

Design Of Microfabricated Inductors Power Electronics

Wireless power transfer

Arnold, D.P.; Garraud, A. Microfabricated Electrodynamic Wireless Power Receiver for Bio-implants and Wearables. In Proceedings of the 2018 Solid-State Sensor

Wireless power transfer (WPT; also wireless energy transmission or WET) is the transmission of electrical energy without wires as a physical link. In a wireless power transmission system, an electrically powered transmitter device generates a time-varying electromagnetic field that transmits power across space to a receiver device; the receiver device extracts power from the field and supplies it to an electrical load. The technology of wireless power transmission can eliminate the use of the wires and batteries, thereby increasing the mobility, convenience, and safety of an electronic device for all users. Wireless power transfer is useful to power electrical devices where interconnecting wires are inconvenient, hazardous, or are not possible.

Wireless power techniques mainly fall into two...

Terahertz metamaterial

S2CID 35360749. Moser HO, et al. (2005-02-15). "Terahertz Response of a Microfabricated Rod-Split-Ring-Resonator Electromagnetic Metamaterial". Physical

A terahertz metamaterial is a class of composite metamaterials designed to interact at terahertz (THz) frequencies. The terahertz frequency range used in materials research is usually defined as 0.1 to 10 THz.

This bandwidth is also known as the terahertz gap because it is noticeably underutilized. This is because terahertz waves are electromagnetic waves with frequencies higher than microwaves but lower than infrared radiation and visible light. These characteristics mean that it is difficult to influence terahertz radiation with conventional electronic components and devices. Electronics technology controls the flow of electrons, and is well developed for microwaves and radio frequencies. Likewise, the terahertz gap also borders optical or photonic wavelengths; the infrared, visible, and...

Magnetometer

Meissner effect on superconductors. Microfabricated optically pumped magnetometers (μ OPMs) can be used to detect the origin of brain seizures more precisely

A magnetometer is a device that measures magnetic field or magnetic dipole moment. Different types of magnetometers measure the direction, strength, or relative change of a magnetic field at a particular location. A compass is one such device, one that measures the direction of an ambient magnetic field, in this case, the Earth's magnetic field. Other magnetometers measure the magnetic dipole moment of a magnetic material such as a ferromagnet, for example by recording the effect of this magnetic dipole on the induced current in a coil.

The invention of the magnetometer is usually credited to Carl Friedrich Gauss in 1832. Earlier, more primitive instruments were developed by Christopher Hansteen in 1819, and by William Scoresby by 1823.

Magnetometers are widely used for measuring the Earth...

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