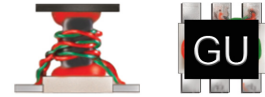


top hat®  
Surface Mount  
**RF Transformer**

50Ω 10 to 6000 MHz

**TCM1-63AX+**



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

**Maximum Ratings**

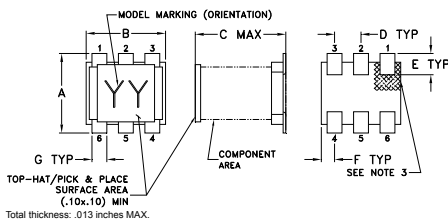
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	0.2W
DC Current	30mA

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

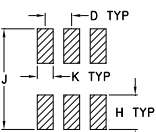
**Pin Connections**

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

**Outline Drawing**



**PCB Land Pattern**

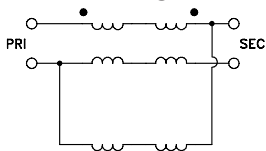


Suggested Layout, Tolerance to be within .002

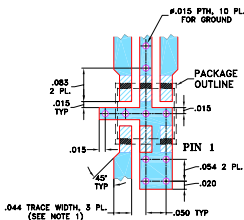
**Outline Dimensions (inch/mm)**

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. K**



**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

**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**

- ultra wide bandwidth 10 to 6000 MHz
- one model covers all telecommunication bands
- flat insertion loss
- good return loss
- aqueous washable
- protected by US Patent 9,071,229 B1

**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.	Unit
Impedance Ratio			1		
Frequency Range		10		6000	MHz
Insertion Loss	10-6000	—	1.3	2.5	dB
Amplitude Unbalance	10-6000	—	0.5	—	dB
Phase Unbalance	10-6000	—	8	—	Degree

**Typical Performance Data**

FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT R. LOSS (dB)	AMPLITUDE UNBALANCE (dB)	PHASE UNBALANCE (deg.)
10	1.70	14.78	0.06	1.15
100	1.65	16.28	0.07	1.32
500	1.57	16.68	0.26	5.05
1000	1.40	16.90	0.46	8.03
1500	1.29	15.98	0.52	9.87
2000	1.29	13.74	0.57	10.96
3000	1.49	9.42	0.36	10.99
4000	1.20	11.09	0.28	8.84
5000	1.16	13.40	0.96	5.19
6000	1.80	10.73	1.39	0.57

