Mn-Zn

Ferrite Cores for Switching Power Supplies

PQ series
Please be sure to read this manual thoroughly before using the products.

The products listed on this catalog are intended for use in general electronic equipment (AV equipment, telecommunications equipment, home appliances, amusement equipment, computer equipment, personal equipment, office equipment, measurement equipment, industrial robots) under a normal operation and use condition.

The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require a more stringent level of safety or reliability, or whose failure, malfunction or trouble could cause serious damage to society, person or property.

When using the products for specific purposes, please first make confirmations in areas such as safety, reliability, and quality.

Please understand that we are not in a position to be held responsible for any damage or the like caused by any use exceeding the range or conditions of this specification sheet or by any use in the specific applications.

(1) Aerospace/Aviation equipment
(2) Transportation equipment (electric trains, ships, etc.)
(3) Medical equipment
(4) Power-generation control equipment
(5) Atomic energy-related equipment
(6) Seabed equipment
(7) Transportation control equipment
(8) Public information-processing equipment
(9) Military equipment
(10) Electric heating apparatus, burning equipment
(11) Disaster prevention/crime prevention equipment
(12) Safety equipment
(13) Other applications that are not considered general-purpose applications

When using this product in general-purpose standard applications, you are kindly requested to take into consideration securing protection circuit/equipment or providing backup circuits, etc to ensure higher safety.
# Overview of the PQ Series

## FEATURES
- TDK’s original shapes
- The PQ Core occupies a smaller mounted area, as a transformer, compared to the E-core and EER-Core

## APPLICATION
Transformers and coils for Switched-mode power supplies (High Mounting Density, Low Profile)

## PART NUMBER CONSTRUCTION

<table>
<thead>
<tr>
<th>Material</th>
<th>Size of PQ core</th>
<th>Al-value (Z: without air gap)</th>
<th>Type</th>
<th>Number of lead slot</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC47</td>
<td>PQ20/16</td>
<td>Z</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>PC90</td>
<td>PQ20/20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PC95</td>
<td>PQ26/20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PQ26/25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PQ32/20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PQ32/30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PQ35/35</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PQ40/40</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>PQ50/50</td>
<td></td>
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</tr>
</tbody>
</table>

## RANGE OF USE AND STORAGE TEMPERATURE

<table>
<thead>
<tr>
<th>Temperature range</th>
<th>Operating temperature (°C)</th>
<th>Storage temperature (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-30 to +105</td>
<td>-30 to +85</td>
</tr>
</tbody>
</table>

RoHS Directive Compliant Product: See the following for more details related to RoHS Directive compliant products. [http://www.tdk.co.jp/rohs/](http://www.tdk.co.jp/rohs/)

Halogen-free: Indicates that Cl content is less than 900ppm, Br content is less than 900ppm, and that the total Cl and Br content is less than 1500ppm.

* All specifications are subject to change without notice.
# Mn-Zn PQ Cores

## SHAPES AND DIMENSIONS

![Diagram of PQ Cores](image)

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Dimensions (mm)</th>
<th>Part No.</th>
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<th>Part No.</th>
<th>Dimensions (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A1</td>
<td>A2</td>
<td>B</td>
<td>øC</td>
<td>2D</td>
</tr>
<tr>
<td>PC47PQ20/16Z-12</td>
<td>20.5±0.4</td>
<td>14.0±0.4</td>
<td>18.0±0.4</td>
<td>8.8±0.2</td>
<td>16.2±0.2</td>
</tr>
<tr>
<td>PC90PQ20/16Z-12</td>
<td>20.5±0.4</td>
<td>14.0±0.4</td>
<td>18.0±0.4</td>
<td>8.8±0.2</td>
<td>20.2±0.2</td>
</tr>
<tr>
<td>PC95PQ20/16Z-12</td>
<td>20.5±0.4</td>
<td>14.0±0.4</td>
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</tr>
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<td>18.0±0.4</td>
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<td>20.2±0.2</td>
</tr>
<tr>
<td>PC90PQ20/20Z-12</td>
<td>20.5±0.4</td>
<td>14.0±0.4</td>
<td>18.0±0.4</td>
<td>8.8±0.2</td>
<td>20.2±0.2</td>
</tr>
<tr>
<td>PC95PQ20/20Z-12</td>
<td>20.5±0.4</td>
<td>14.0±0.4</td>
<td>18.0±0.4</td>
<td>8.8±0.2</td>
<td>20.2±0.2</td>
</tr>
<tr>
<td>PC47PQ26/20Z-12</td>
<td>20.5±0.4</td>
<td>14.0±0.4</td>
<td>18.0±0.4</td>
<td>8.8±0.2</td>
<td>20.2±0.2</td>
</tr>
<tr>
<td>PC90PQ26/20Z-12</td>
<td>20.5±0.4</td>
<td>14.0±0.4</td>
<td>18.0±0.4</td>
<td>8.8±0.2</td>
<td>20.2±0.2</td>
</tr>
<tr>
<td>PC95PQ26/20Z-12</td>
<td>20.5±0.4</td>
<td>14.0±0.4</td>
<td>18.0±0.4</td>
<td>8.8±0.2</td>
<td>20.2±0.2</td>
</tr>
<tr>
<td>PC47PQ26/25Z-12</td>
<td>26.5±0.45</td>
<td>19.0±0.45</td>
<td>22.5±0.45</td>
<td>12.0±0.2</td>
<td>20.15±0.25</td>
</tr>
<tr>
<td>PC90PQ26/25Z-12</td>
<td>26.5±0.45</td>
<td>19.0±0.45</td>
<td>22.5±0.45</td>
<td>12.0±0.2</td>
<td>20.15±0.25</td>
</tr>
<tr>
<td>PC95PQ26/25Z-12</td>
<td>26.5±0.45</td>
<td>19.0±0.45</td>
<td>22.5±0.45</td>
<td>12.0±0.2</td>
<td>20.15±0.25</td>
</tr>
<tr>
<td>PC47PQ32/20Z-12</td>
<td>32.0±0.5</td>
<td>22.0±0.5</td>
<td>27.5±0.5</td>
<td>13.45±0.25</td>
<td>20.55±0.25</td>
</tr>
<tr>
<td>PC90PQ32/20Z-12</td>
<td>32.0±0.5</td>
<td>22.0±0.5</td>
<td>27.5±0.5</td>
<td>13.45±0.25</td>
<td>20.55±0.25</td>
</tr>
<tr>
<td>PC95PQ32/20Z-12</td>
<td>32.0±0.5</td>
<td>22.0±0.5</td>
<td>27.5±0.5</td>
<td>13.45±0.25</td>
<td>20.55±0.25</td>
</tr>
</tbody>
</table>

