CERAMIC BALUN

RF Transformer

TCW2-7200+

50Ω 5500 to 7200 MHz 1:2 Ratio

THE BIG DEAL

- Tiny size, 0603
- Low cost
- DC feeding capability
- Rugged LTCC construction

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

- WIFI 6
- Wireless Communication

PRODUCT OVERVIEW

Mini-Circuits' TCW2-7200+ is a tiny ceramic RF balun transformer with an impedance ratio of 1:2, covering a variety of wireless communications applications from 5500 to 7200 MHz. This model provides low insertion loss, low phase unbalance (relative to 180°), low amplitude unbalance, and RF input power handling up to 2W. It provides DC isolation from input to output allowing it to be used for DC biasing of external circuits at the output. 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
2W power handling	Supports a wide range of power requirements
DC Isolated from input to output	Can be used to DC bias external circuits at the output....
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-028806
TCW2-7200+
MCL NY
260402

ELECTRICAL SPECIFICATIONS AT 25°C

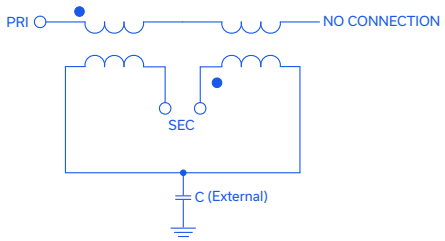
Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Impedance Ratio			50:100		
Frequency Range		5500		7200	MHz
Insertion Loss	5500-7200		1.3	1.5	dB
Amplitude Unbalance	5500-7200		0.8	1.2	dB
Phase Unbalance	5500-7200		8	12	Degree
Return Loss Unbalanced Port	5500-7200	9.5			dB

MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-55°C to 125°C
Storage Temperature	-55°C to 125°C
RF Power Input	2W*

*Room temperature; Linear derate to 0.5W at 125°C.
Permanent damage may occur if any of these limits are exceeded.

CONFIGURATION R



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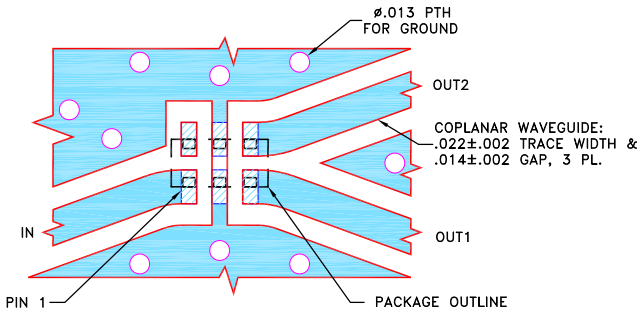
PAD CONNECTIONS

PRIMARY DOT (Unbalanced Port)	1
GND or DC FEED	2
SECONDARY DOT (Balanced)	3
SECONDARY (Balanced)	4
GND	5
NO CONNECTION	6

PRODUCT MARKING: Y

DEMO BOARD MCL P/N: TB-TCW2-7200+

SUGGESTED PCB LAYOUT (PL-513)

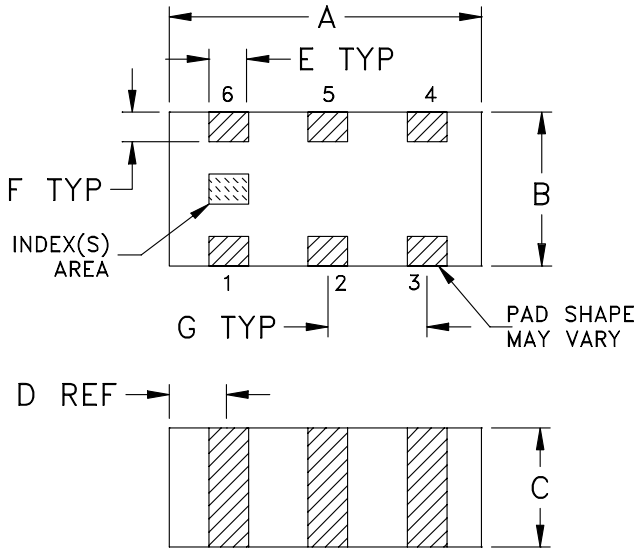


1. TRACE WIDTH AND GAP PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .010"±.001". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

