

Machinery and Manufacturing



Inductor construction

Abstract

The present invention relates to an inductor structure, comprising an annular iron core and a conducting wire, the annular iron core has a plurality of annular grooves arranged around it, and the conducting wire is wound around the annular groove of the annular iron core. Wherein, the groove width and groove depth of the above-mentioned annular groove are substantially the same as the diameter width of the above-mentioned wire, thereby reducing the iron loss of the ring-shaped iron core and reducing the use of copper wires to reduce the copper loss of the wire. The groove width and groove depth of the annular groove of the core is matched with the diameter width of the wire to reduce the rise of magnetic resistance and improve the efficiency of the inductor.

Benefits

1. It can avoid the uneven density of individual windings. In addition to improving the problem of easy local saturation of the inductor caused by the uneven distribution of the magnetic field lines inside the ring iron core, it can also reduce the gap between the actual inductance and the design value during the manual manufacturing process of the inductor. the error. 2. The wire can be completely attached to the ring iron core during winding, so the leakage inductance of the inductor is small, and the electromagnetic noise interference generated when used in a switching power supply circuit is reduced. 3. It can reduce the volume of the annular iron core. Under the same conductivity and thickness of the magnetic material, the volume reduction can reduce the iron loss of the annular iron core; at the same time, it can effectively reduce the winding length of each turn of wire. More wire lengths can be saved, and copper loss can be effectively reduced. Therefore, based on the same inductance, the required length of wire can be saved, and copper loss can be reduced. Thereby, the inductor of the present invention has reduced copper loss and iron loss based on the proposed inductor, and its operating efficiency is improved, and heat dissipation problems can be reduced when used in a circuit

Industry Categories

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