Adjustable Inductance Assembly  

Type E 12.7x12.7x17.8

**Dimensional Data & General Description**

Mounting holes to be suitable for pins 0.92mm diameter and rectangular lugs 0.56x1.12mm.

The assembly consists of the following components:
1. Aluminium screening can
2. Screw core
3. Retaining ring
4. Cylindrical shell
5. Former
6. Baseplate

Parts 1, 3 and 6 are common to all types of this assembly, while parts 2, 4 and 5 are supplied in grades of material which are most suitable for the frequency of the application.

This assembly is suitable for use in the frequency range 0.05 to 50MHz. It has been developed essentially for printed circuit board applications. The Former is made of thermoplastic material. The Former is supplied riveted to the baseplate. The mounting position of the Former is offset to allow a capacitor to be fitted inside the can.
Assemblies Available and Q-values

The table below shows the recommended types of magnetic components and the grades of material for the specified frequency ranges and approximate unloaded Q-values.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Ref.</th>
<th>Frequency range</th>
<th>Screw core</th>
<th>Shell</th>
<th>Bobbin</th>
<th>c</th>
<th>Unloaded Q (approximate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>99-011-96*</td>
<td>E1</td>
<td>50-2000kHz</td>
<td>F14</td>
<td>F14</td>
<td>M5B</td>
<td>6.1</td>
<td>155 @ 470kHz 250 @ 1MHz</td>
</tr>
<tr>
<td>99-012-96*</td>
<td>E2</td>
<td>2-7.5MHz</td>
<td>F16</td>
<td>F16</td>
<td>M5B</td>
<td>5.8</td>
<td>155 @ 5.75MHz</td>
</tr>
<tr>
<td>99-013-96</td>
<td>E3</td>
<td>7.5-12MHz</td>
<td>F16</td>
<td>900</td>
<td>M9B</td>
<td>6.25</td>
<td>150 @ 10.7MHz</td>
</tr>
<tr>
<td>99-014-96</td>
<td>E4</td>
<td>12-50MHz</td>
<td>F29</td>
<td>900</td>
<td>M9B</td>
<td>7.6</td>
<td>125 @ 40MHz</td>
</tr>
</tbody>
</table>

*Only available in 4 pin

Electrical Specification

Example of windings:

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Ref.</th>
<th>Frequency</th>
<th>n</th>
<th>Wire</th>
<th>Winding</th>
</tr>
</thead>
<tbody>
<tr>
<td>99-011-96</td>
<td>E1</td>
<td>470kHz</td>
<td>140</td>
<td>3x0.06 EnCu</td>
<td>layer</td>
</tr>
<tr>
<td>99-011-96</td>
<td>E1</td>
<td>1MHz</td>
<td>52</td>
<td>24x0.04 DS EnCu</td>
<td>layer</td>
</tr>
<tr>
<td>99-012-96</td>
<td>E2</td>
<td>5.75MHz</td>
<td>17</td>
<td>3x0.06 EnCu</td>
<td>close</td>
</tr>
<tr>
<td>99-013-96</td>
<td>E3</td>
<td>10.7MHz</td>
<td>10</td>
<td>30x0.04 DS EnCu</td>
<td>close</td>
</tr>
<tr>
<td>99-014-96</td>
<td>E4</td>
<td>40MHz</td>
<td>4</td>
<td>0.38 EnCu</td>
<td>spaced</td>
</tr>
</tbody>
</table>

Note. The values of Q shown in the table for Assemblies available were obtained using the above coils

Number of Turns

The approximate number of turns is \( n = c \sqrt{L} \) where \( c \) is the constant listed in the table and \( L \) is the required value of inductance in microhenries. Maximum inductance for E1 assembly when wound with 0.08 EnCu is 9.9mH.

Inductance Adjustment

Not less than ± 15% for all assemblies.

Temperature Coefficient

The value of the temperature coefficient is greatly affected by the structure of the winding and reliable data can only be obtained from measurement of coils wound under production conditions. A typical value for all assemblies is:

+150x10⁶ per °C
Adjustable Inductance Assembly

Type H 10.2x10.2x11-HA

Dimensional Data & General Description

Mounting holes to be suitable for square pins 0.70mm across diagonal and for lugs 0.33x1.35mm.

The assembly consists of the following components:
1. Screening can
2. Screw core (iron powder)
3. Shell (iron powder)
4. Former 4 pin (glass filled Phenolic)

This assembly has been designed for use in professional applications where a high degree of stability is required. The assembly is suitable for use up to 200MHz within the temperature range -55°C to 100°C.

