

Surface Mount

# RF Transformer

## SYTX2-451-5W+

50Ω 5 Watt 10 to 450 MHz

### The Big Deal

- High power handling, 5W
- Low insertion loss, 0.5 dB
- Small size, 0.43 x 0.69 x 0.42"
- Balanced outputs
- Good amplitude and phase unbalances
- DC isolated



CASE STYLE: AH202-1

### Product Overview

Mini-Circuits' SYTX2-451-5W+ is a high-power, DC isolated surface-mount transformer with a secondary/primary impedance ratio of 2 for applications from 10 to 450 MHz. With proper heat sinking, the transformer is capable of handling RF input power up to 5W. It provides very low insertion loss (0.5 dB typ.) as well as low typical phase unbalance (7°) and amplitude unbalance (0.2 dB). Featuring core and wire construction mounted on a printed laminate base with wraparound terminations, the unit comes enclosed in a miniature, shielded package measuring just 0.43 x 0.69 x 0.42", ideal for dense circuit board layouts.

### Key Features

Feature	Advantages
High RF power handling (5W)	Supports systems with high power requirements and may be used to isolate DC current.
Low insertion loss, 0.5 dB typ.	Excellent transmission of signal power from input to output.
Low phase and amplitude unbalance, 7°, 0.5 dB	Low phase and amplitude unbalance can improve a system's electromagnetic compatibility by rejecting unwanted common-mode noise.
Small footprint, 0.43 x 0.69 x .42"	Accommodates tight space requirements for dense PCB layouts.

#### 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](http://www.minicircuits.com/MCLStore/terms.jsp)



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### Maximum Ratings

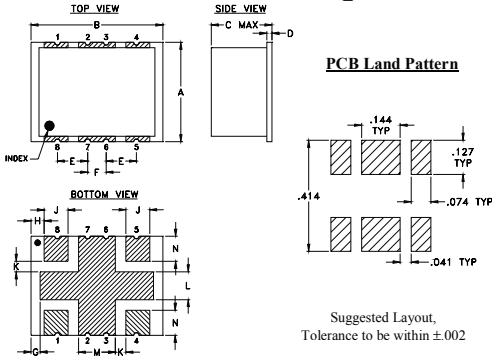
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	5W
DC Current	30mA

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

### Pin Connections

PRIMARY DOT	4
PRIMARY	1
SECONDARY DOT	5
SECONDARY	8
GROUND	2,3,6,7

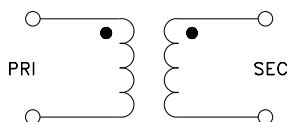
### Outline Drawing



### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.38	.50	.25	.020	.115	.070	.035
9.65	12.70	6.35	0.51	2.92	1.78	0.89
H	J	K	L	M	N	wt
.050	.090	.040	.105	.140	.095	grams
1.27	2.29	1.02	2.67	3.56	2.41	0.80

### Config. C



### Notes

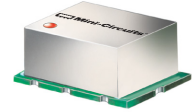
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### Features

- high power input, 5 Watt max.
- wide bandwidth, 440 MHz
- good amplitude unbalance, 0.2 dB typ. at 1 dB bandwidth
- excellent phase unbalance 7 deg. typ. at 1 dB bandwidth

### Applications

- PCS
- BALUN
- diode matching



Generic photo used for illustration purposes only

CASE STYLE: AH202-1

**+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
13"	200

### Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Impedance Ratio (SEC/PRI)			2		
Frequency Range		10	—	450	MHz
Insertion Loss*	10-450	—	0.3	0.8	dB
Amplitude Unbalance	10-450	—	0.5	1.4	dB
Phase Unbalance	10-450	—	7	18	Degree
RF Power	10-50 50-450		2	1 5	W

\* Insertion Loss is referenced to mid-band loss 0.5 dB typ.

1. The user must provide adequate means of heat removal to limit the temperature of ground connections under the PCB to +85°C, in order to ensure proper performance. At 25°C ambient temperature this requires thermal resistance of the user's PC board heat sink to be 10°C/W.

### Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT R. LOSS (dB)	AMPLITUDE UNBALANCE (dB)	PHASE UNBALANCE (Deg.)
5	1.58	5.56	0.00	0.12
10	0.65	11.31	0.00	0.24
100	0.53	29.02	0.02	2.51
150	0.52	30.88	0.06	3.54
200	0.53	30.60	0.12	4.63
250	0.55	28.66	0.19	5.72
300	0.58	25.38	0.31	6.76
350	0.64	21.77	0.44	7.70
400	0.74	18.17	0.62	8.65
450	0.90	14.95	0.84	9.68

