

Surface Mount  **RF Transformer**

**TCM2-33X+**

50Ω 30 to 3000 MHz



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 30 to 3000 MHz
- balanced transmission line
- excellent return loss
- aqueous washable
- protected by US Patent 8,576,037

**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		30		3000	MHz
Insertion Loss*	30 - 3000	—	1.5	3.0	dB
Amplitude Unbalance	30 - 3000	—	0.5	—	dB
Phase Unbalance	30 - 3000	—	4	—	Degree

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

**Maximum Ratings**

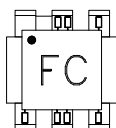
Parameter	Ratings
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	0.4W
DC Current	30mA

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

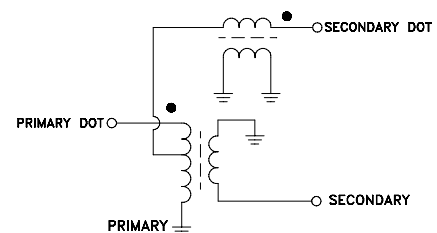
**Pin Connections**

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

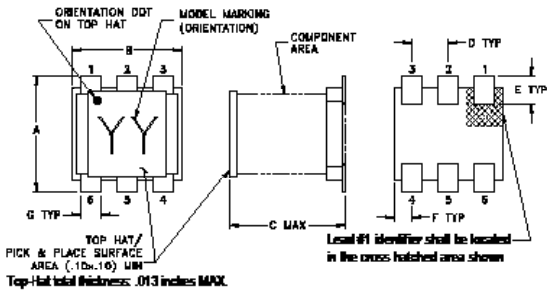
**Product Marking**



**Config. N**



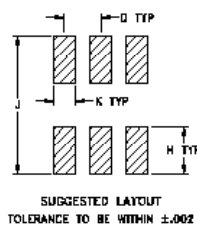
## Outline Drawing



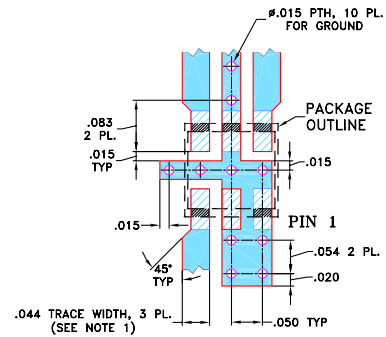
## Outline Dimensions (inch/mm)

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

## PCB Land Pattern



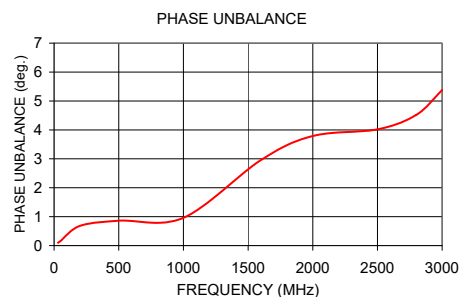
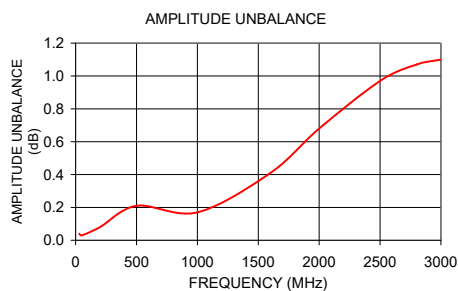
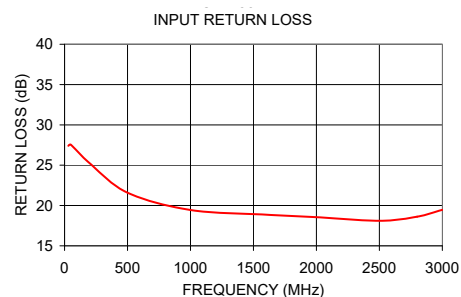
Demo Board MCL P/N: TB-654+  
Suggested PCB Layout (PL-364)



- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B 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

## Typical Performance Data

Frequency (MHz)	Insertion Loss (dB)	Input R. Loss (dB)	Amplitude Unbalance (dB)	Phase Unbalance (Deg.)
30	1.27	27.41	0.04	0.10
50	1.26	27.54	0.03	0.16
200	1.29	25.23	0.08	0.68
500	1.29	21.59	0.21	0.86
1000	1.35	19.44	0.17	0.96
1600	1.52	18.86	0.41	2.96
2000	1.67	18.55	0.68	3.79
2500	1.91	18.11	0.97	4.02
2800	2.02	18.61	1.07	4.52
3000	2.10	19.46	1.10	5.38



## 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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