### Effective parameter

| Part No. | Core factor C (mm⁻¹) | Effective cross-sectional area Ae (mm²) | Effective magnetic path length / e (mm) | Effective core volume Ve (mm³) | Weigh (g) | Electrical characteristics
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PC47PQ20/16Z-12</td>
<td>0.605</td>
<td>37.4</td>
<td>2310</td>
<td>13</td>
<td>3880x25%</td>
<td>100±5%</td>
</tr>
<tr>
<td>PC90PQ20/16Z-12</td>
<td>0.738</td>
<td>45.4</td>
<td>2790</td>
<td>15</td>
<td>3150x25%</td>
<td>250±7%</td>
</tr>
<tr>
<td>PC95PQ20/16Z-12</td>
<td>0.391</td>
<td>46.3</td>
<td>5490</td>
<td>31</td>
<td>6170x25%</td>
<td>160±5%</td>
</tr>
<tr>
<td>PC47PQ20/20Z-12</td>
<td>0.472</td>
<td>55.5</td>
<td>6530</td>
<td>36</td>
<td>5250x25%</td>
<td>160±5%</td>
</tr>
<tr>
<td>PC90PQ20/20Z-12</td>
<td>0.326</td>
<td>55.5</td>
<td>9420</td>
<td>42</td>
<td>7310x25%</td>
<td>160±5%</td>
</tr>
</tbody>
</table>

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# Mn-Zn PQ Cores

## SHAPES AND DIMENSIONS

![Diagram of PQ Core Shapes and Dimensions]

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Dimensions (mm)</th>
<th>Al-value (Z: without air gap)</th>
<th>Type</th>
<th>Number of lead slot</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A1</td>
<td>A2</td>
<td>B</td>
<td>øC</td>
</tr>
<tr>
<td>PC47PQ32/30Z-12</td>
<td>32.0±0.5</td>
<td>22.0±0.5</td>
<td>27.5±0.5</td>
<td>13.45±0.25</td>
</tr>
<tr>
<td>PC90PQ32/30Z-12</td>
<td>35.1±0.6</td>
<td>26.0±0.5</td>
<td>32.0±0.5</td>
<td>14.35±0.25</td>
</tr>
<tr>
<td>PC95PQ32/30Z-12</td>
<td>40.5±0.9</td>
<td>28.0±0.6</td>
<td>37.0±0.6</td>
<td>14.9±0.3</td>
</tr>
<tr>
<td>PC47PQ35/35Z-12</td>
<td>35.1±0.6</td>
<td>26.0±0.5</td>
<td>32.0±0.5</td>
<td>14.35±0.25</td>
</tr>
<tr>
<td>PC90PQ35/35Z-12</td>
<td>40.5±0.9</td>
<td>28.0±0.6</td>
<td>37.0±0.6</td>
<td>14.9±0.3</td>
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<tr>
<td>PC95PQ35/35Z-12</td>
<td>50.0±0.7</td>
<td>32.0±0.5</td>
<td>44.0±0.7</td>
<td>20.0±0.35</td>
</tr>
</tbody>
</table>

## Effective Parameter

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Core factor (C1(mm⁻¹))</th>
<th>Effective cross-sectional area (Ae(mm²))</th>
<th>Effective magnetic path length (ℓe(mm))</th>
<th>Effective core volume (Ve(mm³))</th>
<th>Weigh (g)</th>
<th>Electrical characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Al-value (W)max. (1kHz)</td>
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<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Core loss (100kHz, 200mT)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100°C</td>
</tr>
<tr>
<td>PC47PQ32/30Z-12</td>
<td>0.464</td>
<td>161</td>
<td>74.6</td>
<td>12000</td>
<td>55</td>
<td>5140±25% 4900±25% 7000±25%</td>
</tr>
<tr>
<td>PC90PQ32/30Z-12</td>
<td>0.448</td>
<td>196</td>
<td>87.9</td>
<td>17300</td>
<td>73</td>
<td>4860±25% 4700±25% 7320±25%</td>
</tr>
<tr>
<td>PC95PQ32/30Z-12</td>
<td>0.508</td>
<td>201</td>
<td>102</td>
<td>20500</td>
<td>95</td>
<td>4300±25% 4300±25% 6400±25%</td>
</tr>
<tr>
<td>PC47PQ35/35Z-12</td>
<td>0.346</td>
<td>328</td>
<td>113</td>
<td>37200</td>
<td>195</td>
<td>6720±25% 6250±25% 9700±25%</td>
</tr>
</tbody>
</table>

• All specifications are subject to change without notice.
Mn-Zn PQ series  Part No.: PC47PQ20/16Z-12

**SHAPES AND DIMENSIONS**

![Dimensions in mm](image)

**Effective parameter**

<table>
<thead>
<tr>
<th>Core factor</th>
<th>Effective magnetic path length (mm)</th>
<th>Effective cross-sectional area (mm²)</th>
<th>Effective core volume (mm³)</th>
<th>Cross-sectional center pole area (mm²)</th>
<th>Minimum cross-sectional center pole area (mm²)</th>
<th>Cross-sectional winding area of core (mm²)</th>
<th>Weigh (g/set)</th>
<th>Electrical characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.605</td>
<td>37.4</td>
<td>62</td>
<td>2310</td>
<td>60.8</td>
<td>58.1</td>
<td>47.4</td>
<td>13</td>
<td>AL-value *</td>
</tr>
</tbody>
</table>

*C* Coil : ø0.35 2UEW 100Ts

Calculated output power (forward converter mode): 77W (100kHz)

**NI limit vs. AL-value (Typ.)**

**Al-value vs. Air gap length (Typ.)**

**Temperature rise vs. Total loss (Typ.)**

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**Mn-Zn PQ series**  
**Part No.: PC90PQ20/16Z-12**

### SHAPES AND DIMENSIONS

![Dimensions in mm](image)

### Effective parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core factor</td>
<td>0.605</td>
</tr>
<tr>
<td>Effective magnetic path length</td>
<td>37.4</td>
</tr>
<tr>
<td>Effective cross-sectional area</td>
<td>62</td>
</tr>
<tr>
<td>Effective volume</td>
<td>2310</td>
</tr>
<tr>
<td>Cross-sectional center pole area</td>
<td>60.8</td>
</tr>
<tr>
<td>Minimum cross-sectional area</td>
<td>58.1</td>
</tr>
<tr>
<td>Cross-sectional winding area</td>
<td>47.4</td>
</tr>
<tr>
<td>Weight</td>
<td>13</td>
</tr>
</tbody>
</table>

### Electrical characteristics

<table>
<thead>
<tr>
<th>AL-value</th>
<th>Core loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>10kHz 0.5mA</td>
<td>1.10</td>
</tr>
</tbody>
</table>

*Coil: ø0.35 2UEW 100Ts  
Calculated output power (forward converter mode): 70W

### NI limit vs. AL-value (Typ.)

- The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

### AL-value vs. Air gap length (Typ.)

- Measuring conditions
  - Coil: ø0.35 2UEW 100Ts
  - Frequency: 1kHz
  - Current level: 0.5mA
  - Ambient temperature: 25°C

### Temperature rise vs. Total loss (Typ.)

- Measuring conditions
  - Room space: approx. 400x300x300cm
  - Ambient temperature: 25°C
  - Humidity: 45%(%)RH.

