



THE BIG DEAL

- Wide bandwidth 50 to 1800 MHz
- Balanced transmission line
- Excellent return loss
- Aqueous washable
- Patent pending



Generic photo used for illustration purposes only

CASE STYLE: DB1627

APPLICATIONS

- PCS
- Wideband push-pull amplifiers
- Cellular

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

PRODUCT OVERVIEW

Mini-Circuits' TCM2-182-75X+ is a 75Ω surface-mount transmission line transformer covering a wide range of applications from 50 to 1800 MHz. The transformer provides input power handling up to 0.4W, low insertion loss, good input return loss and low amplitude and phase 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 Mini-Circuits' Top Hat® feature for faster, more accurate pick-and-place assembly and easy visual inspection.

KEY FEATURES

Feature	Advantages
Wideband, 50 to 1800 MHz	Wide frequency range covers bandwidth requirements for many broadband applications.
Good power handling, 0.4W	Supports a wide range of system power requirements.
Low insertion loss, 1.0 dB	TCM2-182-75X+ provides excellent signal transmission from input to output
Good input return loss, 14 dB min.	Provides good matching with minimal signal reflection.
Low amplitude unbalance, 1.1 dB typ.	Low amplitude unbalance can improve a system's electromagnetic compatibility by rejecting unwanted common-mode noise.
Small footprint (0.16 x 0.15")	Accommodates tight space requirements for dense PCB layouts
Top Hat® feature	Improves speed and accuracy of pick and place assembly and provides clear device marking for visual inspection.

REV. A
 ECO-013812
 TCM2-182-75X+
 IG/CP/AM
 220620



top hat
SURFACE MOUNT
RF Transformer

TCM2-182-75X+

Mini-Circuits

75Ω 50 to 1800 MHz

ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Impedance Ratio (secondary/primary)			2		Ohm
Frequency Range		50		1800	MHz
Insertion Loss ¹	50-1800			1.0	dB
Amplitude Unbalance	50-1800		1.1	1.5	dB
Phase Unbalance	50-1800			9	Degree
Primary Return Loss	50-1800	14			dB

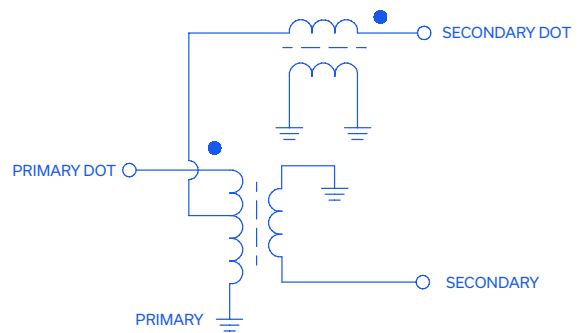
1. Insertion Loss is referenced to mid-band loss, 1.5 dB typ.

MAXIMUM RATINGS

Parameter	Ratings
Operating temperature	-40°C to 85°C
Storage temperature	-55°C to 100°C
RF Power	0.4W
DC Current	30 mA

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

CONFIGURATION N





top hat
SURFACE MOUNT
RF Transformer

TCM2-182-75X+

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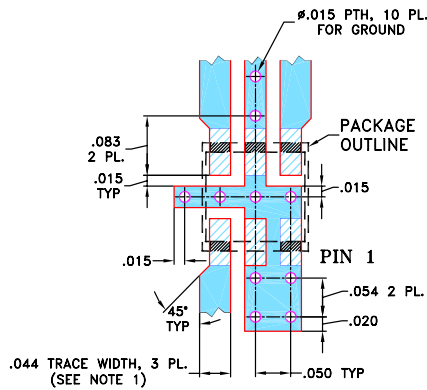
75Ω 50 to 1800 MHz

PIN CONNECTIONS

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

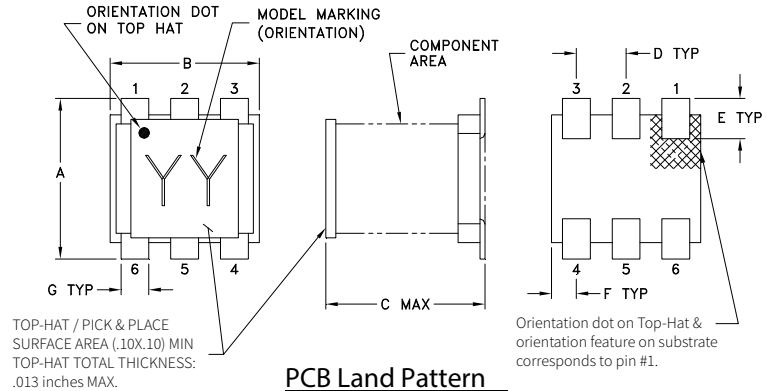
PRODUCT MARKING: WQ

EVAL BOARD MCL P/N: TB-TCM218275X+
SUGGESTED PCB LAYOUT (PL-364)

