



Mini-Circuits

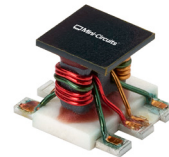
SURFACE MOUNT

Power Splitter/Combiner **SBTCJ-182-75X+**

75Ω (2 Way-180°) 5 to 1800 MHz

KEY FEATURES

- Low Insertion Loss, 2.2 dB Typ.
- Good Return Loss, 19 dB Typ.
- Good Power Handling, 1W
- Good Isolation, 22 dB Typ.

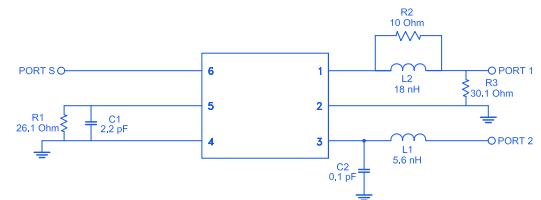


Generic photo used for illustration purposes only

APPLICATIONS

- DOCSIS® 3.1 Systems
- CATV
- cellular
- UHV/VHV

FUNCTIONAL DIAGRAM



PRODUCT OVERVIEW

Mini-Circuits' SBTCJ-182-75X+ is a 75Ω 2 Way 180° Surface Mount Power Splitter/Combiner covering 5 - 1800 MHz frequency range. This model can handle 1W RF input power as a splitter and provides low Insertion Loss and good Return Loss. The unit measures .0160" x 0.150" x 0.160" and easy to pick and place assembly.

ELECTRICAL SPECIFICATIONS AT +25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Frequency Range		5	—	1800	MHz
Insertion Loss (above 3 dB)	5 - 50	—	1.6	2.2	dB
	50 - 1000	—	2.2	2.6	
	1000 - 1800	—	3.3	4.3	
Isolation	5 - 50	25	31	—	dB
	50 - 1000	19	22	—	
	1000 - 1800	9	12	—	
Phase Unbalance (±)	5 - 50	—	2.4	3	Degree
	50 - 1000	—	12	17	
	1000 - 1800	—	16	—	
Amplitude Unbalance (±)	5 - 50	—	1.15	1.3	dB
	50 - 1000	—	1.4	1.7	
	1000 - 1800	—	2.5	2.9	
Return Loss (Port S)	5 - 50	12	15	—	dB
	50 - 1000	16	19	—	
	1000 - 1800	14	18	—	
Return Loss (Port 1 to Port 2)	5 - 50	11	15	—	dB
	50 - 1000	9	12	—	
	1000 - 1800	8	12	—	

ABSOLUTE MAXIMUM RATINGS¹

Operating Case Temperature		-40°C to +85°C
Storage Temperature		-55°C to +100°C
Input Power	as splitter	1 W
	as combiner per port	100 mW