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Mn-Zn PQ series  Part No.: PC95PQ20/16Z-12

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Mn-Zn  PQ series  Part No.: PC47PQ20/20Z-12

## SHAPES AND DIMENSIONS

Dimensions in mm

### Effective parameter

<table>
<thead>
<tr>
<th>Core factor</th>
<th>Effective magnetic path length $l_e$ (mm)</th>
<th>Effective cross-sectional area $Ae$ (mm$^2$)</th>
<th>Effective core volume $Ve$ (mm$^3$)</th>
<th>Cross-sectional center pole area $Acp$ (mm$^2$)</th>
<th>Minimum cross-sectional center pole area $Acp$ min. (mm$^2$)</th>
<th>Cross-sectional winding area of core $Acw$ (mm$^2$)</th>
<th>Weigh (g/set)</th>
<th>Electrical characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1 (mm$^{-1}$)</td>
<td>0.738</td>
<td>45.4</td>
<td>62</td>
<td>2790</td>
<td>60.8</td>
<td>58.1</td>
<td>65.8</td>
<td>15</td>
</tr>
</tbody>
</table>

*Calculated output power (forward converter mode): 99W (100kHz)*

### Measuring conditions

- **Coil**: ø0.35 2UEW 100Ts
- **Frequency**: 1kHz
- **Current level**: 0.5mA
- **Ambient temperature**: 25°C
- **Humidity**: 45(%)RH.

## Temperature rise vs. Total loss (Typ.)

Measuring conditions
- **Room space**: approx. 400x300x300cm
- **Ambient temperature**: 25°C
- **Humidity**: 45(%)RH.

## NI limit vs. Al-value (Typ.)

The 20% and 40% graph shows when a 20% and 40% drop from the initial Al-value has been made due to the DC superimposition.

Measuring conditions
- **Coil**: ø0.35 2UEW 100Ts
- **Frequency**: 1kHz
- **Current level**: 0.5mA
- **Ambient temperature**: 25°C

## Al-value vs. Air gap length (Typ.)

- **Center pole gap**

- **Measuring conditions**
  - **Room space**: approx. 400x300x300cm
  - **Ambient temperature**: 25°C
  - **Humidity**: 45(%)RH.

• All specifications are subject to change without notice.
Mn-Zn  PQ series  Part No.: PC90PQ20/20Z-12

**SHAPES AND DIMENSIONS**

![Dimensions in mm](image)

<table>
<thead>
<tr>
<th>Effective parameter</th>
<th>Core factor</th>
<th>Effective magnetic path length (mm)</th>
<th>Effective cross-sectional area (mm²)</th>
<th>Effective core volume (mm³)</th>
<th>Cross-sectional center pole area (mm²)</th>
<th>Minimum cross-sectional center pole area (mm²)</th>
<th>Cross-sectional winding area of core (mm²)</th>
<th>Weigh (g/set)</th>
<th>AL-value (nH/N²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C₁</td>
<td>0.738</td>
<td>45.4</td>
<td>62</td>
<td>2790</td>
<td>60.8</td>
<td>58.1</td>
<td>65.8</td>
<td>15</td>
<td>2700±25%</td>
</tr>
</tbody>
</table>

* Coil : ø0.35 2UEW 100Ts

Calculated output power (forward converter mode): 92W

The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

- **NI limit vs. AL-value (Typ.)**
- **Al-value vs. Air gap length (Typ.)**
- **Temperature rise vs. Total loss (Typ.)**

Measuring conditions:
- Coil : ø0.35 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

Measuring point:
- Room space: approx. 400x300x300cm
- Ambient temperature : 25°C
- Humidity : 45%(%)RH.

* All specifications are subject to change without notice.
**Mn-Zn PQ series**  
**Part No.: PC95PQ20/20Z-12**

**SHAPES AND DIMENSIONS**

![Dimensions in mm](image)

**Effective parameter**

<table>
<thead>
<tr>
<th>Core factor</th>
<th>Effective magnetic path length (fe, mm)</th>
<th>Effective cross-sectional area (Ae, mm²)</th>
<th>Effective core volume (Ve, mm³)</th>
<th>Minimum cross-sectional center pole area (Acp, mm²)</th>
<th>Minimum cross-sectional center pole area (Acp min, mm²)</th>
<th>Cross-sectional winding area of core (Acw, mm²)</th>
<th>Weigh (g/set)</th>
<th>Electrical characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1 (mm⁻¹)</td>
<td>0.738</td>
<td>45.4</td>
<td>62</td>
<td>2790</td>
<td>60.8</td>
<td>58.1</td>
<td>15</td>
<td>AL-value *</td>
</tr>
</tbody>
</table>

+ Load: 0.35 2UEW 100Ts
+ Calculated output power (forward converter mode): 96W

**NI limit vs. AL-value (Typ.)**

![Graph](image)

The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

**AL-value vs. Air gap length (Typ.)**

![Graph](image)

Measuring conditions:
- Coil: ø0.35 2UEW 100Ts
- Frequency: 1kHz
- Current level: 0.5mA
- Ambient temperature: 25°C

**Temperature rise vs. Total loss (Typ.)**

![Graph](image)

Measuring conditions:
- Room space: approx. 400x300x300cm
- Ambient temperature: 25°C
- Humidity: 45%(RH)

---

*All specifications are subject to change without notice.*
Mn-Zn  PQ series  Part No.: PC47PQ26/20Z-12

SHAPES AND DIMENSIONS

Dimensions in mm

Effective parameter

<table>
<thead>
<tr>
<th>Core factor</th>
<th>Effective magnetic path length (e)</th>
<th>Effective cross-sectional area (Ae)</th>
<th>Effective core volume (Ve)</th>
<th>Cross-sectional center pole area (Acp)</th>
<th>Minimum cross-sectional center pole area (Acp min.)</th>
<th>Weigh (g/set)</th>
<th>Electrical characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1 (mm⁻¹)</td>
<td>0.391</td>
<td>46.3</td>
<td>119</td>
<td>5490</td>
<td>113</td>
<td>109</td>
<td>AL-value ×</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60.4</td>
<td>Core loss (W)max.</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>31</td>
<td>100kHz 200mT 100°C</td>
</tr>
</tbody>
</table>

* Calculated output power (forward converter mode): 170W (100kHz)

Ni limit vs. Al-value (Typ.)

The 20% and 40% graph shows when a 20% and 40% drop from the initial Al-value has been made due to the DC superimposition.

Al-value vs. Air gap length (Typ.)

Measuring conditions
- Coil: ø0.35 2UEW 100Ts
- Frequency: 1kHz
- Current level: 0.5mA
- Ambient temperature: 25°C

Temperature rise vs. Total loss (Typ.)

Measuring conditions
- Room space: approx. 400x300x300cm
- Ambient temperature: 25°C
- Humidity: 45(%)RH.

