After suitable heat treatment has been done, cobalt base amorphous material shows excellent magnetic properties. TOSHIBA MATERIALS has developed new high permeability core 'FS Series' with this material. FS series maintain high initial permeability \( \mu_i \) especially at the high frequency zone, and are suitable for Pulse Transformers, Noise Filter and Cores for Sensors. High permeability enables electronic parts to be smaller and have higher performance.

**High Permeability** : \( \mu_i \) at 10kHz is 100,000 it changes inductance module smaller and higher performance.

**Low Loss** : Smaller core loss, higher exchange efficiency, lower self heat of core can be obtained.

**Constant Permeability** : Small permeability change depending on magnetic field.

**Thin and Small Core** : Small miniature core enables to mount in a PC-card.

### Characteristics (Typical Value)

- **Specific Permeability**
  - Frequency vs. Permeability
  - Core Loss VS. Frequency
  - Impedance VS. Frequency
  - DC Bias Characteristic

- **Core Loss**
  - Core Loss VS. Frequency
  - Frequency [kHz]
  - Core Loss [kW/m³]

- **AL Value**
  - AL Value VS. Frequency
  - Frequency [kHz]
  - AL Value [μH/n²]

- **Impedance**
  - Impedance VS. Frequency
  - Frequency [kHz]
  - Impedance [Ω/m²]

- **DC Bias Characteristic**
  - Frequency [kHz]
  - DC [mA]
  - DC [mA]

---

*1 Reference value  *2 Tolerance±30%  *3 Measuring Condition : 10kHz,10mA, 1turn, R.T.

Don't hesitate to ask our sales section about other size items.

☆Magnetic core of pulse transformer
Communication instrument (ADSL etc.)
Small size, high density assemble

☆Magnetic core for common mode noise filter
Switching power supply
Communication and measuring instrument

☆Magnetic core for current transformer
Common mode noize filter
for switching power supply

RoHS compliant products
RoHS compliant products
After suitable heat treatment has been done, cobalt base amorphous material shows excellent magnetic properties. TOSHIBA MATERIALS has developed new high permeability core ‘FS Series’ with this material. FS series maintain high initial permeability $\mu_i$ especially at the high frequency zone, and are suitable for Pulse Transformers, Noise Filter and Cores for Sensors. High permeability enables electronic parts to be smaller and have higher performance.

### Standard Specifications

<table>
<thead>
<tr>
<th>Type No.</th>
<th>Finished Dimensions [mm]</th>
<th>Core Size [mm]</th>
<th>Effective core cross section $Ae$ [mm$^2$]</th>
<th>Mean flux path length $L_m$ [mm]</th>
<th>AL Value $[\mu H/n^2]$</th>
<th>Insulating Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>O.D.max</td>
<td>I.D.min</td>
<td>H.T.max</td>
<td>O.D.</td>
<td>I.D.</td>
<td>H.T.</td>
</tr>
<tr>
<td>FS12X8X4.5W</td>
<td>14.0</td>
<td>6.6</td>
<td>6.8</td>
<td>12</td>
<td>8</td>
<td>4.5</td>
</tr>
<tr>
<td>FS18X12X4.5W</td>
<td>20.0</td>
<td>10.6</td>
<td>6.8</td>
<td>18</td>
<td>12</td>
<td>4.5</td>
</tr>
<tr>
<td>FS21X14X4.5W</td>
<td>23.0</td>
<td>12.6</td>
<td>6.8</td>
<td>21</td>
<td>14</td>
<td>4.5</td>
</tr>
<tr>
<td>FS26X16X10W</td>
<td>29.5</td>
<td>13.0</td>
<td>13.0</td>
<td>26</td>
<td>16</td>
<td>9.5</td>
</tr>
<tr>
<td>FS32X20X10W</td>
<td>35.5</td>
<td>17.0</td>
<td>13.0</td>
<td>32</td>
<td>20</td>
<td>9.5</td>
</tr>
</tbody>
</table>

Operating temperature has to be less than 85°C (include self rise up)

*1 Reference value  *2 Tolerance±30%  *3 Measuring Condition : 10kHz,10mA, 1turn, R.T.  
*4 Insulating cover made with UL94V-0 Approved Material.

Don't hesitate to ask our sales section about other size items.

### Applications

☆Magnetic core of pulse transformer
  - Communication instrument (ADSL etc.)
    - Small size, high density assemble
☆Magnetic core for common mode noise filter
  - Switching power supply
  - Communication and measuring instrument
☆Magnetic core for current transformer

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ADSL modem, or pulse transformer for terminal adapter

Common mode noise filter for switching power supply