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





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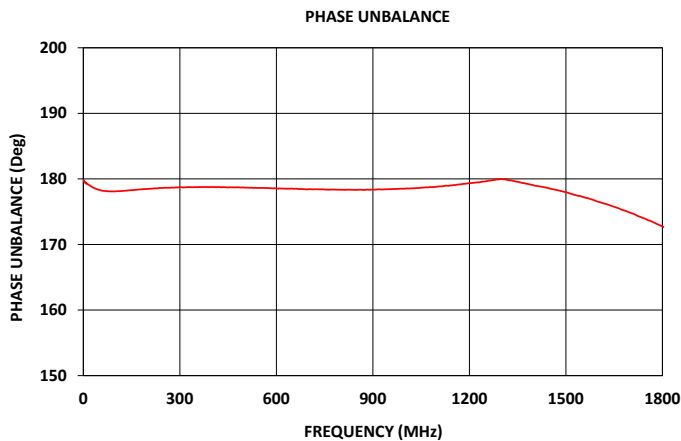
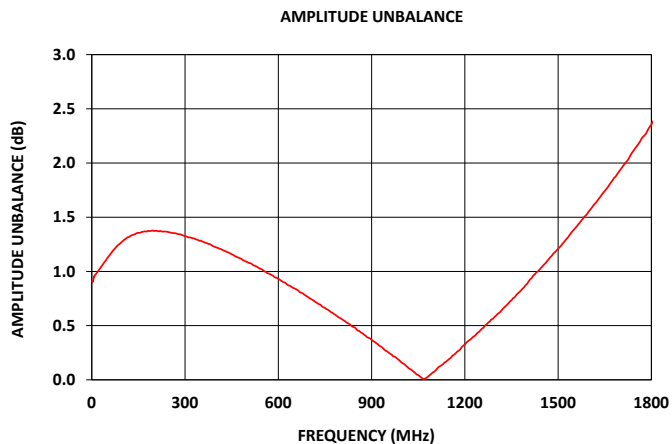
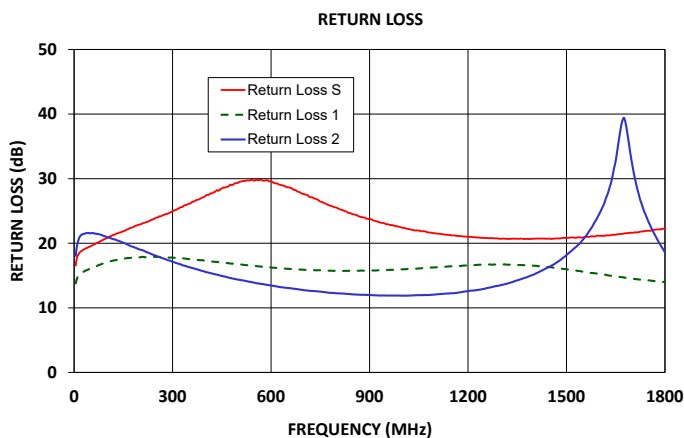
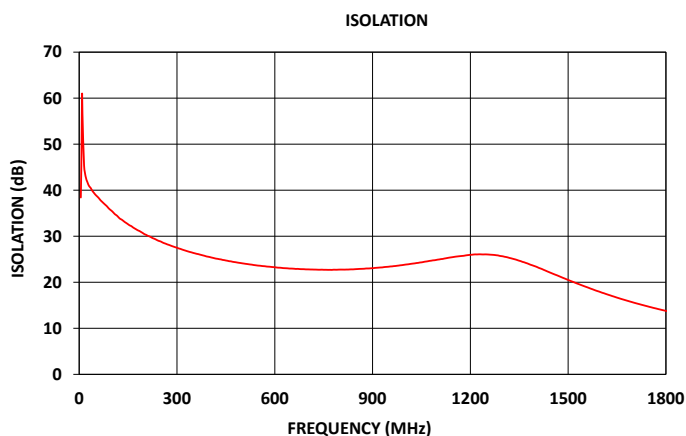
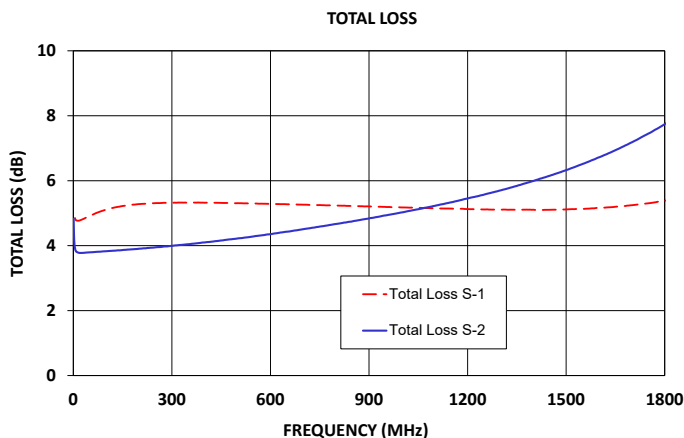
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TYPICAL PERFORMANCE GRAPHS AT +25°C





