



Mini-Circuits

SURFACE MOUNT



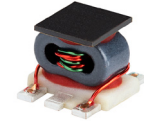
RF Transformer

TCM1-382WX+

50Ω 0.5 to 3800 MHz

THE BIG DEAL

- Wideband, 0.2 to 3800 MHz
- Flat response, ± 0.6 dB insertion loss over full band
- Aqueous washable
- Protected by US Patent 9,071,229B1



Generic photo used for illustration purposes only

CASE STYLE: DB1627

+RoHS Compliant

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

APPLICATIONS

- Differential modulator/demodulators and active mixers
- Wideband push-pull amplifiers

PRODUCT OVERVIEW

Mini-Circuits' TCM1-382WX+ is a surface-mount, transmission line, core and wire transformer covering a very wide frequency range, specified from 0.5 to 3800 MHz and usable from 0.2 to 3800 MHz. The transformer provides a 1:1 impedance ratio with low insertion loss, excellent flatness, as well as low phase and amplitude unbalance. Featuring core and wire construction on a 6-lead plastic base with tin over nickel termination finish. The unit measures 0.16" x 0.15" x 0.16" accommodating dense circuit board layouts. It also incorporates the Mini-Circuits' Top Hat® feature for faster, more accurate pick-and-place assembly and easy visual inspection.

KEY FEATURES

Feature	Advantages
Wideband 0.5 to 3800 MHz	Very wide frequency range covers bandwidth requirements for many applications
Low loss 1.94 dB, 0.2 to 3800 MHz	Provide excellent signal transmission from input to output with consistent performance
Small footprint 0.16" x 0.15" x 0.16"	Accommodates tight space requirements for dense PCB layout
Top Hat® feature	Improves speed and accuracy of pick & place assembly and provides clear device marking for visual inspection.





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ELECTRICAL SPECIFICATIONS AT 25°C

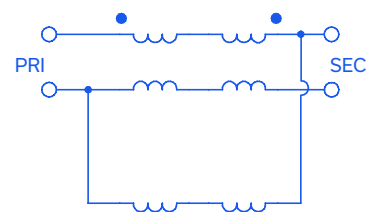
Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Impedance Ratio		1			
Frequency Range		0.5		3800	MHz
Insertion Loss	10-2000		1.1	2.0	dB
	0.5-3800		1.9	3.0	
Amplitude Unbalance	0.5-2000		0.5		dB
	2000-3800		1.2		
Phase Unbalance	0.5-3000		4		Degree
	3000-3800		6		
Return Loss	0.5-3800		12		dB

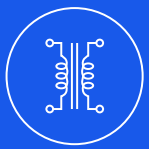
1. Measured on Mini-Circuits Characterization test board TB-TCM1-382WX+ with testboard loss deducted.

MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	0.2W
DC Current	30mA

CONFIGURATION K





RF Transformer

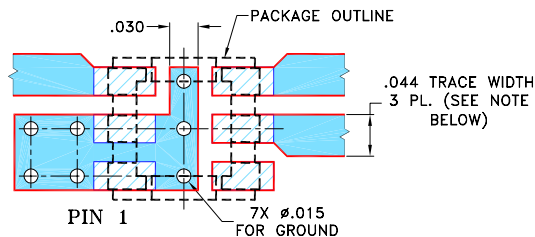
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PIN CONNECTIONS

PRIMARY DOT	3
PRIMARY	2
SECONDARY DOT	5
SECONDARY	4
GND	1,2
NOT USED	6

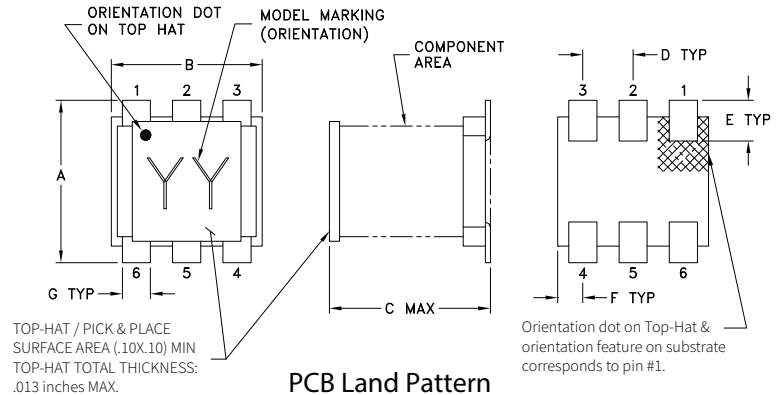
PRODUCT MARKING: YM

DEMOBOARD MCL P/N: TB-TCM1-382WX+
SUGGESTED PCB LAYOUT (PL-395)

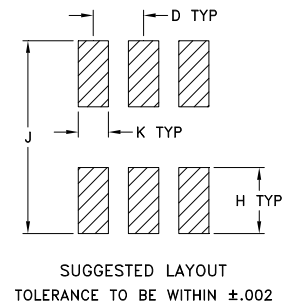
NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .020" ± .0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

