Inductors

Power line chokes
I core chokes

Date: October 2008

General

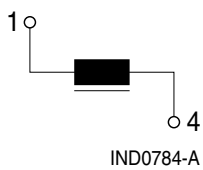
I core chokes are used to attenuate both differential and common-mode interference voltages. Their inductance is highly independent of magnetic bias by the operating current. Low parasitic capacitance of the coils is achieved by winding them in several sections when using wire of a circular cross-section, or by using a single-layer winding of flat or rectangular cross-section wire, wound on edge.

The open core design causes a high degree of shear, i.e. the effective permeability is lowered while the saturation limit is raised towards higher values than with closed cores. This prevents the core material reaching saturation due to the flux induced by the load current. However, it is important to note that, with I core chokes, the magnetic stray fields induced by the load current (e.g. 50 Hz AC) as well as by the interference currents are much stronger than those of chokes with closed cores.

The majority of I core chokes have laminated iron-silicon cores with coils wound on plastic coil formers.

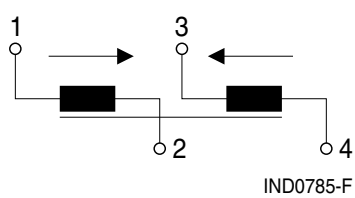
Simple means of fixing are provided for mounting the chokes. Potted versions with terminal pins fitting the standard PCB grid are also available.

Designation of terminals and possible choke designs



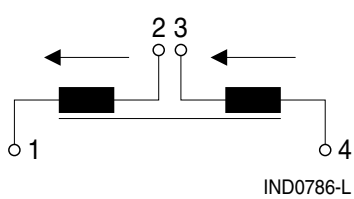
IND0784-A

Single choke



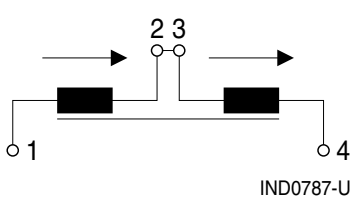
IND0785-F

Double choke
effective at unsymetrical interference voltage.
Connect 1 and 3 to power line, 2 and 4 to load



IND0786-L

Double choke
effective at symetrical interference voltage.
Connect 2 and 3 to power line, 1 and 4 to load



IND0787-U

Double choke
(if used as single choke)
Connect 2 and 3 close together;
about 3 times the inductance of each winding
is obtained between 1 and 4