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FUNCTIONAL DIAGRAM

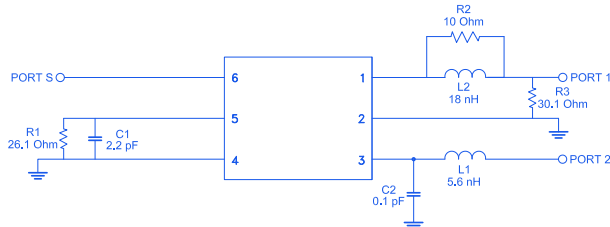
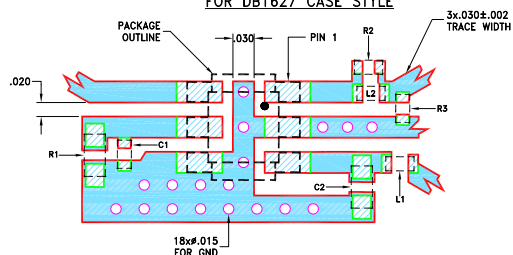


Figure 1. SBTCJ-182-75X+ Functional Diagram

PAD DESCRIPTION

Function	Pad Number	Description
Sum Port	6	Connects to Sum Port
Port 1 (180°)	1	Connects to 1 Port
Port 2 (0°)	3	Connects to 2 Port
Ground	4,5	Connects to Ground
Not Used	2	—
EXT. RESISTOR 26.1Ω	—	4 to Ground
EXT. CAPACITOR 2.2 pF	—	4 to Ground
EXT. CAPACITOR 0.1 pF	—	3 to Ground
EXT. COMPONENTS (INDUCTOR 5.6nH & 18nH, RESISTOR 10Ω & 30.1Ω)	—	1,2,3

SUGGESTED PCB LAYOUT (PL-848)

SUGGESTED MOUNTING CONFIGURATION
FOR DB1627 CASE STYLE

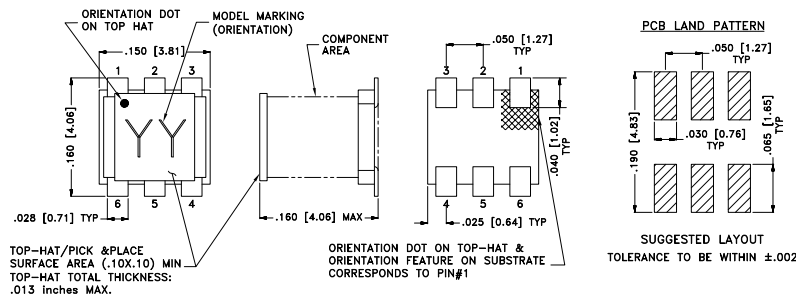
COMPONENT	SIZE
R1,C2	0603
R2,R3,C1	0402
L1,L2	0402

NOTES:

- TRACE WIDTH IS SHOWN FOR ROGERS (RO4350B) WITH DIELECTRIC THICKNESS .030±.002 COPPER: 1/2 Oz ON EACH SIDE.
FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
 - CHIP COMPONENT FOOT PRINTS SHOWN FOR REFERENCE. FOR COMPONENT VALUES REFER TO TB-1322.
 - 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 SOLDERMASK.

Figure 2. Suggested PCB Layout PL-848

CASE STYLE DRAWING



Weight: .15 grams

Dimensions are in inches (mm). Tolerances: 2Pl. ± .01; 3Pl. ± .005

PRODUCT MARKING*: BT

*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	DB1627 Lead Finish: Tin over Nickel Plate
RoHS Status	Compliant
Tape and Reel	F47
Suggested Layout for PCB Design	PL-848
Evaluation Board	TB-SBTCJ18275X+ Gerber File
Environmental Rating	ENV02T1

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.
- 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

