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DIRECT

Electronics Tech.

(TCSG) Larger Current Common Mode Choke Coils

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▶ Product Introduction

Direct (TCSG) is capable of handling noise in larger current sets for a 5 A class.

Features :

- High impedance for common mode noise and low impedance for differential mode signal.
- Wide band or sharp type impedance curve available.
- Large rated current available.
- SMD or DIP available.

Applications :

- Prevention of common mode noise on signal Lines and power lines for computer related or electronic products.

Some common mode choke coils are applied in circuits linked to AC power lines (commercial power lines), like the primary side of switching power supplies. Common mode choke coils utilized in these locations are frequently known as "line filters".

These common mode choke coils are utilized along with over the line capacitors (X-capacitors) and line bypass capacitors (Y-capacitors), and are utilized to prevent noise generated through the secondary side circuit from dripping towards the primary side, and also to prevent noise generated through the power circuit from getting away through the cord.



Common mode chokes and Line bypass capacitors remove common mode noise, while over-the-line capacitors remove differential mode noise. Growing the capacitance of a line bypass capacitor causes elimination of lower frequency common mode noise, however the chance of current leaking to the ground expands along with the capacitance, to ensure the capacitance need to be detained to a certain value or less.

That is why, common mode choke coils are mostly employed in the low-frequency selection that can not be insured by line bypass capacitors. Additionally, the application of normal mode choke coils are able to provide enhanced differential mode noise removal results in some instances.

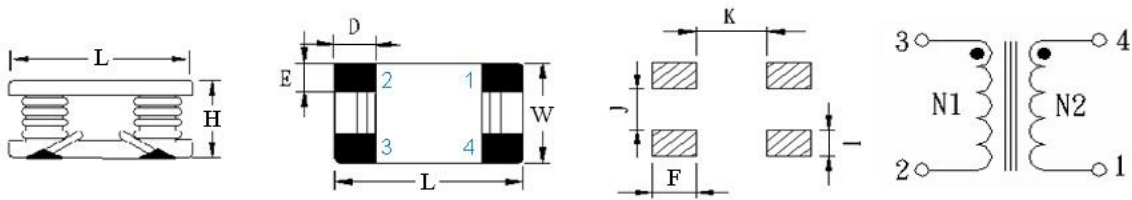
Direct will also produce devices outside these specifications to meet customer requirements, with comprehensive application engineering and design support available for customers worldwide. Please contact our sales or link to Direct official website "[SMD Balun Transformers](#)" for more information.



► **Characteristics & Dim.**

Characteristics & Dimensions (TCSG) Unit: mm

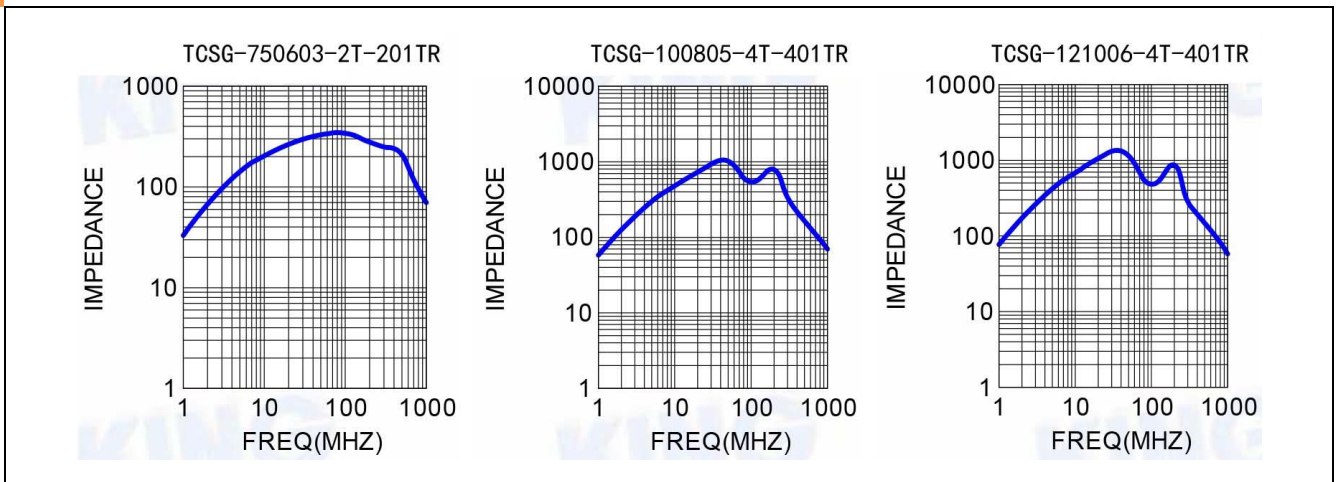
| Part Number | L | W | H | D | E | F | I | J | K | BASE | WINDING | Z at 100MHz (Ω) Min. | RATED CURRENT (mA) | RDC (Ω) Max. |
|-------------|----------|----------|---------|-----|-----|------|-----|-----|-----|--------|---------------|----------------------|--------------------|--------------|
| TCSG-750603 | 7.5±0.3 | 6.0±0.5 | 3.2±0.3 | 2.5 | 1.5 | 3.1 | 2.4 | 1.0 | 1.5 | SMD-4P | φ0.35×2.5TS×2 | 200 | 2000 | 0.020 |
| TCSG-100805 | 10.6 max | 8.7 max | 5.0±0.5 | 2.5 | 2.1 | 4.2 | 3.0 | 2.0 | 3.6 | SMD-4P | φ0.55×4.5TS×2 | 400 | 4000 | 0.045 |
| TCSG-121006 | 12.0±0.5 | 10.0±0.5 | 6.0±0.5 | 3.5 | 2.0 | 4.75 | 4.5 | 3.0 | 4.5 | SMD-4P | φ0.50×4.5TS×2 | 400 | 5000 | 0.025 |



Common mode filter (TCSG) Configurations diagram

► **TCSG Graph**

Typical Characteristics Graph (TCSG)



▶ **Order Codes**

Order Codes (TCSG)

| TCSG | - | 121006 | - | 4T | - | 401 | TR | | |
|-------------|---|------------|---------------|----------------|---|-----------------------|--------------|---------|-------------|
| Part Number | | Dimensions | | Core structure | | Impedance(Ω) | | Package | |
| TCSG | | 750603 | 7.5×6.0×3.2 | 2T | | 201 | 200 Ω | P | Bulk |
| | | 100805 | 10.6×8.7×5.0 | 4T | | 401 | 400 Ω | TR | Taping Reel |
| | | 121006 | 12.0×10.0×6.0 | | | | | | |

▶ **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)

Direct'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.

