

Surface Mount  **Power Splitter/Combiner**

TRPS2-232-75+

2 Way-0° 75Ω 5 to 2300 MHz

The Big Deal

- Wideband, 5 to 2300 MHz
- Good power handling, 0.5W as a splitter
- Low insertion loss, 2.0 dB
- Low unbalance, 0.2 dB, 1.2°
- Supports DOCSIS 4.0 requirement



CASE STYLE: AT3081

Product Overview

Mini-Circuits' TRPS2-232-75+ is a 75Ω 2-way 0° surface-mount power splitter/combiner covering the 5 to 2300 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 0.5W RF input power as a splitter, and provides low insertion loss and low phase and amplitude unbalance. It features core and wire construction mounted on a 6-lead plastic base (0.20 x 0.20 x 0.13") with Mini-Circuits' TopHat® feature to improve speed and accuracy of pick and place assembly. This design requires external capacitors, inductors and resistors for impedance matching and cycling isolation between the output signals (refer to electrical schematic).

Key Features

Feature	Advantages
Wideband, 5 to 2300 MHz	Suitable for many broadband applications including DOCSIS® 4.0, CATV and more.
Low insertion loss, 2.0 dB	The combination of 0.5W power handling and low insertion loss makes it a suitable candidate for distributing signals while maintaining signal power.
Good isolation, 20 dB	Minimizes interference between ports
Low unbalance: • 0.2 dB amplitude unbalance • 1.2° phase unbalance	This model produces nearly equal output signals, making it ideal for use in parallel path /multichannel systems
Top Hat® Feature	Improves speed and accuracy of pick and place assembly and provides clear device marking for visual inspection.

top hat®
Surface Mount
Power Splitter/Combiner

TRPS2-232-75+

2 Way-0° 75Ω 5 to 2300 MHz

Features

- low insertion, 2 dB typ.
- excellent amplitude unbalance, 0.2 dB typ.
- very good phase unbalance, 1.2 deg. typ.
- low cost



Generic photo used for illustration purposes only

CASE STYLE: AT3081

+RoHS Compliant

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

Applications

- CATV
- DOCSIS 4.0
- L-Band

Available Tape and Reel at no extra cost

Reel Size	Devices/Reel
7"	500
13"	2000

Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		5		2300	MHz
Insertion Loss Above 3.0 dB	5 - 1218	—	1.0	1.5	dB
	1218 - 1800	—	1.5	1.9	
Isolation	1800 - 2300	—	1.9	2.5	dB
	5 - 2300	15	20	—	
Phase Unbalance	5 - 2300	—	1.2	5	Degree
Amplitude Unbalance	5 - 2300	—	0.2	0.6	dB
VSWR (Port S)	5 - 2300	—	1.3	—	:1
VSWR (Port 1-2)	5 - 2300	—	1.3	—	:1

Maximum Ratings

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

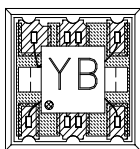
Permanent damage may occur if any of these limits are exceeded.

Pad Connections¹

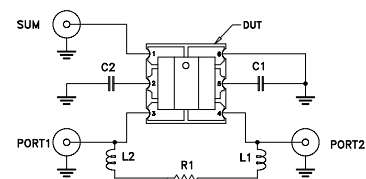
Function	Pad Number
SUM PORT	1
PORT 1	3
PORT 2	4
GROUND	2,5,6
EXT. CAPACITOR 0.6 pF	2
EXT. CAPACITOR 0.5 pF	5
EXT. INDUCTORS 2.2 nH, RESISTOR 221Ω	3,4

