SURFACE MOUNT top hat®

RF Transformer

TCM4-452X+

50Ω 20 to 4500 MHz

FEATURES

- Wide bandwidth 20 to 4500 MHz
- Balanced transmission line
- Good return loss
- Aqueous washable



Generic photo used for illustration purposes only

CASE STYLE: DB1627

+RoHS Compliant
The +Suffix identifies RoHS Compliance.
See our website for methodologies and qualifications

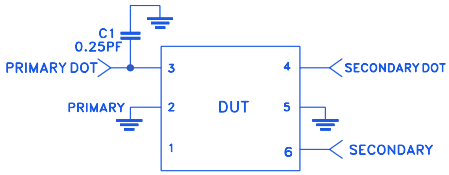
APPLICATIONS

- PCS
- Wideband push-pull amplifiers
- Cellular

ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Impedance Ratio (secondary/primary)			4		Ohm
Frequency Range		20		4500	MHz
Insertion Loss	20-4500	—	1.5	3.0	dB
Amplitude Unbalance	20-4500	—	0.5	—	dB
Phase Unbalance	20-4500	—	5	—	Degree

ELECTRICAL SCHEMATIC

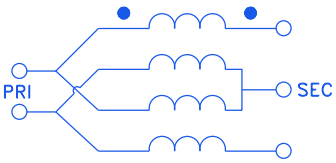


MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	0.25 W
DC Curret	30 mA

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

CONFIGURATION H



REV. C
ECO-025163
TCM4-452X+
MCL NY
250408

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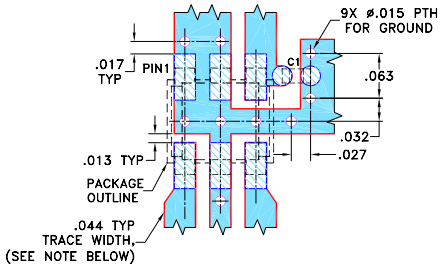
PIN CONNECTIONS

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

PRODUCT MARKING: GL

DEMOBOARD MCL P/N: TB-TCM4-452X+

SUGGESTED PCB LAYOUT (PL-381)

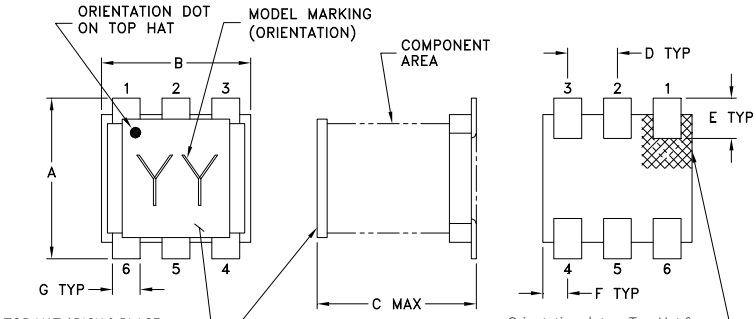


NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.020" ± 0.0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
3. 0402 SIZE CHIP COMPONENT FOOTPRINT IS SHOWN FOR REFERENCE. FOR COMPONENT VALUE REFER TO TB-697+.

DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

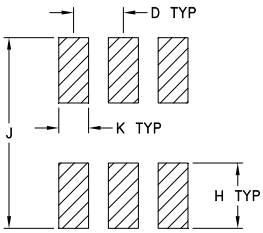
OUTLINE DRAWING



TOP-HAT / PICK & PLACE SURFACE AREA (.10X.10) MIN
TOP-HAT TOTAL THICKNESS: .013 inches MAX.

Orientation dot on Top-Hat & orientation feature on substrate corresponds to pin #1.

