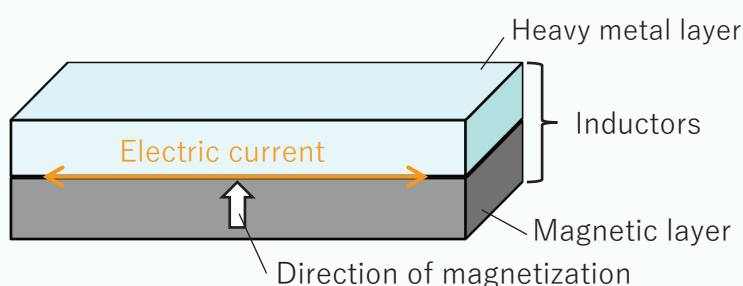


## Thin-film inductor elements, thin-film variable inductor elements

- Integrable inductor that do not necessitate a coil structure
- Simple element structure with magnetic and heavy metal layers
- Electrically variable magnitude of inductance

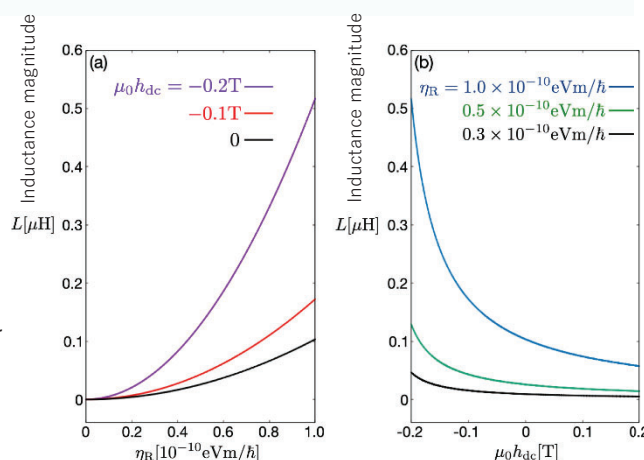
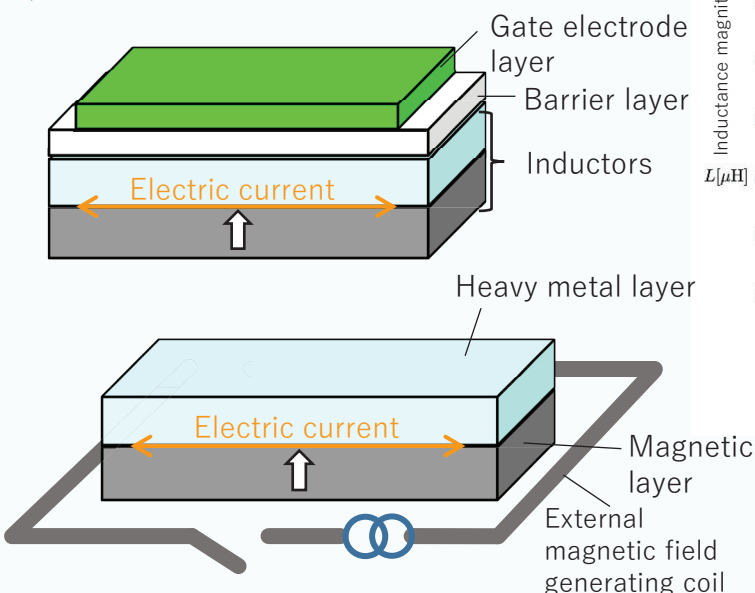
**Keywords :** Inductors, High-frequency applications, Noise filters, Magnetic metal thin films

### ◆ Basic structure of the invention



A thin-film inductor element comprising a multilayer film of magnetic and nonmagnetic layers and a pair of electrodes to which an alternating current or a high-frequency current is applied. The inductance is inversely proportional to the cross-sectional area of the element.

### ◆ Variable inductor embodiment



Gate electric field magnitude

Magnitude of external magnetic field

The magnitude of inductance varies according to the external gate electrode and external magnetic field.

#### Stage of Technology



#### Fields of use

- High-frequency use
- Smartphone
- Automotive automatic control

#### Information of intellectual property

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Technical details