• All specifications are subject to change without notice.
Mn-Zn  PQ series  Part No.: PC90PQ26/20Z-12

SHAPES AND DIMENSIONS

Dimensions in mm

Effective parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Core factor</td>
<td>0.391</td>
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<tr>
<td>Effective magnetic path length (C1)</td>
<td>0.5mA</td>
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<tr>
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<td>1kHz</td>
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<tr>
<td>Effective core volume (Ve)</td>
<td>100kHz</td>
</tr>
<tr>
<td>Cross-sectional center pole area (Acp)</td>
<td>200mT</td>
</tr>
<tr>
<td>Minimum cross-sectional center pole area (Acp min.)</td>
<td>100°C</td>
</tr>
<tr>
<td>Cross-sectional winding area of core (Acw)</td>
<td>5490</td>
</tr>
<tr>
<td>Weight (g/set)</td>
<td>119</td>
</tr>
<tr>
<td>AL-value (nH/N²)</td>
<td>5.5490</td>
</tr>
<tr>
<td>Total loss (Wmax)</td>
<td>113</td>
</tr>
<tr>
<td>Temperature rise of hot spot (°C)</td>
<td>109</td>
</tr>
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<td>Measuring conditions</td>
<td>Weigh</td>
</tr>
<tr>
<td>Measuring point</td>
<td>Electrical characteristics</td>
</tr>
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</table>

* Calculated output power (forward converter mode): 145W

NI limit vs. AL-value (Typ.)

The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

Measuring conditions
- Coil: ø0.35 2UEW 100Ts
- Frequency: 1kHz
- Current level: 0.5mA
- Ambient temperature: 25°C

Measuring point
Core
Coil
**Mn-Zn PQ series**  Part No.: PC95PQ26/20Z-12

### SHAPES AND DIMENSIONS

Dimensions in mm

#### Effective parameter

<table>
<thead>
<tr>
<th>Core factor</th>
<th>Effective magnetic path length $l_e$ (mm)</th>
<th>Effective cross-sectional area $A_e$ (mm²)</th>
<th>Effective core volume $V_e$ (mm³)</th>
<th>Cross-sectional center pole area $A_{cp}$ (mm²)</th>
<th>Minimum cross-sectional center pole area (mm²)</th>
<th>Cross-sectional winding area of core $A_{cw}$ (mm²)</th>
<th>Weigh (g/set)</th>
<th>Electrical characteristics</th>
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</thead>
<tbody>
<tr>
<td>$C_t$ (mm⁻¹)</td>
<td>0.391</td>
<td>48.3</td>
<td>119</td>
<td>5490</td>
<td>113</td>
<td>109</td>
<td>60.4</td>
<td>7470±25%</td>
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<td></td>
<td>31</td>
<td>2.62 2.20 2.62</td>
</tr>
</tbody>
</table>

*: Coil : ø0.35 2UEW 100Ts

Calculated output power (forward converter mode): 160W

#### NI limit vs. Al-value (Typ.)

The 20% and 40% graph shows when a 20% and 40% drop from the initial Al-value has been made due to the DC superimposition.

#### Al-value vs. Air gap length (Typ.)

Measuring conditions
- Coil : ø0.35 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

#### Temperature rise vs. Total loss (Typ.)

Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature: 25°C
- Humidity: 45%(RH)

* All specifications are subject to change without notice.
Mn-Zn  PQ series  Part No.: PC47PQ26/25Z-12

**SHAPES AND DIMENSIONS**

Dimensions in mm

<table>
<thead>
<tr>
<th>Effective parameter</th>
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<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Core factor C₁ (mm⁻¹)</td>
<td>Effective magnetic path length lₑ (mm)</td>
<td>Effective cross-sectional area Aₑ (mm²)</td>
<td>Effective core volume Vₑ (mm³)</td>
<td>Cross-sectional center pole area Acp (mm²)</td>
<td>Minimum cross-sectional center pole area Acp min. (mm²)</td>
<td>Cross-sectional winding area of core Acw (mm²)</td>
<td>Weigh (g/set)</td>
<td>Electrical characteristics</td>
</tr>
<tr>
<td>0.472</td>
<td>55.5</td>
<td>118</td>
<td>6530</td>
<td>113</td>
<td>109</td>
<td>84.5</td>
<td>36</td>
<td>AL-value * (nH/N²)</td>
</tr>
<tr>
<td></td>
<td>1kHz</td>
<td>100kHz</td>
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<td></td>
<td>0.5mA</td>
<td>0.5mA</td>
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<td>Temperatures: 100°C</td>
<td>25°C</td>
<td>25°C</td>
<td></td>
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<td>Measuring conditions</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coil : ø0.35 2UEW 100Ts</td>
<td>Frequency : 1kHz</td>
<td>Current level : 0.5mA</td>
<td>Ambient temperature : 25°C</td>
<td>Core loss (W)max. 100kHz 200mT 100°C</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

NL limit vs. Al-value (Typ.)

Al-value vs. Air gap length (Typ.)

Temperature rise vs. Total loss (Typ.)

The 20% and 40% graph shows when a 20% and 40% drop from the initial Al-value has been made due to the DC superimposition.

Measuring conditions
- Coil : ø0.35 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

Measuring point
- Core
- Coil

* All specifications are subject to change without notice.

Calculated output power (forward converter mode): 221W (100kHz)
**Mn-Zn PQ series**  
**Part No.: PC90PQ26/25Z-12**

### SHAPES AND DIMENSIONS

![Dimensions in mm](image)

### Effective parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core factor</td>
<td>0.472</td>
</tr>
<tr>
<td>Effective magnetic path length</td>
<td>55.5</td>
</tr>
<tr>
<td>Effective cross-sectional area</td>
<td>118</td>
</tr>
<tr>
<td>Effective core volume</td>
<td>6530</td>
</tr>
<tr>
<td>Cross-sectional center pole area</td>
<td>113</td>
</tr>
<tr>
<td>Minimum cross-sectional center pole area</td>
<td>109</td>
</tr>
<tr>
<td>Cross-sectional winding area of core</td>
<td>84.5</td>
</tr>
<tr>
<td>Weigh (g/set)</td>
<td>36</td>
</tr>
</tbody>
</table>

### AL-value characteristics

- **Core loss**: 2.9
- **Core loss (W)max.**: 100kHz 200mT 100°C
- **Core loss (W)max.**: 4500±25%
- **NI limit vs. AL-value**: 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

### Measuring conditions

- **Coil**: ø0.35 2UEW 100Ts
- **Frequency**: 1kHz
- **Current level**: 0.5mA
- **Ambient temperature**: 25°C
- **Humidity**: 45(%)RH.

