SURFACE MOUNT top hat

RF Transformer

TCM1.5-63WX+

50/75Ω 200 to 6000 MHz

KEY FEATURES

- Ultra-wide bandwidth 200 – 6000 MHz
- One model covers all telecommunication bands
- Aqueous washable
- Protected by US Patent 9,071,229B1

Generic photo used for illustration purposes only

APPLICATIONS

- Differential modulator/demodulator and active mixers
- Wideband push-pull amplifiers
- LTE, Cellular, PCS, UMTS, Wi-Fi, WiMAX

CONFIGURATION G

PRODUCT OVERVIEW

Mini-Circuits' TCM1.5-63WX+ is a surface-mount, transmission line, core and wire transformer covering a very wide frequency range, specified from 200 to 6000 MHz and usable from 100 to 6000 MHz. The transformer provides a 1:1.5 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.

ELECTRICAL SPECIFICATIONS[1] AT +25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Impedance Ratio			1.5		
Frequency Range		200		6000	MHz
Insertion Loss (Avg.)	200 – 4300	—	1	1.5	dB
	4300 – 6000	—	2	2.6	
Amplitude Unbalance	200 – 4300	—	1.2	—	dB
	4300 – 6000	—	0.6	—	
Phase Unbalance	200 – 4300	—	8	—	Degree
	4300 – 6000	—	4	—	
Primary Return Loss (Input)	200 – 4300	—	15	—	dB
	4300 – 6000	—	12	—	

1. Performance is specified with shunt capacitor of 0.15pF suggested value of 0402 size between Pri Dot (Pin 3) and Pri (Pin2, GND)

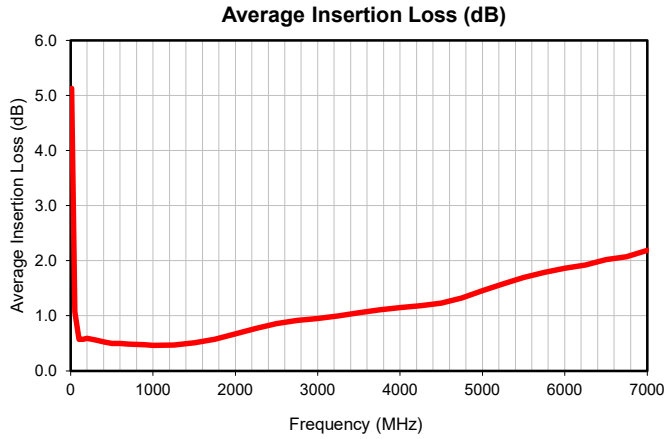
ABSOLUTE MAXIMUM RATINGS[2]

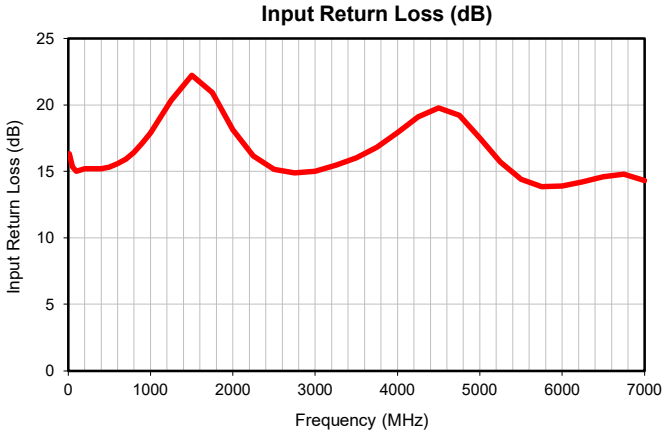
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +100°C
Input Power	0.2 W

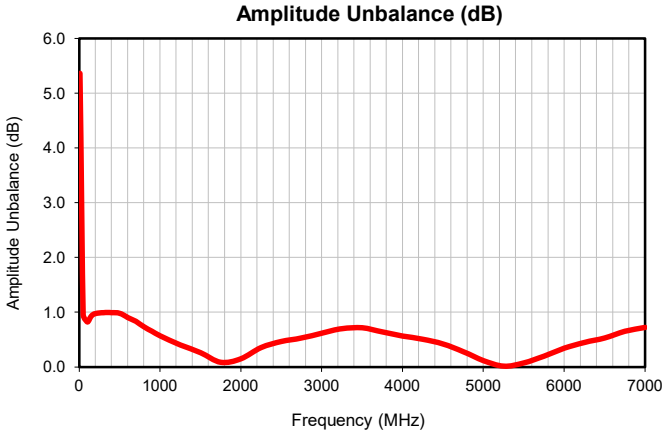
2. Permanent damage may occur if any of these limits are exceeded.

