



Mn-Zn

Ferrite Core for Switching Power Supplies

E series

EI
EE, EF
EER
ETD



REMINDERS FOR USING THESE PRODUCTS

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

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.

Ferrite Cores for Switching Power Supplies

Product compatible with RoHS directive
Halogen-free

Overview of the E Series

FEATURES

- Standard form for use in most commonly used transformers.
- Shape conforms to JIS and IEC standards.
- EF, ETD cores have shapes that are commonly used in Europe.
- A wide range of sizes is available from 8mm to 60mm.

APPLICATION

Switched-mode power supply (SMPS), electronics, power adapters, transformers and coils for chargers


PART NUMBER CONSTRUCTION

| Material | Size of E core | AL-value (Z: without air gap) |
|--------------|---|----------------------------------|
| PC47 PC95 | EI12.5 | Z |
| | EI core | |
| | EI12.5 EI16 EI19 EI22 EI22/19/6 EI25 EI28 EI30 EI33/29/13 | |
| | EI35 EI40 EI50 EI60 | |
| | EE, EF core | |
| | EE8 EE10/11 EF12.6 EE13 EE16 SEE16 EF16 EE19 EE19/16 | |
| | EE20/20/5 EF20 EE22 EE25/19 EF25 EE25.4 EE30 EE30/30/7 EF32 | |
| | EE35/28B EE35 EE40 EE41/33C EE42/42/15 EE42/42/20 EE47/39 EE50 EE55/55/21 | |
| | EE57/47 EE60 | |
| | EER core | |
| | EER25.5 EER25.5 EER28 EER28 EER28L EER28L EER35 EER35 EER40 | |
| | EER40 EER42 EER42/42/20 EER49 | |
| | ETD core | |
| | ETD19 ETD24 ETD29 ETD34 ETD39 ETD44 ETD49 | |

RANGE OF USE AND STORAGE TEMPERATURE

| Temperature range | |
|-------------------------------|-----------------------------|
| Operating temperature (°C) | Storage temperature (°C) |
| -30 to +105 | -30 to +85 |

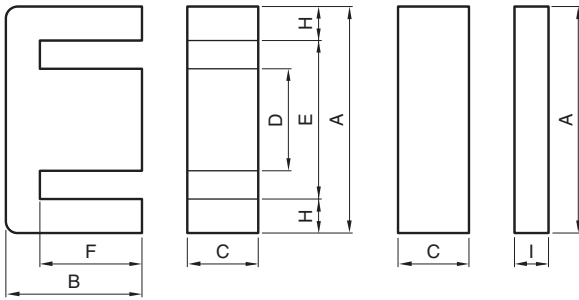
- RoHS Directive Compliant Product: See the following for more details related to RoHS Directive compliant products. <http://product.tdk.com/en/environment/rohs/>
- Halogen-free: Indicates that Cl content is less than 900ppm, Br content is less than 900ppm, and that the total Cl and Br content is less than 1500ppm.

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Mn-Zn EI Cores



SHAPES AND DIMENSIONS



| | | |
|----------|----------------|----------------------------------|
| PC47 | EI12.5 | Z |
| Material | Size of E core | AL-value (Z: without air gap) |

| Part No. | JIS | Dimensions (mm) | | | | | | | |
|-----------------|-----------------|--------------------------------------|------------|--------------------------------------|-----------|--------|------------|------|---------|
| | | A | B | C | D | E min. | F | H | I |
| PC47EI12.5-Z | JIS FEI 12.5 | 12.4±0.3 | 7.4±0.1 | 4.85±0.15 | 2.4±0.1 | 8.8 | 5.1±0.1 | 1.6 | 1.5±0.1 |
| PC47EI16-Z | JIS FEI 16 | 16.0±0.3 | 12.2±0.2 | 4.8±0.2 | 4.0±0.2 | 11.6 | 10.2±0.2 | 2.05 | 2.0±0.2 |
| PC47EI19-Z | | 20.0±0.3 | 13.55±0.25 | 5.0±0.2 | 4.55±0.15 | 14.3 | 11.15±0.15 | 2.75 | 2.3±0.1 |
| PC47EI22-Z | | 22.0±0.3 | 14.55±0.25 | 5.75±0.25 | 5.75±0.25 | 13.0 | 10.55±0.25 | 4.5 | 4.5±0.2 |
| PC47EI22/19/6-Z | JIS FEI 22 | 22.0±0.4 | 14.7±0.2 | 5.75±0.25 | 5.75±0.25 | 15.75 | 10.7±0.2 | 3.0 | 4.0±0.2 |
| PC47EI25-Z | | 25.3±0.5 | 15.55±0.25 | 6.75±0.25 | 6.5±0.3 | 19.0 | 12.35±0.25 | 3.0 | 2.7±0.2 |
| PC47EI28-Z | JIS FEI 28 | 28.0 ^{+0.7} _{-0.5} | 16.75±0.25 | 10.6±0.2(E core) 10.7±0.3(I core) | 7.2±0.3 | 18.4 | 12.25±0.25 | 4.5 | 3.5±0.3 |
| PC47EI30-Z | JIS FEI 30 | 30.0 ^{+0.7} _{-0.4} | 21.25±0.25 | 10.7±0.3 | 10.7±0.3 | 19.7 | 16.25±0.25 | 5.0 | 5.5±0.2 |

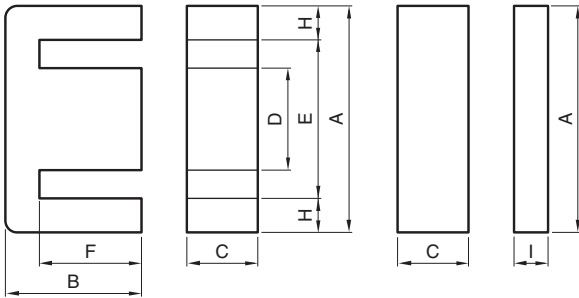
| Part No. | Effective parameter | | | | | Electrical characteristics | | |
|-----------------|---|---|---|--|--------------|--|-------------------|---|
| | Core factor C ₁ (mm ⁻¹) | Effective cross-sectional area A _e (mm ²) | Effective magnetic path length ℓ _e (mm) | Effective core volume V _e (mm ³) | Weigh (g) | AL-value (nH/N ²) 1kHz 0.5mA 100Ts Without air gap With air gap | | Core loss (W) max. 100kHz 200mT 100°C |
| PC47EI12.5-Z | 1.48 | 14.4 | 21.3 | 308 | 1.9 | 1200±25% | 63±7% 100±10% | 0.1 |
| PC47EI16-Z | 1.75 | 19.8 | 34.6 | 685 | 3.3 | 1100±25% | 80±7% 160±10% | 0.3 |
| PC47EI19-Z | 1.65 | 24.0 | 39.6 | 950 | 5.1 | 1400±25% | 80±7% 160±10% | 0.4 |
| PC47EI22-Z | 0.936 | 42.0 | 39.3 | 1650 | 9.8 | 2400±25% | 125±7% 250±10% | 0.6 |
| PC47EI22/19/6-Z | 1.13 | 37.0 | 41.8 | 1550 | 8.5 | 2000±25% | 125±7% 250±10% | 0.6 |
| PC47EI25-Z | 1.15 | 41.0 | 47.0 | 1930 | 9.8 | 2140±25% | 125±7% 250±10% | 0.8 |
| PC47EI28-Z | 0.56 | 86.0 | 48.2 | 4150 | 22 | 4300±25% | 200±5% 400±7% | 1.6 |
| PC47EI30-Z | 0.522 | 111 | 58.0 | 6440 | 34 | 4690±25% | 200±5% 400±7% | 2.2 |

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Mn-Zn EI Cores



SHAPES AND DIMENSIONS



| | | |
|----------|----------------|----------------------------------|
| PC47 | EI40 | Z |
| Material | Size of E core | AL-value (Z: without air gap) |

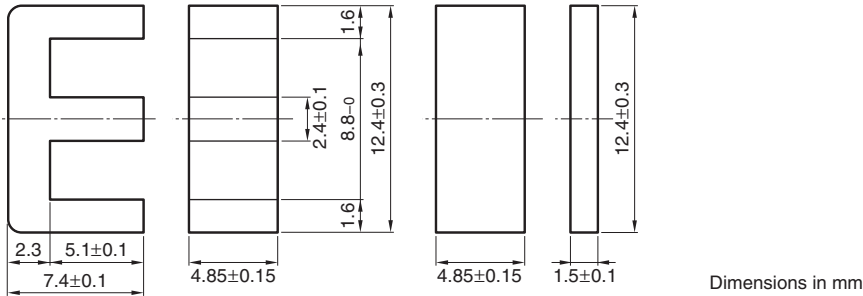
| Part No. | JIS | Dimensions (mm) | | | | | | | |
|------------------|---------------|--------------------------------------|------------|------------|------------|--------|------------|------|---------|
| | | A | B | C | D | E min. | F | H | I |
| PC47EI33/29/13-Z | | 33.0 ^{+0.8} _{-0.5} | 23.75±0.25 | 12.7±0.3 | 9.7±0.3 | 23.4 | 19.25±0.25 | 4.45 | 5.0±0.3 |
| PC47EI35-Z | JIS FEI 35 | 35.0±0.5 | 24.35±0.15 | 10.0±0.3 | 10.0±0.3 | 24.5 | 18.25±0.15 | 5.0 | 4.6±0.3 |
| PC47EI40-Z | JIS FEI 40 | 40.0±0.5 | 27.25±0.25 | 11.65±0.35 | 11.65±0.35 | 27.2 | 20.25±0.25 | 6.2 | 7.5±0.3 |
| PC47EI50-Z | JIS FEI 50 | 50.0 ^{+1.2} _{-0.7} | 33.35±0.35 | 14.6±0.4 | 14.6±0.4 | 33.5 | 24.75±0.25 | 7.7 | 9.0±0.3 |
| PC47EI60-Z | JIS FEI 60 | 60.0 ^{+1.4} _{-0.8} | 35.85±0.35 | 15.6±0.4 | 15.6±0.4 | 43.6 | 27.85±0.35 | 7.7 | 8.5±0.3 |

| Part No. | Effective parameter | | | | | Electrical characteristics | | |
|------------------|---|---|---|--|---------------|--|------------------|---|
| | Core factor C ₁ (mm ⁻¹) | Effective cross-sectional area A _e (mm ²) | Effective magnetic path length ℓ _e (mm) | Effective core volume V _e (mm ³) | Weight (g) | AL-value (nH/N ²) 1kHz 0.5mA 100Ts Without air gap With air gap | | Core loss (W) max. 100kHz 200mT 100°C |
| PC47EI33/29/13-Z | 0.567 | 119 | 67.5 | 8030 | 41 | 4400±25% | 200±5% 400±7% | 2.7 |
| PC47EI35-Z | 0.664 | 101 | 67.1 | 6780 | 36 | 3800±25% | 200±5% 400±7% | 2.3 |
| PC47EI40-Z | 0.520 | 148 | 77.0 | 11400 | 60 | 4860±25% | 200±5% 400±7% | 3.7 |
| PC47EI50-Z | 0.409 | 230 | 94.0 | 21620 | 115 | 6110±25% | 250±5% 500±7% | 8.6 |
| PC47EI60-Z | 0.441 | 247 | 109 | 26900 | 139 | 5670±25% | 250±5% 500±7% | 9.2 |

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Mn-Zn E series Part No.: PC47EI12.5-Z

■ SHAPES AND DIMENSIONS



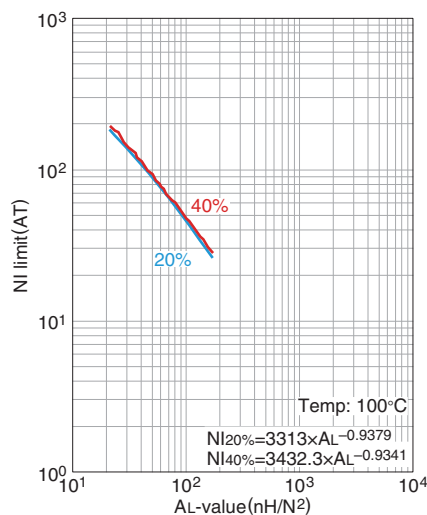
Based on JIS FEI 12.5.

| Effective parameter | | | | | | | | Electrical characteristics | | |
|------------------------------------|--|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length ℓ_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C ₁ (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 1.48 | 21.3 | 14.4 | 308 | 11.6 | 10.8 | 17.3 | 1.9 | 1200±25% | 2120 min. | 100kHz 200mT 100°C |
| | | | | | | | | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | | | 0.10 |

* Coil : ø0.2 2UEW 100Ts

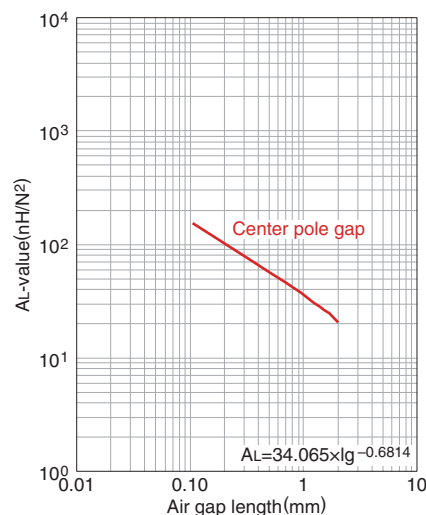
○ Calculated output power (forward converter mode): 11.5W (100kHz)

NI limit vs. AL-value (Typ.)



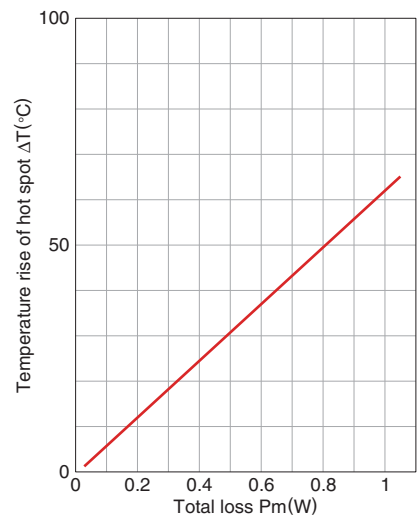
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

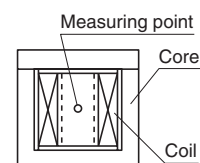


Measuring conditions
 • Coil : ø0.2 2UEW 100Ts
 • Frequency : 1kHz
 • Current level : 0.5mA
 • Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



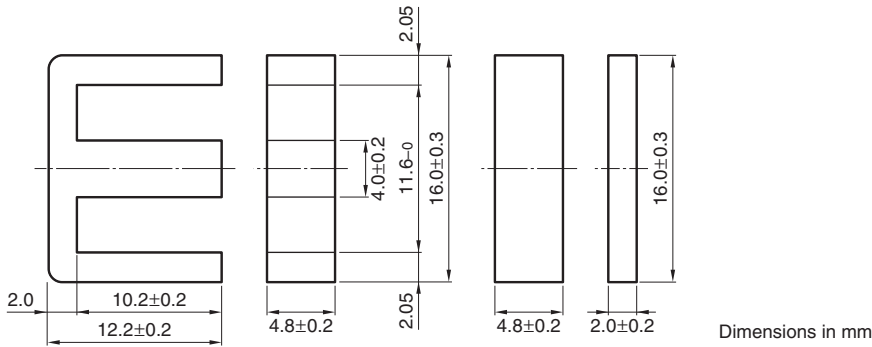
Measuring conditions
 • Room space: approx. 400x300x 300cm
 • Ambient temperature : 25°C
 • Humidity: 45(%RH).



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Mn-Zn E series Part No.: PC47EI16-Z

SHAPES AND DIMENSIONS



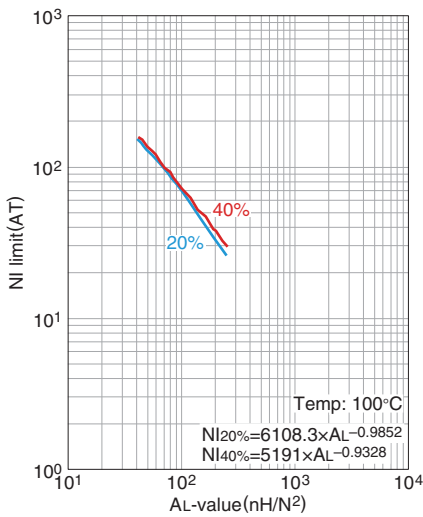
Based on JIS FEI 16.

| Effective parameter | | | | | | | | Electrical characteristics | | |
|------------------------|---|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length l_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C1 (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 1.75 | 34.6 | 19.8 | 685 | 19.2 | 17.5 | 40.3 | 3.3 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 1100±25% | 1750 min. | 0.29 |

* Coil : ø0.23 2UEW 100Ts

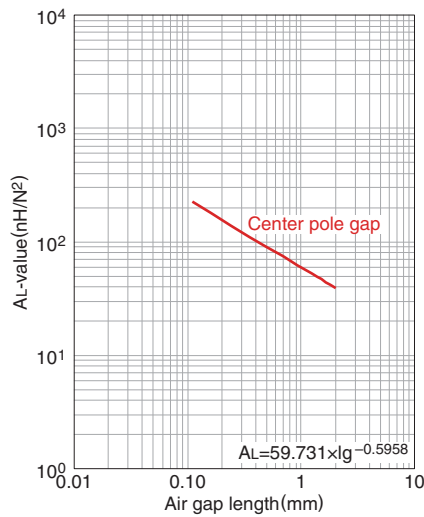
○ Calculated output power (forward converter mode): 33W (100kHz)

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.

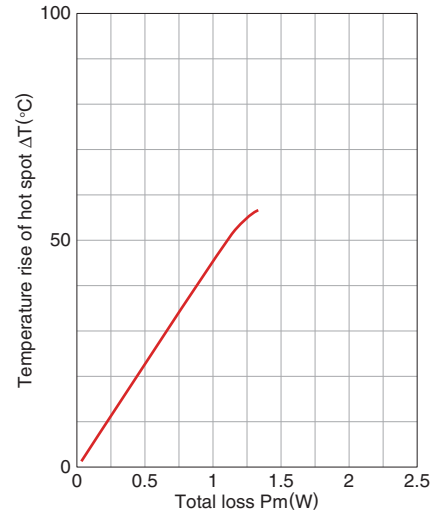
AL-value vs. Air gap length (Typ.)



Measuring conditions

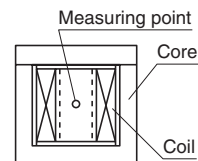
- Coil : ø0.23 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



Measuring conditions

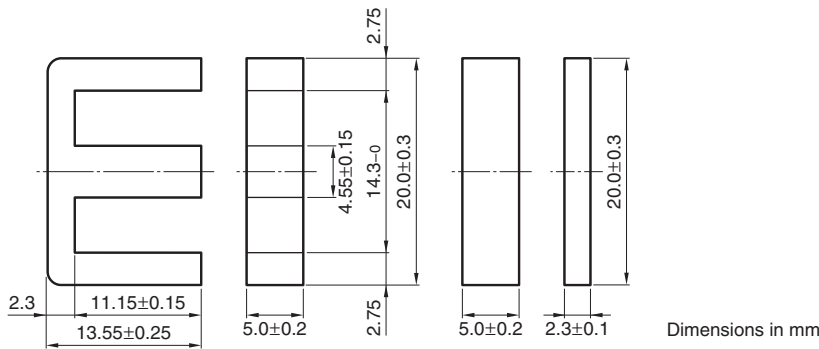
- Room space: approx. 400x300x 300cm
- Ambient temperature : 25°C
- Humidity: 45(%)RH.



