SURFACE MOUNT

Power Splitter/Combiner

TCP-2-292+

50Ω (2 Way-0°) 200 to 2900 MHz

KEY FEATURES

- Wide Frequency Band 200 to 2900 MHz
- Low Insertion Loss 0.65 dB Typ.
- Low Amplitude unbalance, 0.4 dB Typ.
- Good Return Loss, 20 dB Typ.
- Miniature Package

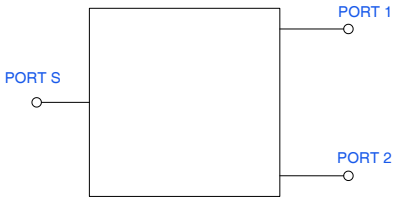


Generic photo used for illustration purposes only

APPLICATIONS

- Cellular
- PCN
- GPS

FUNCTIONAL DIAGRAM



PRODUCT OVERVIEW

Mini-Circuits' TCP-2-292+ is a 50Ω 2-way 0˚ surface-mount power splitter/combiner covering the 200 to 2900 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 0.5 W RF input power as a splitter, and provides low insertion loss and amplitude unbalance. It features core and wire construction mounted on a 6-pad printed laminate base with gold over nickel termination finish. The unit measures .166 x .16 x .157" and easy to pick and place assembly.

ELECTRICAL SPECIFICATIONS AT +25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Frequency Range		200		2900	MHz
Insertion Loss (above 3 dB)	200 - 1350	—	0.65	1.0	dB
	1350 - 2900	—	1.9	2.4	
Isolation	200 - 1350	9	12	—	dB
	1350 - 2900	11	14	—	
Phase Unbalance (±)	200 - 1350	—	2	4	Degree
	1350 - 2900	—	6	11	
Amplitude Unbalance (±)	200 - 1350	—	0.4	0.7	dB
	1350 - 2900	—	2.2	2.6	
Return Loss (Port S)	200 - 2900	7	11	—	dB
Return Loss (Port 1 to Port 2)	200 - 1350	16	20	—	dB
	1350 - 2900	13	19	—	

ABSOLUTE MAXIMUM RATINGS[1]

Operating Case Temperature		-40°C to +85°C
Storage Temperature		-55°C to +100°C
Input Power	**as splitter**	0.5 W
	as combiner per port	100 mW

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

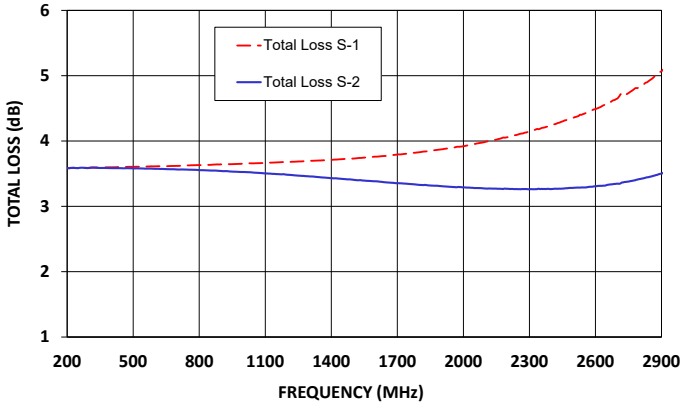
REV. OR
ECO-031318
TCP-2-292+
EDU5349
MCINU
260917

Power Splitter/Combiner TCP-2-292+

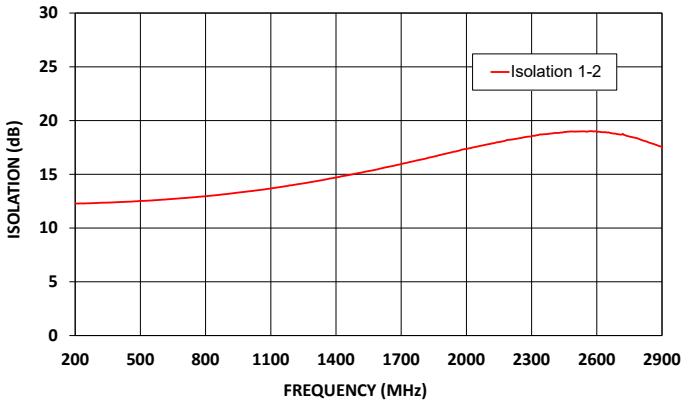
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TYPICAL PERFORMANCE GRAPHS AT +25°C

