

# Surface Mount RF Transformer

50Ω 10 to 3000 MHz

## TCM2-33WX+



Generic photo used for illustration purposes only

CASE STYLE: DB1627

**+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

### Features

- wide bandwidth 10 to 3000 MHz
- balanced transmission line
- excellent return loss
- aqueous washable
- patent pending

### Applications

- PCS
- wideband push-pull amplifiers
- cellular

### Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Impedance Ratio ( <i>secondary/primary</i> )			2		Ohm
Frequency Range		10		3000	MHz
Insertion Loss*	10 - 3000	—	1.5	3.0	dB
Amplitude Unbalance	10 - 3000	—	0.7	—	dB
Phase Unbalance	10 - 3000	—	4	—	Degree

\* Insertion Loss is referenced to mid-band loss, 0.8 dB typ.

### Maximum Ratings

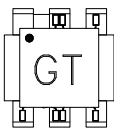
Parameter	Ratings
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	0.4W
DC Current	30mA

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

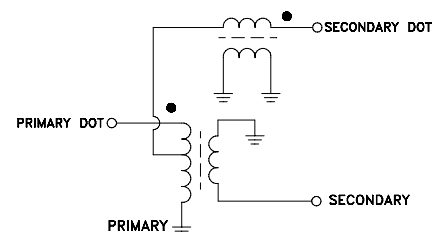
### Pin Connections

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

### Product Marking

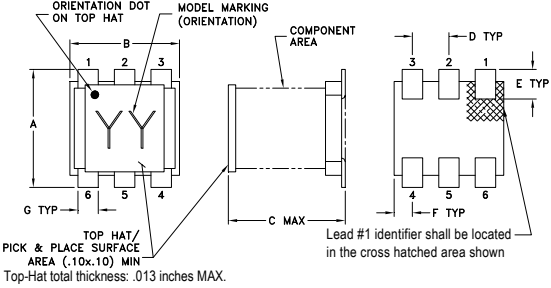


### Config. N

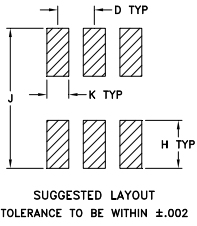


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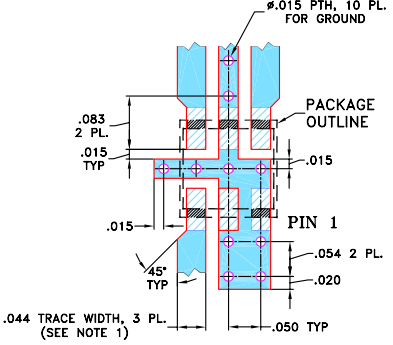
## Outline Drawing



## PCB Land Pattern



## Demo Board MCL P/N: TB-654+ Suggested PCB Layout (PL-364)



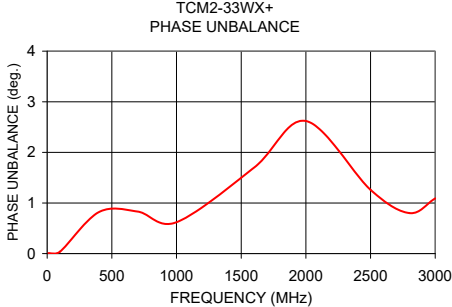
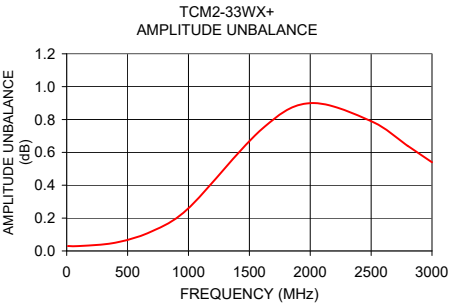
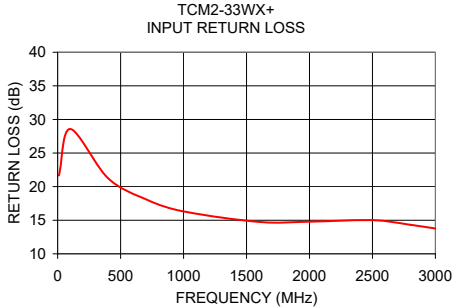
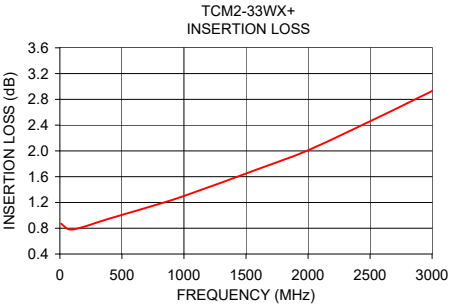
- NOTES:** 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" ± .0015"; COPPER: 1/2 OZ. ON EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.  
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.  
■ DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE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

## Outline 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	

## Typical Performance Data

Frequency (MHz)	Insertion Loss (dB)	Input R. Loss (dB)	Amplitude Unbalance (dB)	Phase Unbalance (Deg.)
10	0.87	21.66	0.03	0.01
100	0.78	28.58	0.03	0.04
400	0.95	21.26	0.05	0.82
700	1.12	18.13	0.12	0.83
1000	1.30	16.31	0.26	0.62
1600	1.72	14.75	0.74	1.70
2000	2.01	14.79	0.90	2.62
2500	2.46	15.01	0.79	1.26
2800	2.74	14.33	0.64	0.80
3000	2.93	13.77	0.54	1.09



### Additional 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.  
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