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Mn-Zn E series Part No.: PC47EI19-Z

■ SHAPES AND DIMENSIONS



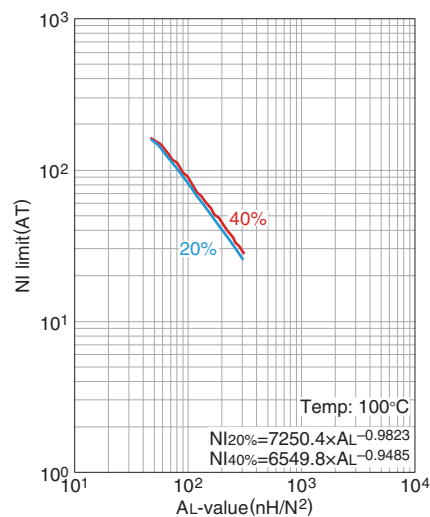
Based on JIS FEI 12.5.

| Effective parameter | | | | | | | | Electrical characteristics | | |
|------------------------|--|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length ℓ_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C1 (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 1.65 | 39.6 | 24.0 | 950 | 22.8 | 21.1 | 55.5 | 5.1 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 1400±25% | 1830 min. | 0.39 |

* Coil : ø0.23 2UEW 100Ts

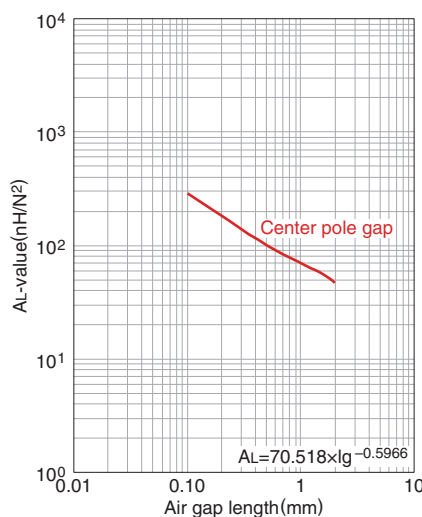
○ Calculated output power (forward converter mode): 45W (100kHz)

NI limit vs. AL-value (Typ.)



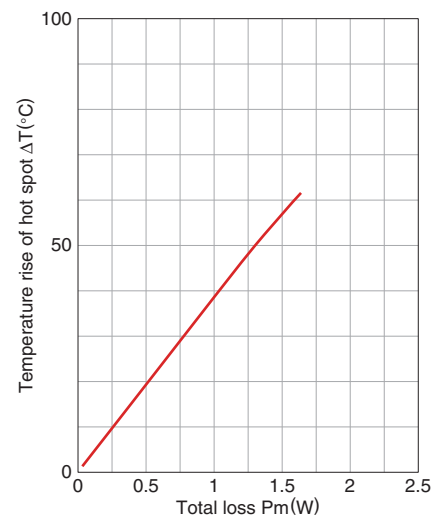
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

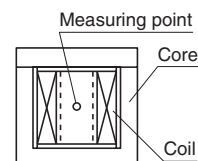


Measuring conditions
 • Coil : ø0.23 2UEW 100Ts
 • Frequency : 1kHz
 • Current level : 0.5mA
 • Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



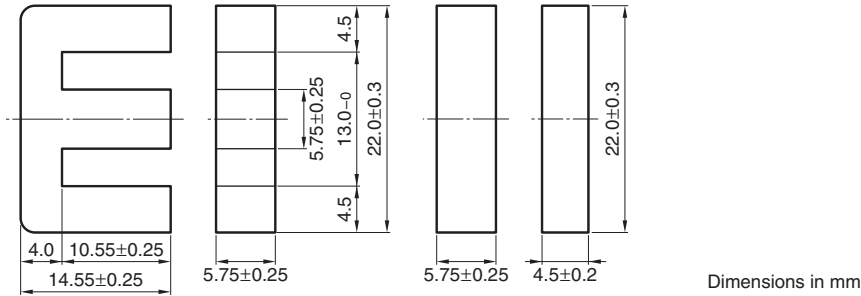
Measuring conditions
 • Room space: approx. 400x300x 300cm
 • Ambient temperature : 25°C
 • Humidity: 45%(%)RH.



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Mn-Zn E series Part No.: PC47EI22-Z

■ SHAPES AND DIMENSIONS



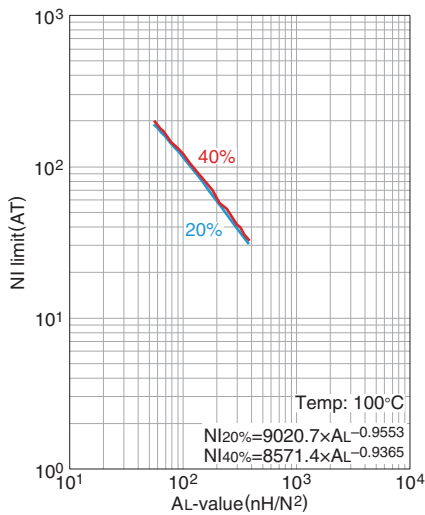
Based on JIS FEI 12.5.

| Effective parameter | | | | | | | | Electrical characteristics | | |
|------------------------|--|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length ℓ_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C1 (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 0.936 | 39.3 | 42.0 | 1650 | 33.1 | 30.3 | 38.2 | 9.8 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 2400±25% | 3360 min. | 0.56 |

* Coil : ø0.23 2UEW 100Ts

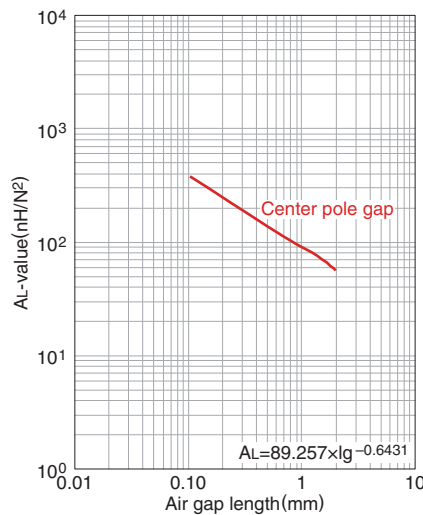
○ Calculated output power (forward converter mode): 49W (100kHz)

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.

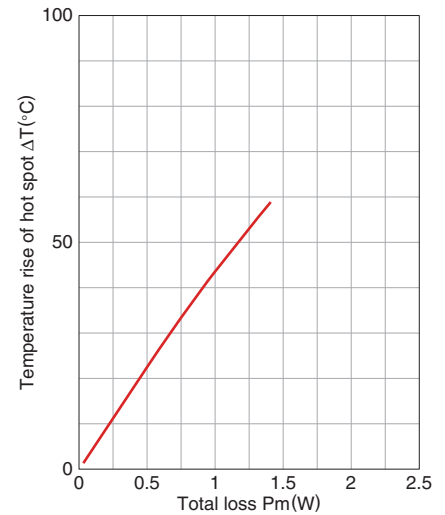
AL-value vs. Air gap length (Typ.)



Measuring conditions

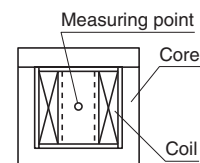
- Coil : ø0.23 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



Measuring conditions

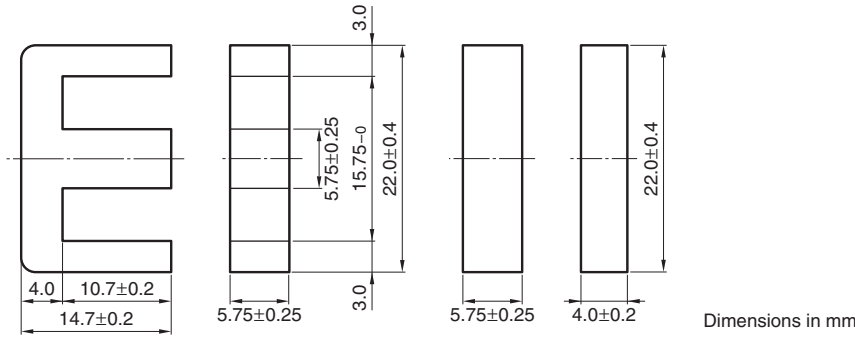
- Room space: approx. 400x300x 300cm
- Ambient temperature : 25°C
- Humidity: 45%(%)RH.



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Mn-Zn E series Part No.: PC47EI22/19/6-Z

SHAPES AND DIMENSIONS



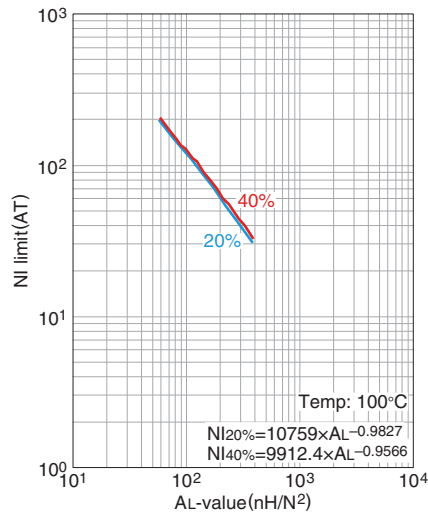
Based on JIS FEI 22.

| Effective parameter | | | | | | | | Electrical characteristics | | |
|------------------------------------|--|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length ℓ_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C ₁ (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 1.13 | 41.8 | 37.0 | 1550 | 33.1 | 30.3 | 54.8 | 8.5 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 2000±25% | 2780 min. | 0.59 |

* Coil : ø0.23 2UEW 100Ts

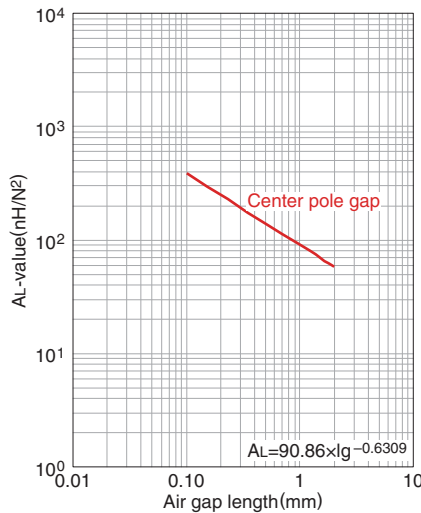
○ Calculated output power (forward converter mode): 59W (100kHz)

NI limit vs. AL-value (Typ.)



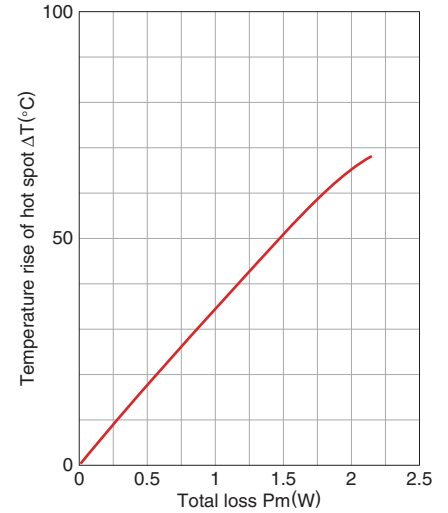
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

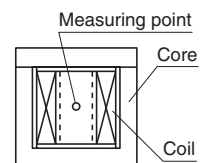



Measuring conditions
 • Coil : ø0.23 2UEW 100Ts
 • Frequency : 1kHz
 • Current level : 0.5mA
 • Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



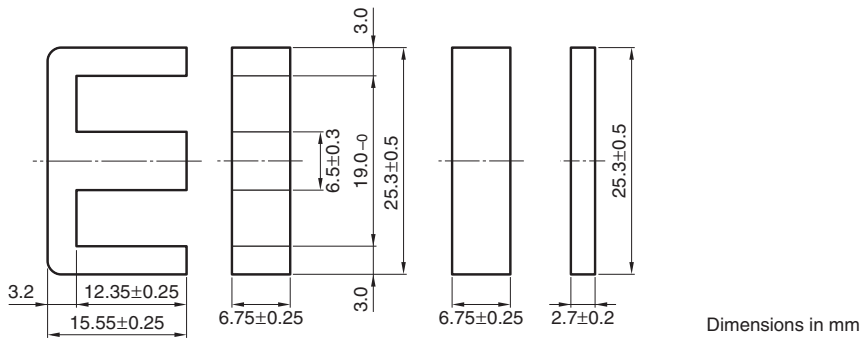
Measuring conditions
 • Room space: approx. 400x300x 300cm
 • Ambient temperature : 25°C
 • Humidity : 45%(%)RH.



 Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC47EI25-Z

SHAPES AND DIMENSIONS



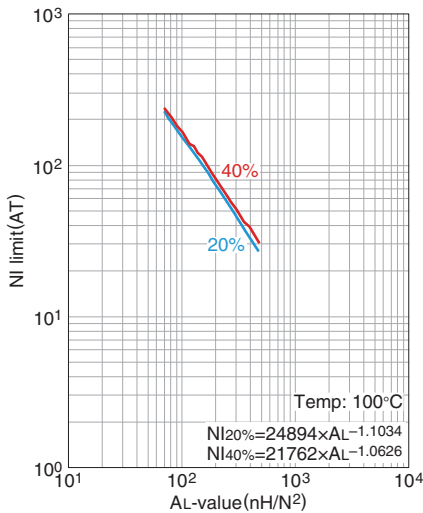
Based on JIS FEI 12.5.

| Effective parameter | | | | | | | | Electrical characteristics | | |
|------------------------|--|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length ℓ_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C1 (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 1.15 | 47.0 | 41.0 | 1930 | 43.9 | 40.3 | 77.2 | 9.8 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 2140±25% | 2950 min. | 0.82 |

* Coil : ø0.35 2UEW 100Ts

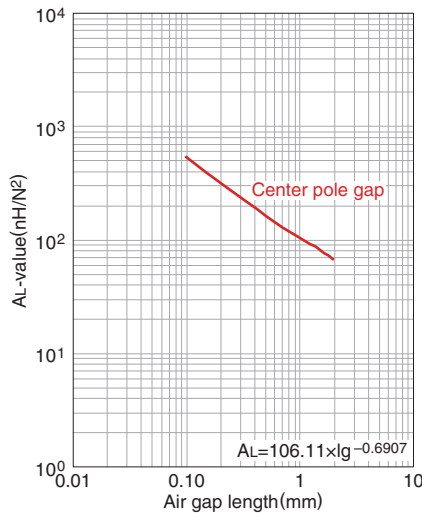
○ Calculated output power (forward converter mode): 82W (100kHz)

NI limit vs. AL-value (Typ.)



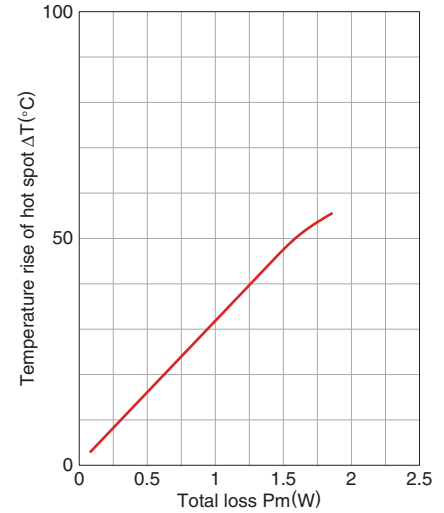
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

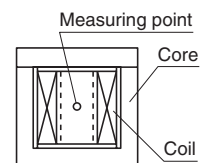


Measuring conditions
 • Coil : ø0.35 2UEW 100Ts
 • Frequency : 1kHz
 • Current level : 0.5mA
 • Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



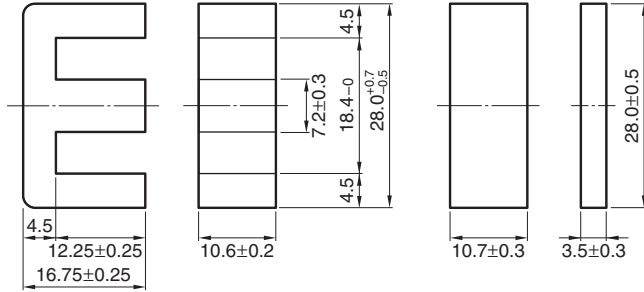
Measuring conditions
 • Room space: approx. 400x300x 300cm
 • Ambient temperature : 25°C
 • Humidity: 45(%RH).



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC47EI28-Z

SHAPES AND DIMENSIONS



Dimensions in mm

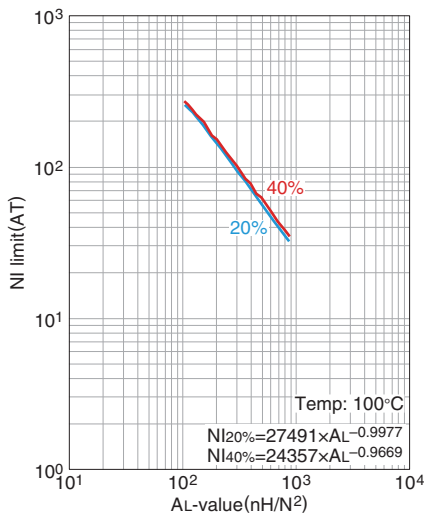
Based on JIS FEI 28.

| Effective parameter | | | | | | | | Electrical characteristics | | |
|------------------------------------|--|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length ℓ_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C ₁ (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| | | | | | | | | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| 0.560 | 48.2 | 86.0 | 4150 | 76.3 | 71.8 | 69.8 | 22 | 4300±25% | 6060 min. | 1.58 |

* Coil : $\phi 0.35$ 2UEW 100Ts

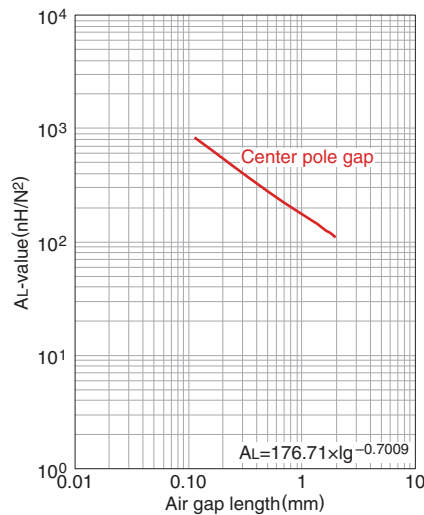
○ Calculated output power (forward converter mode): 145W (100kHz)

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.

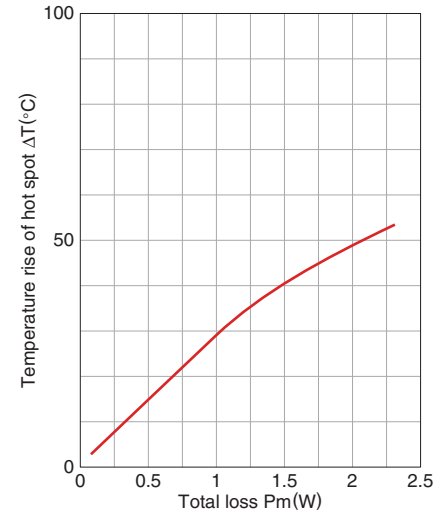
AL-value vs. Air gap length (Typ.)



Measuring conditions

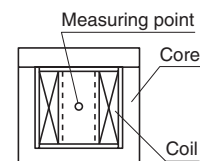
- Coil : $\phi 0.35$ 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



Measuring conditions

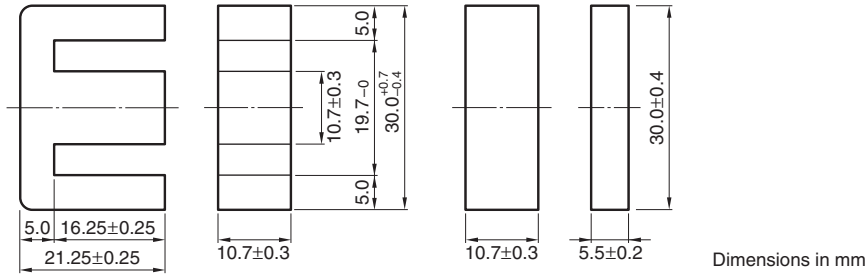
- Room space: approx. 400x300x 300cm
- Ambient temperature : 25°C
- Humidity : 45%(%)RH.