Assemblies Available

The table below lists the assemblies recommended for use in the specified frequency ranges.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Assembly type</th>
<th>Frequency range</th>
</tr>
</thead>
<tbody>
<tr>
<td>99-041-96</td>
<td>HA1</td>
<td>0 - 1MHz</td>
</tr>
<tr>
<td>99-043-96</td>
<td>HA2</td>
<td>0 - 10MHz</td>
</tr>
<tr>
<td>99-045-96</td>
<td>HA3</td>
<td>5 - 70MHz</td>
</tr>
<tr>
<td>99-047-96</td>
<td>HA4</td>
<td>30 - 200MHz</td>
</tr>
</tbody>
</table>
Adjustable Inductance Assembly

Type K 7.5x7.5x10

Dimensional Data & General Description

Mounting holes to be suitable for pins 0.45mm square, provided the soldered wire termination extends no more than 1.5mm below the base.

The assembly consists of the following components:
1. Silver coated copper screening can
2. Ferrite screw core (self-locking)
3. Ferrite cup core
4. Former (glass filled Polybutylene Terephthalate)

This assembly has been designed for printed circuit applications and is suitable for use up to 200MHz. For optimum value of Q a cup core has to be used to prevent damping effect of the can. The former is designed to be a 'push fit'

Assemblies Available and $A_L$ Values

The table below shows the recommended types of magnetic components and grades of ferrite for the specified frequency ranges.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Ref.</th>
<th>Frequency range</th>
<th>Screw core</th>
<th>Cup core</th>
<th>$A_L$ values (nominal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>99-072-96</td>
<td>K2</td>
<td>0.1-5MHz</td>
<td>F14</td>
<td>F14</td>
<td>8nH</td>
</tr>
<tr>
<td>99-073-96</td>
<td>K3</td>
<td>5-12MHz</td>
<td>F16</td>
<td>F16</td>
<td>8nH</td>
</tr>
<tr>
<td>99-074-96</td>
<td>K4</td>
<td>12-20MHz</td>
<td>F22</td>
<td>F22</td>
<td>6.5nH</td>
</tr>
<tr>
<td>99-075-96</td>
<td>K5</td>
<td>20-60MHz</td>
<td>F25</td>
<td>F25</td>
<td>6nH</td>
</tr>
<tr>
<td>99-076-96</td>
<td>K6</td>
<td>60-200MHz</td>
<td>F29</td>
<td>F29</td>
<td>5.5nH</td>
</tr>
</tbody>
</table>
Adjustable Inductance Assembly

Type K 7.5x7.5x10

**Electrical Specification**

**Number of Turns**
The approximate number of turns can be calculated from the formula:

\[ L = A_L \cdot n^2 \text{ (nH)} \]

The cross-sectional area available for the winding is 3.5mm$^2$ and the mean length of the turn is 12.5mm.

**Inductance Adjustment**
Not less than ± 12% for all assemblies.

**Temperature Coefficient**
The value of the temperature coefficient is greatly affected by the structure of the winding and reliable data can only be obtained from measurement of coils wound under production conditions.

Typical values are:
- K2 and K3  \(+300\times10^{-6}\) per °C
- K4, K5 and K6  \(+200\times10^{-6}\) per °C
Adjustable Inductance Assembly

Type S 7.5x7.5x13

Dimensional Data & General Description

Mounting holes to be suitable for pins 0.45mm square, provided the soldered wire termination extends no more than 1.5mm below the base.

The assembly consists of the following components:
1. Silver coated copper screening can
2. Ferrite screw core (self-locking)
3. Ferrite cup core
4. Former (glass filled Polybutylene Terephthalate)

The two projections at the base of the former prevent the screw core from falling out when adjustment is made from the top assembly.

This assembly has been designed for printed circuit applications and is suitable for use from 0.1 to 12MHz. The former is designed to be a ‘push fit’ into the can.

Assemblies Available and A₁ Values

The table below shows the recommended types of magnetic components and grades of ferrite for the specified frequency ranges.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Ref.</th>
<th>Frequency range</th>
<th>Screw core</th>
<th>Cup core</th>
<th>A₁ values (nominal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>99-082-96</td>
<td>S2</td>
<td>0.1-5MHz</td>
<td>F14</td>
<td>F14</td>
<td>13nH</td>
</tr>
<tr>
<td>99-083-96</td>
<td>S3</td>
<td>5-12MHz</td>
<td>F16</td>
<td>F16</td>
<td>12nH</td>
</tr>
</tbody>
</table>
**Electrical Specification**

**Number of Turns**
The approximate number of turns can be calculated from the formula:

\[ L = A_t \cdot n^2 \text{ (nH)} \]

The cross-sectional area available for the winding is 3.5mm\(^2\) and the mean length of the turn is 12.5mm.

**Inductance Adjustment**
Not less than ± 15% for all assemblies.

**Temperature Coefficient**
The value of the temperature coefficient is greatly affected by the structure of the winding and reliable data can only be obtained from measurement of coils wound under production conditions. A typical value for all assemblies is:

+200\(\times\)10\(^{-6}\) per °C