### Measuring point

- **Core**: Measuring point
- **Coil**: Measuring point

---

*All specifications are subject to change without notice.*
Mn-Zn  PQ series  Part No.: PC95PQ26/25Z-12

**SHAPES AND DIMENSIONS**

- Dimensions in mm

### Effective parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1 (mm⁻¹)</td>
<td>0.472</td>
</tr>
<tr>
<td>Effective magnetic path length (mm)</td>
<td>55.5</td>
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<tr>
<td>Effective cross-sectional area (mm²)</td>
<td>118</td>
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<tr>
<td>Effective core volume (mm³)</td>
<td>6530</td>
</tr>
<tr>
<td>Cross-sectional center pole area (mm²)</td>
<td>113</td>
</tr>
<tr>
<td>Minimum cross-sectional center pole area (mm²)</td>
<td>109</td>
</tr>
<tr>
<td>Cross-sectional winding area of core (mm²)</td>
<td>84.5</td>
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<tr>
<td>Weigh (g/set)</td>
<td>38</td>
</tr>
<tr>
<td>AL-value (nH/N²) @ 1kHz</td>
<td>65200±25%</td>
</tr>
<tr>
<td>Core loss (W)max.</td>
<td>3.14</td>
</tr>
<tr>
<td>100kHz</td>
<td>2.63</td>
</tr>
<tr>
<td>200mT</td>
<td>3.14</td>
</tr>
</tbody>
</table>

* Coil: ø0.35 2UEW 100T

### Measuring conditions

- **Coil**: ø0.35 2UEW 100T
- **Frequency**: 1kHz
- **Current level**: 0.5mA
- **Ambient temperature**: 25°C

### Electrical characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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<tbody>
<tr>
<td>AL-value (nH/N²)</td>
<td>1kHz</td>
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<tr>
<td>AL-value (nH/N²)</td>
<td>100kHz</td>
</tr>
<tr>
<td>AL-value (nH/N²)</td>
<td>200mT</td>
</tr>
</tbody>
</table>

### NI limit vs. AL-value (Typ.)

The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

### AL-value vs. Air gap length (Typ.)

Measuring conditions

- **Coil**: ø0.35 2UEW 100T
- **Frequency**: 1kHz
- **Current level**: 0.5mA
- **Ambient temperature**: 25°C

### Temperature rise vs. Total loss (Typ.)

Measuring conditions

- **Room space**: approx. 400x300x300cm
- **Ambient temperature**: 25°C
- **Humidity**: 45%(%)RH.

### Notes

- All specifications are subject to change without notice.
Mn-Zn PQ series  Part No.: PC47PQ32/20Z-12

SHAPES AND DIMENSIONS

Dimensions in mm

Effective parameter

<table>
<thead>
<tr>
<th>Core factor</th>
<th>Effective magnetic path length te (mm)</th>
<th>Effective cross-sectional area Ae (mm²)</th>
<th>Effective core volume Ve (mm³)</th>
<th>Cross-sectional center pole area Acp (mm²)</th>
<th>Minimum cross-sectional center pole area Acp min. (mm²)</th>
<th>Cross-sectional winding area of core Acw (mm²)</th>
<th>Weigh (g/set)</th>
<th>Electrical characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1 (mm⁻¹)</td>
<td>0.326</td>
<td>55.5</td>
<td>170</td>
<td>9420</td>
<td>142</td>
<td>137</td>
<td>80.8</td>
<td>Al-value * (nH/N²)</td>
</tr>
<tr>
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<td></td>
<td>Core loss (W)</td>
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</tr>
</tbody>
</table>

* Coil : ø0.35 2UEW 100Ts

Calculated output power (forward converter mode): 245W (100kHz)

Temperature rise vs. Total loss (Typ.)

The 20% and 40% graph shows when a 20% and 40% drop from the initial Al-value has been made due to the DC superimposition.

Temperature rise of hot spot (ΔT°C)

Measuring conditions
- Coil : ø0.35 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

Measuring point
- Room space: approx. 400x300x 300cm
- Ambient temperature : 25°C
- Humidity : 45(%)RH.

Measuring point

- Core
- Coil

All specifications are subject to change without notice.
**Mn-Zn PQ series**  
**Part No.: PC90PQ32/20Z-12**

### SHAPES AND DIMENSIONS

Dimensions in mm

<table>
<thead>
<tr>
<th>Effective parameter</th>
<th>Electrical characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core factor</td>
<td>AL-value *</td>
</tr>
<tr>
<td>C1 (mm⁻¹)</td>
<td>(nH/N²)</td>
</tr>
<tr>
<td>Effective magnetic path length (mm)</td>
<td>1kHz</td>
</tr>
<tr>
<td>Effective cross-sectional area (mm²)</td>
<td>0.5mA</td>
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<tr>
<td>Effective core volume (mm³)</td>
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<tr>
<td>Cross-sectional center pole area (mm²)</td>
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<tr>
<td>Minimum cross-sectional center pole area (mm²)</td>
<td>1kHz</td>
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<tr>
<td>Cross-sectional winding area of core (mm²)</td>
<td>0.5mA</td>
</tr>
<tr>
<td>Weigh (g/set)</td>
<td>0.326</td>
</tr>
<tr>
<td>Dimensions in mm</td>
<td>55.5</td>
</tr>
<tr>
<td>NI limit vs. AL-value (Typ.)</td>
<td>AL-value vs. Air gap length (Typ.)</td>
</tr>
</tbody>
</table>

- **NI limit vs. AL-value (Typ.)**
  - Measuring conditions
    - Room space: approx. 400x300x300cm
    - Frequency: 1kHz
    - Current level: 0.5mA
    - Ambient temperature: 25°C
    - Humidity: 45%(RH)
  - The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

- **AL-value vs. Air gap length (Typ.)**
  - Measuring conditions
    - Coil: ø0.35 2UEW 100Ts
    - Frequency: 1kHz
    - Current level: 0.5mA
    - Ambient temperature: 25°C
  - Measuring point: Center pole gap

- **Temperature rise vs. Total loss (Typ.)**
  - Measuring conditions
    - Room space: approx. 400x300x300cm
    - Frequency: 1kHz
    - Current level: 0.5mA
    - Ambient temperature: 25°C
    - Humidity: 45%(RH)

* All specifications are subject to change without notice.
Mn-Zn  PQ series  Part No.: PC95PQ32/20Z-12

**SHAPES AND DIMENSIONS**

Dimensions in mm

### Effective parameter

<table>
<thead>
<tr>
<th>Core factor</th>
<th>Effective magnetic path length ($l_e$) (mm)</th>
<th>Effective cross-sectional area ($Ae$) (mm²)</th>
<th>Effective core volume ($Ve$) (mm³)</th>
<th>Cross-sectional center pole area ($Acp$) (mm²)</th>
<th>Minimum cross-sectional center pole area ($Acp$ min.) (mm²)</th>
<th>Cross-sectional winding area of core ($Acw$) (mm²)</th>
<th>Weigh (g/set)</th>
<th>Electrical characteristics</th>
<th>Core loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1 (mm⁻¹)</td>
<td>0.326</td>
<td>55.5</td>
<td>170</td>
<td>9420</td>
<td>142</td>
<td>137</td>
<td>80.8</td>
<td>Al-value (ohms/N²)</td>
<td>3.94</td>
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<td>Wmax. 100kHz</td>
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<td>200mT 25°C</td>
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* Coils: ø0.35 2UEW 100Ts

Calculated output power (forward converter mode): 237W

The 20% and 40% graph shows when a 20% and 40% drop from the initial Al-value has been made due to the DC superimposition.