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC47EI30-Z

SHAPES AND DIMENSIONS



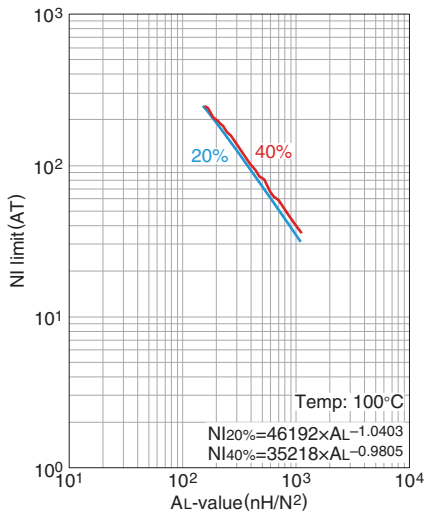
Based on JIS FEI 30.

| Effective parameter | | | | | | | | Electrical characteristics | | |
|------------------------|---|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length l_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C1 (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 0.523 | 58.0 | 111 | 6440 | 114 | 108 | 75.6 | 34 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 4690±25% | 6490 min. | 2.17 |

*Coil : ø0.35 2UEW 100Ts

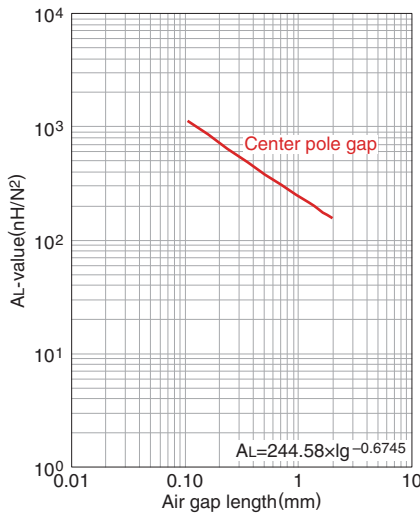
○ Calculated output power (forward converter mode): 214W (100kHz)

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.

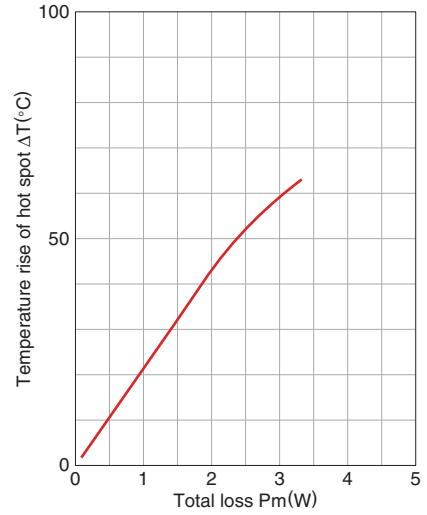
AL-value vs. Air gap length (Typ.)



Measuring conditions

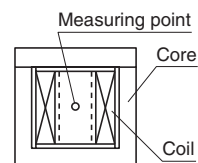
- Coil : ø0.35 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



Measuring conditions

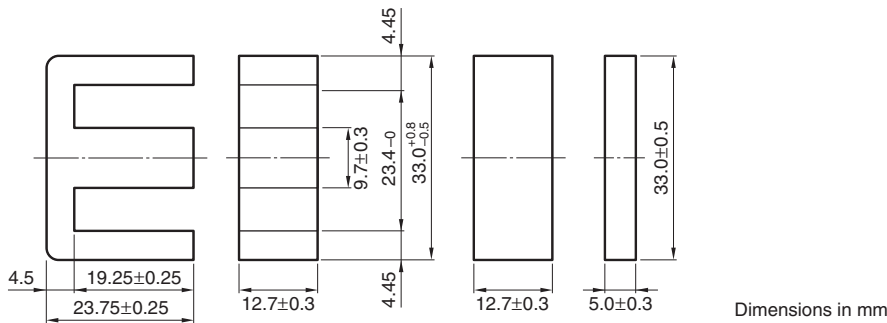
- Room space: approx. 400x300x 300cm
- Ambient temperature : 25°C
- Humidity : 45%(%)RH.



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC47EI33/29/13-Z

■ SHAPES AND DIMENSIONS

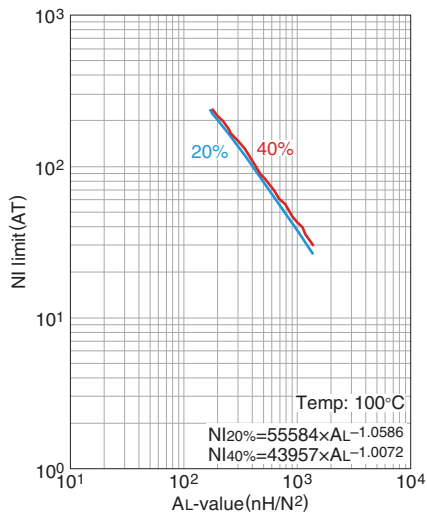


| Effective parameter | | | | | | | | Electrical characteristics | | |
|---------------------------|--|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length ℓ_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C_1 (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 0.567 | 67.5 | 119 | 8030 | 123 | 117 | 138.6 | 41 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 4400±25% | 5980 min. | 2.67 |

* Coil : ø0.35 2UEW 100Ts

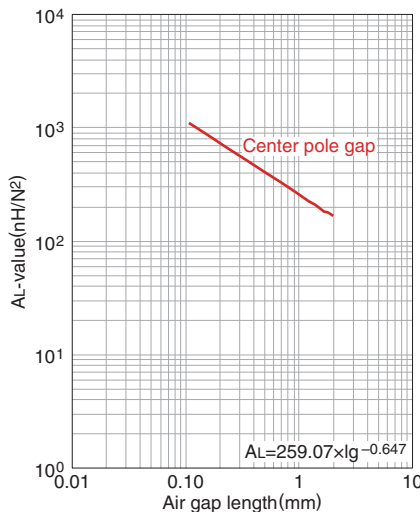
○ Calculated output power (forward converter mode): 288W (100kHz)

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.

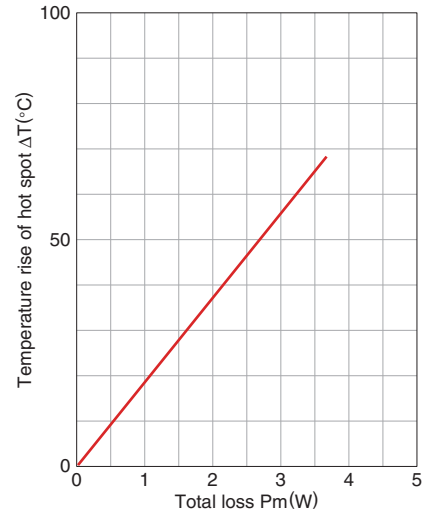
AL-value vs. Air gap length (Typ.)



Measuring conditions

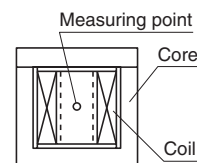
- Coil : ø0.35 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



Measuring conditions

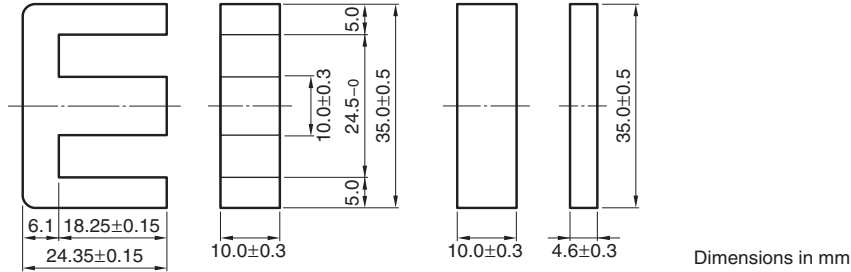
- Room space: approx. 400x300x 300cm
- Ambient temperature : 25°C
- Humidity: 45(%)RH.



Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC47EI35-Z

SHAPES AND DIMENSIONS



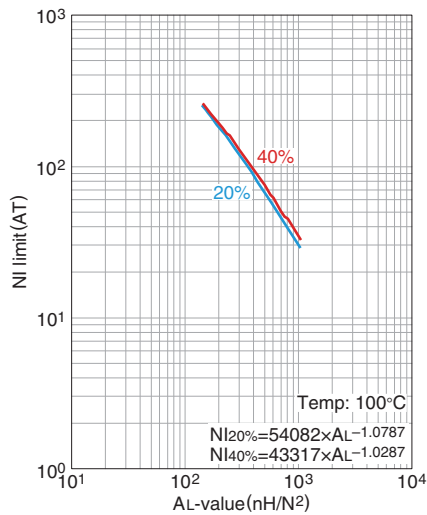
Based on JIS FEI 35.

| Effective parameter | | | | | | | | Electrical characteristics | | |
|------------------------------------|---|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length l_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C ₁ (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 0.664 | 67.1 | 101 | 6780 | 100 | 94.1 | 131.6 | 36 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 3800±25% | 5110 min. | 2.35 |

* Coil : $\phi 0.35$ 2UEW 100Ts

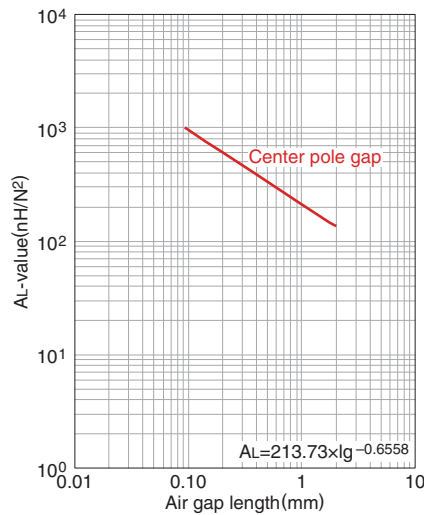
○ Calculated output power (forward converter mode): 266W (100kHz)

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.

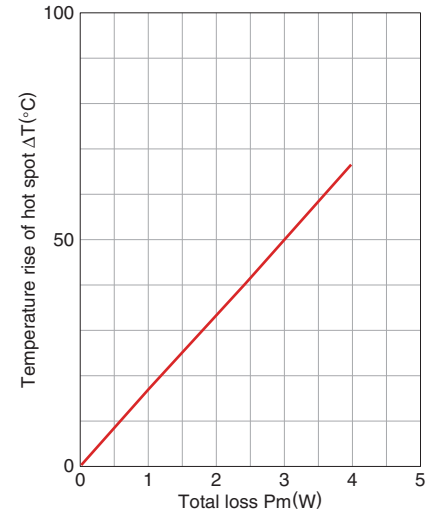
AL-value vs. Air gap length (Typ.)



Measuring conditions

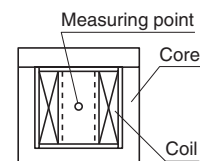
- Coil : $\phi 0.35$ 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



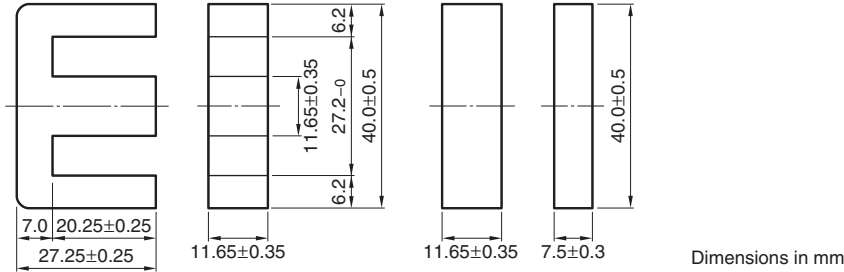
Measuring conditions

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



Mn-Zn E series Part No.: PC47EI40-Z

SHAPES AND DIMENSIONS



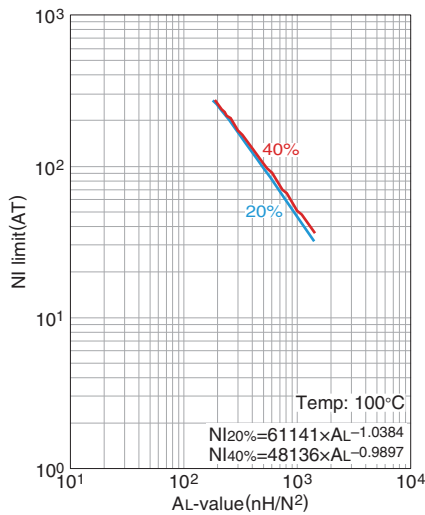
Based on JIS FEI 40.

| Effective parameter | | | | | | | | Electrical characteristics | | |
|------------------------|---|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length l_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C1 (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 0.520 | 77.0 | 148 | 11400 | 136 | 128 | 160.5 | 60 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 4860±25% | 6520 min. | 3.66 |

* Coil : $\phi 0.35$ 2UEW 100Ts

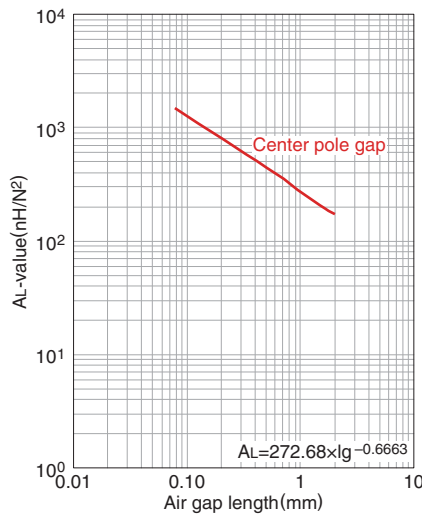
○ Calculated output power (forward converter mode): 361W (100kHz)

NI limit vs. AL-value (Typ.)



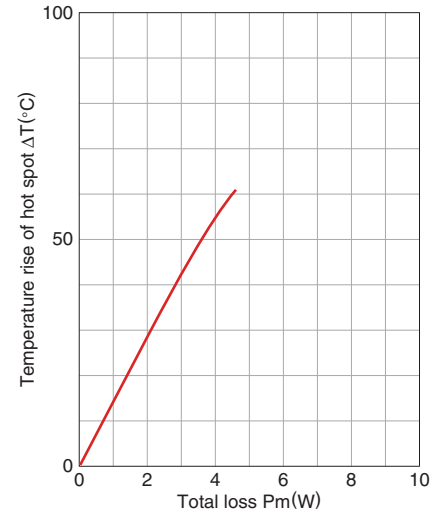
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

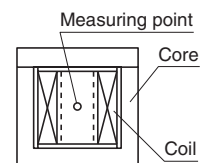


Measuring conditions
 • Coil : $\phi 0.35$ 2UEW 100Ts
 • Frequency : 1kHz
 • Current level : 0.5mA
 • Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



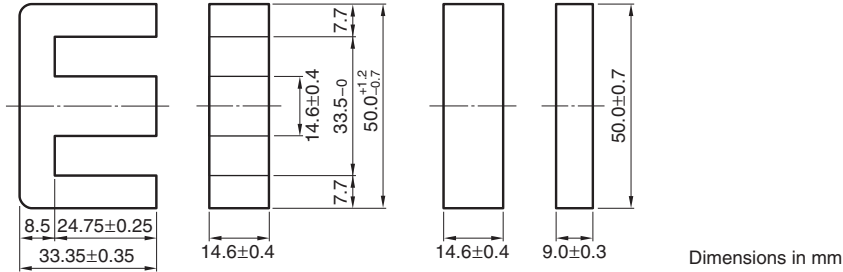
Measuring conditions
 • Room space: approx. 400x300x 300cm
 • Ambient temperature : 25°C
 • Humidity : 45%(%)RH.



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC47EI50-Z

■ SHAPES AND DIMENSIONS



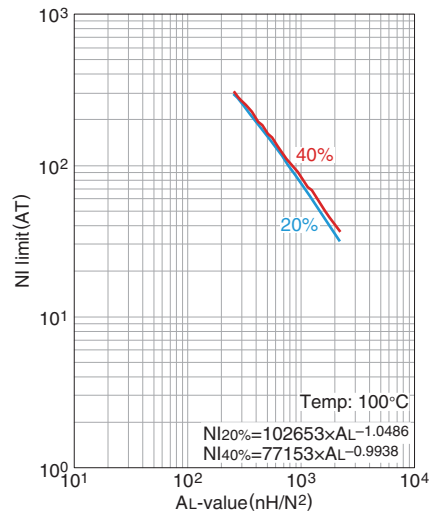
Based on JIS FEI 50.

| Effective parameter | | | | | | | | Electrical characteristics | | |
|------------------------|---|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length l_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C1 (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 0.409 | 94.0 | 230 | 21620 | 213 | 202 | 246.3 | 115 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 6110±25% | 8300 min. | 8.62 |

* Coil : ø0.35 2UEW 100Ts

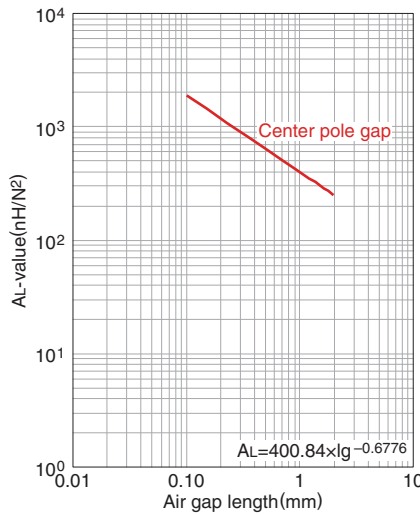
○ Calculated output power (forward converter mode): 554W (100kHz)

NI limit vs. AL-value (Typ.)



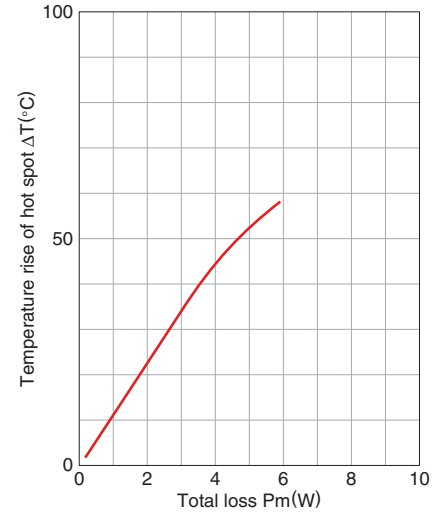
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

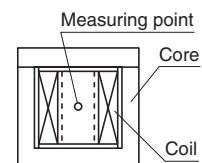


Measuring conditions
 • Coil : ø0.35 2UEW 100Ts
 • Frequency : 1kHz
 • Current level : 0.5mA
 • Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



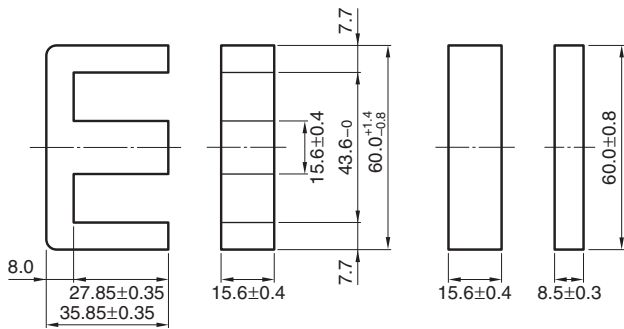
Measuring conditions
 • Room space: approx. 400x300x 300cm
 • Ambient temperature : 25°C
 • Humidity : 45(%RH).



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC47EI60-Z

■ SHAPES AND DIMENSIONS



Dimensions in mm

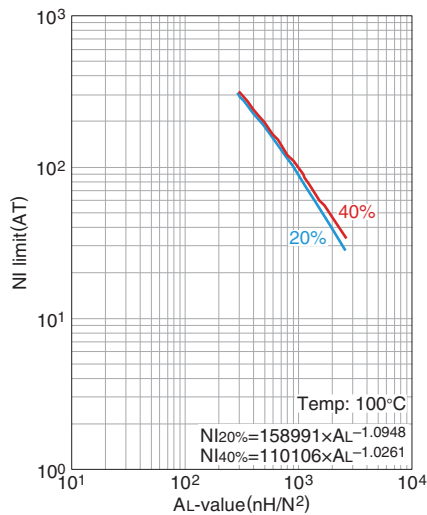
Based on JIS FEI 60.

| Effective parameter | | | | | | | | Electrical characteristics | | |
|------------------------------------|--|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length ℓ_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C ₁ (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 0.441 | 109 | 247 | 26900 | 243 | 231 | 402.4 | 139 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 5670±25% | 7690 min. | 9.16 |

* Coil : $\phi 0.35$ 2UEW 100Ts

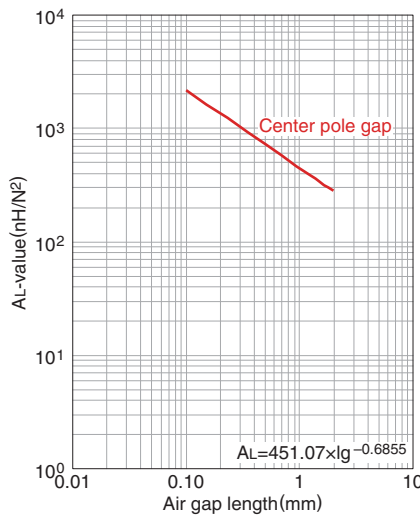
○ Calculated output power (forward converter mode): 712W (100kHz)

NI limit vs. AL-value (Typ.)



