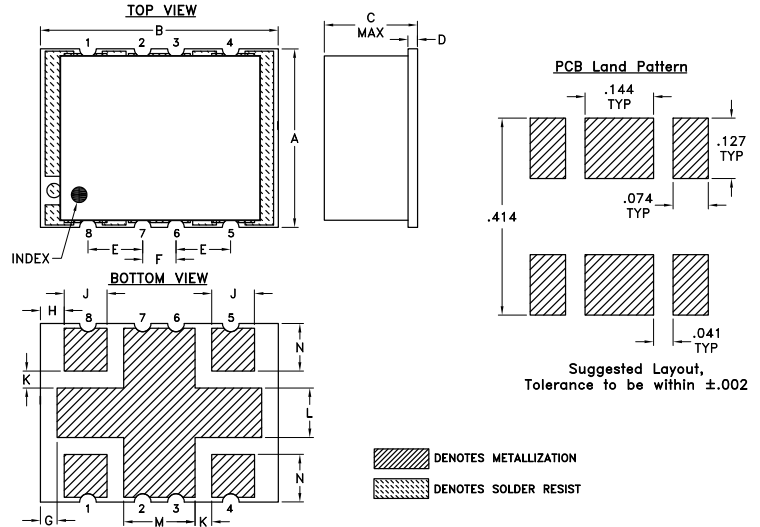


**NOTE:**

- TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .030" ± .002"; 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 (Inches mm)**

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

**TAPE & REEL INFORMATION:** F61



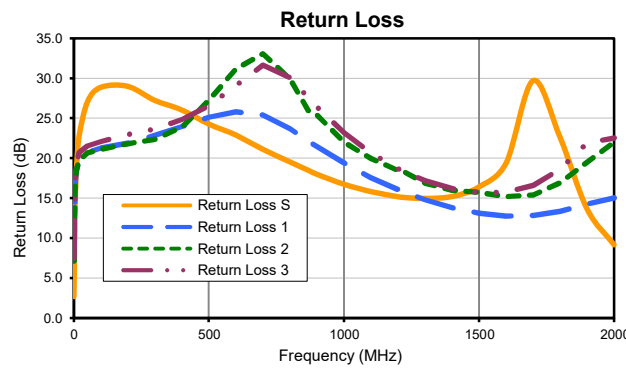
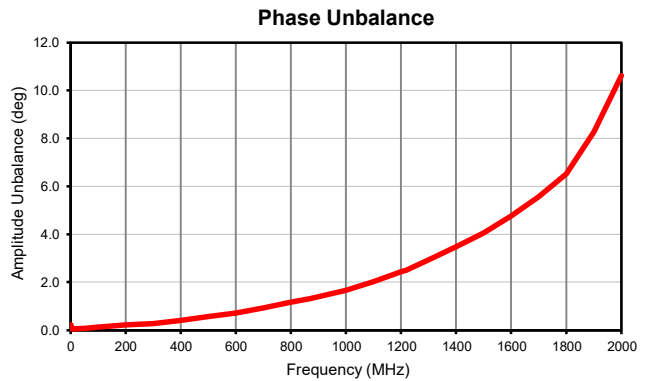
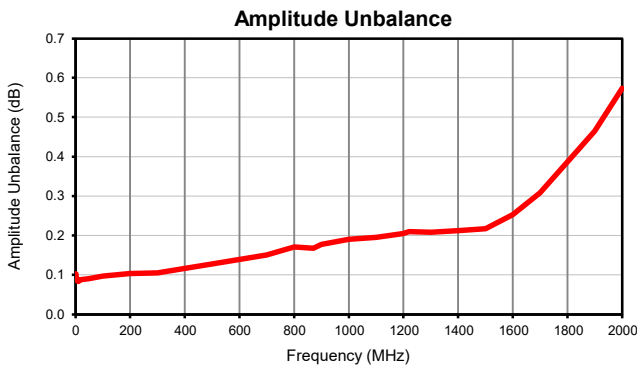
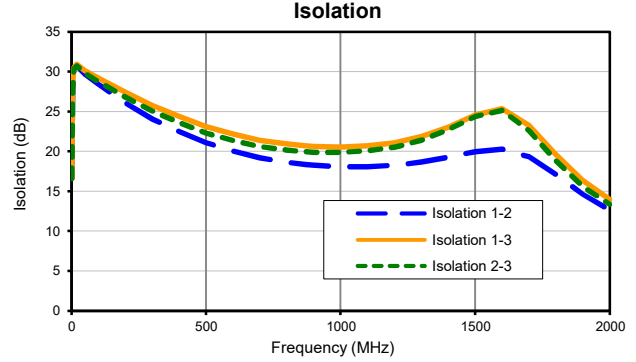
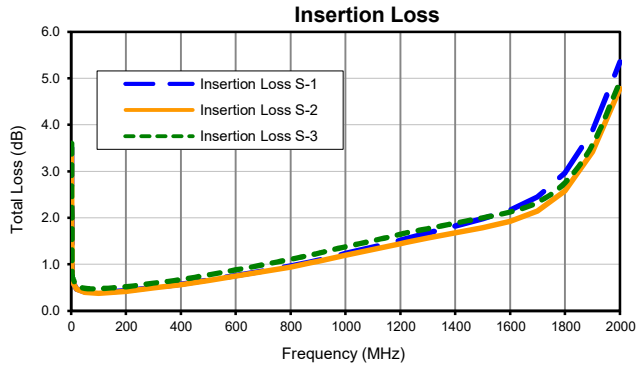


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## TYPICAL PERFORMANCE DATA





- 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)



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