Surface Mount

RF Transformer

TTC2-63W+

50Ω 100 to 6000 MHz

The Big Deal

- Wideband, 100 to 6000 MHz
- Low insertion loss, 2.0 dB typ. up to 4 GHz
- Good amplitude unbalance, ±0.7 dB typ.
- Low phase unbalance, 5˚ typ.
- Excellent common mode rejection, 22 dB typ.

CASE STYLE: GU2939

Product Overview

Mini-Circuits' TTC2-63W+ is a tiny surface-mount transmission line core and wire transformer covering a very wide frequency range from 100 to 6000 MHz. The transformer provides low insertion loss. It achieves low phase and amplitude unbalance and excellent common mode rejection performance. Featuring core and wire construction on 5 terminal carrier, the unit measures 0.10 x 0.06 x 0.07", accommodating dense circuit board layouts.

Key Features

Feature	Advantages
Wideband, 100 to 6000 MHz	Very wide frequency range covers bandwidth requirements for many broadband applications.
Low insertion loss, 2.0 dB typ.	TTC2-63W+ provides excellent signal transmission from input to output with consistent performance across its entire frequency range.
Excellent common mode rejection, 22 dB typ.	Provides good IP2, IP3.
Small footprint (0.10 x 0.06 x 0.07")	Accommodates tight space requirements for dense PCB layouts.

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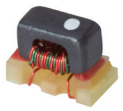


Generic photo used for illustration purposes only

CASE STYLE: GU2939

Features

- wide bandwidth 100 to 6000 MHz
- balanced transmission line
- excellent CMRR
- aqueous washable

Applications

- balanced to unbalanced transformation
- wideband push-pull amplifiers
- PCS/DCS
- 5G Sub 6
- cellular

+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, 500,1000, 2000

Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Impedance Ratio			2		
Frequency Range		100		6000	MHz
Average Insertion Loss (above 0.9 dB midband loss)	100 - 2000	—	0.2	0.6	dB
	2000 - 4000	—	2.0	2.9	
	4000 - 6000	—	3.3	4.5	
Phase Unbalance (±)	150 - 4500	—	4	—	Degree
	100 - 6000	—	6	—	
Amplitude Unbalance	500 - 3000	—	0.5	1.2	dB
	350 - 4500	—	0.6	1.6	
	150 - 6000	—	0.9	—	
Common Mode Rejection	350 - 4500	20	23	—	dB
	100 - 6000	15	20	—	

Maximum Ratings

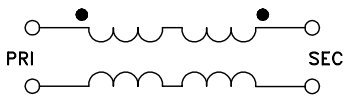
Parameter	Ratings
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	0.5W

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

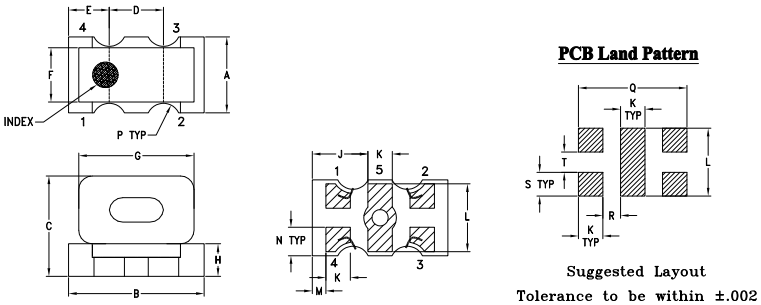
Pin Connections

Function	Pin Number
PRIMARY DOT	1
PRIMARY	4
SECONDARY DOT	2
SECONDARY	3
NOT USED	5

Config. G



Outline Drawing



PCB Land Pattern

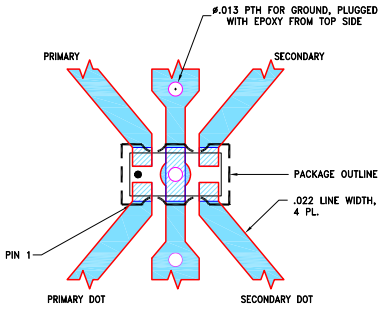
Suggested Layout
Tolerance to be within ±.002

Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H	J	K
.056	.100	.074	.040	.030	.040	.085	.024	.041	.018
1.42	2.54	1.88	1.02	0.76	1.02	2.16	0.61	1.04	0.46

L	M	N	P	Q	R	S	T		wt
.050	.010	.021	.013	.080	0.013	.018	0.014		grams
1.27	0.25	0.53	0.33	2.03	0.33	0.46	0.36		0.04

Demo Board MCL P/N: TB-1111+
Suggested PCB Layout (PL-657)



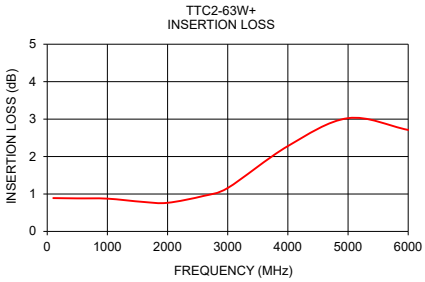
NOTES:
1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .010"±.001". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

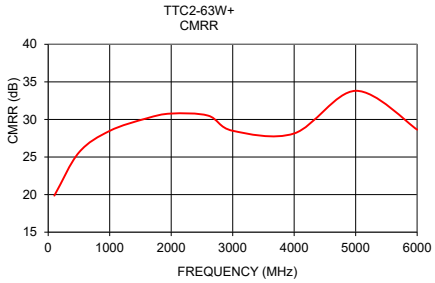
DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).

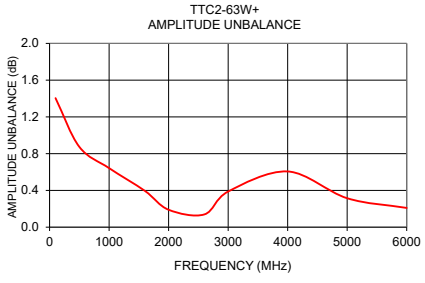
DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

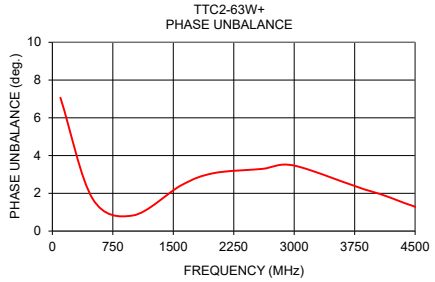
Typical Performance Data

Frequency (MHz)	Insertion Loss (dB)	CMRR (dB)	Amplitude Unbalance (dB)	Phase Unbalance (Deg.)
100	0.89	19.87	1.40	7.06
500	0.88	25.61	0.87	1.71
1000	0.88	28.48	0.64	0.83
1600	0.79	30.14	0.40	2.43
2000	0.76	30.78	0.19	3.07
2600	0.95	30.51	0.14	3.29
3000	1.16	28.49	0.39	3.47
4000	2.28	28.14	0.61	2.04
5000	3.02	33.81	0.31	1.07
6000	2.71	28.64	0.21	4.00









Additional 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/MCLStore/terms.jsp

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