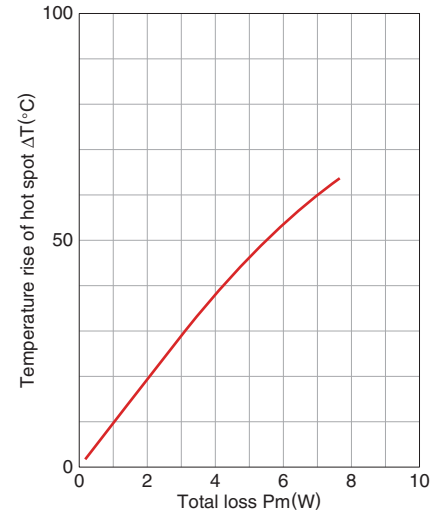
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

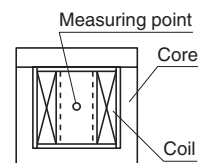


Measuring conditions
 • Coil : $\phi 0.35$ 2UEW 100Ts
 • Frequency : 1kHz
 • Current level : 0.5mA
 • Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



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



Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn EE, EF Cores

SHAPES AND DIMENSIONS

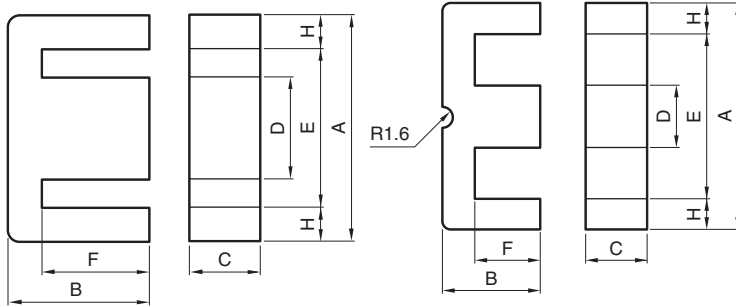
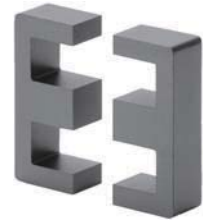


Fig. 1

Fig. 2

| | | |
|----------|----------------|----------------------------------|
| PC47 | EE8 | Z |
| Material | Size of E core | AL-value (Z: without air gap) |

| Part No. | U.S. lam. cores, DIN standard JIS | Core | Dimensions (mm) | | | | | | |
|---------------|---|------|--------------------|-----------|-----------|-----------|--------|-----------|------|
| | | | A | B | C | D | E min. | F | H |
| PC47EE8-Z | JIS FEE 8.3 | 1 | 8.3±0.2 | 4.0±0.1 | 3.6±0.2 | 1.85±0.15 | 6.0 | 3.0±0.1 | 1.0 |
| PC47EE10/11-Z | JIS FEE 10.2 | 1 | 10.2±0.2 | 5.5±0.1 | 4.75±0.15 | 2.45±0.15 | 7.7 | 4.20±0.15 | 1.1 |
| PC47EF12.6-Z | DIN 41985 | 1 | 12.7±0.4 | 6.4±0.1 | 3.6±0.2 | 3.65±0.15 | 8.8 | 4.65±0.15 | 1.83 |
| PC47EE13-Z | | 1 | 13.0±0.2 | 6.00±0.15 | 6.15±0.15 | 2.75±0.15 | 10.0 | 4.6±0.1 | 1.4 |
| PC47EE16-Z | JIS FEE 16A | 1 | 16.0±0.3 | 7.15±0.15 | 4.8±0.2 | 4.0±0.2 | 11.7 | 5.1±0.2 | 2.0 |
| PC47SEE16-Z | | 1 | 16.0±0.3 | 7.15±0.15 | 6.8±0.2 | 3.18±0.18 | 12.5 | 5.5±0.1 | 1.6 |
| PC47EF16-Z | DIN 41985 | 1 | 16.1±0.6 | 8.05±0.15 | 4.5±0.2 | 4.55±0.15 | 11.3 | 5.9±0.2 | 2.2 |
| PC47EE19-Z | JIS FEE 19A | 1 | 19.1±0.3 | 7.95±0.15 | 5.0±0.2 | 4.55±0.15 | 14.2 | 5.6±0.1 | 2.3 |

| Part No. | Effective parameter | | | | | Electrical characteristics | | |
|---------------|--------------------------------------|--|---|---|---------------|--|------------------|---|
| | Core factor $C_1(\text{mm}^{-1})$ | Effective cross-sectional area $A_e(\text{mm}^2)$ | Effective magnetic path length $\ell_e(\text{mm})$ | Effective core volume $V_e(\text{mm}^3)$ | Weight (g) | AL-value (nH/N ²) 1kHz 0.5mA 100Ts | | Core loss (W) max. 100kHz 200mT 100°C |
| PC47EE8-Z | 2.75 | 7.0 | 19.2 | 134 | 0.7 | Without air gap | 40±7% 63±10% | 0.05 |
| PC47EE10/11-Z | 2.16 | 12.1 | 26.1 | 315 | 1.5 | Without air gap | 40±7% 63±10% | 0.12 |
| PC47EF12.6-Z | 2.28 | 13.0 | 29.6 | 385 | 2.0 | Without air gap | 63±7% 100±10% | 0.16 |
| PC47EE13-Z | 1.77 | 17.1 | 30.2 | 517 | 2.7 | Without air gap | 63±7% 100±10% | 0.22 |
| PC47EE16-Z | 1.82 | 19.0 | 34.5 | 656 | 3.3 | Without air gap | 80±7% 160±10% | 0.28 |
| PC47SEE16-Z | 1.69 | 21.7 | 36.6 | 795 | 4.1 | Without air gap | 80±7% 160±10% | 0.34 |
| PC47EF16-Z | 1.87 | 20.1 | 37.6 | 754 | 3.9 | Without air gap | 63±7% 100±10% | 0.31 |
| PC47EE19-Z | 1.71 | 23.0 | 39.4 | 906 | 4.8 | Without air gap | 80±7% 160±10% | 0.39 |

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Mn-Zn EE, EF Cores

SHAPES AND DIMENSIONS

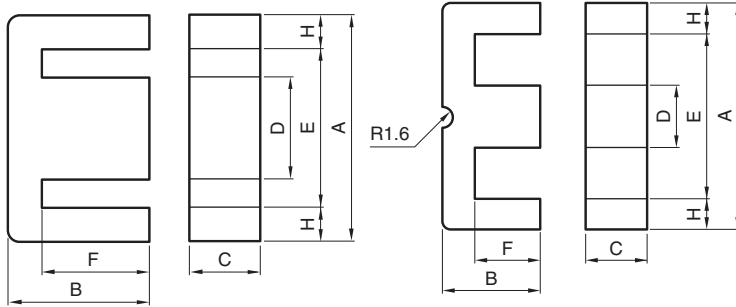


Fig. 1

Fig. 2

| | | |
|----------|----------------|----------------------------------|
| PC47 | EE19/16 | Z |
| Material | Size of E core | AL-value (Z: without air gap) |

| Part No. | U.S. lam. cores, DIN standard JIS | | Core | Dimensions (mm) | | | | | | |
|-----------------|---|--|------|--------------------|------------|-----------|-----------|--------|-------------|------|
| | | | | A | B | C | D | E min. | F | H |
| PC47EE19/16-Z | U.S. EE-187 | | 1 | 19.29±0.32 | 8.1±0.18 | 4.75±0.13 | 4.75±0.08 | 14.05 | 5.715±0.125 | 2.46 |
| PC47EE20/20/5-Z | DIN 41295 | | 2 | 20.15±0.55 | 10.0±0.2 | 5.1±0.2 | 5.0±0.2 | 12.8 | 6.5±0.2 | 3.53 |
| PC47EF20-Z | DIN 41985 | | 1 | 20.0±0.4 | 9.9±0.2 | 5.65±0.25 | 5.7±0.2 | 14.1 | 7.2±0.2 | 2.8 |
| PC47EE22-Z | | | 1 | 22.0±0.3 | 9.35±0.15 | 5.75±0.25 | 5.75±0.25 | 13.0 | 5.35±0.15 | 4.3 |
| PC47EE25/19-Z | U.S. EE-24/25 | | 1 | 25.4±0.5 | 9.46±0.19 | 6.29±0.19 | 6.35±0.25 | 18.55 | 6.41±0.19 | 3.11 |
| PC47EF25-Z | DIN 41985 | | 1 | 25.05±0.75 | 12.55±0.25 | 7.2±0.3 | 7.25±0.25 | 17.5 | 8.95±0.25 | 3.55 |
| PC47EE25.4-Z | JIS FEE 25.4A | | 1 | 25.4±0.76 | 9.66±0.15 | 6.35±0.25 | 6.35±0.25 | 18.5 | 6.48±0.15 | 3.18 |
| PC47EE30-Z | JIS FEE 30A | | 1 | 30.0±0.5 | 13.15±0.15 | 10.7±0.3 | 10.7±0.3 | 19.7 | 8.15±0.15 | 5.0 |

| Part No. | Effective parameter | | | | | Electrical characteristics | | |
|-----------------|--------------------------------------|--|---|---|--------------|--|-------------------|---|
| | Core factor $C_1(\text{mm}^{-1})$ | Effective cross-sectional area $A_e(\text{mm}^2)$ | Effective magnetic path length $\ell_e(\text{mm})$ | Effective core volume $V_e(\text{mm}^3)$ | Weigh (g) | AL-value (nH/N ²) 1kHz 0.5mA 100Ts Without air gap With air gap | | Core loss (W) max. 100kHz 200mT 100°C |
| PC47EE19/16-Z | 1.75 | 22.4 | 39.1 | 876 | 4.8 | 1350±25% | 80±7% 160±10% | 0.38 |
| PC47EE20/20/5-Z | 1.38 | 31.0 | 43.0 | 1340 | 7.5 | 1400±25% | 100±7% 160±10% | 0.47 |
| PC47EF20-Z | 1.34 | 33.5 | 44.9 | 1500 | 7.4 | 1570±25% | 100±7% 160±10% | 0.59 |
| PC47EE22-Z | 0.970 | 41.0 | 39.6 | 1620 | 8.8 | 2180±25% | 125±7% 250±10% | 0.56 |
| PC47EE25/19-Z | 1.22 | 40.0 | 48.7 | 1950 | 9.1 | 2000±25% | 100±7% 200±10% | 0.80 |
| PC47EF25-Z | 1.11 | 51.8 | 57.8 | 2990 | 15 | 2000±25% | 100±7% 160±10% | 1.27 |
| PC47EE25.4-Z | 1.21 | 40.3 | 48.7 | 1963 | 10 | 2000±25% | 125±7% 250±10% | 0.84 |
| PC47EE30-Z | 0.529 | 109.0 | 57.7 | 6290 | 32 | 4690±25% | 200±5% 400±7% | 2.03 |

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Mn-Zn EE, EF Cores

SHAPES AND DIMENSIONS

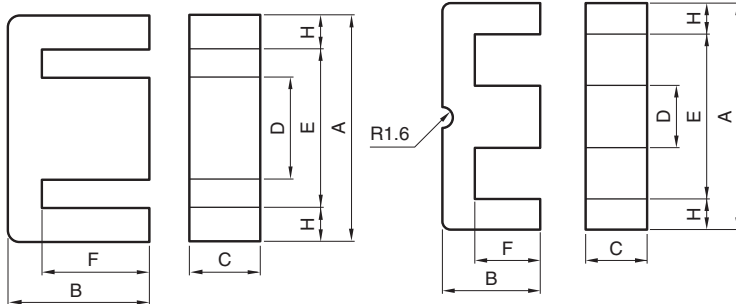


Fig. 1

Fig. 2

| | | |
|----------|----------------|----------------------------------|
| PC47 | EE30/30/7 | Z |
| Material | Size of E core | AL-value (Z: without air gap) |

| Part No. | U.S. lam. cores, DIN standard JIS | | Core | Dimensions (mm) | | | | | | |
|------------------|---|---------------|------|--------------------|------------|------------|------------|-------|------------|-------|
| | A | B | | C | D | E min. | F | H | | |
| PC47EE30/30/7-Z | DIN 41295 | | 2 | 30.1±0.7 | 15.0±0.2 | 7.05±0.25 | 6.95±0.25 | 19.5 | 9.95±0.25 | 5.1 |
| PC47EF32-Z | DIN 41985 | | 1 | 32.1±0.8 | 16.1±0.3 | 9.15±0.35 | 9.2±0.3 | 22.7 | 11.6±0.3 | 4.4 |
| PC47EE35/28B-Z | U.S. EE-375 | | 1 | 34.6±0.5 | 14.27±0.37 | 9.31±0.30 | 9.4±0.3 | 25.0 | 9.78±0.25 | 4.5 |
| PC47EE35-Z | JIS FEE35B | | 1 | 34.54±1.0 | 14.35±0.35 | 9.53±0.38 | 9.39±0.27 | 24.89 | 9.71±0.28 | 4.75 |
| PC47EE40-Z | JIS FEE40A | | 1 | 40.0±0.5 | 17.0±0.3 | 10.7±0.3 | 10.7±0.3 | 27.4 | 10.25±0.25 | 6.0 |
| PC47EE41/33C-Z | U.S. EE-21 | | 1 | 41.07±0.8 | 16.78±0.4 | 12.57±0.38 | 12.64±0.45 | 28.55 | 10.38±0.3 | 6.0 |
| PC47EE42/42/15-Z | DIN 41295 | JIS FEE42A | 1 | 42.15±0.85 | 21.0±0.2 | 14.95±0.25 | 11.95±0.25 | 29.5 | 15.15±0.35 | 6.025 |

| Part No. | Effective parameter | | | | | Electrical characteristics | | |
|------------------|--------------------------------------|--|---|---|---------------|---|--|---|
| | Core factor $C_1(\text{mm}^{-1})$ | Effective cross-sectional area $A_e(\text{mm}^2)$ | Effective magnetic path length $\ell_e(\text{mm})$ | Effective core volume $V_e(\text{mm}^3)$ | Weight (g) | AL-value (nH/N ²) 1kHz 0.5mA 100Ts Without air gap | | Core loss (W) max. 100kHz 200mT 100°C |
| PC47EE30/30/7-Z | 1.12 | 59.7 | 66.9 | 4000 | 22 | 2100±25% | | 1.41 |
| PC47EF32-Z | 0.893 | 83.2 | 74.3 | 6180 | 32 | 2590±25% | | 2.09 |
| PC47EE35/28B-Z | 0.819 | 84.9 | 69.6 | 5907 | 28 | 2950±25% | | 2.02 |
| PC47EE35-Z | 0.774 | 89.3 | 69.2 | 6179 | 57 | 3170±25% | | 2.14 |
| PC47EE40-Z | 0.606 | 128 | 77.3 | 9890 | 50 | 4150±25% | | 3.10 |
| PC47EE41/33C-Z | 0.495 | 157 | 77.6 | 12200 | 64 | 5060±25% | | 4.10 |
| PC47EE42/42/15-Z | 0.534 | 182 | 97.0 | 17600 | 80 | 4700±25% | | 5.94 |

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Mn-Zn EE, EF Cores

SHAPES AND DIMENSIONS

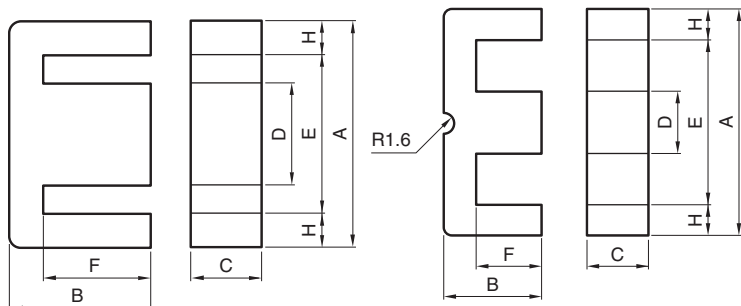


Fig. 1

Fig 2

| | | |
|----------|----------------|----------------------------------|
| PC47 | 42/42/20 | Z |
| Material | Size of E core | AL-value (Z: without air gap) |

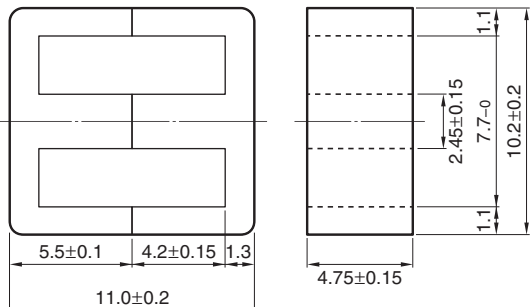
| Part No. | U.S. lam. cores, DIN standard JIS | | Core | Dimensions (mm) | | | | | | |
|------------------|---|---------------|-------|--------------------------------------|------------|------------|------------|-------|------------|-------|
| | A | B | | C | D | E min. | F | H | | |
| PC47EE42/42/20-Z | DIN 41295 | JIS FEE42B | 1 | 42.15±0.85 | 21.0±0.2 | 19.7±0.3 | 11.95±0.25 | 29.5 | 15.15±0.35 | 6.025 |
| PC47EE47/39-Z | U.S. EE-625 | | Fig.1 | 47.12±0.48 | 19.63±0.2 | 15.62±0.25 | 15.62±0.25 | 31.72 | 12.2±0.13 | 7.49 |
| PC47EE50-Z | JIS FEE50A | | Fig.1 | 50.0 ^{+1.0} _{-0.7} | 21.3±0.3 | 14.6±0.4 | 14.6±0.4 | 34.2 | 12.75±0.25 | 7.5 |
| PC47EE55/55/21-Z | DIN 41295 | JIS FEE55 | Fig.1 | 55.15±1.05 | 27.5±0.3 | 20.7±0.3 | 16.95±0.25 | 37.5 | 18.8±0.3 | 8.53 |
| PC47EE57/47-Z | U.S. EE-75 | | Fig.1 | 56.57±1.0 | 23.60±0.23 | 18.8±0.25 | 18.80±0.25 | 38.1 | 14.63±0.15 | 9.02 |
| PC47EE60-Z | JIS FEE60A | | Fig.1 | 60.0 ^{+1.1} _{-0.8} | 22.3±0.3 | 15.6±0.4 | 15.6±0.4 | 43.8 | 14.05±0.25 | 7.7 |

| Part No. | Effective parameter | | | | | Electrical characteristics | | |
|------------------|--------------------------------------|--|---|---|---------------|--|------------------|---|
| | Core factor $C_1(\text{mm}^{-1})$ | Effective cross-sectional area $A_e(\text{mm}^2)$ | Effective magnetic path length $\ell_e(\text{mm})$ | Effective core volume $V_e(\text{mm}^3)$ | Weight (g) | AL-value (nH/N ²) 1kHz 0.5mA 100Ts Without air gap With air gap | | Core loss (W) max. 100kHz 200mT 100°C |
| PC47EE42/42/20-Z | 0.415 | 235 | 97.4 | 22900 | 116 | 6100±25% | 250±5% 400±7% | 9.65 |
| PC47EE47/39-Z | 0.374 | 242 | 90.6 | 21930 | 108 | 6660±25% | 250±5% 400±7% | 9.04 |
| PC47EE50-Z | 0.425 | 226 | 95.8 | 21600 | 116 | 6110±25% | 250±5% 500±7% | 8.78 |
| PC47EE55/55/21-Z | 0.348 | 354 | 123 | 43700 | 234 | 7100±25% | 250±5% 400±7% | 18.51 |
| PC47EE57/47-Z | 0.297 | 344 | 102 | 35100 | 190 | 8530±25% | 250±5% 400±7% | 14.79 |
| PC47EE60-Z | 0.446 | 247 | 110 | 27100 | 135 | 5670±25% | 250±5% 500±7% | 11.35 |

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Mn-Zn E series Part No.: PC47EE10/11-Z

■ SHAPES AND DIMENSIONS



Dimensions in mm

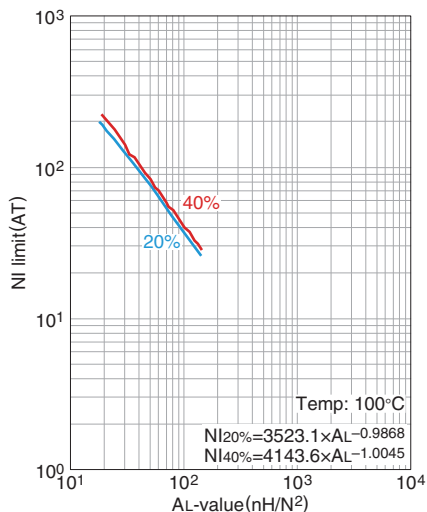
Based on JIS FEE 10.2.

| Effective parameter | | | | | | | | Electrical characteristics | | |
|------------------------|--|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length ℓ_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C1 (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 2.16 | 26.1 | 12.1 | 315 | 11.6 | 10.6 | 23.3 | 1.5 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 850±25% | 1450 min. | 0.12 |

* Coil : $\phi 0.18$ 2UEW 100Ts

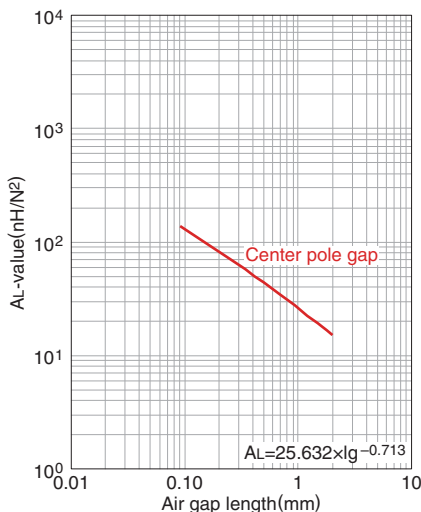
○ Calculated output power (forward converter mode): 12.1W (100kHz)

NI limit vs. AL-value (Typ.)



