



**THE DATASHEET OF  
TCM1-83X+**





Mini-Circuits

SURFACE MOUNT



# RF Transformer

## TCM1-83X+

50Ω 10 to 8000 MHz

### FEATURES

- Ultra wide bandwidth 10 to 8000 MHz
- One model covers all telecommunication bands
- Flat insertion loss
- Good return loss
- 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/demodulator and active mixers
- Wideband push-pull amplifiers
- LTE, Cellular, PCS, UMTS, WiFi, WiMAX

### ELECTRICAL SPECIFICATIONS AT 25°C

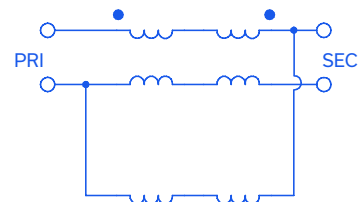
Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Impedance Ratio			1		
Frequency Range		10	–	8000	MHz
Insertion Loss	10-6000	–	1.3	2.5	dB
	6000-8000	–	1.3	3.0	
Amplitude Unbalance	10-6000	–	0.5	–	dB
	6000-8000	–	1.1	–	
Phase Unbalance	10-6000	–	8	–	Degree
	6000-8000	–	4	–	

### 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

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

### CONFIGURATION K



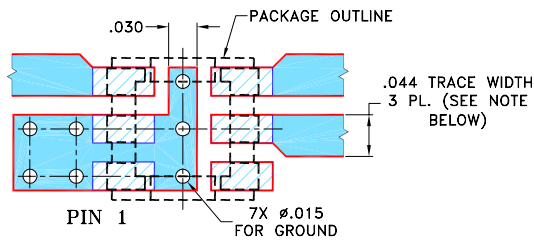


### PIN CONNECTIONS

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

### PRODUCT MARKING: HA

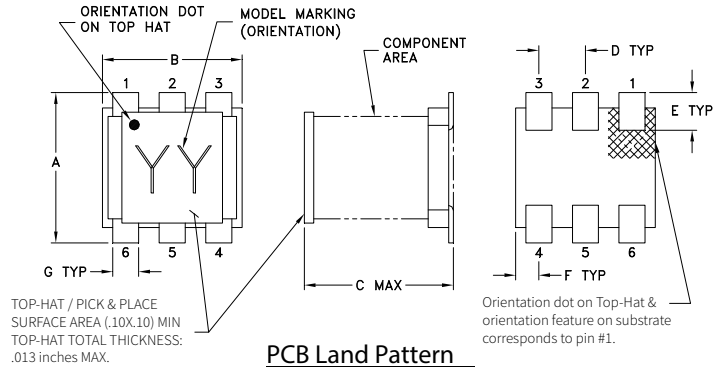
### DEMOBOARD MCL P/N: TB-717+ SUGGESTED PCB LAYOUT (PL-395)



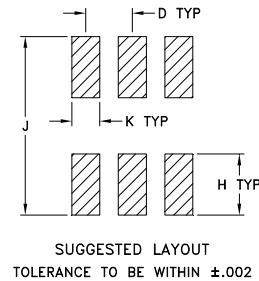
- NOTES:** 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .020" ± .0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.  
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- 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)

