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TOKEN

(TCPWCH-) HDMI Common Mode Filters & Chokes

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

Email: rfq@token.com.tw



► Product Introduction

Comprehensively transmits image on Token HDMI Common Mode Filters / Chokes For High-speed Differential Signal Line.

HDMI Common Mode Choke Coils on The Selection :

- Select the optimum impedance matching components in accordance with the frequencies at which noise is a problem, the cost and space.
- In the case that the chip common mode choke coil is used with ESD protection device with large capacitance, signal quality may result to fail to meet regulation.
- In the case that there are impedance mismatch to HDMI signal line, signal quality may become worse.
- Some items are under confirmation of waveform compatibility. Please contact us for latest information.

Features & Applications :

- Suppress noise for the high-speed differential signal lines.
- Low profile wound Chip constructure with standard 0805 size.
- Best EMI suppression effect, least impact of HDMI signal wave form.

HDMI port has been widely used in all kinds of A/V equipments with the development of HD & full HD video technology. HDMI provides ultra high transfer rate and supports hot plug and play technology. According to the latest HDMI1.4 specification, HDMI provide a max transfer rate of 4.8Gbps, which could well address the need of full HD video transmission.

Token has introduced the (TCPWCH-2012HD) series of low-profile choke coils. Designed for use as noise-control components adaptable to high-speed differential transmission systems, these series feature a wide variation of impedance values and the ability to match transmission-line impedance with component image impedance.



Different applications have different standards designed to govern the quality of signal waveforms. Components that will be used on such transmission lines need to have a certain level of waveform quality when they are inserted. In addition, as noise-suppression components, they need to provide noise-control effects. With the commonmode choke coils (TCPWCH-2012HD), insertion loss of HDMI waveform specifications can be satisfied without having any significant impact on initial signal waveforms, proving the capability to support high-speed signals.

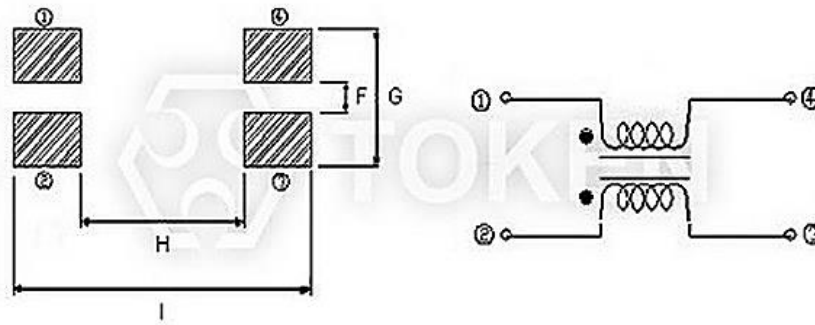
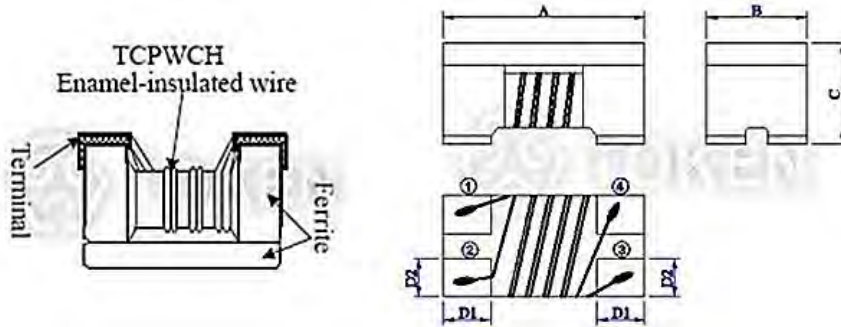
All (TCPWCH) series comes a wide variety of options to meet your needs with halogen free and RoHS Directive. Token is able to customize and manufacture your request, with comprehensive application engineering and design support available for customers worldwide. Please contact our sales or link to Token official website "[SMD Balun Transformers](http://www.token.com.tw)" for more information.