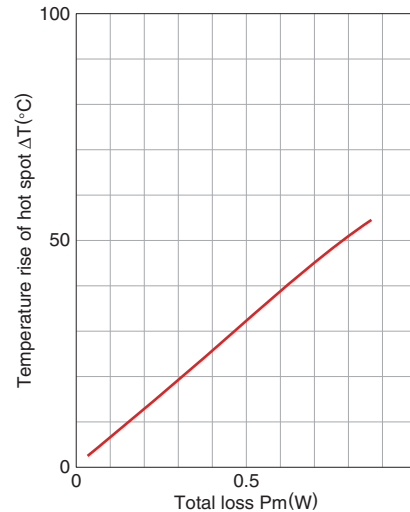
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

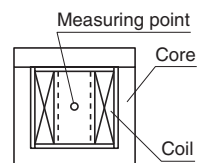


Measuring conditions
 • Coil : $\phi 0.18$ 2UEW 100Ts
 • Frequency : 1kHz
 • Current level : 0.5mA
 • Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



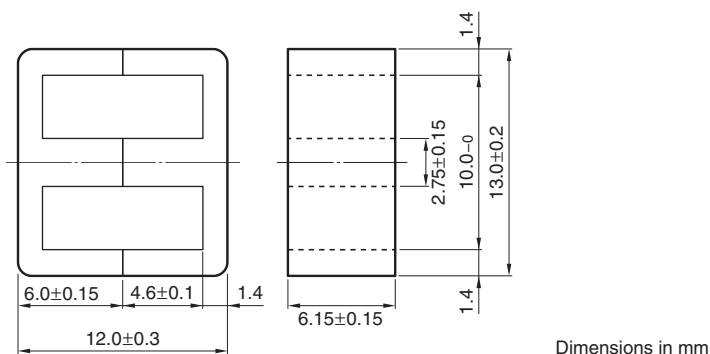
Measuring conditions
 • Room space: approx. 400x300x 300cm
 • Ambient temperature : 25°C
 • Humidity : 45%(%)RH.



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC47EE13-Z

■ SHAPES AND DIMENSIONS



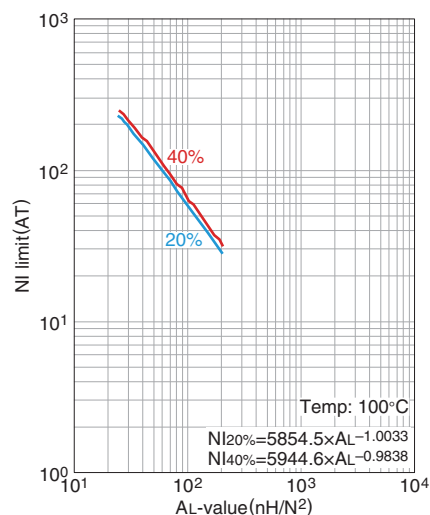
Based on JIS FEI 12.5.

| Effective parameter | | | | | | | | Electrical characteristics | | |
|------------------------|--|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length ℓ_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C1 (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 1.77 | 30.2 | 17.1 | 517 | 16.9 | 15.6 | 34.3 | 2.7 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 1130±25% | 1770 min. | 0.22 |

* Coil : $\phi 0.18$ 2UEW 100Ts

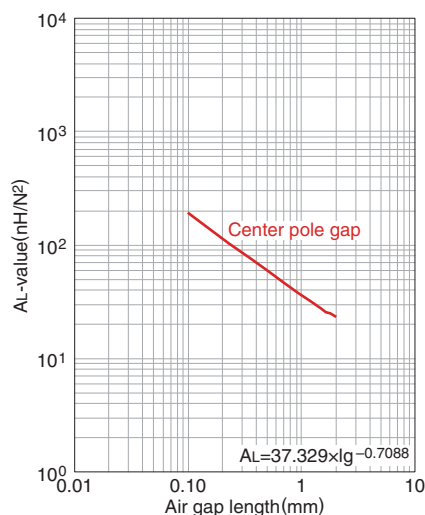
○ Calculated output power (forward converter mode): 25W (100kHz)

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.

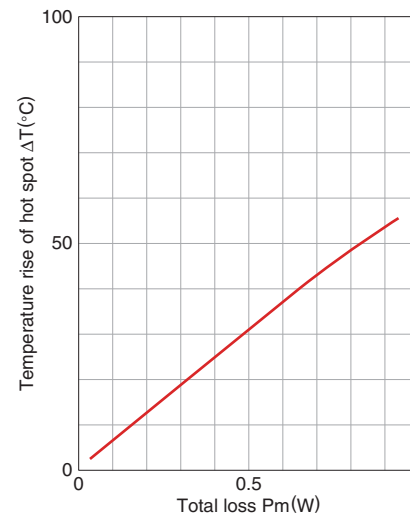
AL-value vs. Air gap length (Typ.)



Measuring conditions

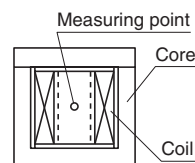
- Coil : $\phi 0.18$ 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



Measuring conditions

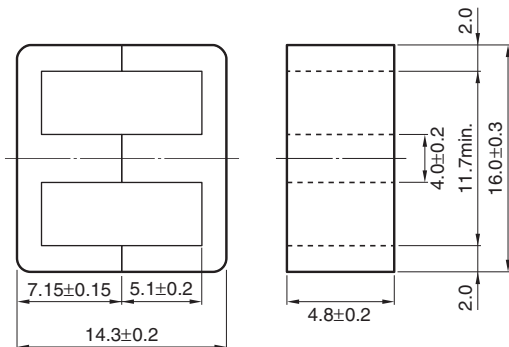
- Room space: approx. 400x300x 300cm
- Ambient temperature : 25°C
- Humidity : 45%(%)RH.



Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series **Part No.: PC47EE16-Z**

■ SHAPES AND DIMENSIONS



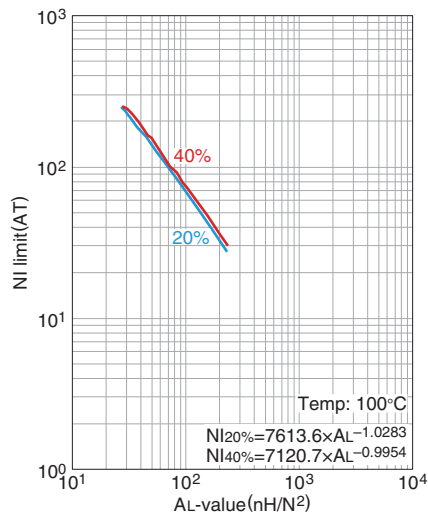
Dimensions in mm

| Effective parameter | | | | | | | | Electrical characteristics | | |
|---------------------------------------|--|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length ℓ_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C ₁ (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 1.82 | 34.5 | 19.0 | 656 | 19.2 | 17.5 | 41.4 | 3.3 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 1140±25% | | 0.28 |

* Coil : $\phi 0.18$ 2UEW 100Ts

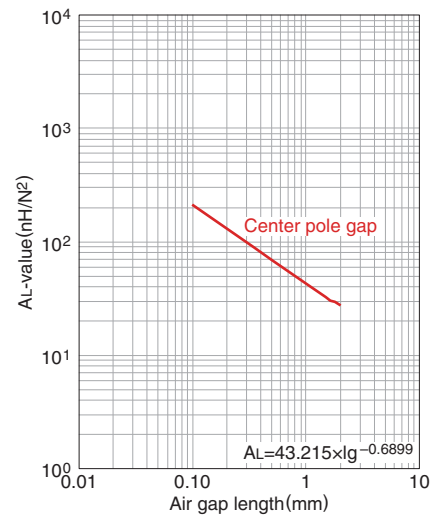
○ Calculated output power (forward converter mode): 32W (100kHz)

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.)

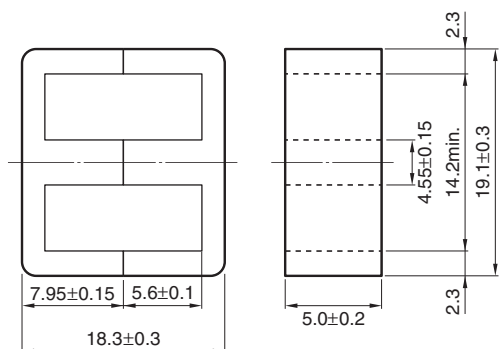


Measuring conditions

- Coil : $\phi 0.18$ 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

Mn-Zn E series Part No.: PC47EE19-Z

■ SHAPES AND DIMENSIONS



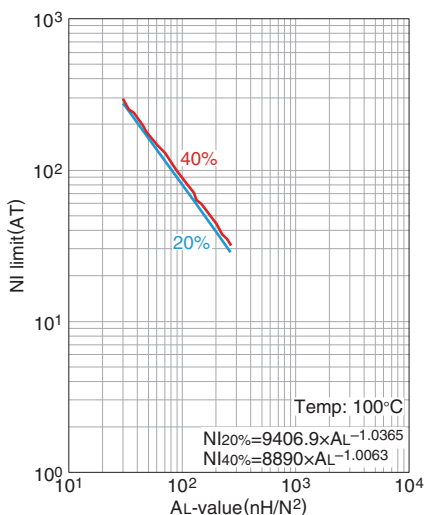
Dimensions in mm

| Effective parameter | | | | | | | | Electrical characteristics | | |
|---------------------------|---|---|--|--|---|--|----------------|----------------------------|---------------|--------------------------|
| Core factor | Effective magnetic path length l_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C_1 (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 1.71 | 39.4 | 23.0 | 906 | 22.8 | 21.1 | 55.8 | 4.8 | 1250±25% | 1kHz 0.5mA | 100kHz 200mT 100°C |
| | | | | | | | | | | 0.39 |

* Coil : ø0.18 2UEW 100Ts

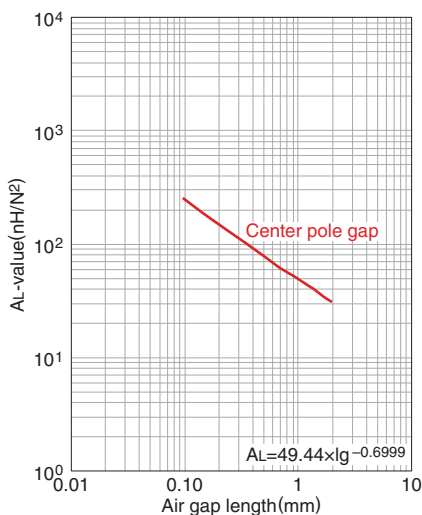
○ Calculated output power (forward converter mode): 45W (100kHz)

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.)

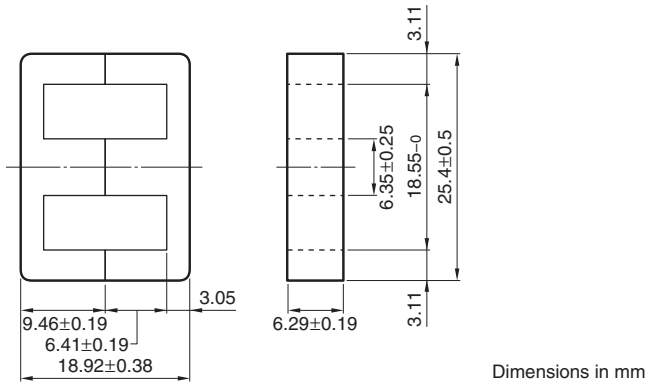


Measuring conditions
 • Coil : ø0.18 2UEW 100Ts
 • Frequency : 1kHz
 • Current level : 0.5mA
 • Ambient temperature : 25°C

Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC47EE25/19-Z

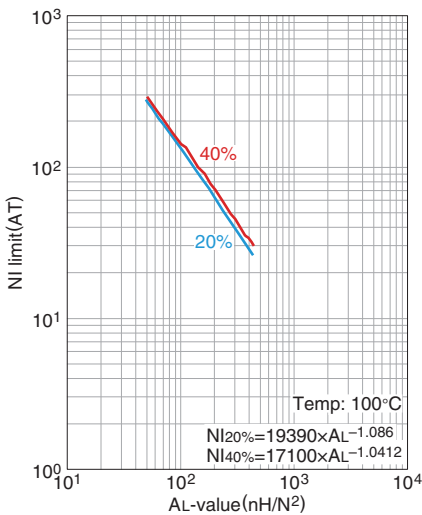
SHAPES AND DIMENSIONS



| Effective parameter | | | | | | | | Electrical characteristics | | |
|---------------------|---|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length l_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C ₁ | (mm ⁻¹) | | | | | | | (nH/N ²) | | (W)max. |
| 1.22 | 48.7 | 40.0 | 1950 | 39.9 | 37.2 | 79.0 | 9.1 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 2000±25% | 2570 min. | 0.80 |

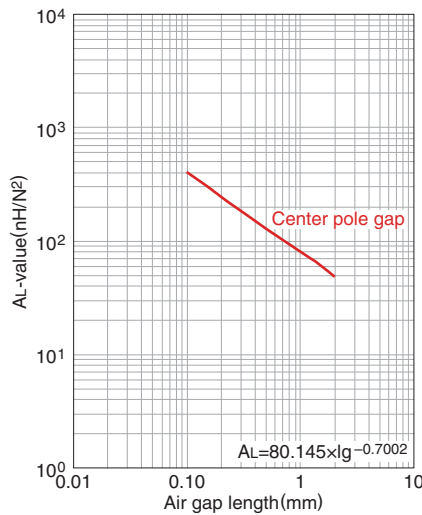
* Coil : ø0.23 2UEW 100Ts
 ○ Calculated output power (forward converter mode): 93W (100kHz)

NI limit vs. AL-value (Typ.)



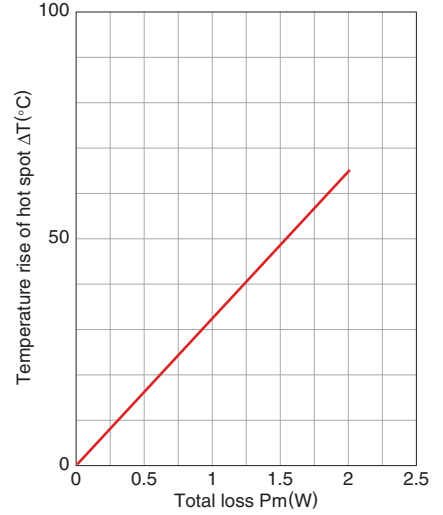
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

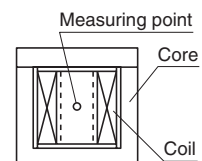


Measuring conditions
 • Coil : ø0.23 2UEW 100Ts
 • Frequency : 1kHz
 • Current level : 0.5mA
 • Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



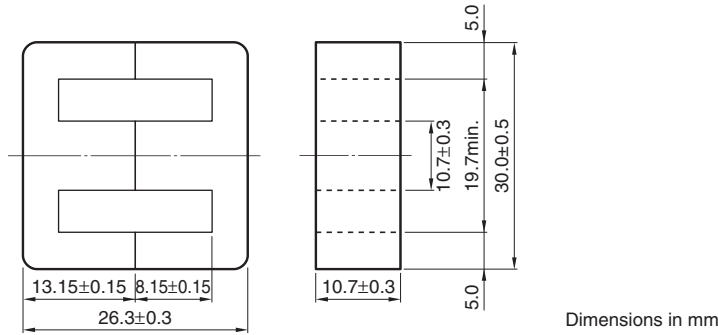
Measuring conditions
 • Room space: approx. 400x300x 300cm
 • Ambient temperature : 25°C
 • Humidity: 45%(%)RH.



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC47EE30-Z

■ SHAPES AND DIMENSIONS



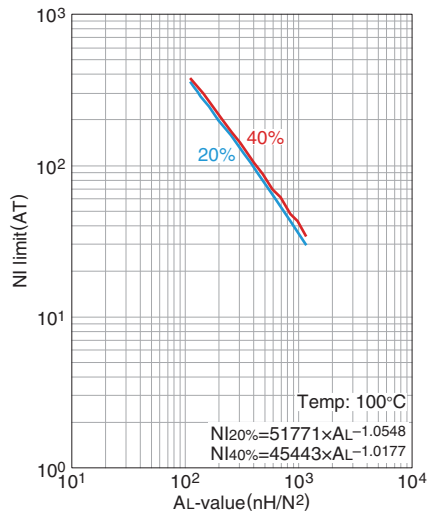
Based on DIN 41295.

| Effective parameter | | | | | | | | Electrical characteristics | | |
|------------------------------------|---|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length l_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C ₁ (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 0.529 | 57.7 | 109.9 | 6290 | 114 | 108 | 75.8 | 32 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 4690±25% | | 2.03 |

* Coil : ø0.35 2UEW 100Ts

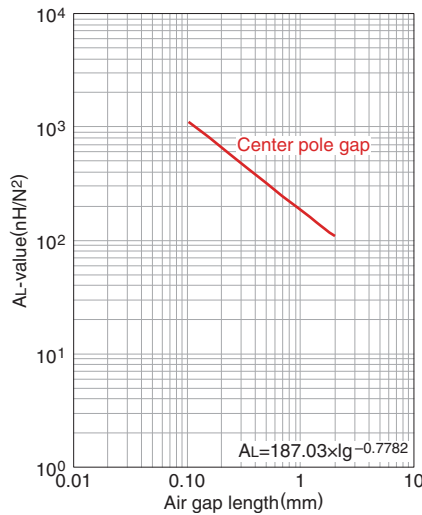
○ Calculated output power (forward converter mode): 203W (100kHz)

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.)

