Surface Mount

RF Transformer

SBTX2-113-2W+

50Ω 2.6 to 11.0 GHz

The Big Deal

- Super wideband, 2.6 to 11.0 GHz
- Low insertion loss, 1.4 dB typ.
- Amplitude Unbalance, ±0.9 dB typ.
- Low phase unbalance, ±6˚ typ.
- Common mode rejection, 22 dB typ.

CASE STYLE: AH2765

Product Overview

Mini-Circuits' SBTX2-113-2W+ is a surface-mount transmission line transformer (core and Semi-Rigid cable) covering a very wide frequency range from 2.6 to 11.0 GHz. The transformer provides low insertion loss with excellent phase and amplitude performance. Featuring core and cable construction on a 8-lead PCB unit measures 0.32 x 0.32 x 0.69 accommodating dense circuit board layouts.

Key Features

Feature	Advantages
Wideband, 2.6 to 11.0 GHz	Super wide frequency range covers bandwidth requirements for many broadband applications.
Low insertion loss, 1.4dB	Provides excellent signal transmission from input to output with consistent performance across its entire frequency range.
Good Phase and Amplitude Unbalance	Provides good CMRR and IP2.
Small size (0.32 x 0.32 x 0.69)	Provide good solderability and tight layouts.

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SBTX2-113-2W+

50Ω 2.6 to 11.0 GHz 1:2 Ratio

Generic photo used for illustration purposes only

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+RoHS Compliant

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

Features

- wide bandwidth 2.6 to 11.0 GHz
- unbalanced to balanced transformer
- excellent amplitude and phase unbalance
- aqueous washable

Applications

- defense communication
- defense radar
- line of sight links
- PCS
- cellular
- wideband push-pull amplifiers
- ADC (Analog to Digital Converter)
- Balanced Receivers

Electrical Specifications at 25°C

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Unit
Impedance Ratio (secondary/primary)			2		
Frequency Range		2.6		11.0	GHz
Insertion Loss (Average) (above theoretical 3 dB)	2.6 - 6.0 6.0 - 10.0 10.0 - 11.0	— — —	1.4 1.5 1.7	1.9 2.2 2.5	dB
Amplitude Unbalance (±)	2.6 - 11.0 4.0 - 9.0	— —	0.9 0.7	1.3 1.0	dB
Phase Unbalance (±)	4.0 - 9.0 2.6 - 11.0	— —	4 6	8 12	Degree
Common mode rejection	4.0 - 9.0 2.6 - 11.0	18 15	24 22	— —	dB

Maximum Ratings

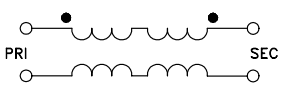
Parameter	Ratings
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	2W

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

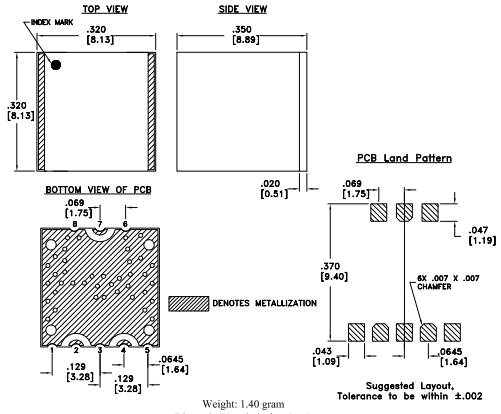
Pin Connections

Function	Pin Number
PRIMARY DOT	7
PRIMARY (GND)	6,8
SECONDARY DOT	4
SECONDARY	2
GND	1,3,5,6,8

Config. G

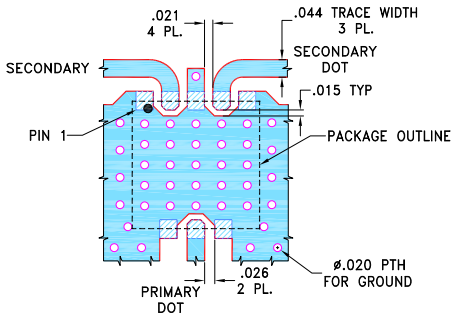


Outline Drawing



Weight: 1.40 gram
Dimensions are in inches (mm).

Demo Board MCL P/N: TB-1081+
Suggested PCB Layout (PL-629)



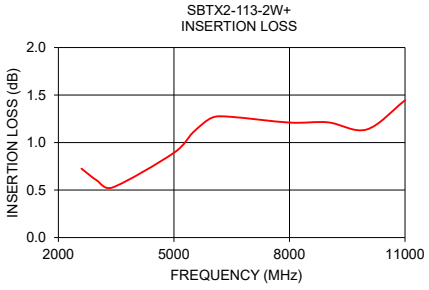
NOTES:
1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC DIELECTRIC THICKNESS .010±.001. COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS LINE WIDTH & GAP MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

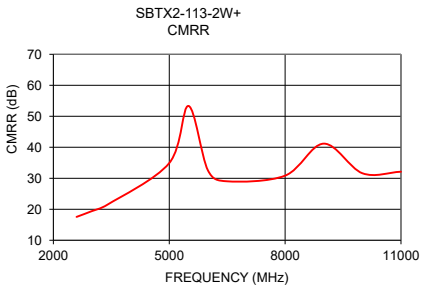
DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).

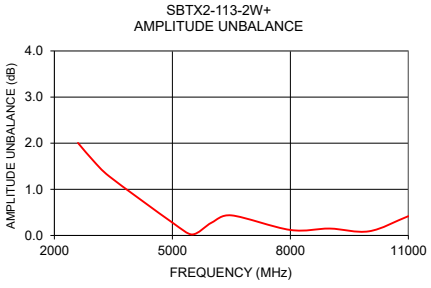
DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

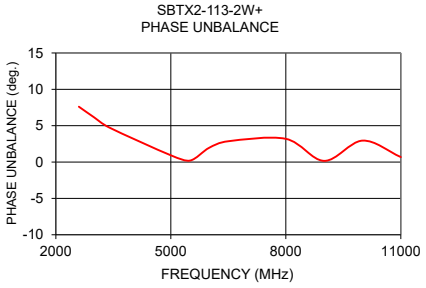
Typical Performance Data

Frequency (MHz)	Avg. Insertion Loss (dB)	CMRR (dB)	Amplitude Unbalance (dB)	Phase Unbalance (Deg.)
2600	0.73	17.53	2.01	7.61
3000	0.60	19.42	1.61	6.14
3400	0.53	21.49	1.28	4.73
5000	0.89	34.90	0.28	0.93
5500	1.11	53.33	0.02	0.20
6000	1.26	32.59	0.28	1.96
6500	1.27	29.02	0.44	2.86
8000	1.21	30.85	0.12	3.19
9000	1.21	41.17	0.15	0.16
10000	1.14	31.62	0.09	2.95
11000	1.44	32.11	0.42	0.69









Additional 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/MCLStore/terms.jsp