► **Config. & Dim.**

Configurations & Dimensions (TCPWCH-2012HD) Unit: mm (Inch)

| SIZE CODE | A | B | C | D1 TYP | D2 TYP | F TYP | G TYP | H TYP | I TYP |
|----------------------|----------------------------|---------------------------|---------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| TCPWCH-2012HD (0805) | 2.00±0.20 (0.079±0.008) | 1.2±0.20 (0.047±0.008) | 1.2±0.20 (0.047±0.008) | 0.45 (0.018) | 0.40 (0.016) | 0.40 (0.016) | 1.20 (0.047) | 0.80 (0.031) | 2.60 (0.102) |



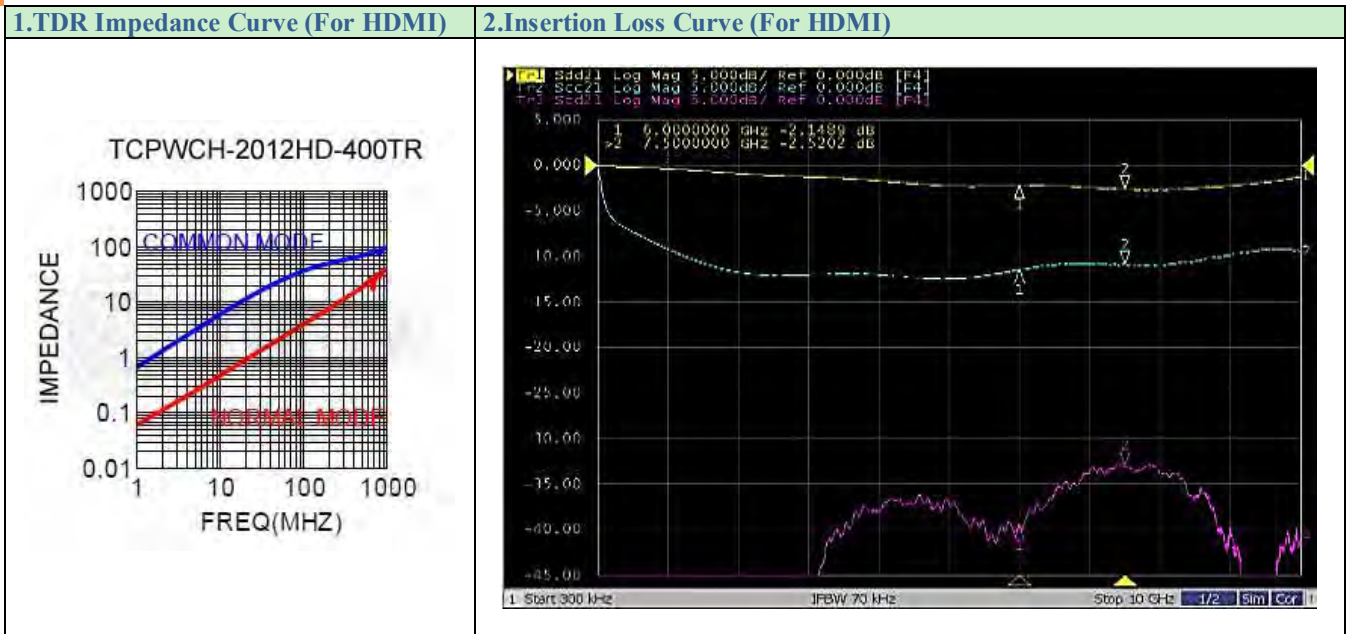
HDMI Common Mode Filters & Chokes (TCPWCH-2012HD) Structure diagram Unit: mm (Inch)