### Measuring conditions

- **Coil**: ø0.35 2UEW 100Ts
- **Frequency**: 1kHz
- **Current level**: 0.5mA
- **Ambient temperature**: 25°C

### Measuring point

- **Room space**: approx. 400x300x300cm
- **Ambient temperature**: 25°C
- **Humidity**: 45%(RH)

*All specifications are subject to change without notice.*
Mn-Zn  PQ series  Part No.: PC47PQ32/30Z-12

**SHAPES AND DIMENSIONS**

![Dimensions in mm](image)

| Effective parameter | Core factor | Effective magnetic path length $d_e$ (mm) | Effective cross-sectional area $A_e$ (mm²) | Effective core volume $V_e$ (mm³) | Cross-sectional center pole area $A_{cp}$ (mm²) | Minimum cross-sectional center pole area $A_{cp\text{ min}}$ (mm²) | Cross-sectional winding area of core $A_{cw}$ (mm²) | Weigh (g/set) | Electrical characteristics | AL-value  

(Wh/N²)  
1kHz | 0.5mA | 100kHz | 200mT | 100°C | 5140±25% | 3.71 |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>C1 (mm⁻¹)</td>
<td>0.464</td>
<td>74.6</td>
<td>161</td>
<td>12000</td>
<td>142</td>
<td>137</td>
<td>149.6</td>
<td>55</td>
<td>5140±25%</td>
<td>3.71</td>
</tr>
</tbody>
</table>

* Coil : ø0.4 2UEW 100Ts

- Calculated output power (forward converter mode): 374W (100kHz)

**NI limit vs. AL-value (Typ.)**

The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

**Al-value vs. Air gap length (Typ.)**

**Temperature rise vs. Total loss (Typ.)**

Measuring conditions
- Coil : ø0.4 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

* All specifications are subject to change without notice.
Mn-Zn PQ series  Part No.: PC90PQ32/30Z-12

**SHAPES AND DIMENSIONS**

![Dimensions in mm](image)

### Effective parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective factor</td>
<td>C1</td>
</tr>
<tr>
<td>Core factor</td>
<td>0.464</td>
</tr>
<tr>
<td>Effective magnetic path length</td>
<td>fₑ</td>
</tr>
<tr>
<td>Effective cross-sectional area</td>
<td>Ae</td>
</tr>
<tr>
<td>Effective cross-sectional area</td>
<td>Ae</td>
</tr>
<tr>
<td>Cross-sectional center pole area</td>
<td>Acp</td>
</tr>
<tr>
<td>Cross-sectional center pole area</td>
<td>Acp</td>
</tr>
<tr>
<td>Minimum cross-sectional center pole area</td>
<td>Acp min.</td>
</tr>
<tr>
<td>Cross-sectional winding area of core</td>
<td>Acw</td>
</tr>
<tr>
<td>Weigh</td>
<td>g/set</td>
</tr>
<tr>
<td>NI limit vs. AL-value (Typ.)</td>
<td></td>
</tr>
<tr>
<td>AL-value vs. Air gap length (Typ.)</td>
<td></td>
</tr>
<tr>
<td>Temperature rise vs. Total loss (Typ.)</td>
<td></td>
</tr>
</tbody>
</table>

### Electrical characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL-value</td>
<td></td>
</tr>
<tr>
<td>Core loss</td>
<td></td>
</tr>
</tbody>
</table>

### Measuring conditions

- **Coil**: ø0.4 2UEW 100Ts
- **Frequency**: 1kHz
- **Current level**: 0.5mA
- **Ambient temperature**: 25°C

\[ \text{NI} = \frac{\text{NI}_{20\%} - \text{NI}_{40\%}}{3} \times \text{AL} - 1.0411 \]

\[ \text{NI} = \frac{\text{NI}_{20\%} - \text{NI}_{40\%}}{3} \times \text{AL} - 1.0042 \]

*All specifications are subject to change without notice.*

- Measuring point
  - Core
  - Coil
Mn-Zn PQ series  Part No.: PC95PQ32/30Z-12

SHAPES AND DIMENSIONS

Dimensions in mm

<table>
<thead>
<tr>
<th>Effective parameter</th>
<th>Electrical characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core factor</td>
<td>Core loss</td>
</tr>
<tr>
<td>C1 (mm⁻¹)</td>
<td>(W)max.</td>
</tr>
<tr>
<td>Effective magnetic path length (mm)</td>
<td>100kHz 200mT 25°C 80°C 120°C</td>
</tr>
<tr>
<td>Effective cross-sectional area (mm²)</td>
<td>1kHz 0.5mA</td>
</tr>
<tr>
<td>Effective core volume (mm³)</td>
<td>7000x25% 5.30 4.45 5.30</td>
</tr>
<tr>
<td>Cross-sectional center pole area (mm²)</td>
<td>22.0 ± 0.5 30.35 ± 0.25</td>
</tr>
<tr>
<td>Minimum cross-sectional center pole area (mm²)</td>
<td>ø13.45 ± 0.25 27.5 ± 0.5 32.0 ± 0.5</td>
</tr>
<tr>
<td>Cross-sectional winding area of core (mm²)</td>
<td>ø19.0–0</td>
</tr>
<tr>
<td>Weight (g/set)</td>
<td>AL-value (nH/N²)</td>
</tr>
<tr>
<td>0.464 74.6 161 12000 142 137 149.6 55</td>
<td>5.30 4.45 5.30</td>
</tr>
</tbody>
</table>

* Coil: ø0.4 2UEW 100Ts

• Calculated output power (forward converter mode): 365W

NI limit vs. AL-value (Typ.)

The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

Al-value vs. Air gap length (Typ.)

Measuring conditions
• Coil: ø0.4 2UEW 100Ts
• Frequency: 1kHz
• Current level: 0.5mA
• Ambient temperature: 25°C

Temperature rise vs. Total loss (Typ.)

Measuring conditions
• Room space: approx. 400x300x300cm
• Ambient temperature: 25°C
• Humidity: 45%/RH.

• All specifications are subject to change without notice.
Mn-Zn  PQ series  Part No.: PC47PQ35/35Z-12

SHAPES AND DIMENSIONS

Dimensions in mm

Effective parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core factor</td>
<td>0.448</td>
</tr>
<tr>
<td>Effective magnetic path length d (mm)</td>
<td>87.9</td>
</tr>
<tr>
<td>Effective cross-sectional area Ae (mm²)</td>
<td>196</td>
</tr>
<tr>
<td>Effective core volume Ve (mm³)</td>
<td>17300</td>
</tr>
<tr>
<td>Cross-sectional center pole area Acp (mm²)</td>
<td>162</td>
</tr>
<tr>
<td>Minimum cross-sectional center pole are Acp min. (mm²)</td>
<td>156</td>
</tr>
<tr>
<td>Cross-sectional winding area of core Acw (mm²)</td>
<td>220.6</td>
</tr>
<tr>
<td>Weight (g/set)</td>
<td>73</td>
</tr>
<tr>
<td>AL-value (nH/N²)</td>
<td>4860±25%</td>
</tr>
<tr>
<td>Core loss (Wmax.)</td>
<td>4.98</td>
</tr>
</tbody>
</table>

* Coil : ø0.4 2UEW 100Ts
  ○ Calculated output power (forward converter mode): 495W (100kHz)

NI limit vs. AL-value (Typ.)