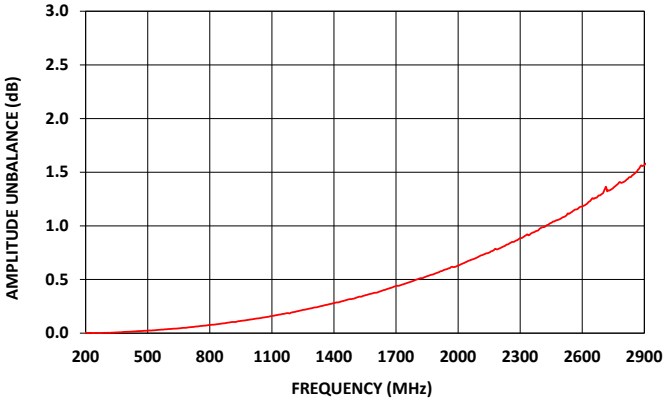
TOTAL LOSS



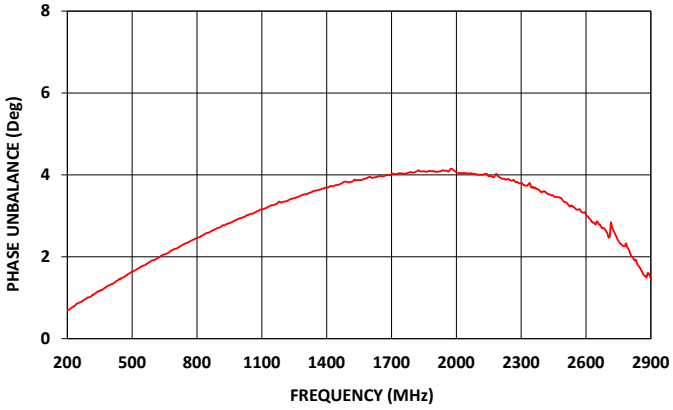
ISOLATION



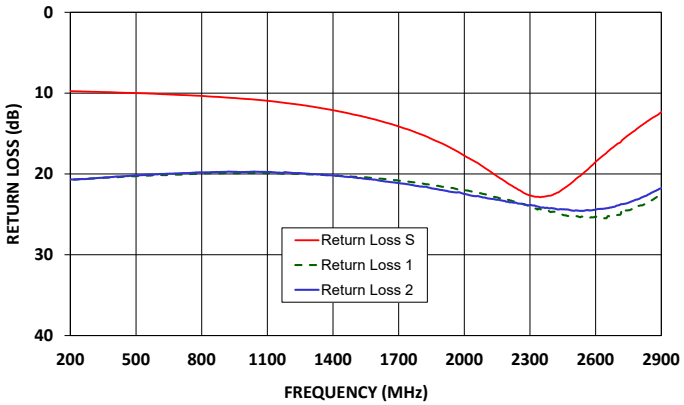
AMPLITUDE UNBALANCE



PHASE UNBALANCE



RETURN LOSS



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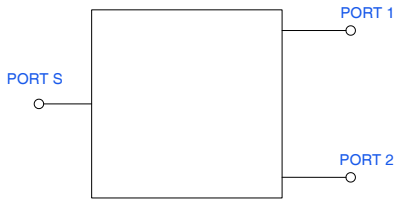


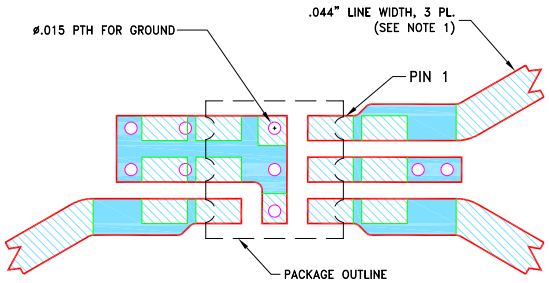
Figure 1. TCP-2-292+ Functional Diagram

PAD DESCRIPTION

Function	Pad Number	Description
Sum Port	1	Connects to Sum Port
Port 1	3	Connects to 1 Port
Port 2	4	Connects to 2 Port
Ground	6	Connects to GND
Not Used	2,5	—

SUGGESTED PCB LAYOUT (PL-884)

SUGGESTED MOUNTING CONFIGURATION
FOR TT3651-2 CASE STYLE



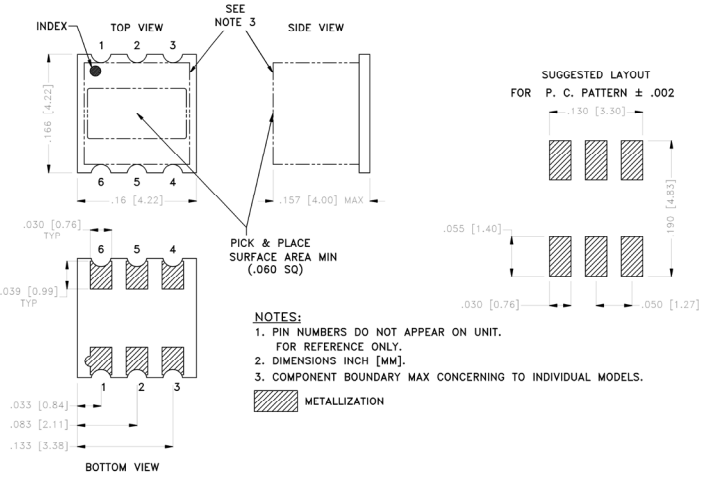
NOTES:
1. LINE WIDTH IS SHOWN FOR ROGERS RO4350B, DIELECTRIC THICKNESS: .020±.0015";
   COPPER: 1/2 Oz EACH SIDE. FOR OTHER MATERIALS LINE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

Figure 2. Suggested PCB Layout PL-884

CASE STYLE DRAWING



Dimensions are in inches [mm]. Tolerances: 2 Pl + .010 [.25]; 3 Pl + .005[.127]

UNIT WEIGHT: .08g

PRODUCT MARKING*: N/A

*Marking may contain other features or characters for internal lot control.

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ADDITIONAL DETAILED INFORMATION IS AVAILABLE ON OUR DASHBOARD CLICK HERE

Performance Data & Graphs	Data Graphs S-Parameter (S3P Files) Data Set (.zip file) De-embedded to device pads
Case Style	TT3651-2 Lead Finish: Gold over Nickel Plate
RoHS Status	Compliant
Tape and Reel	F102
Suggested Layout for PCB Design	PL-884
Evaluation Board	TB-TCP-2-292+ Gerber File
Environmental Rating	ENV02T1

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