

Surface Mount  **RF Transformer**

**TCM3-1TX+**

50Ω      2 to 500 MHz

**The Big Deal**

- Low amplitude unbalance, 0.3 dB typ.
- Excellent phase unbalance, 2 deg. typ.
- Small size, 0.16 x 0.15 x 0.16"



CASE STYLE: DB1627

**Product Overview**

TCM3-1TX+ is a 50Ω surface-mount, DC-isolated transformer with a secondary center tap, covering the 2 to 500 MHz band. This model provides a 3:1 secondary/primary impedance ratio and is capable of handling up to 0.25W RF input power. It provides 0.3 dB typ. amplitude unbalance and 2° phase unbalance. Featuring core and wire construction mounted on a 6-lead plastic base with tin over nickel termination finish, the unit measures 0.16 x 0.15 x 0.16" to accommodate dense circuit board layouts. It also incorporates Mini-Circuits' Top Hat® feature for faster, more accurate pick-and-place assembly.

**Key Features**

Feature	Advantages
Low unbalance: - 0.3 dB typ. amplitude unbalance - 2° phase unbalance	Low unbalance improves a system's electromagnetic compatibility by rejecting unwanted commonmode noise.
DC isolation	Provides DC isolation between circuits and efficient AC transmission, eliminating the need for external DC biasing components.
Secondary center tap	Allows DC feed up to 30 mA and DC bias without adding bias tees into the signal chain.
Small footprint (0.16 x 0.15 x 0.16")	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.

**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](http://www.minicircuits.com/MCLStore/terms.jsp)



Surface Mount **RF Transformer**



**TCM3-1TX+**

50Ω

2 to 500 MHz



CASE STYLE: DB1627

**Maximum Ratings**

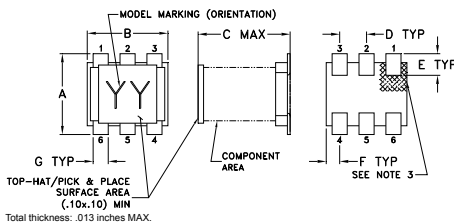
Operating Temperature	-20°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	0.25W
DC Current	30mA

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

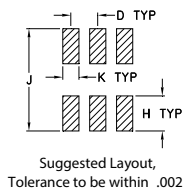
**Pin Connections**

PRIMARY DOT	6
PRIMARY	4
SECONDARY DOT	1
SECONDARY	3
SECONDARY CT	2
NOT USED	5

**Outline Drawing**



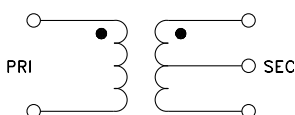
**PCB Land Pattern**



**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

**Config. A**



**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-Circuit's 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-Circuit's website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)

**Features**

- Excellent amplitude unbalance. 0.3 dB typ.
- Excellent phase unbalance, 2 deg. typ. in 1 dB bandwidth
- Plastic base with solder plated leads
- Aqueous washable

**Applications**

- Impedance matching

**+RoHS Compliant**

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

Available Tape and Reel at no extra cost

Reel Size	Devices/Reel
7"	20, 50, 100, 200, 500
13"	1000, 2000

**Electrical Specifications at 25°C**

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Impedance Ratio (Secondary/Primary)	-	-	3	-	Ω
Frequency Range	-	2	-	500	MHz
Insertion Loss	2-500	-	0.4	2	dB
	5-300	-	0.3	1	

\* Insertion Loss is referenced to mid-band loss, 0.5 dB typ.

**Typical Performance Data**

FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT R. LOSS (dB)
1	0.68	15.11
2	0.44	18.06
3	0.34	19.73
5	0.24	21.64
10	0.17	23.62
100	0.25	24.61
125	0.27	24.27
150	0.28	24.36
175	0.29	24.00
200	0.31	23.71
225	0.32	23.34
250	0.33	22.89
275	0.34	22.50
300	0.36	22.23
325	0.37	21.81
350	0.38	21.40
375	0.40	21.05
400	0.41	20.74
450	0.45	19.97
500	0.48	19.35

