CERAMIC BALUN

RF Transformer

TCW2-392+

50Ω 3300 to 3900 MHz 1:2 Ratio

FEATURES

- Wideband, 3300 to 3900 MHz
- Miniature Size 0603 (1.6x0.8 mm)
- LTCC Construction
- Low Cost



Generic photo used for illustration purposes only

CASE STYLE: JC0603C

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

APPLICATIONS

- LTE
- 5G
- A/D Conversion

ELECTRICAL SPECIFICATIONS AT +25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Impedance Ratio (Secondary/Primary)			2		
Frequency Range		3300		3900	MHz
Avg. Insertion Loss[1] (Sds 21)	3300-3900		0.8	1.3	dB
Amplitude Unbalance	3300-3900		0.5	1.5	dB
Phase Unbalance[2]	3300-3900		5	14	Degree
VSWR	3300-3900		1.35		(:1)

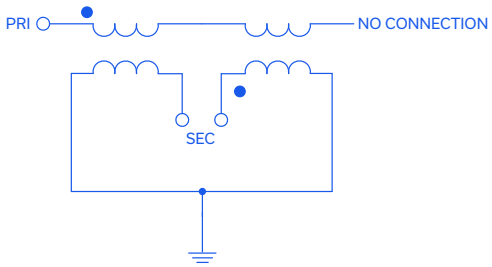
1. Reference demo board TB-TCW2-392+.
2. Relative to 180°.

ABSOLUTE MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-40°C to +105°C
Storage Temperature	-55°C to +105°C
RF Power Input[3]	2 W at +25°C

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

CONFIGURATION R



CERAMIC BALUN

RF Transformer

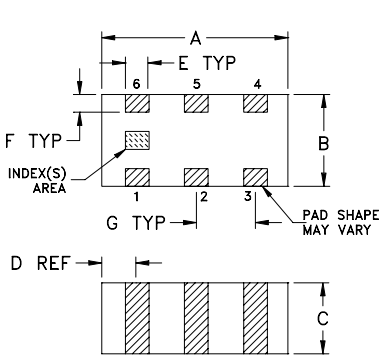
TCW2-392+

50Ω 3300 to 3900 MHz 1:2 Ratio

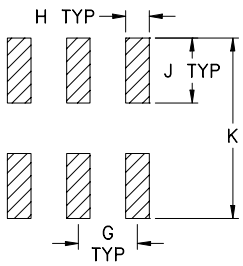
PAD CONNECTIONS

PRIMARY DOT (Unbalanced Port)	1
RF GROUND (GND)	2
SECONDARY DOT (Balanced)	4
SECONDARY (Balanced)	3
NO CONNECTION	6
RF GROUND (GND)	5
PADS 2,3,4 are DC-Connected Internally	

OUTLINE DRAWING



PCB Land Pattern

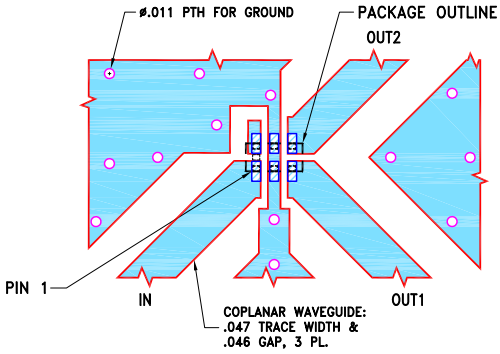


Suggested Layout,
Tolerance to be within ±.002

PRODUCT MARKING: N/A

DEMO BOARD MCL P/N: TB-TCW2-392+

SUGGESTED PCB LAYOUT (PL-574)



NOTES:
1. TRACE WIDTH & GAP PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020±.0015. COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH & GAP 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 (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

CERAMIC BALUN

RF Transformer

TCW2-392+

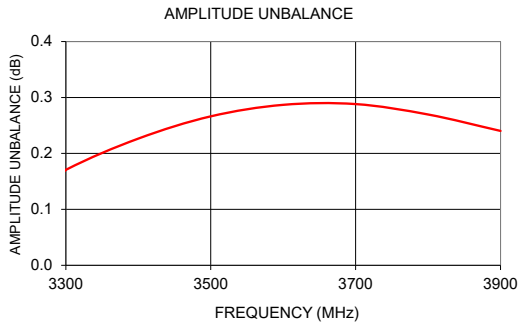
50Ω 3300 to 3900 MHz 1:2 Ratio

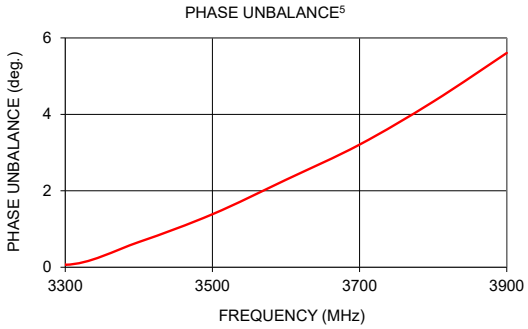
TYPICAL PERFORMANCE DATA[4]

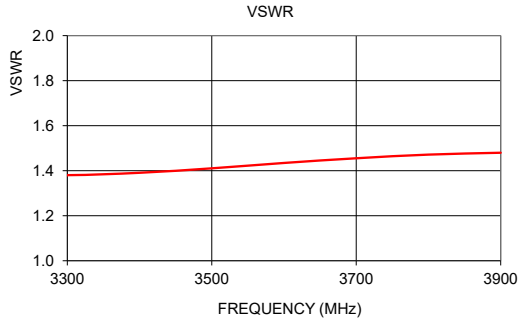
Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Amplitude Unbalance (dB)	Phase Unbalance[5] (deg)
3300	0.86	1.38	0.17	0.06
3200	0.88	1.39	0.09	0.57
3300	0.86	1.38	0.17	0.06
3400	0.87	1.39	0.23	0.66
3500	0.87	1.41	0.27	1.39
3600	0.89	1.43	0.29	2.29
3700	0.91	1.46	0.29	3.21
3800	0.93	1.47	0.27	4.33
3900	0.94	1.48	0.24	5.61

4. Measured with Agilent N5242A network analyzer using impedance conversion and port extension.
5. Relative to 180°.









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-Circuits 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-Circuits' website at www.minicircuits.com/terms/viewterm.html