PCB Land Pattern



SUGGESTED LAYOUT
TOLERANCE TO BE WITHIN ±.002

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

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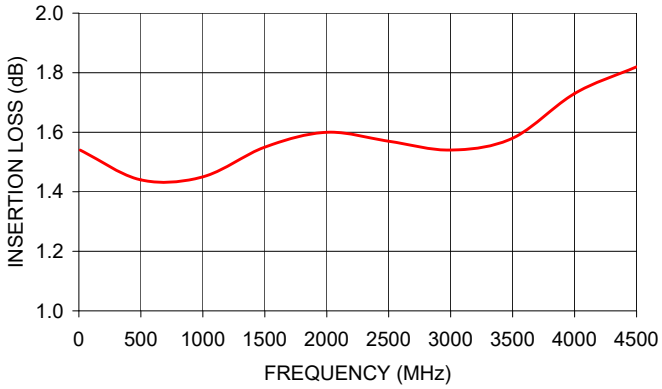
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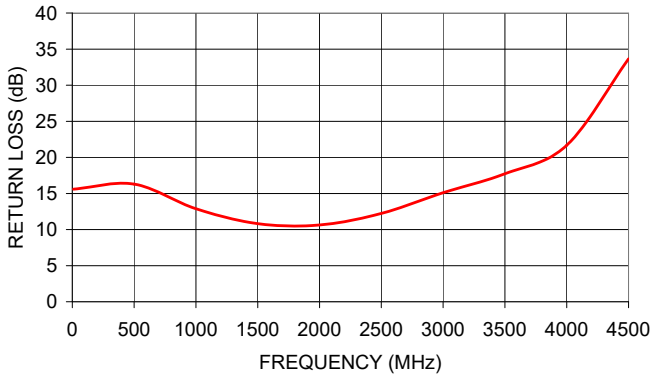
TYPICAL PERFORMANCE DATA

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	Amplitude Unbalance (dB)	Phase Unbalance (deg)
10.0	1.54	15.59	0.04	0.06
500.0	1.44	16.30	0.02	2.83
1000.0	1.45	12.89	0.03	4.85
1500.0	1.55	10.82	0.01	6.26
2000.0	1.60	10.63	0.17	6.46
2500.0	1.57	12.23	0.19	5.36
3000.0	1.54	15.11	0.22	4.87
3500.0	1.58	17.73	0.61	2.79
4000.0	1.73	21.68	0.85	0.04
4500.0	1.82	33.66	0.89	0.58

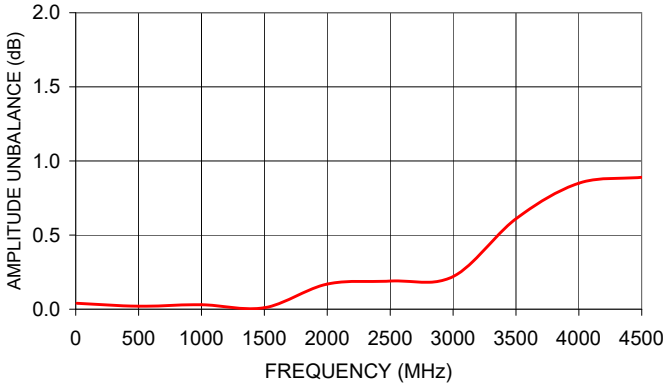
TCM4-452X+
INSERTION LOSS



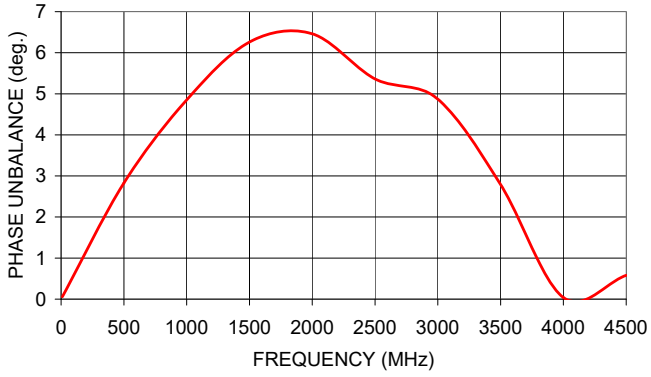
TCM4-452X+
INPUT RETURN LOSS



TCM4-452X+
AMPLITUDE UNBALANCE



TCM4-452X+
PHASE UNBALANCE



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.

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