

Surface Mount

RF Transformer

ADT2-162T+

50Ω 20 to 1600 MHz

The Big Deal

- 1W RF power handling
- Low unbalance, 0.4 dB, 3°
- Small size, 0.27 x 0.31 x 0.22"



CASE STYLE: CD636

Product Overview

Mini-Circuits' ADT2-162T+ is a surface-mount balanced-to-balanced transformer with a secondary/primary impedance ratio of 2:1. This model covers the 20 to 1600 MHz band with low insertion loss (1.2 dB typ.) as well as low phase unbalance (3°) and amplitude unbalance (0.4 dB). The unit comes enclosed in a miniature, leadless plastic package measuring just 0.27 x 0.31 x 0.22", ideal for dense circuit board layouts.

Key Features

| Feature | Advantages |
|---|--|
| Wideband, 20 to 1600 MHz | Supports a wide range of applications including VHF/UHF, cellular, PCS and more. |
| Low insertion loss, 1.2 dB typ. | Good transmission of signal power from input to output. |
| 1W RF power handling | Supports a wide range of power requirements. |
| Low phase and amplitude unbalance, 3°, 0.4 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. |

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



Surface Mount RF Transformer

50Ω 20 to 1600 MHz

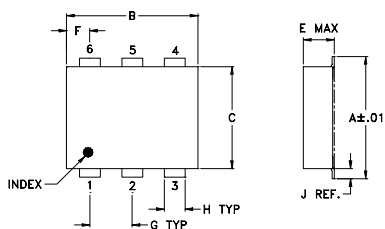
Maximum Ratings

| | |
|---|----------------|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| RF Power | 1.0W |
| Permanent damage may occur if any of these limits are exceeded. | |

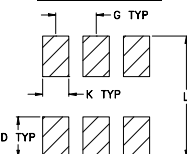
Pin Connections

| | |
|---------------|---|
| PRIMARY DOT | 3 |
| PRIMARY | 1 |
| SECONDARY DOT | 6 |
| SECONDARY | 4 |
| SECONDARY CT | 5 |
| NOT USED | 2 |

Outline Drawing



PCB Land Pattern



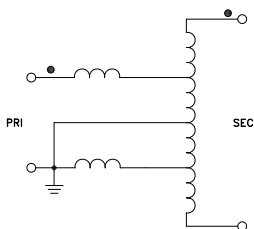
Outline Dimensions (inch/mm)

| A | B | C | D | E | F | G |
|------|------|------|------|------|------|------|
| .272 | .310 | .220 | .100 | .162 | .055 | .100 |
| 6.91 | 7.87 | 5.59 | 2.54 | 4.11 | 1.40 | 2.54 |
| H | J | K | L | | | |
| .030 | .026 | .065 | .300 | | | |
| 0.76 | 0.66 | 1.65 | 7.62 | | | |

wt
grams
0.25

Demo Board MCL P/N: TB-430+

Config. P1



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Features

- leaded surface mount
- wideband frequency 20-1600 MHz
- excellent amplitude balance, 0.4 dB typ. and phase unbalance, 3 deg. typ.

Applications

- VHF/UHF
- balanced amplifiers
- info structure
- A/D and D/A converter
- cellular

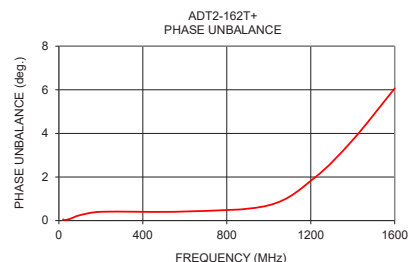
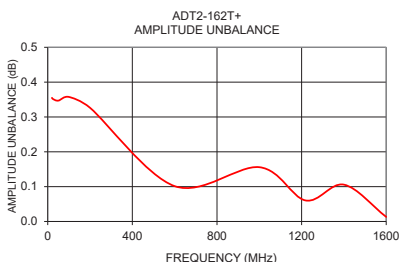
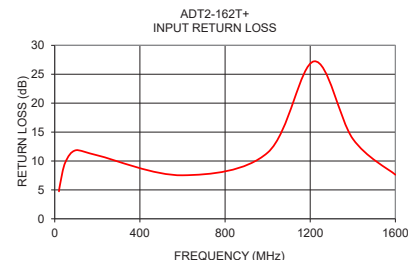
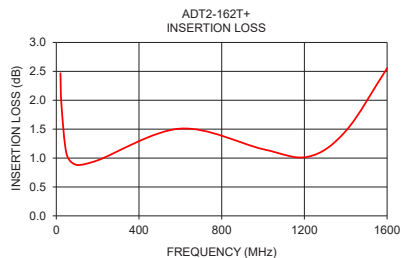
Transformer Electrical Specifications@25°C

| Parameter | Frequency (MHz) | Min. | Typ. | Max. | Unit |
|---------------------------------------|-------------------------------------|-------------|-------------------|----------------------|--------|
| Impedance Ratio (secondary / primary) | | | 2 | | |
| Frequency Range | | 20 | | 1600 | MHz |
| Insertion Loss* (average) | 50 - 1250 25 - 1400 20 - 1600 | — — — | 0.5 1.2 2.0 | 1.0 2.0 3.0 | dB |
| Amplitude Unbalance ± | 50 - 1250 25 - 1400 20 - 1600 | — — — | 0.4 0.5 0.6 | 0.75 0.85 0.95 | dB |
| Phase Unbalance ± | 50 - 1250 25 - 1400 20 - 1600 | — — — | 2 2.5 3.0 | 4 5 7 | Degree |
| Input Return Loss | 20-1600 | — | 12 | — | dB |
| Common mode rejection | 20-1250 1250-1600 | 20 18 | 25 22 | — — | dB |

* Insertion Loss is referenced to mid-band loss, 1.0 dB typ.

Typical Performance Data

| FREQUENCY (MHz) | INSERTION LOSS (dB) | INPUT R. LOSS (dB) | AMPLITUDE UNBALANCE (dB) | PHASE UNBALANCE (Deg.) |
|-----------------|---------------------|--------------------|--------------------------|------------------------|
| 20 | 2.47 | 4.74 | 0.35 | 0.06 |
| 25 | 1.92 | 5.94 | 0.35 | 0.03 |
| 50 | 1.07 | 9.79 | 0.35 | 0.07 |
| 100 | 0.88 | 11.86 | 0.36 | 0.25 |
| 200 | 0.96 | 10.98 | 0.33 | 0.41 |
| 600 | 1.51 | 7.53 | 0.10 | 0.42 |
| 1000 | 1.15 | 11.44 | 0.16 | 0.70 |
| 1218 | 1.02 | 27.23 | 0.06 | 1.96 |
| 1400 | 1.47 | 13.83 | 0.11 | 3.70 |
| 1600 | 2.55 | 7.63 | 0.01 | 6.06 |



Generic photo used for illustration purposes only

CASE STYLE: CD636

+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 |
| 13" | 500, 1000 |



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