► **Electrical Characteristics**

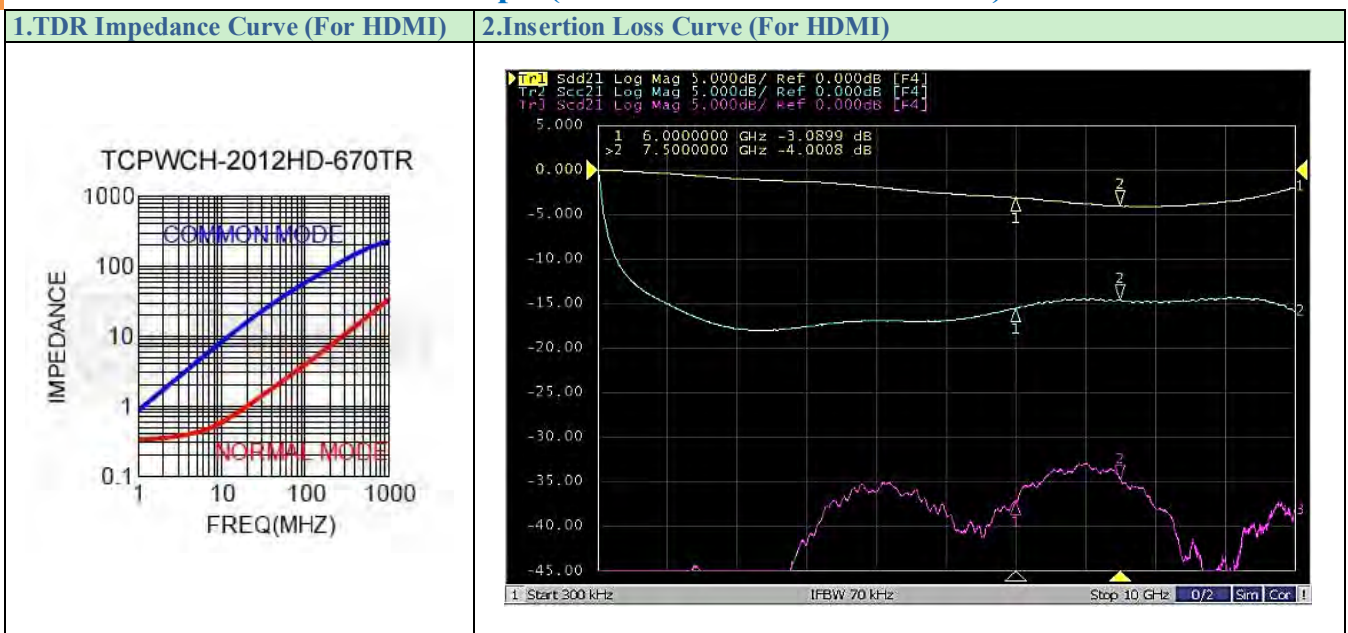
Electrical Characteristics (TCPWCH-2012HD)

| Part Number | Impedance (Ω) | Tolerance $\pm\%$ | Test Frequency (MHz) | DC Resistance (Ω) Max. | Rated Current (mA) Max. |
|---------------------|------------------------|-------------------|----------------------|---------------------------------|-------------------------|
| TCPWCH-2012HD-400TR | 40 | 25% | 100 | 0.25 | 400 |
| TCPWCH-2012HD-670TR | 67 | 25% | 100 | 0.25 | 400 |
| TCPWCH-2012HD-900TR | 90 | 25% | 100 | 0.30 | 400 |
| TCPWCH-2012HD-121TR | 120 | 25% | 100 | 0.30 | 370 |