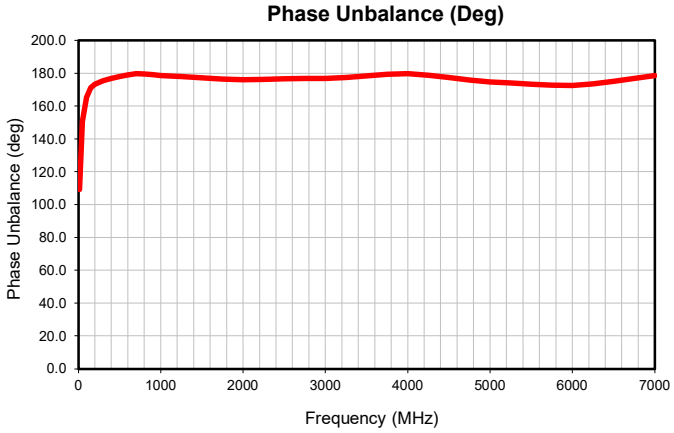
REV. OR
ECO-023865
TCM1.5-63WX+
MCL NY
241206

TYPICAL PERFORMANCE GRAPHS









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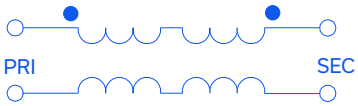
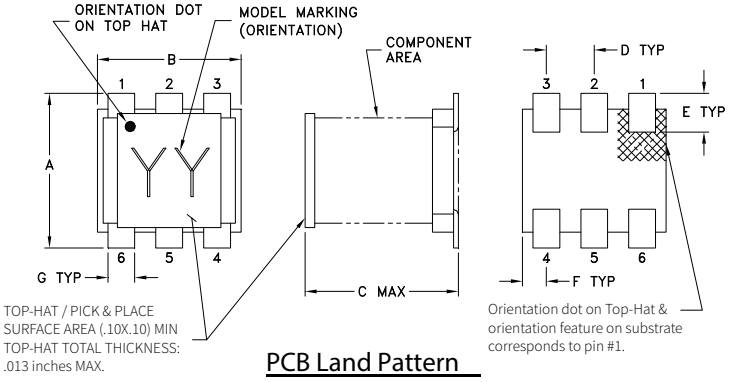
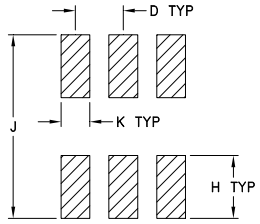


Figure 1. TCM1.5-63WX+ Configuration

CASE STYLE DRAWING



PCB Land Pattern

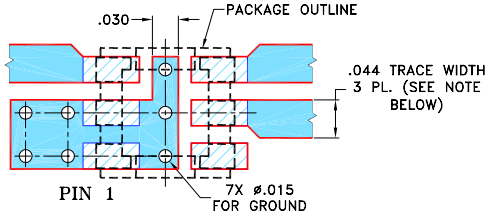


SUGGESTED LAYOUT
TOLERANCE TO BE WITHIN ±.002

PAD DESCRIPTION

Function	Pad Number	Description
Primary Dot	3	Connects to RF – IN
Primary	1,2	Connects to GND
Secondary Dot	5	Out 1
Secondary	4	Out 2
Not Connected (NC)	6	Not Used

SUGGESTED PCB LAYOUT (PL-395)



NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B 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

Figure 2. Suggested PCB Layout PL-395

OUTLINE DIMENSIONS (Inch / 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

PRODUCT MARKING*: BH

*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 (S2P Files) Data Set (.zip file) De-embedded to device pads
Case Style	DB1627 Lead Finish: Pure Tin
RoHS Status	Compliant
Tape and Reel	F47
Suggested Layout for PCB Design	PL-395
Evaluation Board	TB-TCM1.5-63WX+ 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-Circuits' 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