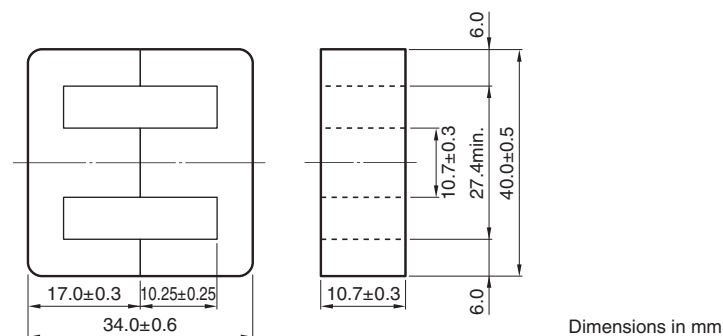


Measuring conditions

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

Mn-Zn E series **Part No.: PC47EE40-Z**

■ SHAPES AND DIMENSIONS

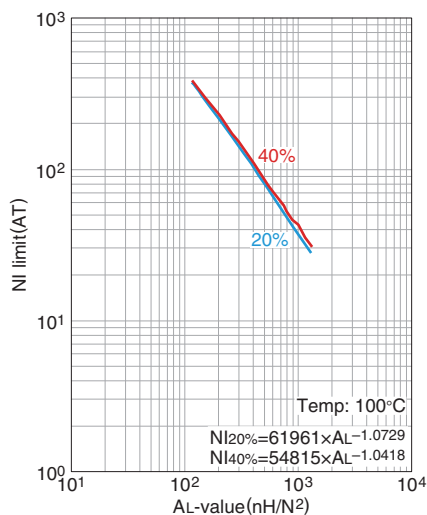


| Effective parameter | | | | | | | | Electrical characteristics | | |
|------------------------|--|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length ℓ_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C1 (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 0.060 | 77.3 | 128 | 9890 | 114 | 108 | 164 | 50 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 4150±25% | | 3.1 |

* Coil : ø0.18 2UEW 100Ts

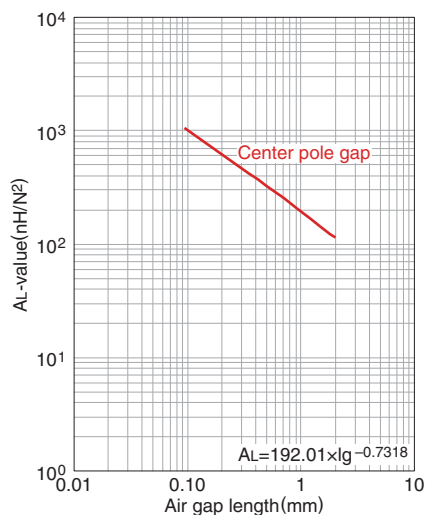
○ Calculated output power (forward converter mode): 311W (100kHz)

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.)



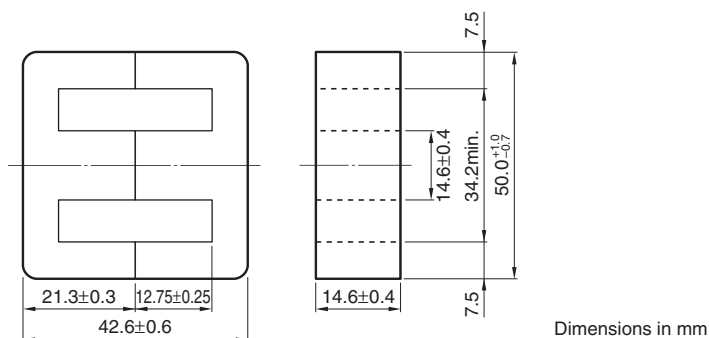
Measuring conditions

- Coil : ø0.18 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series **Part No.: PC47EE50-Z**

■ SHAPES AND DIMENSIONS

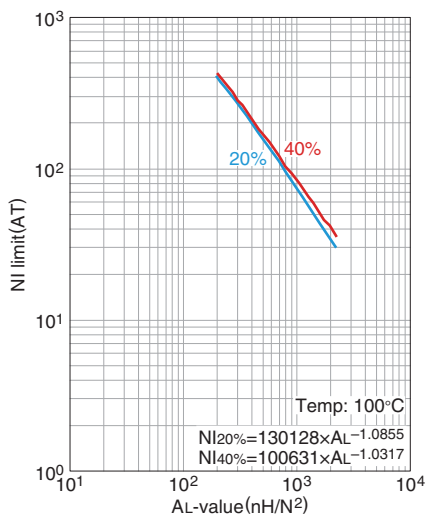


| Effective parameter | | | | | | | | Electrical characteristics | | |
|------------------------------------|--|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length ℓ_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C ₁ (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 0.425 | 95.8 | 226 | 21600 | 213 | 202 | 262 | 116 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 6110±25% | | 8.78 |

* Coil : ø0.18 2UEW 100Ts

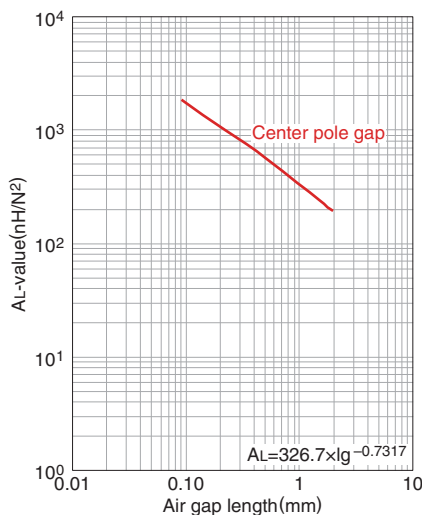
○ Calculated output power (forward converter mode): 556W (100kHz)

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.)



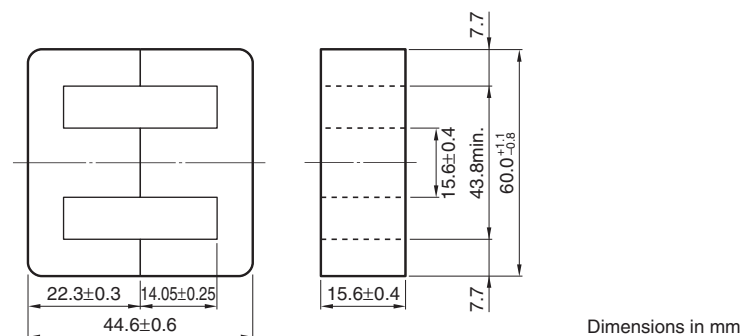
Measuring conditions

- Coil : ø0.18 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC47EE60-Z

■ SHAPES AND DIMENSIONS

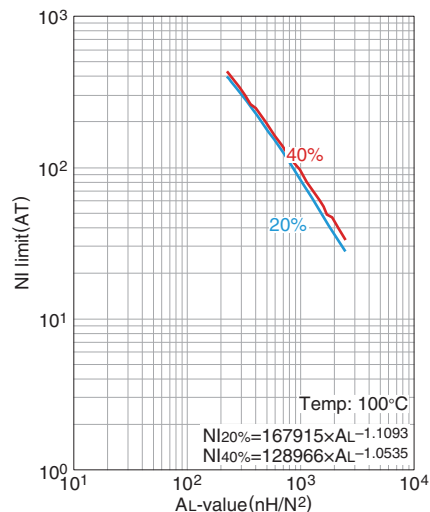


| Effective parameter | | | | | | | | Electrical characteristics | | |
|------------------------------------|--|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length ℓ_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C ₁ (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 0.446 | 110 | 247 | 27100 | 243 | 231 | 407 | 135 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 5670±25% | | 11.35 |

* Coil : ø0.18 2UEW 100Ts

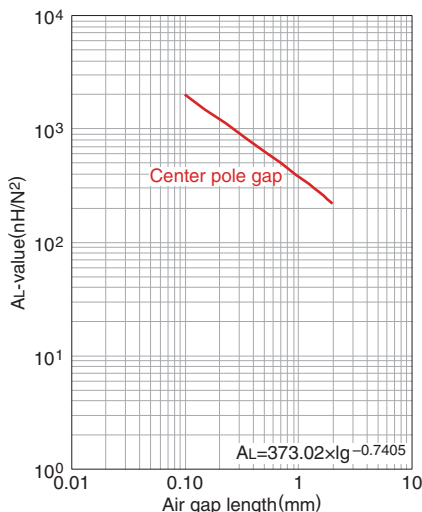
○ Calculated output power (forward converter mode): 713W (100kHz)

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 : ø0.18 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn EER Cores

SHAPES AND DIMENSIONS

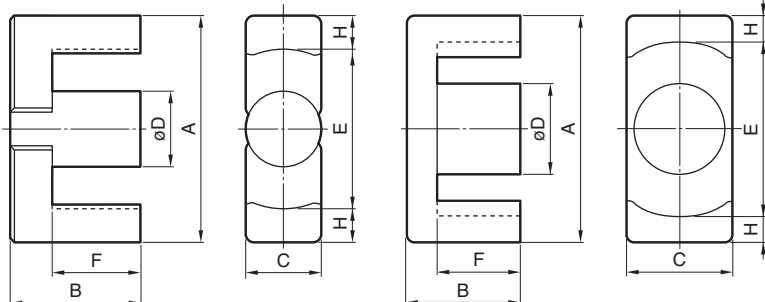


Fig. 1

Fig. 2

| | | | |
|----------|----------------|---|----------------------------------|
| PC47 | EER25.5 | - | Z |
| Material | Size of E core | | AL-value (Z: without air gap) |

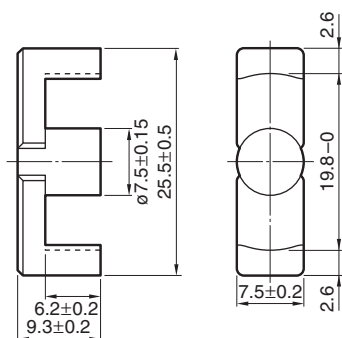
| Part No. | U.S. lam. cores, DIN standard JIS | Core | Dimensions (mm) | | | | | | |
|--------------------------------|---|-------|--------------------|-----------|-----------|-----------|--------|------------|------|
| | | | A | B | C | øD | E min. | F | H |
| PC47EER25.5-Z PC95EER25.5-Z | JIS FEER25.5A | Fig.1 | 25.5±0.5 | 9.3±0.2 | 7.5±0.2 | 7.5±0.15 | 19.8 | 6.2±0.2 | 2.6 |
| PC47EER28-Z PC95EER28-Z | JIS FEER28.5A | Fig.2 | 28.55±0.55 | 14.0±0.2 | 11.4±0.25 | 9.9±0.25 | 21.2 | 9.65±0.25 | 3.4 |
| PC47EER28L-Z PC95EER28L-Z | JIS FEER28.5B | Fig.2 | 28.55±0.55 | 16.9±0.25 | 11.4±0.25 | 9.9±0.25 | 21.2 | 12.53±0.28 | 3.4 |
| PC47EER35-Z PC95EER35-Z | JIS FEER35A | Fig.1 | 35.0±0.5 | 20.7±0.2 | 11.3±0.2 | 11.3±0.15 | 25.6 | 14.7±0.3 | 4.43 |
| PC47EER40-Z PC95EER40-Z | | Fig.1 | 40.0±0.5 | 22.4±0.2 | 13.3±0.25 | 13.3±0.25 | 29.0 | 15.4±0.3 | 5.28 |
| PC47EER42-Z | JIS FEER42 | Fig.1 | 42.0±0.6 | 22.4±0.2 | 15.5±0.25 | 15.5±0.25 | 29.4 | 15.4±0.3 | 6.0 |
| PC47EER42/42/20-Z | | Fig.2 | 42.15±0.65 | 21.2±0.2 | 19.60±0.4 | 17.3±0.25 | 31.8 | 15.25±0.25 | 4.93 |
| PC47EER49-Z | | Fig.1 | 49.0±0.8 | 19.0±0.3 | 17.2±0.4 | 17.2±0.25 | 36.4 | 12.4±0.2 | 6.0 |

| Part No. | Effective parameter | | | | | Electrical characteristics | | | | | |
|--------------------------------|--------------------------------------|--|---|---|--------------|---|------------------|-----------------------------|-----------|-----------|-----------|
| | Core factor $C_1(\text{mm}^{-1})$ | Effective cross-sectional area $A_e(\text{mm}^2)$ | Effective magnetic path length $\ell_e(\text{mm})$ | Effective core volume $V_e(\text{mm}^3)$ | Weigh (g) | AL-value | | Core loss | | | |
| | | | | | | (nH/N ²) 1kHz 0.5mA 100Ts Without air gap | With air gap | (W) max. 100kHz 200mT | 100°C | 25°C | 80°C |
| PC47EER25.5-Z PC95EER25.5-Z | 1.08 | 44.8 | 48.2 | 2160 | 11 | 1920±25% 2700±25% | 100±5% 200±7% | 0.75 — | — 1.1 | — 0.9 | — 1.1 |
| PC47EER28-Z PC95EER28-Z | 0.780 | 82.1 | 64.0 | 5250 | 28 | 2870±25% 4000±25% | 200±5% 400±7% | 1.72 — | — 2.45 | — 2.1 | — 2.45 |
| PC47EER28L-Z PC95EER28L-Z | 0.928 | 81.4 | 75.5 | 6150 | 33 | 2520±25% 3500±25% | 160±5% 315±7% | 2.03 — | — 2.9 | — 2.45 | — 2.9 |
| PC47EER35-Z PC95EER35-Z | 0.849 | 107 | 90.8 | 9720 | 52 | 2770±25% 4000±25% | 200±5% 400±7% | 3.18 — | — 4.55 | — 3.8 | — 4.55 |
| PC47EER40-Z PC95EER40-Z | 0.658 | 149 | 98.0 | 14600 | 78 | 3620±25% 5200±25% | 200±5% 400±7% | 4.77 — | — 6.8 | — 5.7 | — 6.8 |
| PC47EER42-Z | 0.509 | 194 | 98.8 | 19200 | 102 | 4690±25% | 250±5% 500±7% | 6.47 | — | — | — |
| PC47EER42/42/20-Z | 0.411 | 240 | 98.6 | 23700 | 116 | 5340±25% | 250±5% 500±7% | 9.96 | — | — | — |
| PC47EER49-Z | 0.395 | 231 | 91.3 | 21100 | 110 | 6250±25% | 250±5% 500±7% | 4.03 | — | — | — |

⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC47EER25.5-Z

■ SHAPES AND DIMENSIONS



Dimensions in mm

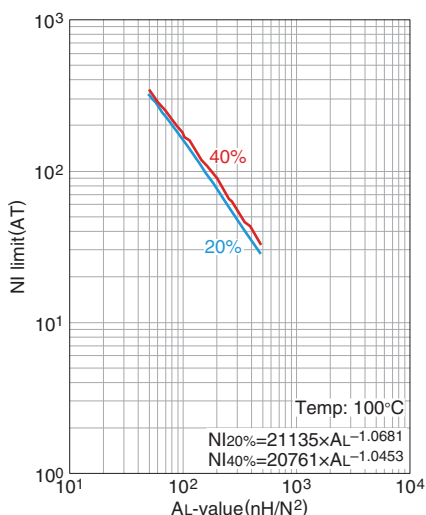
Based on JIS FEER 25.5A.

| Effective parameter | | | | | | | | Electrical characteristics | | |
|------------------------|---|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length l_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C1 (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 1.08 | 48.2 | 44.8 | 2160 | 44.2 | 42.4 | 79.4 | 11 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 1920±25% | 2910 min. | 0.75 |

* Coil : ø0.35 2UEW 100Ts

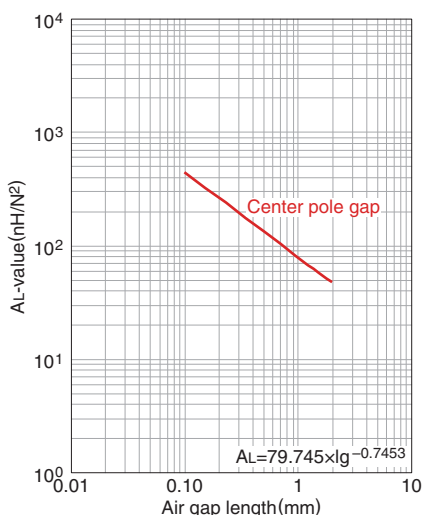
○ Calculated output power (forward converter mode): 112W (100kHz)

NI limit vs. AL-value (Typ.)



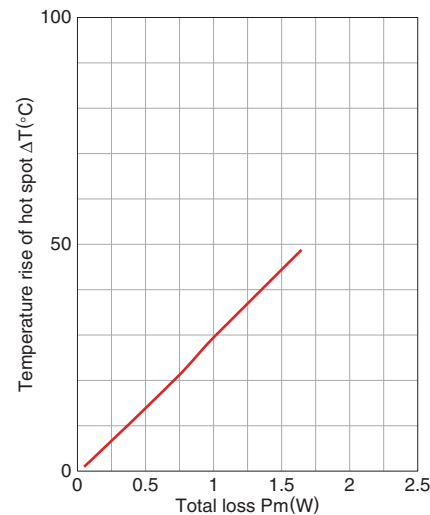
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

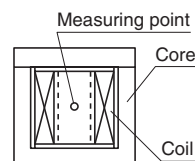


Measuring conditions
 • Coil : ø0.35 2UEW 100Ts
 • Frequency : 1kHz
 • Current level : 0.5mA
 • Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



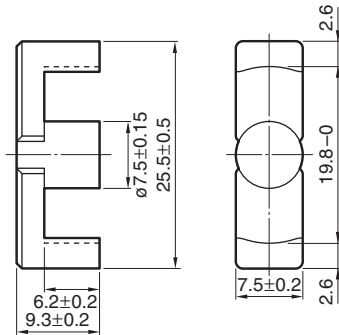
Measuring conditions
 • Room space: approx. 400x300x 300cm
 • Ambient temperature : 25°C
 • Humidity : 45%(%)RH.



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC95EER25.5-Z

SHAPES AND DIMENSIONS



Dimensions in mm

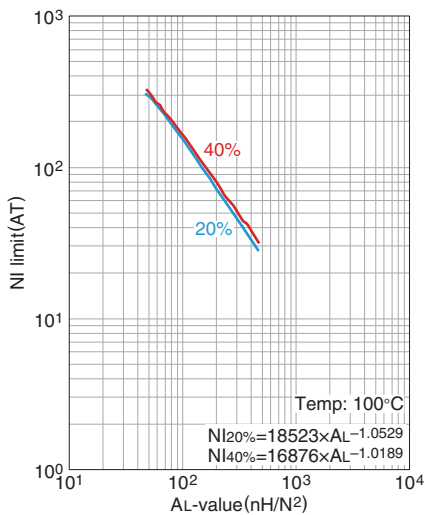
Based on JIS FEER 25.5A.

| Effective parameter | | | | | | | | Electrical characteristics | | | | |
|------------------------|---|---|--|--|---|--|----------------|---------------------------------------|----------------------------|------|------|-------|
| Core factor | Effective magnetic path length l_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | Core loss | | | |
| C1 (mm ⁻¹) | | | | | | | | (nH/N ²) 1kHz 0.5mA | (W)max. 100kHz 200mT | 25°C | 80°C | 120°C |
| 1.08 | 48.2 | 44.8 | 2160 | 44.2 | 42.4 | 79.4 | 11 | 2700±25% | 1.1 | 0.9 | 1.1 | |

* Coil : ø0.35 2UEW 100Ts

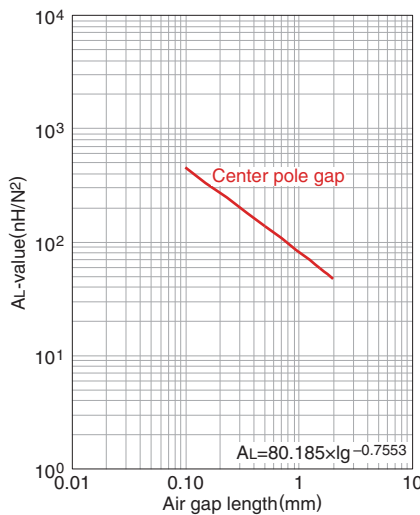
○ Calculated output power (forward converter mode): 96W (100kHz)

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.

