

# Surface Mount RF Transformer

## ADT3-1T-75+

75Ω 1 to 500 MHz

### The Big Deal

- Low insertion loss, 1.2 dB
- Excellent return loss, 25 dB in 1 dB bandwidth
- Low unbalance, 0.2 dB, 1°
- Small size, 0.27 x 0.31 x 0.22"



CASE STYLE: CD542

### Product Overview

Mini-Circuits' ADT3-1T-75+ is a 75Ω DC isolated surface-mount transformer with a secondary/primary impedance ratio of 3:1 and a center tap on the secondary winding. This model covers the 1 to 500 MHz band with low insertion loss (1.2 dB), excellent return loss (25 dB within the 1 dB bandwidth, low phase unbalance (1°) and low amplitude unbalance (0.2 dB). The unit comes enclosed in a miniature, 6-lead plastic package measuring just 0.27 x 0.31 x 0.22", ideal for dense circuit board layouts.

### Key Features

Feature	Advantages
DC Isolation	Provides DC isolation between circuits and efficient AC transmission, eliminating the need for external DC biasing components.
Secondary center tap	Allows DC feed up to 30 mA and DC bias without adding bias tees into the signal chain.
Low insertion loss, 1.2 dB	Excellent transmission of signal power from input to output.
Excellent return loss, 25 dB within 1 dB bandwidth.	Provides excellent matching for 75Ω systems with low signal reflection.
Low phase and amplitude unbalance, 1°, 0.2 dB	Low phase and amplitude unbalance can improve a system's electromagnetic compatibility by rejecting unwanted common-mode noise.
Small footprint, 0.27 x 0.31 x 0.22"	Accommodates tight space requirements for dense PCB layouts.

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Generic photo used for illustration purposes only

CASE STYLE: CD542

**+RoHS Compliant**

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

### Features

- excellent return loss, 25 dB typ. in 1 dB bandwidth
- excellent amplitude unbalance, 0.2 dB typ. and phase unbalance, 1 deg. typ. in 1dB bandwidth
- aqueous washable
- protected under US patent 6,133,525

### Applications

- balun
- impedance matching
- DOCSIS 3.1



Available Tape and Reel at no extra cost

Reel Size	Devices/Reel
7"	10, 20, 50, 100, 200
13"	500, 1000

### Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Impedance Ratio (secondary/ primary)			3		Ohm
Frequency Range		1	—	500	MHz
Insertion Loss*	2-300	—	—	0.8	dB
	1-500	—	—	1.2	
Amplitude Unbalance	1-300	—	0.2	0.6	dB
	300-500	—	0.4	1.20	
Phase Unbalance	1-300	—	1	4	Degree
	300-500	—	4	8	
Return Loss	1-2	13	19	—	dB
	2-300	17	25	—	
	300-500	14	22	—	

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

### Maximum Ratings

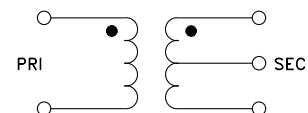
Parameter	Ratings
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	0.25W
DC Current	30mA

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

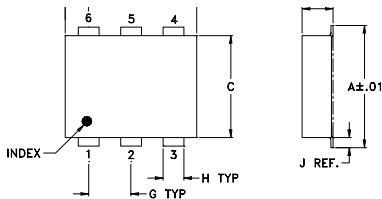
### Pin Connections

Function	Pin Number
PRIMARY DOT	3
PRIMARY	1
SECONDARY DOT	6
SECONDARY	4
SECONDARY CT	5
NOT USED	2

### Config. A



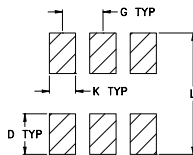
## Outline Drawing



## Outline Dimensions (inch/mm)

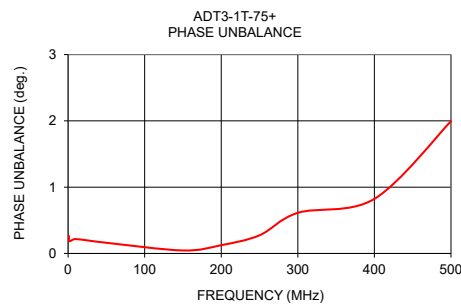
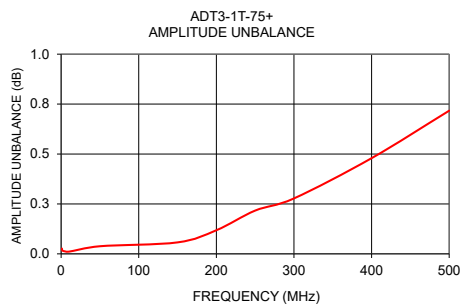
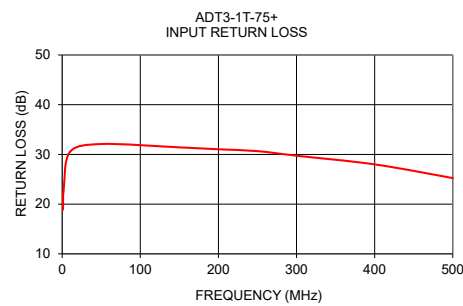
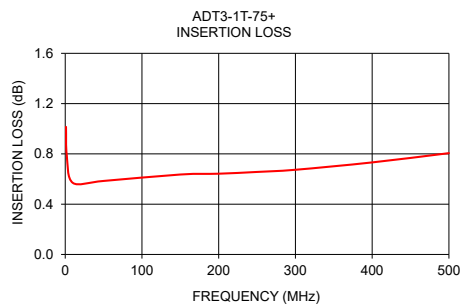
A	B	C	D	E	F	G
.272	.310	.220	.100	.112	.055	.100
6.91	7.87	5.59	2.54	2.84	1.40	2.54
H	J	K	L	wt		
.030	.026	.065	.300	grams		
0.76	0.66	1.65	7.62	0.20		

## PCB Land Pattern



## Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT R. LOSS (dB)	AMPLITUDE UNBALANCE (dB)	PHASE UNBALANCE (Deg.)
1.0	1.02	18.88	0.03	0.26
2.0	0.79	23.05	0.02	0.18
10.0	0.57	30.52	0.01	0.22
50.0	0.58	32.09	0.04	0.16
150.0	0.64	31.42	0.06	0.04
200.0	0.64	31.03	0.12	0.13
250.0	0.66	30.66	0.22	0.27
300.0	0.67	29.74	0.28	0.61
400.0	0.73	28.00	0.48	0.82
500.0	0.81	25.24	0.72	2.00



## 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-Circuit's applicable established test performance criteria and measurement instructions.
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