

Surface Mount

# RF Transformer

TRS2-32-75+

75Ω 1 to 300 MHz

## The Big Deal

- Low insertion loss, 0.5 dB typ.
- Good return loss, 25 dB typ.
- Low unbalance, 0.2 dB, 2°
- Power handling up to 0.25W



CASE STYLE: AT577-2

## Product Overview

Mini-Circuits TRS2-32-75+ is a 75Ω surface mount balun transformer with a 1:2 secondary/primary impedance ratio covering the 1 to 300 MHz band. This model handles RF input power up to 0.25W and provides low insertion loss, good return loss, low amplitude unbalance, and low phase unbalance. Measuring only 0.2 x 0.2 x 0.15", the unit features core and wire, all-welded construction mounted on a six-lead printed wiring laminate base with wraparound terminations for excellent solderability. The unit also includes Mini-Circuits' Top Hat™ feature for faster more accurate pick-and-place assembly.

## Key Features

Feature	Advantages
Wideband, 1 to 300 MHz, Usable to 500 MHz	TRS2-32-75+ supports a variety of applications including CATV and DOCSIS® 3.1 upstream paths.
Low insertion loss, 0.5 dB	Enables excellent signal power transmission from input to output.
Good return loss, 25 dB typ.	Excellent matching for 75Ω systems with minimal signal reflection.
Low unbalance • 0.2 dB amplitude unbalance • 2° phase unbalance	Low unbalance can improve a system's electromagnetic compatibility by rejecting unwanted common-mode noise.
Small footprint, 0.2 x 0.2"	Accommodates tight space requirements for dense PCB layouts.
Top Hat® feature	Improves speed and accuracy of pick and place assembly and provides clear device marking for visual inspection

# Ceramic Balun RF Transformer

## TRS2-32-75+

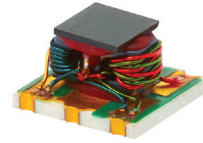
75Ω 1 to 300 MHz

### Features

- wideband, 1 to 300 MHz
- useable up to 500 MHz
- good return loss
- flat insertion loss

### Applications

- impedance matching
- balanced to unbalanced transformer
- push-pull amplifiers
- CATV



Generic photo used for illustration purposes only

CASE STYLE:AT577-2

**+RoHS Compliant**

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

### Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Impedance Ratio (secondary/primary)			0.5		
Frequency Range		1	—	300	MHz
Insertion Loss	1-300	—	0.6	1.1	dB
Amplitude Unbalance	1-300	—	0.2	0.5	dB
Phase Unbalance	1-300	—	2	6	Degree

Note: External capacitors  $C_p = 2.0\text{pF}$  and  $C_{s1} = C_{s2} = 18\text{pF}$  must be added to achieve specify performance. Suggested size 0402.

### Maximum Ratings

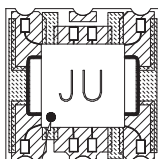
Parameter	Ratings
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	0.25W
DC Current	30mA

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

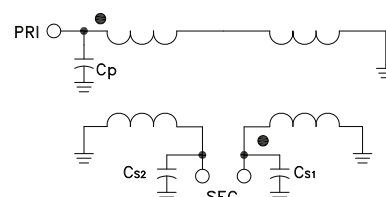
### Pin Connections

Function	Pin Number
PRIMARY DOT	3
PRIMARY	1
SECONDARY DOT	6
SECONDARY	4
AC GND (DC BIAS)	2
ISOLATED	5

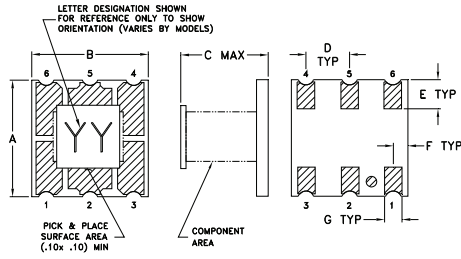
### Product Marking



### Configuration J1



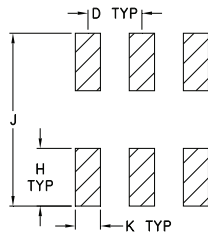
## Outline Drawing



## Outline Dimensions (inch/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

## PCB Land Pattern

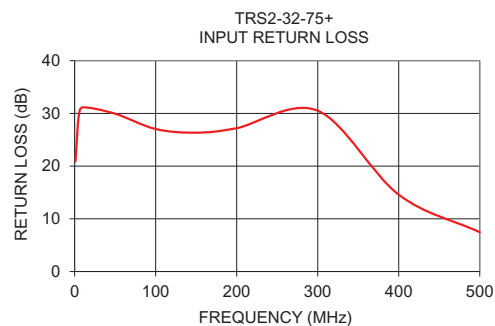
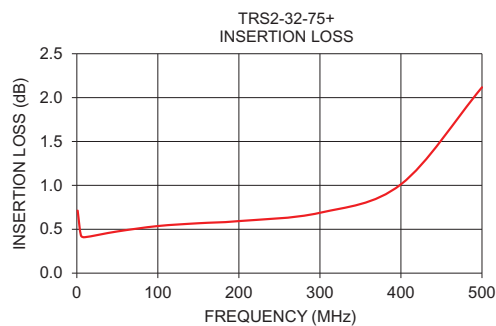


Suggested Layout,  
Tolerance to be within  $\pm 0.002$

## Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT R. LOSS (dB)	AMPLITUDE UNBALANCE (dB)	PHASE UNBALANCE (Deg.)
1	0.71	20.90	0.08	0.53
5	0.43	29.49	0.03	0.29
10	0.41	31.14	0.02	0.33
50	0.48	29.94	0.01	0.52
100	0.54	27.04	0.01	1.05
150	0.57	26.34	0.04	1.61
200	0.59	27.20	0.08	2.07
300	0.69	30.51	0.22	2.88
400	1.01	14.58	0.53	3.97
500	2.12	7.47	1.02	5.40

\*\* Measured with Agilent N5242A network analyzer using impedance conversion and port extension.



## Additional Notes

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuits' applicable established test performance criteria and measurement instructions.
- 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)