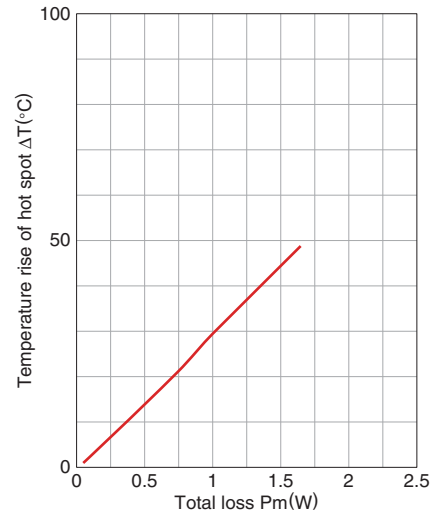
AL-value vs. Air gap length (Typ.)



Measuring conditions

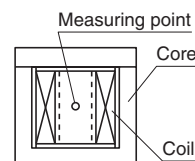
- Coil : ø0.35 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



Measuring conditions

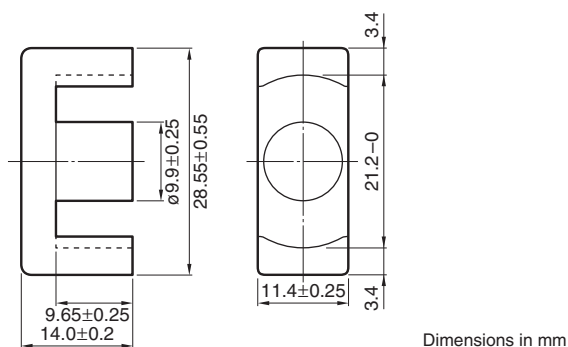
- Room space: approx. 400x300x 300cm
- Ambient temperature : 25°C
- Humidity: 45%(%)RH.



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC47EER28-Z

SHAPES AND DIMENSIONS



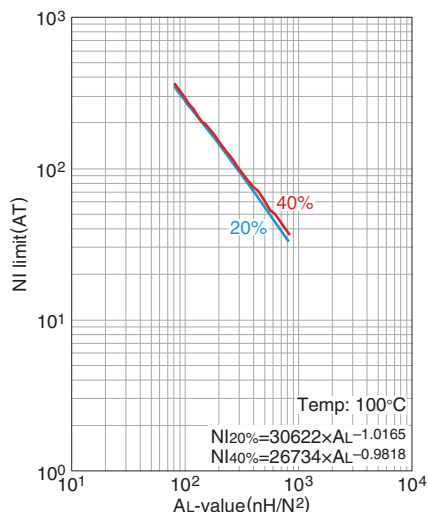
Based on JIS FEER 28.5A.

| Effective parameter | | | | | | | | Electrical characteristics | | |
|------------------------|--|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length ℓ_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C1 (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 0.78 | 64.0 | 82.1 | 5250 | 77.0 | 73.1 | 114 | 28 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 2870±25% | 4350 min. | 1.72 |

* Coil : $\phi 0.35$ 2UEW 100Ts

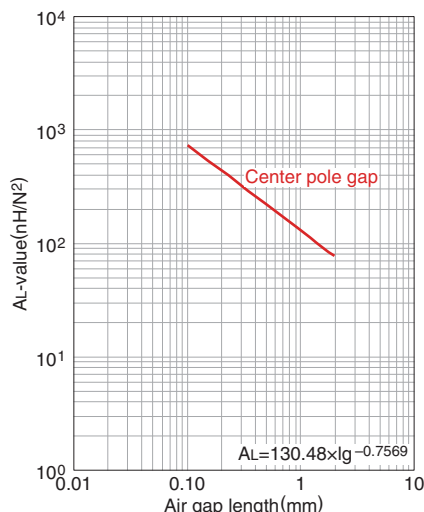
○ Calculated output power (forward converter mode): 233W (100kHz)

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.

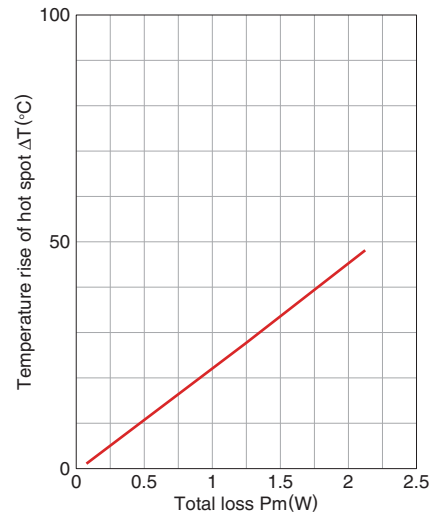
AL-value vs. Air gap length (Typ.)



Measuring conditions

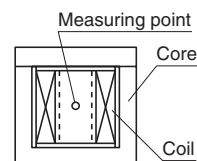
- Coil : $\phi 0.35$ 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



Measuring conditions

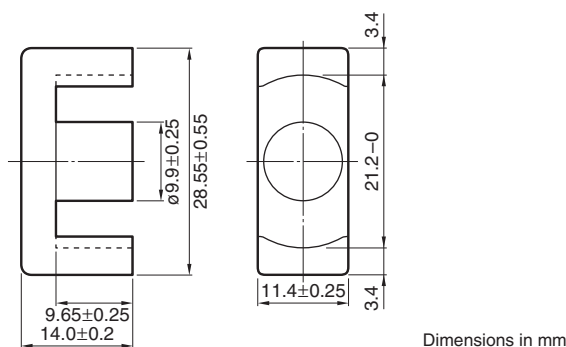
- Room space: approx. 400x300x 300cm
- Ambient temperature : 25°C
- Humidity : 45(%)RH.



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC95EER28-Z

■ SHAPES AND DIMENSIONS



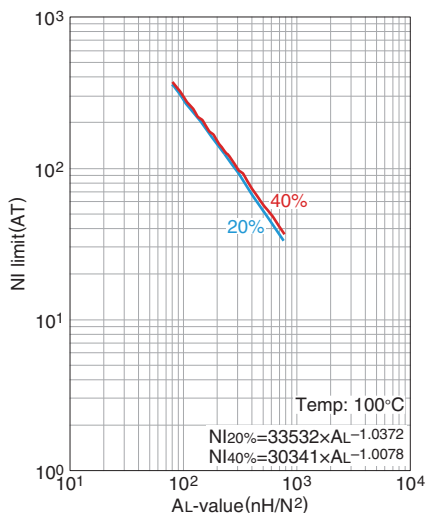
Based on JIS FEER 28.5A.

| Effective parameter | | | | | | | | Electrical characteristics | | | | |
|------------------------|--|---|--|--|---|--|----------------|---------------------------------------|----------------------------|------|------|-------|
| Core factor | Effective magnetic path length ℓ_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | Core loss | | | |
| C1 (mm ⁻¹) | | | | | | | | (nH/N ²) 1kHz 0.5mA | (W)max. 100kHz 200mT | 25°C | 80°C | 120°C |
| 0.78 | 64.0 | 82.1 | 5250 | 77.0 | 73.1 | 114 | 28 | 4000±25% | 2.45 | 2.1 | 2.45 | |

* Coil : $\phi 0.35$ 2UEW 100Ts

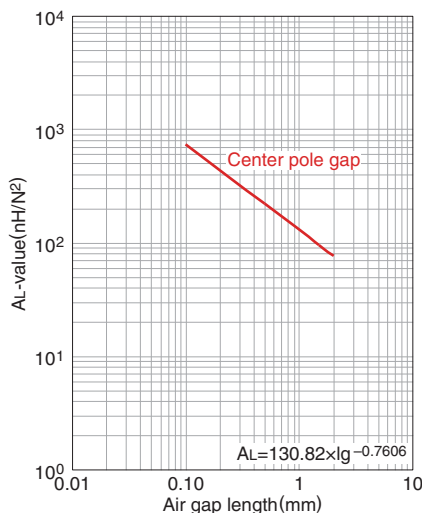
○ Calculated output power (forward converter mode): 223W (100kHz)

NI limit vs. AL-value (Typ.)



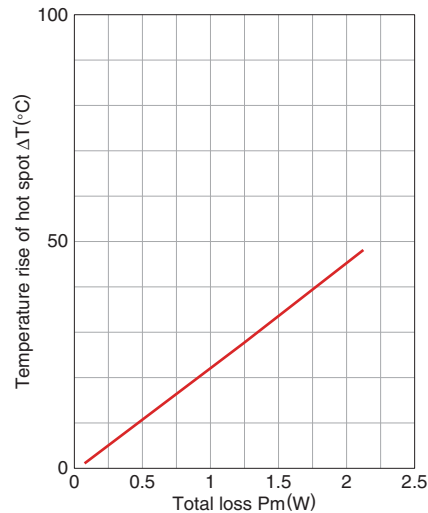
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

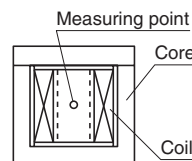


Measuring conditions
 • Coil : $\phi 0.35$ 2UEW 100Ts
 • Frequency : 1kHz
 • Current level : 0.5mA
 • Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



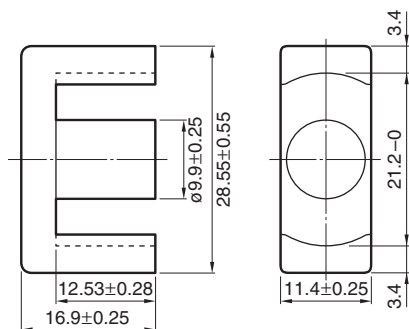
Measuring conditions
 • Room space: approx. 400x300x 300cm
 • Ambient temperature : 25°C
 • Humidity: 45(%)RH.



Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC47EER28L-Z

■ SHAPES AND DIMENSIONS



Dimensions in mm

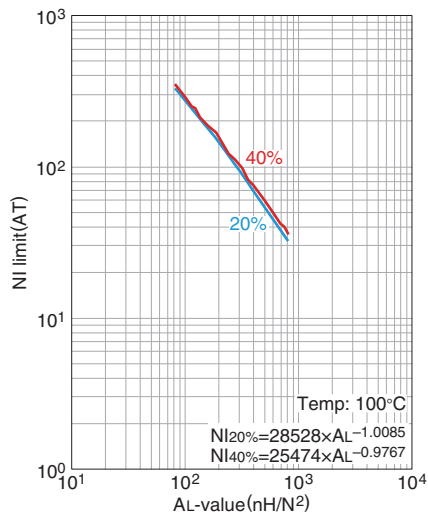
Based on JIS FEER 28.5B.

| Effective parameter | | | | | | | | Electrical characteristics | | |
|------------------------------------|--|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length ℓ_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C ₁ (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 0.928 | 75.5 | 81.4 | 6150 | 77.0 | 73.1 | 148 | 33 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 2520±25% | 3660 min. | 2.03 |

* Coil : ø0.35 2UEW 100Ts

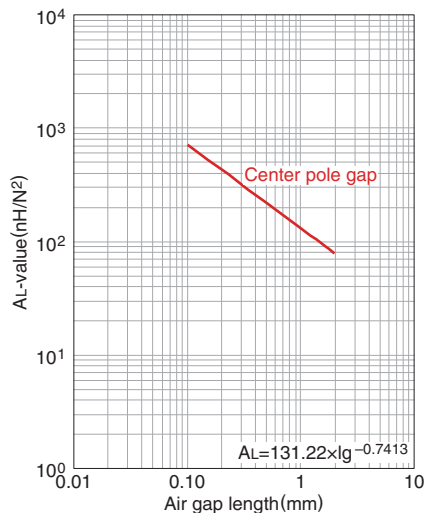
○ Calculated output power (forward converter mode): 267W (100kHz)

NI limit vs. AL-value (Typ.)



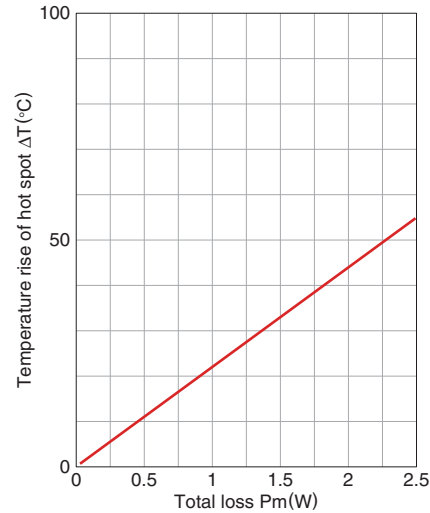
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

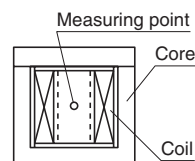


Measuring conditions
 • Coil : ø0.35 2UEW 100Ts
 • Frequency : 1kHz
 • Current level : 0.5mA
 • Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



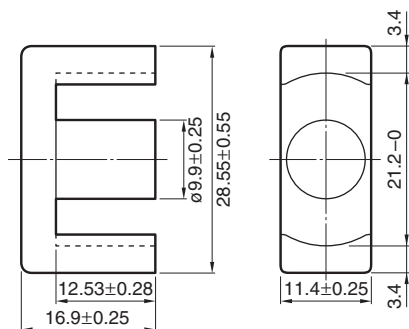
Measuring conditions
 • Room space: approx. 400x300x 300cm
 • Ambient temperature : 25°C
 • Humidity : 45%(%)RH.



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC95EER28L-Z

■ SHAPES AND DIMENSIONS



Dimensions in mm

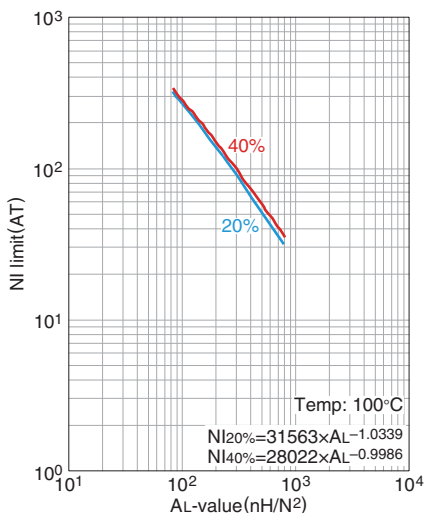
Based on JIS FEER 28.5B.

| Effective parameter | | | | | | | | Electrical characteristics | | | | |
|------------------------|--|---|--|--|---|--|----------------|---------------------------------------|----------------------------|------|------|-------|
| Core factor | Effective magnetic path length ℓ_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | Core loss | | | |
| C1 (mm ⁻¹) | | | | | | | | (nH/N ²) 1kHz 0.5mA | (W)max. 100kHz 200mT | 25°C | 80°C | 120°C |
| 0.928 | 75.5 | 81.4 | 6150 | 77.0 | 73.1 | 148 | 33 | 3500±25% | 2.9 | 2.45 | 2.9 | |

* Coil : ø0.35 2UEW 100Ts

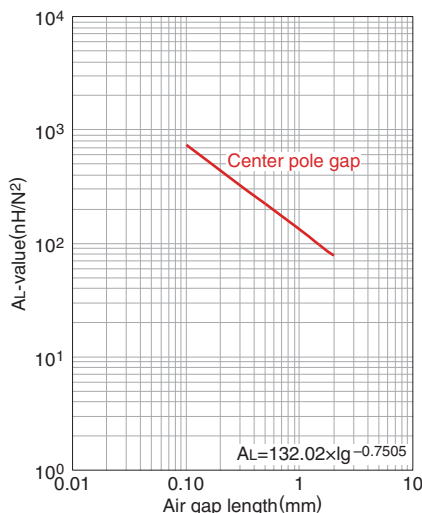
○ Calculated output power (forward converter mode): 250W (100kHz)

NI limit vs. AL-value (Typ.)



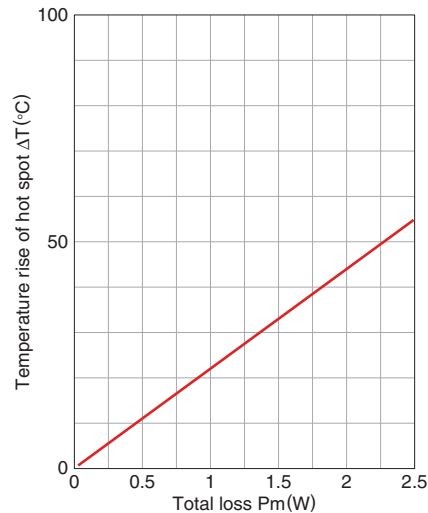
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

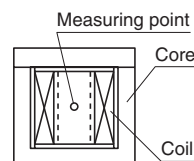


Measuring conditions
 • Coil : ø0.35 2UEW 100Ts
 • Frequency : 1kHz
 • Current level : 0.5mA
 • Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



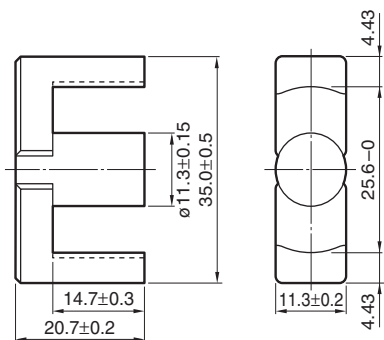
Measuring conditions
 • Room space: approx. 400x300x 300cm
 • Ambient temperature : 25°C
 • Humidity: 45%(%)RH.



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC47EER35-Z

■ SHAPES AND DIMENSIONS



Dimensions in mm

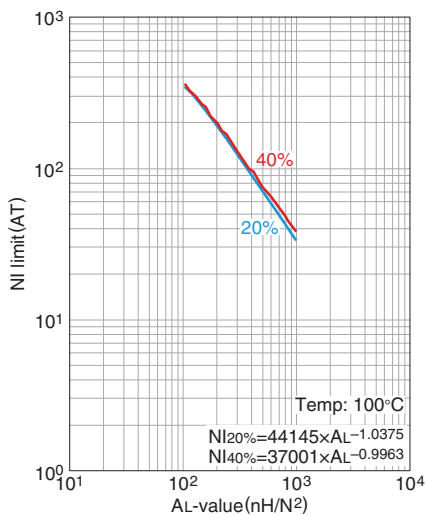
Based on JIS FEER 35A.

| Effective parameter | | | | | | | | Electrical characteristics | | |
|------------------------|--|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length ℓ_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C1 (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 0.849 | 90.8 | 107 | 9720 | 100 | 97.6 | 218 | 52 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 2770±25% | 4000 min. | 3.18 |

* Coil : ø0.35 2UEW 100Ts

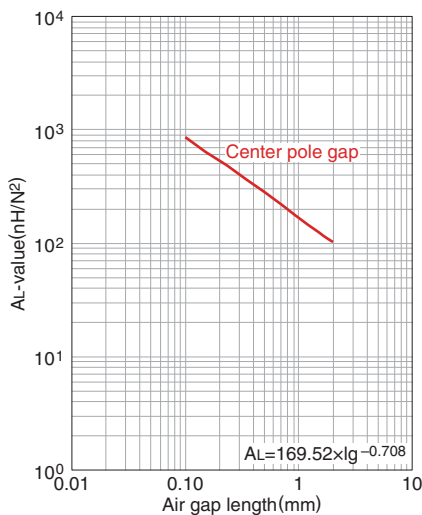
○ Calculated output power (forward converter mode): 376W (100kHz)

NI limit vs. AL-value (Typ.)



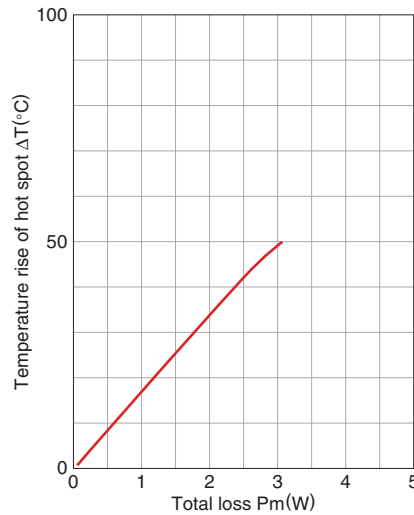
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

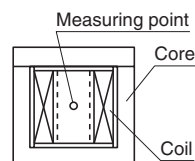


Measuring conditions
 • Coil : ø0.35 2UEW 100Ts
 • Frequency : 1kHz
 • Current level : 0.5mA
 • Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



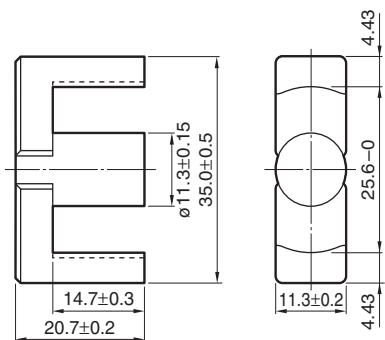
Measuring conditions
 • Room space: approx. 400x300x 300cm
 • Ambient temperature : 25°C
 • Humidity : 45(%)RH.



