



CERAMIC BALUN

RF Transformer

TCW1-3901+

Mini-Circuits

50Ω 3300 to 3900 MHz 1:1 Ratio

FEATURES

- Wideband, 3300 to 3900 MHz
- Tiny size 0603 (1.6x0.8mm)
- LTCC construction
- Low cost

APPLICATIONS

- Wi-Fi
- ISM
- LTE
- A/D conversion
- Aviation/aeronautical



Generic photo used for illustration purposes only

CASE STYLE: JC0603C

+RoHS Compliant

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

PRODUCT OVERVIEW

Mini-Circuits' TCW1-3901+ is a tiny ceramic RF balun transformer with an impedance ratio of 1:1, covering a variety of wireless communications applications from 3300 to 3900 MHz. This model provides low insertion loss, low phase unbalance (relative to 180°), low amplitude unbalance, and RF input power handling up to 1W. Fabricated using LTCC technology, the unit comes housed in a tiny, rugged ceramic package (0.06 x 0.03 x 0.02") suitable for harsh operating environments.

KEY FEATURES

Feature	Advantages
Low insertion loss, 1.0 dB	Enables excellent signal power transmission from input to output.
Low unbalance, 0.4 dB, 4°	Low unbalance can improve a system's electromagnetic compatibility by rejecting unwanted common-mode noise.
1W power handling	Supports a wide range of power requirements
Tiny size, 0603	Accommodates tight space requirements for dense PCB layouts.
LTCC construction	LTCC process enables tiny size and low cost, suitable for high-volume production. Rugged ceramic package provides excellent reliability in harsh operating environments.

REV. A
ECO-010340
TCW1-3901+
AVB/TD/CP/AM
211101





ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Impedance Ratio			1		
Frequency Range		3300		3900	MHz
(Avg) Insertion Loss	3300 - 3900	—	0.9	1.5	dB
Amplitude Unbalance	3300 - 3900	—	0.4	0.9	dB
Phase Unbalance ¹	3300 - 3900	—	4	11	Degree
Input VSWR	3300 - 3900	—	1.4	—	(:1)

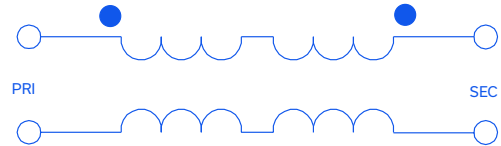
1. Relative to 180°
 Note: Tested on TB-922+ and with pin 2 grounded.

MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input ²	1W

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

CONFIGURATION G

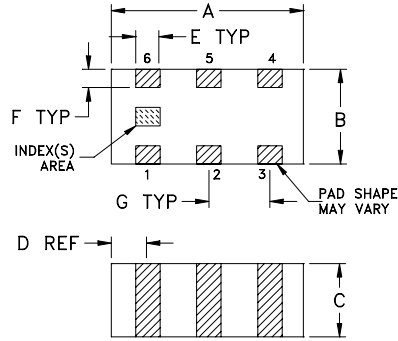




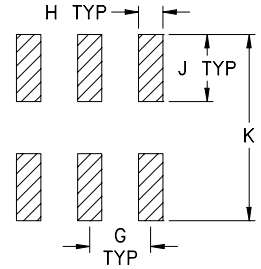
PAD CONNECTIONS

PRIMARY DOT	1
PRIMARY	2
SECONDARY DOT	4
SECONDARY	5
NO CONNECTION	3,6

OUTLINE DRAWING



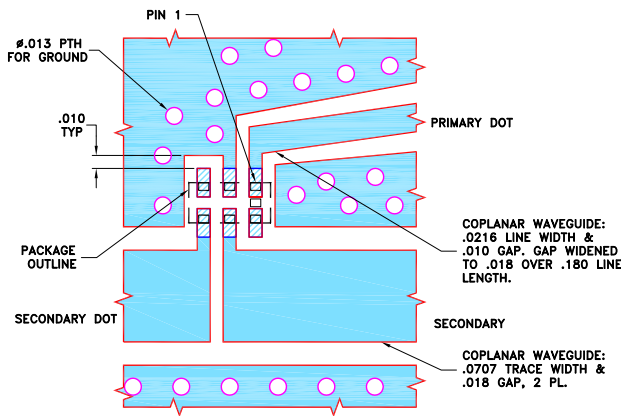
PCB Land Pattern



Suggested Layout,
Tolerance to be within ± 0.002

PRODUCT MARKING: N/A

DEMO BOARD MCL P/N: TB-922+ SUGGESTED PCB LAYOUT (PL-537)



NOTES:

- TRACE WIDTH PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS $.010 \pm .001$ ". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS LINE WIDTH AND GAP MAY NEED TO BE MODIFIED.
- 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 (Inches) mm

A	B	C	D	E	F
.063	.031	.024	.012	.008	.006
1.60	0.79	0.61	0.30	0.20	0.15
G	H	J	K		wt
.020	.010	.022	.053		grams
0.51	0.25	0.56	1.35		0.005

TAPE & REEL INFORMATION: F114