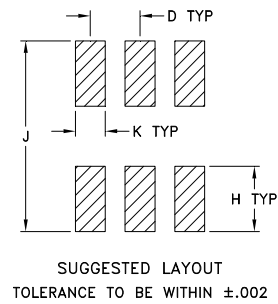


- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" ± .0015"; COPPER: 1/2 OZ. ON EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
 - 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

TAPE & REEL INFORMATION: F17



top hat
SURFACE MOUNT
RF Transformer

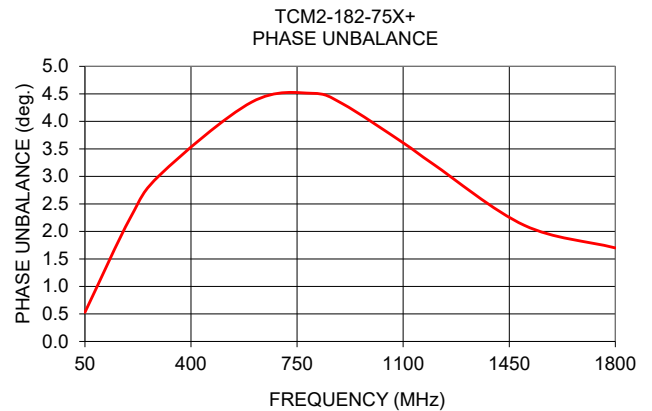
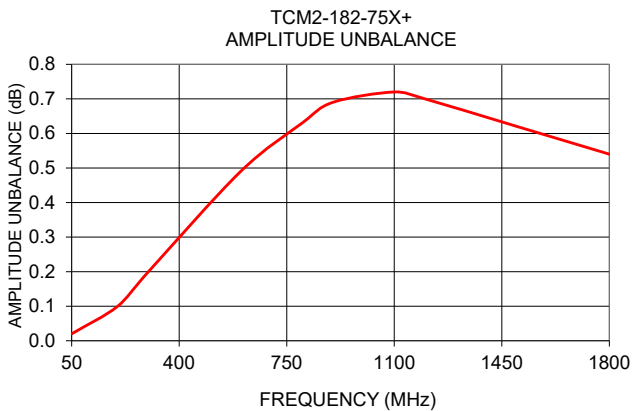
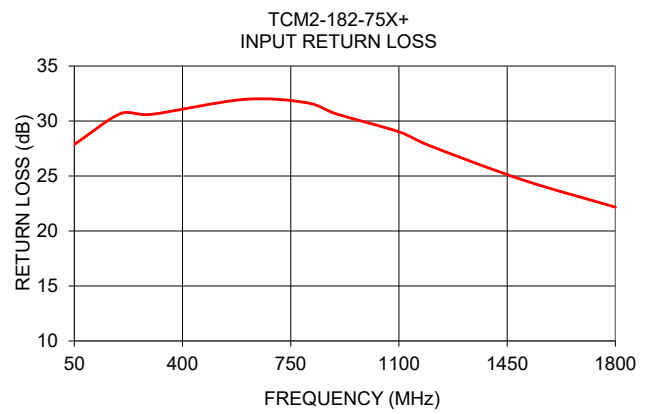
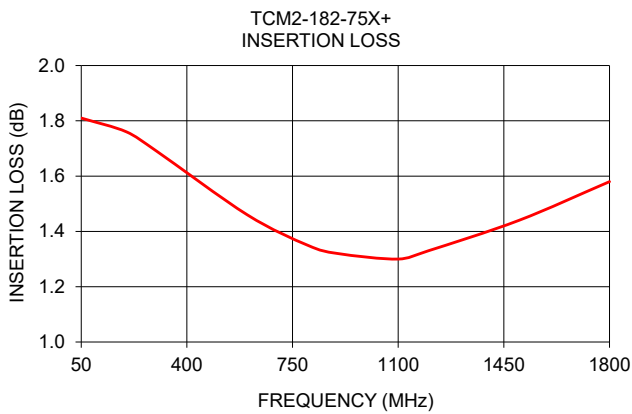
TCM2-182-75X+

Mini-Circuits

75Ω 50 to 1800 MHz

TYPICAL PERFORMANCE DATA

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	Amplitude Unbalance (dB)	Phase Unbalance (deg)
50	1.81	27.87	0.02	0.53
200	1.76	30.68	0.10	2.25
300	1.69	30.61	0.20	3.04
600	1.46	31.97	0.49	4.35
800	1.35	31.67	0.63	4.51
900	1.32	30.63	0.69	4.32
1100	1.30	29.02	0.72	3.61
1200	1.33	27.75	0.70	3.22
1500	1.44	24.65	0.62	2.11
1800	1.58	22.17	0.54	1.70



- 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