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

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

OUTLINE DRAWING



OUTLINE DIMENSIONS (Inches / mm)

A	B	C	D	E	F	G	wt
.063	.031	.024	.012	.008	.006	.020	grams
1.60	0.79	0.61	0.30	0.20	0.15	0.51	0.005

TAPE & REEL INFORMATION: F114

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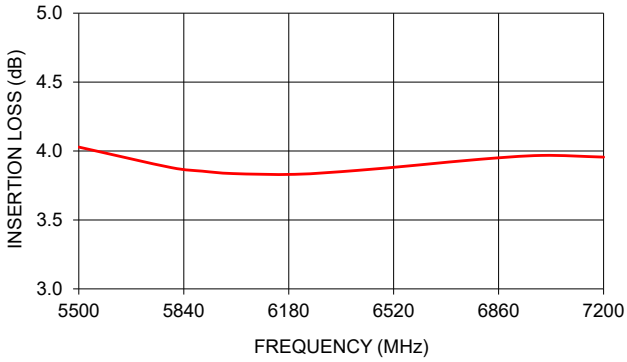
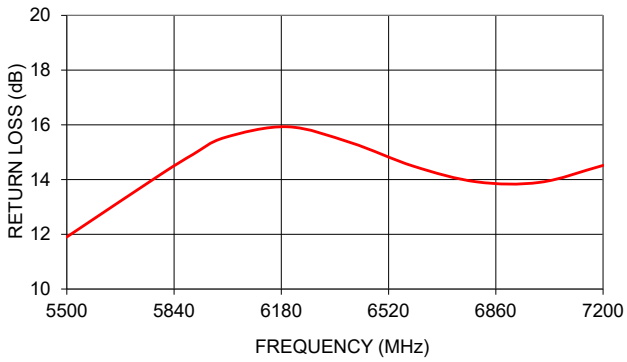
TYPICAL PERFORMANCE DATA

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	Amplitude Unbalance (dB)	Phase Unbalance (deg)
5500	4.03	11.90	0.46	0.94
5800	3.88	14.21	0.39	2.14
5900	3.85	14.92	0.35	2.46
6000	3.84	15.53	0.34	2.63
6200	3.83	15.93	0.32	2.73
6400	3.86	15.35	0.28	2.78
6600	3.90	14.48	0.20	2.48
6800	3.94	13.92	0.10	2.03
7000	3.97	13.90	0.09	1.67
7200	3.96	14.52	0.33	1.69

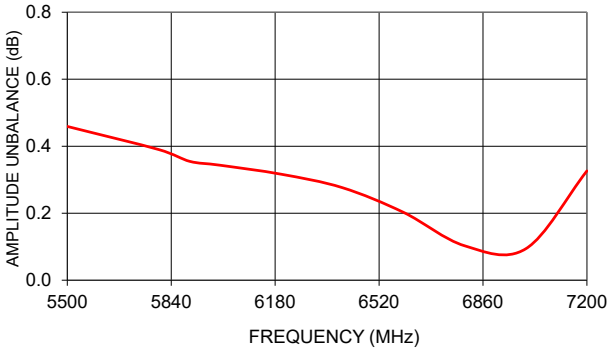
TCW2-7200+
INSERTION LOSS



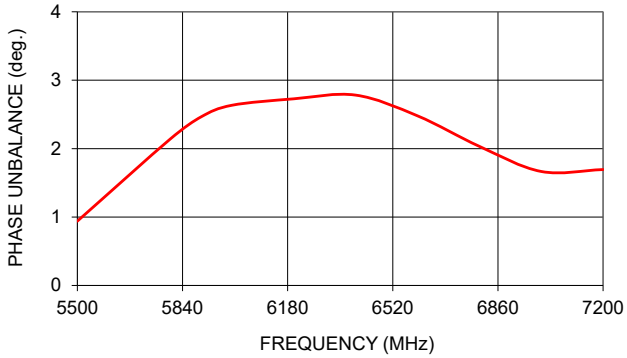
TCW2-7200+
INPUT RETURN LOSS



TCW2-7200+
AMPLITUDE UNBALANCE



TCW2-7200+
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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