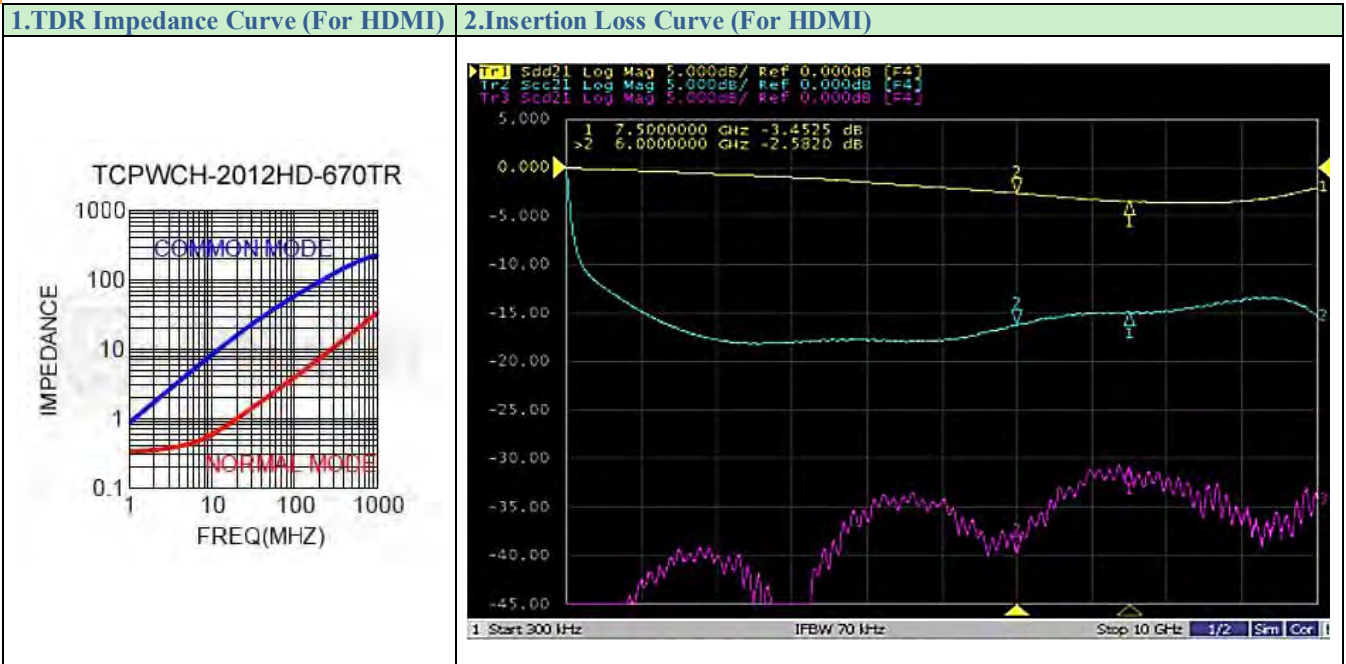
Electrical Characteristics Graph (TCPWCH-2012HD-400TR)



Electrical Characteristics Graph (TCPWCH-2012HD-670TR)



Electrical Characteristics Graph (TCPWCH-2012HD-900TR)



Electrical Characteristics Graph (TCPWCH-2012HD-121TR)



▶ Order Codes

Order Codes (TCPWCH)

| TCPWC | H | - | 2012 | | | HD | - | 400 | TR | | |
|-------------|----------------|-----------|-----------------|----------------|---------|---------|------|---------------|------|---------|-------------|
| Part Number | Shielding Type | | Dimensions (mm) | | | Purpose | | Impedance (Ω) | | Package | |
| TCPWC | H | Shielding | 2012 | 2.00×1.20×1.20 | EIA0805 | HD | HDMI | 400 | 40Ω | P | Bulk |
| | | | | | | | | 670 | 67Ω | TR | Taping Reel |
| | | | | | | | | 900 | 90Ω | | |
| | | | | | | | | 121 | 120Ω | | |

▶ General Information

Applications of Baluns

In a **RF balun transformer**, one pair of terminals is balanced, that is, the currents are equal in magnitude and opposite in phase. The other pair of terminals is unbalanced; one side is connected to electrical ground and the other carries the signal. Balun transformers can be used between various parts of a wireless or cable communications system. Some common applications denotes as following:

- Television receiver (Balanced) - coaxial cable network or Coaxial antenna system (Unbalanced)
- FM broadcast receiver (Balanced) - Coaxial antenna system (Unbalanced)
- Dipole antenna (Balanced) - Coaxial transmission line (Unbalanced)
- Parallel-wire transmission line (Balanced) - Coaxial transmitter output, or Coaxial receiver input (Unbalanced)

Token's baluns provide impedance transformation in addition to conversion between balanced and unbalanced signal modes. Most television and FM broadcast receivers are designed for 300-ohm balanced systems, while coaxial cables have characteristic impedances of 50 or 75 ohms.

Impedance-transformer baluns with larger ratios are available and used to match high-impedance balanced antennas to low-impedance unbalanced wireless receivers, transmitters, or transceivers.