Al-value vs. Air gap length (Typ.)

Temperature rise vs. Total loss (Typ.)

The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

Measuring conditions
  • Coil : ø0.4 2UEW 100Ts
  • Frequency : 1kHz
  • Current level : 0.5mA
  • Ambient temperature : 25°C

Measuring conditions
  • Room space: approx. 400x300x300cm
  • Ambient temperature : 25°C
  • Humidity : 45%(%)RH.

* All specifications are subject to change without notice.
Mn-Zn  PQ series  Part No.: PC90PQ35/35Z-12

SHAPES AND DIMENSIONS

Dimensions in mm

<table>
<thead>
<tr>
<th>Effective parameter</th>
<th>Core factor</th>
<th>Effective magnetic path length</th>
<th>Effective cross-sectional area</th>
<th>Effective core volume</th>
<th>Cross-sectional center pole area</th>
<th>Minimum cross-sectional center pole area</th>
<th>Weigh</th>
<th>Electrical characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>0.448</td>
<td>fL (mm)</td>
<td>Ae (mm²)</td>
<td>Ve (mm³)</td>
<td>Acp (mm²)</td>
<td>Acp min. (mm²)</td>
<td>73</td>
<td>Al-value *</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(mm⁻¹)</td>
<td>(mm)</td>
<td>(mm³)</td>
<td>(mm²)</td>
<td>(mm²)</td>
<td></td>
<td>(nH/N²)</td>
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<td>0.5mA</td>
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<td>100°C</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>(W)max.</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100°C</td>
</tr>
</tbody>
</table>

* Coil : ø0.4 2UEW 100Ts
  Calculated output power (forward converter mode): 476W

NI limit vs. Al-value (Typ.)

Al-value vs. Air gap length (Typ.)

Temperature rise vs. Total loss (Typ.)

The 20% and 40% graph shows when a 20% and 40% drop from the initial Al-value has been made due to the DC superimposition.

Measuring conditions
- Coil : ø0.4 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature : 25°C
- Humidity: 45(%)RH.

All specifications are subject to change without notice.
Mn-Zn  PQ series  Part No.: PC95PQ35/35Z-12

### SHAPES AND DIMENSIONS

![Dimensions in mm](image)

### Effective parameter

<table>
<thead>
<tr>
<th>Core factor</th>
<th>Effective magnetic path length (Fe) (mm)</th>
<th>Effective cross-sectional area (Ae) (mm²)</th>
<th>Effective core volume (Ve) (mm³)</th>
<th>Cross-sectional center pole area (Acp) (mm²)</th>
<th>Minimum cross-sectional center pole area (Acp min.) (mm²)</th>
<th>Cross-sectional winding area of core (Acw) (mm²)</th>
<th>Weigh (g/set)</th>
<th>AL-value *</th>
<th>Core loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1 (mm⁻¹)</td>
<td>0.448</td>
<td>87.9</td>
<td>196</td>
<td>17300</td>
<td>162</td>
<td>156</td>
<td>220.6</td>
<td>73</td>
<td>7320 x 25%</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td>7.12</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
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<td>7.12</td>
</tr>
</tbody>
</table>

* Coil : ø0.4 2UEW 100Ts

**Calculated output power (forward converter mode): 512W**

### NI limit vs. AL-value (Typ.)

![Graph](image)

The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

### AL-value vs. Air gap length (Typ.)

![Graph](image)

Measuring conditions
- Coil: ø0.4 2UEW 100Ts
- Frequency: 1kHz
- Current level: 0.5mA
- Ambient temperature: 25°C

### Temperature rise vs. Total loss (Typ.)

![Graph](image)

Measuring conditions
- Room space: approx. 400x300x300cm
- Ambient temperature: 25°C
- Humidity: 45%(RH)

*All specifications are subject to change without notice.*
Mn-Zn  PQ series  Part No.: PC47PQ40/40Z-12

### Shapes and Dimensions

- Dimensions in mm

### Effective Parameter

<table>
<thead>
<tr>
<th>Effective parameter</th>
<th>Core factor</th>
<th>Effective magnetic path length</th>
<th>Effective cross-sectional area</th>
<th>Effective core volume</th>
<th>Cross-sectional center pole area</th>
<th>Minimum cross-sectional center pole area</th>
<th>Cross-sectional winding area of core</th>
<th>Weigh</th>
<th>Core loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>0.508</td>
<td>102</td>
<td>201</td>
<td>20500</td>
<td>174</td>
<td>167</td>
<td>326</td>
<td>95</td>
<td>4300 ± 25%</td>
</tr>
<tr>
<td>(mm(^{-1}))</td>
<td></td>
<td>(mm)</td>
<td>(mm(^{2}))</td>
<td>(mm(^{3}))</td>
<td>(mm(^{2}))</td>
<td>(mm(^{2}))</td>
<td>(g/set)</td>
<td></td>
<td>6.21</td>
</tr>
</tbody>
</table>

* Coil: ø0.4 2UEW 100Ts

** Calculated output power (forward converter mode): 708W (100kHz)

### Electrical Characteristics

- AL-value

### Measuring Conditions

- Room space: approx. 400x300x300cm
- Ambient temperature: 25°C
- Humidity: 45%(%RH)

The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.
**SHAPES AND DIMENSIONS**

Dimensions in mm

**Effective parameter**

<table>
<thead>
<tr>
<th>Core factor</th>
<th>Effective magnetic path length (mm)</th>
<th>Effective cross-sectional area (mm²)</th>
<th>Effective core volume (mm³)</th>
<th>Cross-sectional center pole area (mm²)</th>
<th>Minimum cross-sectional center pole area (mm²)</th>
<th>Cross-sectional winding area of core (mm²)</th>
<th>Weigh (g/set)</th>
<th>AL-value *</th>
<th>Core loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1 (mm⁻¹)</td>
<td>0.508</td>
<td>102</td>
<td>201</td>
<td>20500</td>
<td>174</td>
<td>167</td>
<td>326</td>
<td>95</td>
<td>4300±25%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(mm)</td>
<td>(mm²)</td>
<td>(mm³)</td>
<td>(mm²)</td>
<td>(mm²)</td>
<td>(g/set)</td>
<td>(nH/N²)</td>
<td>(W)max.</td>
</tr>
<tr>
<td></td>
<td>1kHz</td>
<td>0.5mA</td>
<td>1kHz</td>
<td>0.5mA</td>
<td>257.32×lg –0.7457</td>
<td>Temp: 100°C</td>
<td>101°C</td>
<td></td>
<td>200mT</td>
</tr>
</tbody>
</table>

* Coil : ø0.4 2UEW 100Ts

Calculated output power (forward converter mode): 692W

**NI limit vs. AL-value (Typ.)**

The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

**Al-value vs. Air gap length (Typ.)**

Measuring conditions
- Coil : ø0.4 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

**Temperature rise vs. Total loss (Typ.)**

Measuring conditions
- Room space: approx. 400x300x300cm
- Ambient temperature : 25°C
- Humidity : 45%(%RH)