1. See PL drawing for external component placement.

Product Marking



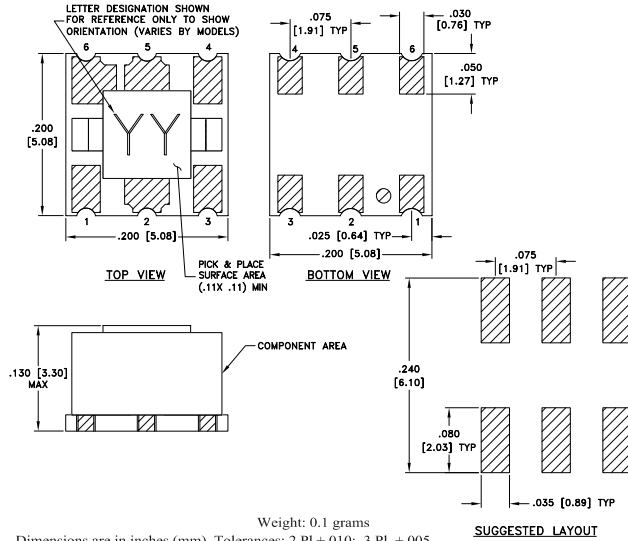
Electrical Schematic



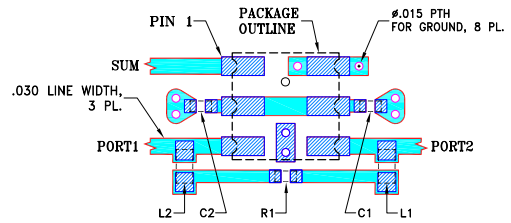
COMPONENT	VALUE/PART NUMBER	SIZE
DUT	TRPS2-232-75+	.200"X.200"
C1	0.6 pF	0402
C2	0.5 pF	0603
L1,L2	2.2 nH	0603
R1	221 Ohm	0402

TRPS2-232-75+

Outline Drawing



Demo Board MCL P/N: TB-TRPS2-23275+ Suggested PCB Layout (PL-673)



COMPONENT	SIZE
C1,C2	0402
L1,L2	0603
P1	0402_

NOTES:

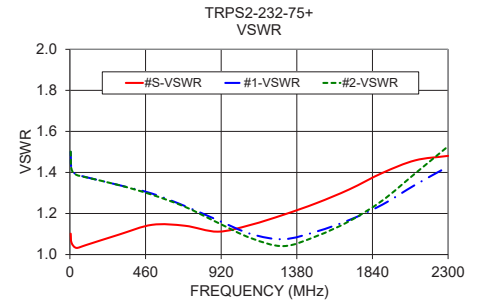
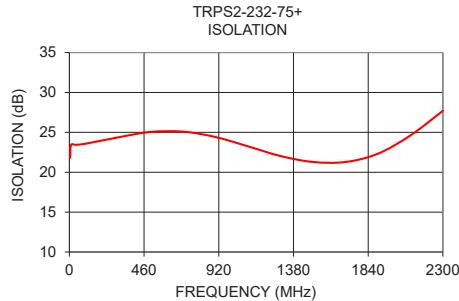
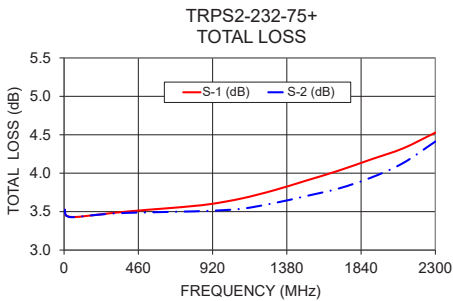
- LINE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030±.002"; COPPER: 1/2 OZ. FOR OTHER MATERIALS LINE WIDTH MAY NEED TO BE MODIFIED.
- CHIP COMPONENT FOOT PRINTS SHOWN FOR REFERENCE. FOR COMPONENT VALUES REFER TO TB-1126+.
- BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

Typical Performance Data

Frequency (MHz)	Total Loss ¹ (dB)		Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR S	VSWR 1	VSWR 2
	S-1	S-2						
5	3.53	3.53	0.00	21.80	0.01	1.10	1.50	1.50
10	3.46	3.46	0.00	23.40	0.00	1.06	1.41	1.42
40	3.43	3.43	0.00	23.44	0.06	1.03	1.39	1.39
100	3.43	3.44	0.00	23.57	0.09	1.05	1.38	1.38
300	3.48	3.48	0.01	24.37	0.28	1.10	1.34	1.34
500	3.52	3.49	0.03	25.05	0.43	1.14	1.30	1.29
700	3.55	3.50	0.05	25.09	0.55	1.14	1.24	1.23
900	3.60	3.51	0.09	24.41	0.55	1.11	1.17	1.15
1100	3.67	3.54	0.13	23.25	0.46	1.14	1.10	1.08
1300	3.78	3.61	0.17	22.03	0.31	1.19	1.08	1.04
1500	3.90	3.70	0.20	21.29	0.02	1.25	1.11	1.09
1700	4.03	3.80	0.23	21.28	0.36	1.32	1.17	1.16
1900	4.18	3.94	0.24	22.32	0.89	1.40	1.24	1.26
2100	4.32	4.13	0.19	24.61	1.40	1.46	1.34	1.40
2300	4.53	4.41	0.12	27.69	1.91	1.48	1.43	1.53

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



Additional 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-Circuits' applicable established test performance criteria and measurement instructions.
- 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/MCLStore/terms.jsp