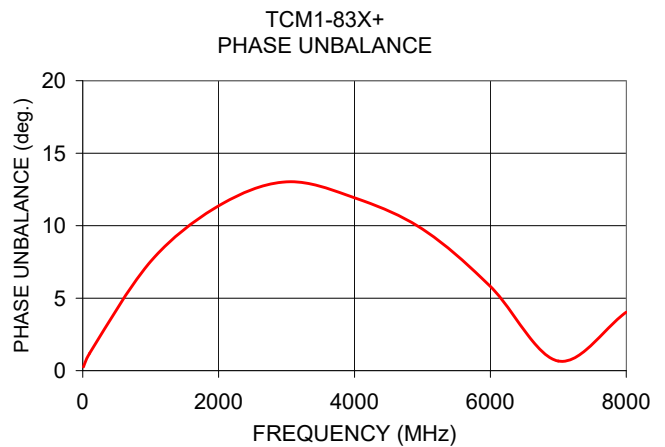
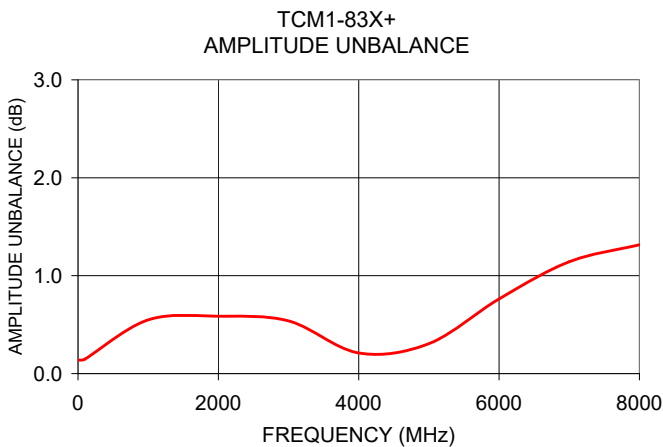
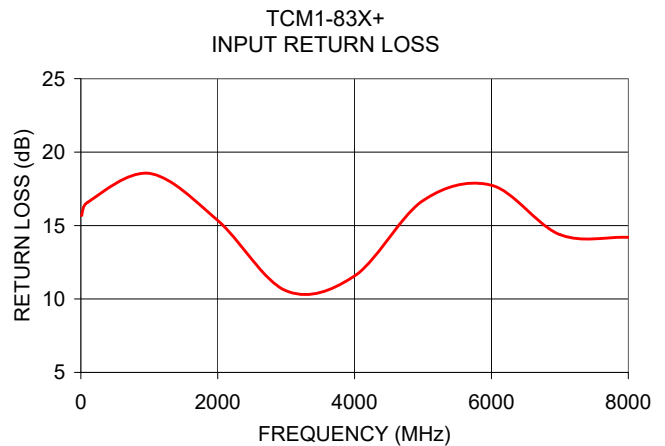
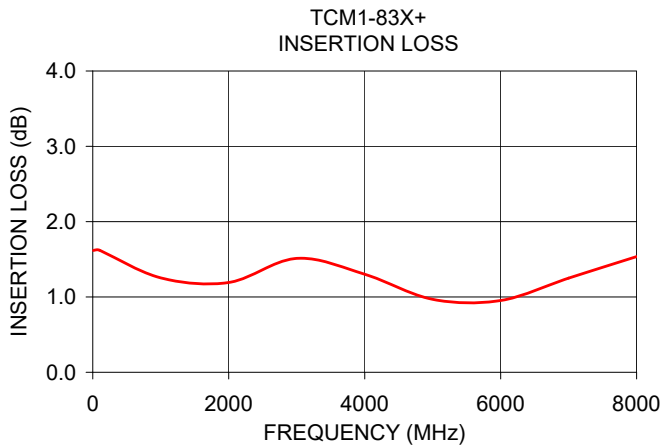
A	B	C	D	E	F
.160	.150	.160	.050	.040	.025
4.06	3.81	4.06	1.27	1.02	0.64
G	H	J	K		wt
.028	.065	.190	.030		grams
0.71	1.65	4.83	0.76		0.15

### TAPE & REEL INFORMATION: F47



**TYPICAL PERFORMANCE DATA**


Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	Amplitude Unbalance (dB)	Phase Unbalance (deg)
10	1.62	15.68	0.14	0.26
100	1.62	16.58	0.15	1.19
1000	1.25	18.55	0.55	7.54
2000	1.19	15.35	0.59	11.37
3000	1.51	10.56	0.54	13.02
4000	1.30	11.57	0.21	11.93
5000	0.97	16.70	0.31	9.77
6000	0.95	17.74	0.76	5.81
7000	1.25	14.39	1.14	0.67
8000	1.54	14.19	1.32	4.03



- 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](http://www.minicircuits.com/terms/viewterm.html)

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