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

OUTLINE DRAWING



PCB Land Pattern



OUTLINE DIMENSIONS (Inches mm)

A	B	C	D	E	F
.160	.150	.160	.050	.040	.025
4.06	3.81	4.06	1.27	1.02	0.64
G	H	J	K	wt	
.028	.065	.190	.030	grams	
0.71	1.65	4.83	0.76	0.15	



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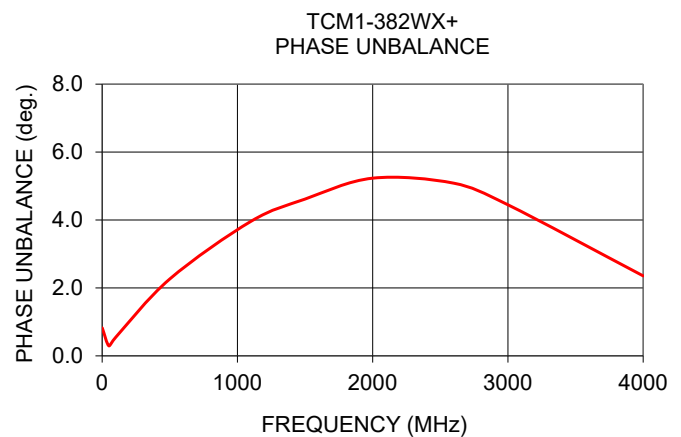
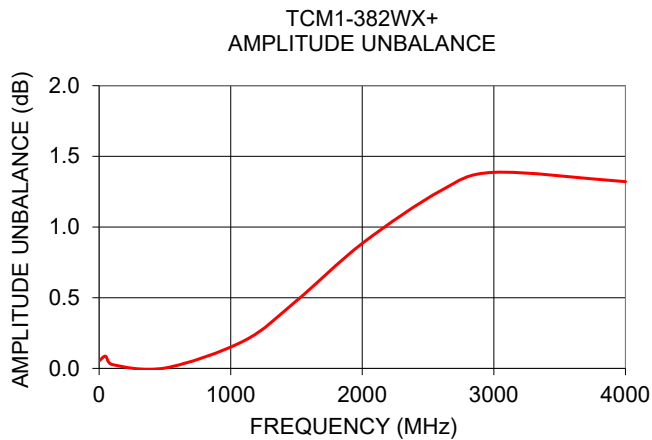
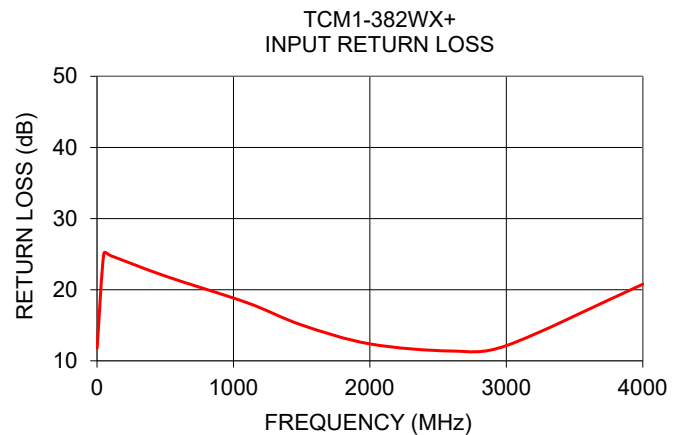
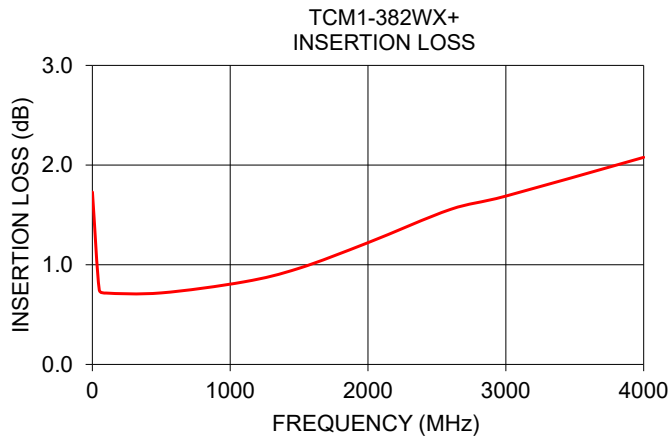
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TYPICAL PERFORMANCE DATA

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	Amplitude Unbalance (dB)	Phase Unbalance (deg)
0.50	1.73	11.77	0.05	0.82
50	0.75	25.07	0.09	0.29
100	0.72	24.78	0.03	0.55
500	0.72	21.92	0.00	2.26
1100	0.83	18.17	0.19	3.96
1500	0.96	15.04	0.48	4.62
2000	1.22	12.38	0.88	5.23
2600	1.56	11.38	1.26	5.08
3000	1.69	12.14	1.39	4.45
3800	1.94	19.64	1.36	0.55



- 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



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