

**THE BIG DEAL**

- Wideband, 40 to 1250 MHz
- High impedance ratio, 4:1
- Balanced to balanced configuration with secondary center tap
- Plastic base with leads
- Aqueous washable

*Generic photo used for illustration purposes only*

CASE STYLE: AT1521

+RoHS CompliantThe +Suffix identifies RoHS Compliance.
See our website for methodologies and qualifications**APPLICATIONS**

- PCS
- Cellular
- CATV
- DOCSIS 3.1

PRODUCT OVERVIEW

TC4-122-75X+ is a 75Ω surface-mount balanced to balanced transformer covering the 40 to 1250 MHz band, supporting bandwidth requirements for DOCSIS® 3.1 compliant systems and equipment. The transformer provides a 4:1 secondary/primary impedance ratio with 1.4 dB insertion loss, 1.1 dB amplitude unbalance, and 7° phase unbalance. Featuring core and wire construction on a 5-lead plastic base with tin over nickel termination finish, the unit measures 0.15 x 0.15 x 0.16", accommodating dense circuit board layouts. It also incorporates Mini-Circuits' Top Hat™ feature for faster, more accurate pick-and-place assembly.

KEY FEATURES

| Features | Advantages |
|---------------------------------------|---|
| Wide bandwidth, 40 to 1250 MHz | Wide frequency range covers bandwidth requirements for DOCSIS® 3.1 systems and equipment. |
| Low insertion loss, 1.4 dB | Provides excellent signal power transmission from input to output. |
| Secondary center tap | Allows DC feed up to 30mA and DC bias without adding bias tees into the signal chain. |
| Small footprint (0.15 x 0.15 x 0.16") | 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. |



ELECTRICAL SPECIFICATIONS AT 25°C

| Parameter | Frequency (MHz) | Min. | Typ. | Max. | Unit |
|-------------------------------------|-----------------|------|------|------|--------|
| Impedance Ratio (secondary/primary) | | | 4 | | |
| Frequency Range | | 40 | — | 1250 | MHz |
| Insertion Loss* | 40 - 1250 | — | 1.4 | 2.5 | dB |
| | 100 - 1000 | — | 0.5 | 1.5 | |
| Amplitude Unbalance | 40 - 1250 | — | 1.1 | 1.8 | dB |
| | 100 - 1000 | — | 0.4 | 0.9 | |
| Phase Unbalance | 40 - 1250 | — | 7 | 15 | Degree |
| | 100 - 1000 | — | 5 | 10 | |

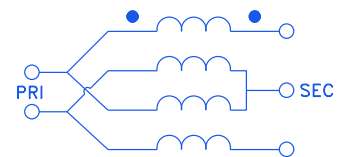
* Insertion Loss is referenced to mid-band loss, 1.5 dB typ.

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.

CONFIG. H





RF Transformer

TC4-122-75X+

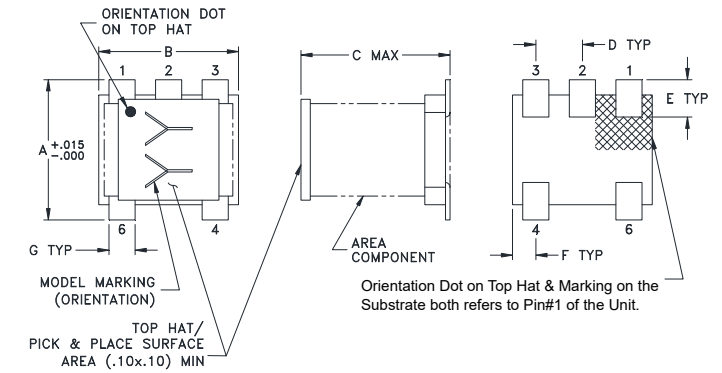
75Ω 40 to 1250 MHz

PIN CONNECTIONS

| | |
|---------------|---|
| PRIMARY DOT | 6 |
| PRIMARY | 4 |
| SECONDARY DOT | 1 |
| SECONDARY | 3 |
| SECONDARY CT | 2 |

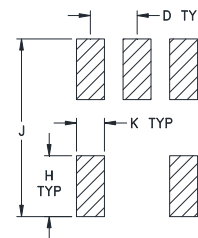
PRODUCT MARKING: AT

OUTLINE DRAWING



Top-hat total thickness: .013 inches MAX.

PCB Land Pattern



Suggested Layout,
Tolerance to be within ± 0.002

OUTLINE DIMENSIONS (Inch/mm)

| A | B | C | D | E | F | G | H | J | K |
|------|------|------|------|------|------|------|------|------|------|
| .150 | .150 | .160 | .050 | .040 | .025 | .028 | .065 | .190 | .030 |
| 3.81 | 3.81 | 4.06 | 1.27 | 1.02 | 0.64 | 0.71 | 1.65 | 4.83 | 0.76 |

Weight: 0.15 grams

TAPE & REEL INFORMATION: F17