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What is Balun Transformer

Token Electronics Industry Co., Ltd.

Taiwan: No.137, Sec. 1, Zhongxing Rd., Wugu District,
New Taipei City, Taiwan, R.O.C. 24872
Tel: +886 2981 0109 Fax: +886 2988 7487

China: 12F, Zhong Xing Industry Bld., Chuang Ye Road,
Nan Shan District, Shen Zhen City,
Guang Dong, China 518054
Tel: +86 755 26055363; Fax: +86 755 26055365

[Web: www.token.com.tw](http://www.token.com.tw)

[Email: rfq@token.com.tw](mailto:rfq@token.com.tw)



▶ What is Balun Transformer

What is Balun Transformer?

Balun is name of device that can be like a common mode choke, unbalance to balance transformer, or a step up or down transformer.

Balun is an acronym of BALanced UNbalanced, it's used to convert an unbalanced signal to a balanced one or vice versa.

A balun transformer is a device that:

- joins a balanced line (one that has two conductors, with equal currents in opposite directions, such as a twisted pair cable).
- to an unbalanced line (one that has just one conductor and a ground, such as a coaxial cable).

Baluns isolate a transmission line and provide a balanced output. A typical use for a balun is in a television antenna.

Balanced: A method of transmitting signals using two signal lines. One line carries the source signal; the other carries a signal of opposite phase (antiphase).

Unbalanced: A method of transmitting signals using one signal line, with a ground line providing a reference potential.

Why Use a Balun?

Baluns are used for two primary reasons:

- One : Eliminate “common mode current” on the transmission line.
- Two : Matching antenna impedance to the transmission line.

Insertion Loss (dB)

Loss due to transmission from primary dot port to secondary dot port and secondary port. Most balun transformers are symmetrical through their central horizontal axis, therefore, an input can be applied at the primary dot port or the primary port with differential outputs at the secondary dot and secondary ports.

Basics of Broadband Transformers

There are two kinds of broadband transformers. One is known as a conventional type, which has separate primary and secondary windings, as do power and audio transformers. The other type is called a transmission-line transformer. It is believed that the latter variety is the most efficient of the two. Transmission-line transformers are wound with twisted or parallel windings and produce specific integers of impedance transformation, such as 4:1, 9:1, and 16:1. Conventional transformers permit you to obtain any transformation ratio you need.