---

* All specifications are subject to change without notice.
Mn-Zn  PQ series  Part No.: PC95PQ40/40Z-12

SHAPES AND DIMENSIONS

Dimensions in mm

Effective parameter

<table>
<thead>
<tr>
<th>Core factor</th>
<th>Effective magnetic path length d_eff (mm)</th>
<th>Effective cross-sectional area A_eff (mm²)</th>
<th>Effective core volume V_eff (mm³)</th>
<th>Cross-sectional center pole area Acp (mm²)</th>
<th>Minimum cross-sectional center pole area Acp min. (mm²)</th>
<th>Cross-sectional winding area of core Acw (mm²)</th>
<th>Weigh (g/set)</th>
<th>AL-value *</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.508</td>
<td>102</td>
<td>201</td>
<td>20500</td>
<td>174</td>
<td>167</td>
<td>326</td>
<td>95</td>
<td>6400±25%</td>
</tr>
</tbody>
</table>

* Coil: ø0.4 2UEW 100Ts

- Calculated output power (forward converter mode): 747W

NI limit vs. AL-value (Typ.)

Al-value vs. Air gap length (Typ.)

Temperature rise vs. Total loss (Typ.)

The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

Measuring conditions
- Coil: ø0.4 2UEW 100Ts
- Frequency: 1kHz
- Current level: 0.5mA
- Ambient temperature: 25°C

Measuring conditions
- Room space: approx. 400x300x300cm
- Ambient temperature: 25°C
- Humidity: 45%(%)RH.

• All specifications are subject to change without notice.
Mn-Zn PQ series  Part No.: PC47PQ50/50Z-12

**SHAPES AND DIMENSIONS**

![Dimensions in mm]

### Effective parameter

<table>
<thead>
<tr>
<th></th>
<th>Core factor</th>
<th>Effective magnetic path length per unit (mm(^{-1}))</th>
<th>Effective cross-sectional area (mm(^2))</th>
<th>Effective core volume (mm(^3))</th>
<th>Cross-sectional center pole area (mm(^2))</th>
<th>Minimum cross-sectional center pole area (mm(^2))</th>
<th>Cross-sectional winding area of core (mm(^2))</th>
<th>Weigh (g/set)</th>
<th>AL-value (\times 10^6) (nH/N(^2))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core factor (C_1)</td>
<td>0.346</td>
<td>113</td>
<td>328</td>
<td>37200</td>
<td>314</td>
<td>303</td>
<td>433</td>
<td>195</td>
<td>6720±25%</td>
</tr>
<tr>
<td>NI limit vs. AL-value (Typ.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

### NI limit vs. AL-value (Typ.)

![Graph of NI limit vs. AL-value (Typ.)]

### AL-value vs. Air gap length (Typ.)

![Graph of AL-value vs. Air gap length (Typ.)]

### Temperature rise vs. Total loss (Typ.)

![Graph of Temperature rise vs. Total loss (Typ.)]

**Electrical characteristics**

- **NI limit vs. AL-value**
  - Measuring conditions:
    - Coil: ø0.4 2UEW 100Ts
    - Frequency: 1kHz
    - Current level: 0.5mA
    - Ambient temperature: 25°C
  - Measuring point: Core, Coil

- **AL-value vs. Air gap length**
  - Measuring conditions:
    - Room space: approx. 400x300x300cm
    - Ambient temperature: 25°C
    - Humidity: 45%(%)RH.

- **Temperature rise vs. Total loss**
  - Measuring conditions:
    - Room space: approx. 400x300x300cm
    - Ambient temperature: 25°C
    - Humidity: 45%(%)RH.

- **Core loss**
  - Max. total loss: 100kHz, 200mT, 100°C

- **Effective parameter**: Electrical characteristics
  - AL-value \(\times 10^6\) (nH/N\(^2\))
    - 1kHz
    - 0.5mA

- **NI limit vs. AL-value**
  - NI limit vs. AL-value
    - NI20%=180683×AL–1.0753
    - NI40%=139909×AL–1.0251

**All specifications are subject to change without notice.**
Mn-Zn  PQ series  Part No.: PC90PQ50/50Z-12

SHAPES AND DIMENSIONS

Dimensions in mm

Effective parameter

<table>
<thead>
<tr>
<th>Effective parameter</th>
<th>Core factor</th>
<th>Effective magnetic path length Fe (mm)</th>
<th>Effective cross-sectional area Ae (mm²)</th>
<th>Effective core volume Ve (mm³)</th>
<th>Cross-sectional center pole area Acp (mm²)</th>
<th>Minimum cross-sectional center pole area Acp min. (mm²)</th>
<th>Cross-sectional winding area of core Acw (mm²)</th>
<th>Weigh (g/set)</th>
<th>Electrical characteristics</th>
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<tbody>
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<td>C1 (mm⁻¹)</td>
<td>0.346</td>
<td>113</td>
<td>328</td>
<td>37200</td>
<td>314</td>
<td>303</td>
<td>433</td>
<td>195</td>
<td>Al-value *</td>
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<td>Core loss</td>
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<tr>
<td>* Coil: ø0.4 2UEW 100Ts</td>
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</table>
| Calculated output power (forward converter mode): 1045W

NI limit vs. Al-value (Typ.)

The 20% and 40% graph shows when a 20% and 40% drop from the initial Al-value has been made due to the DC superimposition.

Al-value vs. Air gap length (Typ.)

Measuring conditions
- Coil: ø0.4 2UEW 100Ts
- Frequency: 1kHz
- Current level: 0.5mA
- Ambient temperature: 25°C

Temperature rise vs. Total loss (Typ.)

Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature: 25°C
- Humidity: 45(%)RH.

All specifications are subject to change without notice.
Mn-Zn  PQ series  Part No.: PC95PQ50/50Z-12

SHAPES AND DIMENSIONS

Dimensions in mm

Effective parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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<tr>
<td>Core factor</td>
<td>0.346</td>
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<tr>
<td>Effective magnetic path length</td>
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</tr>
<tr>
<td>Effective cross-sectional area</td>
<td>328</td>
</tr>
<tr>
<td>Effective core volume</td>
<td>37200</td>
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<tr>
<td>Cross-sectional center pole area</td>
<td>314</td>
</tr>
<tr>
<td>Minimum cross-sectional center pole area</td>
<td>303</td>
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<tr>
<td>Cross-sectional winding area</td>
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</tr>
<tr>
<td>Weigh (g/set)</td>
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<td>Electrical characteristics</td>
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<tr>
<td>AL-value</td>
<td>9700±25%</td>
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<td>Core loss (W)</td>
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<tr>
<td>Measuring conditions</td>
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</tr>
</tbody>
</table>

Typical values:

- Coil: ø0.4 2UEW 100Ts
- Frequency: 1kHz
- Current level: 0.5mA
- Ambient temperature: 25°C

- Measuring conditions
- Room space: approx. 400x300x300cm
- Ambient temperature: 25°C
- Humidity: 45%(%RH).

All specifications are subject to change without notice.

Calculated output power (forward converter mode): 1078W

The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.