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC95EER35-Z

■ SHAPES AND DIMENSIONS



Dimensions in mm

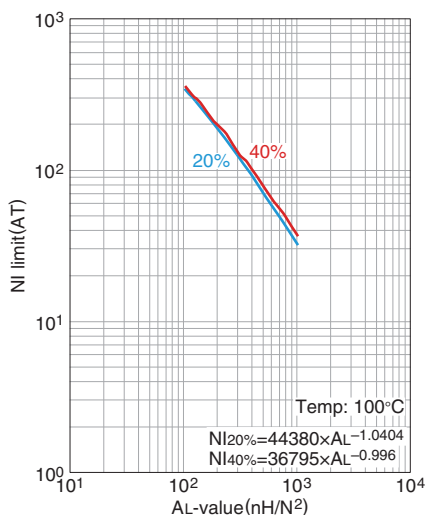
Based on JIS FEER 35A.

| Effective parameter | | | | | | | | Electrical characteristics | | | | |
|---------------------|--|---|--|--|---|--|----------------|---------------------------------------|----------------------------|------|------|-------|
| Core factor | Effective magnetic path length ℓ_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | Core loss | | | |
| C ₁ | (mm ⁻¹) | | | | | | | (nH/N ²) 1kHz 0.5mA | (W)max. 100kHz 200mT | 25°C | 80°C | 120°C |
| 0.849 | 90.8 | 107 | 9720 | 100 | 97.6 | 218 | 52 | 4000±25% | 4.55 | 3.8 | 4.55 | |

* Coil : $\phi 0.35$ 2UEW 100Ts

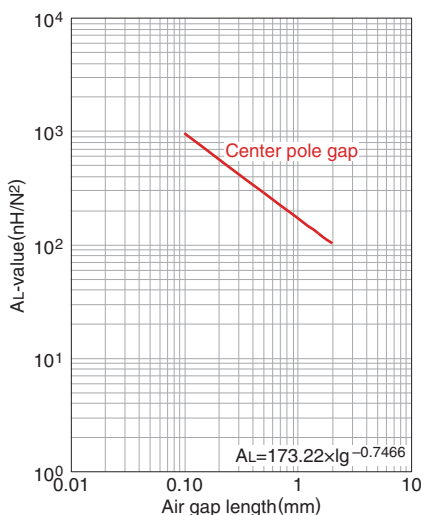
○ Calculated output power (forward converter mode): 336W (100kHz)

NI limit vs. AL-value (Typ.)



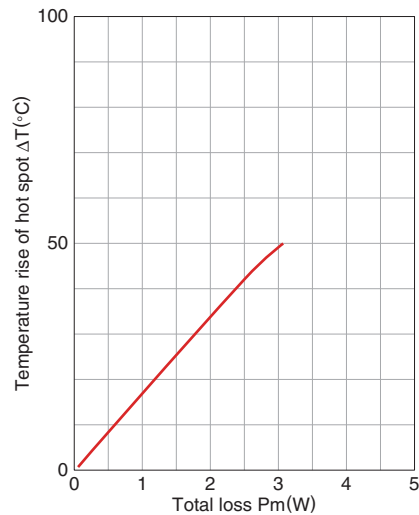
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

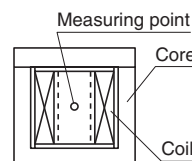


Measuring conditions
 • Coil : $\phi 0.35$ 2UEW 100Ts
 • Frequency : 1kHz
 • Current level : 0.5mA
 • Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



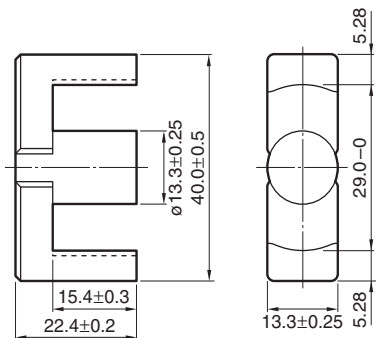
Measuring conditions
 • Room space: approx. 400x300x 300cm
 • Ambient temperature : 25°C
 • Humidity : 45(%RH).



Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC47EER40-Z

■ SHAPES AND DIMENSIONS



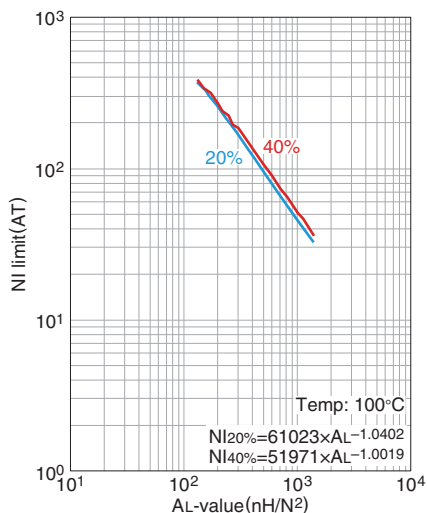
Dimensions in mm

| Effective parameter | | | | | | | | Electrical characteristics | | |
|---------------------|--------------------------------------|--------------------------------------|-----------------------------|---|--|---|---------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length l_e | Effective cross-sectional area A_e | Effective core volume V_e | Cross-sectional center pole area A_{cp} | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ | Cross-sectional winding area of core A_{cw} | Weight | AL-value * | | Core loss |
| C_1 | (mm) | (mm ²) | (mm ³) | (mm ²) | (mm ²) | (mm ²) | (g/set) | (nH/N ²) | | (W)max. |
| 0.658 | 98.0 | 149 | 14600 | 139 | 134 | 249 | 78 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 3620±25% | 5160 min. | 4.77 |

* Coil : $\phi 0.35$ 2UEW 100Ts

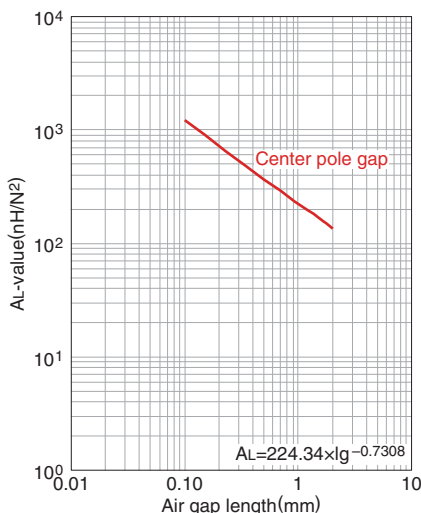
○ Calculated output power (forward converter mode): 484W (100kHz)

NI limit vs. AL-value (Typ.)



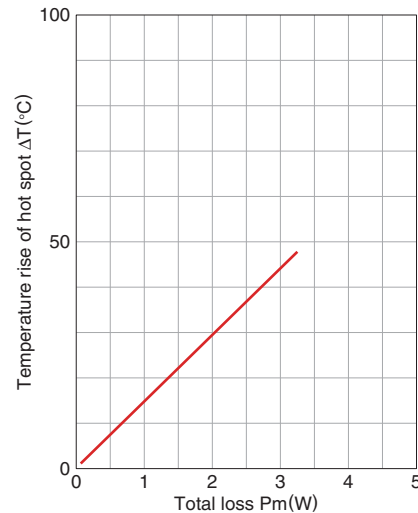
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

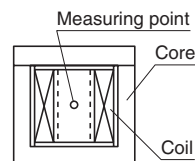


Measuring conditions
 • Coil : $\phi 0.35$ 2UEW 100Ts
 • Frequency : 1kHz
 • Current level : 0.5mA
 • Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



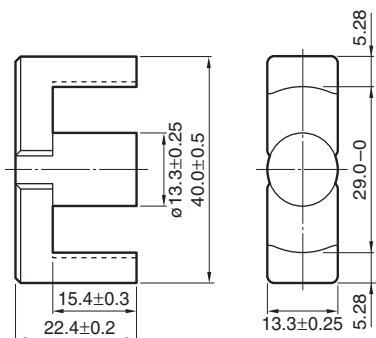
Measuring conditions
 • Room space: approx. 400x300x 300cm
 • Ambient temperature : 25°C
 • Humidity : 45%(%)RH.



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC95EER40-Z

■ SHAPES AND DIMENSIONS



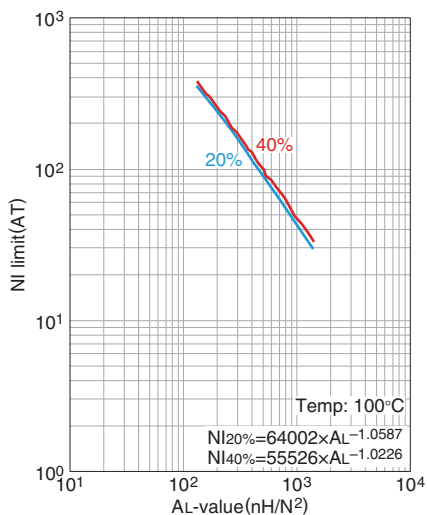
Dimensions in mm

| Effective parameter | | | | | | | | Electrical characteristics | | | |
|---------------------|---|---|--|--|---|--|----------------|--|--------------------------------------|------|-------|
| Core factor | Effective magnetic path length l_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * (nH/N ²) 1kHz 0.5mA | Core loss (W)max. 100kHz 200mT | | |
| C ₁ | (mm ⁻¹) | | | | | | | | 25°C | 80°C | 120°C |
| 0.658 | 98.0 | 149 | 14600 | 139 | 134 | 249 | 78 | 5200±25% | 6.8 | 5.7 | 6.8 |

* Coil : ø0.35 2UEW 100Ts

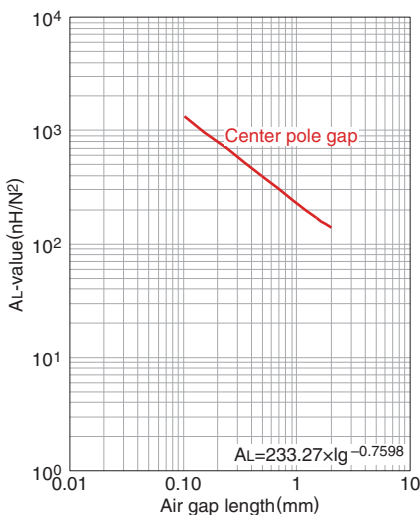
○ Calculated output power (forward converter mode): 446W (100kHz)

NI limit vs. AL-value (Typ.)



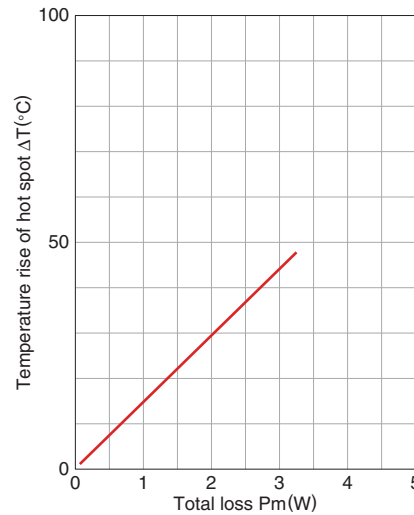
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

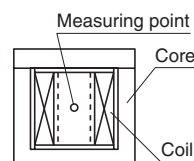


Measuring conditions
 • Coil : ø0.35 2UEW 100Ts
 • Frequency : 1kHz
 • Current level : 0.5mA
 • Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



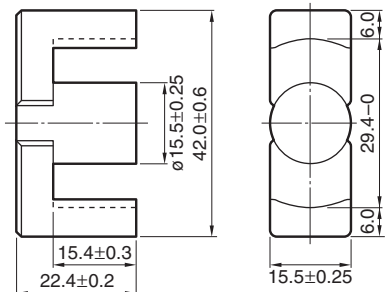
Measuring conditions
 • Room space: approx. 400x300x 300cm
 • Ambient temperature : 25°C
 • Humidity: 45(%)RH.



Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC47EER42-Z

■ SHAPES AND DIMENSIONS



Dimensions in mm

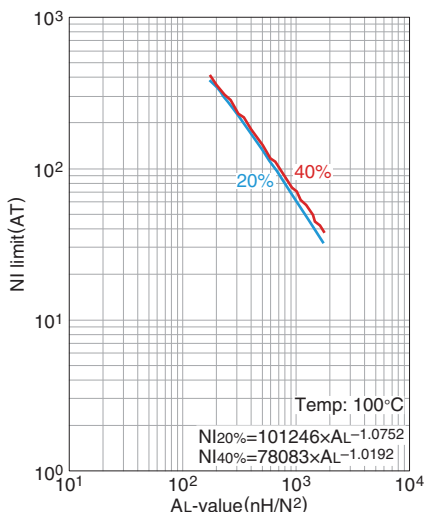
Based on JIS FEER 42.

| Effective parameter | | | | | | | | Electrical characteristics | | |
|------------------------------------|--|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length ℓ_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C ₁ (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 0.509 | 98.8 | 194 | 19200 | 187 | 183 | 223 | 102 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 4690±25% | 6670 min. | 6.47 |

* Coil : $\phi 0.35$ 2UEW 100Ts

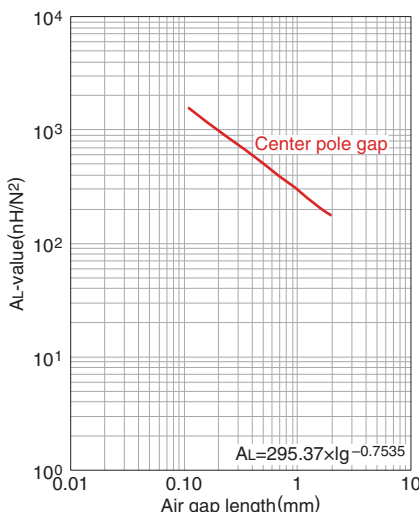
○ Calculated output power (forward converter mode): 540W (100kHz)

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.

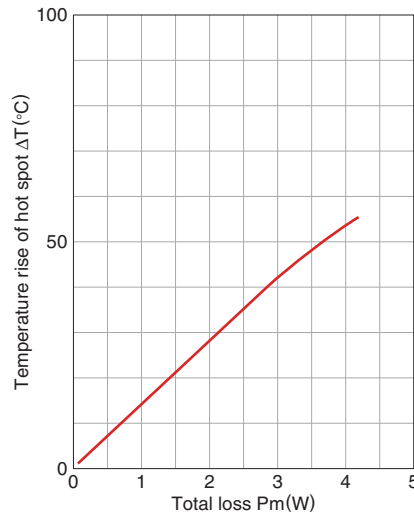
AL-value vs. Air gap length (Typ.)



Measuring conditions

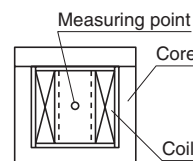
- Coil : $\phi 0.35$ 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



Measuring conditions

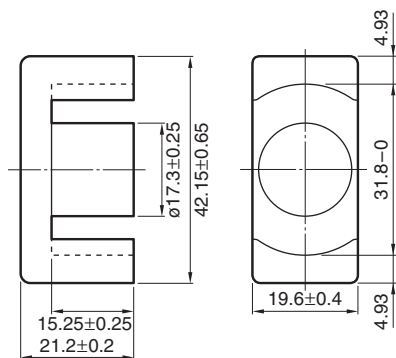
- Room space: approx. 400x300x 300cm
- Ambient temperature : 25°C
- Humidity: 45%(%)RH.



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC47EER42/42/20-Z

SHAPES AND DIMENSIONS



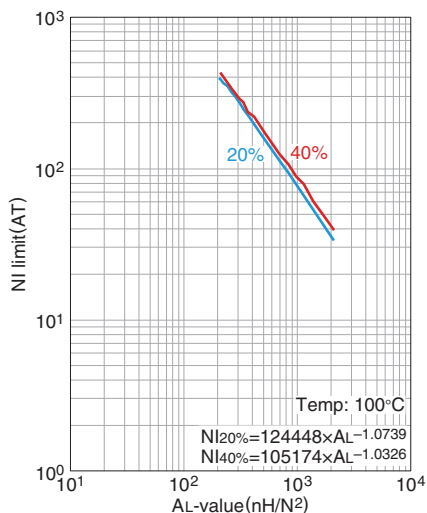
Dimensions in mm

| Effective parameter | | | | | | | | Electrical characteristics | | |
|-------------------------------|--------------------------------------|--------------------------------------|-----------------------------|---|--|---|---------|---|-----------------|-------------------------------------|
| Core factor | Effective magnetic path length l_e | Effective cross-sectional area A_e | Effective core volume V_e | Cross-sectional center pole area A_{cp} | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ | Cross-sectional winding area of core A_{cw} | Weight | AL-value * | | Core loss |
| C_1 (mm^{-1}) | (mm) | (mm^2) | (mm^3) | (mm^2) | (mm^2) | (mm^2) | (g/set) | (nH/N^2) 1kHz 0.5mA | 100kHz 200mT | (W)max. 100kHz 200mT 100°C |
| 0.411 | 98.6 | 240 | 23700 | 235 | 228 | 229 | 116 | 5340±25% | 8260 min. | 9.96 |

* Coil : $\phi 0.35$ 2UEW 100Ts

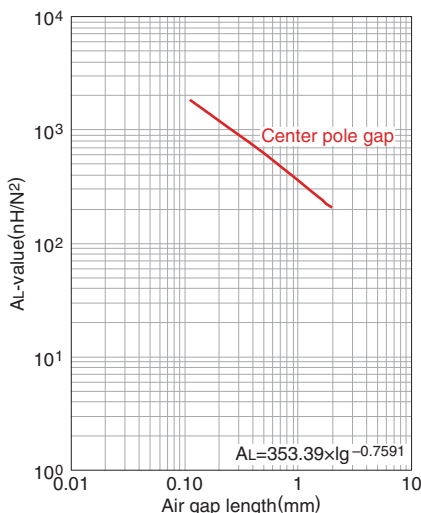
○ Calculated output power (forward converter mode): 647W (100kHz)

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.

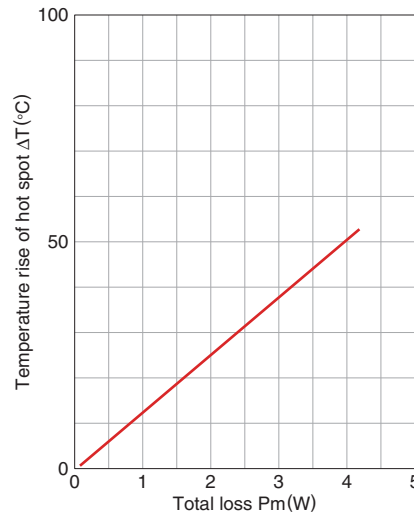
AL-value vs. Air gap length (Typ.)



Measuring conditions

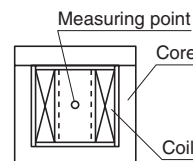
- Coil : $\phi 0.35$ 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



Measuring conditions

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

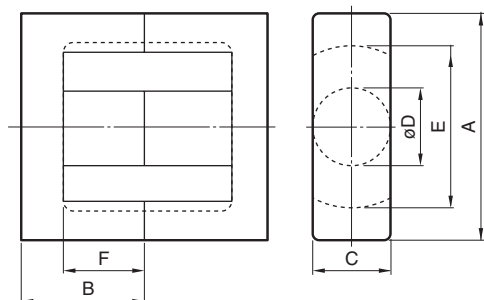


Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn ETD Cores



SHAPES AND DIMENSIONS



| | | | |
|----------|----------------|---|----------------------------------|
| PC47 | ETD19 | - | Z |
| Material | Size of E core | | AL-value (Z: without air gap) |

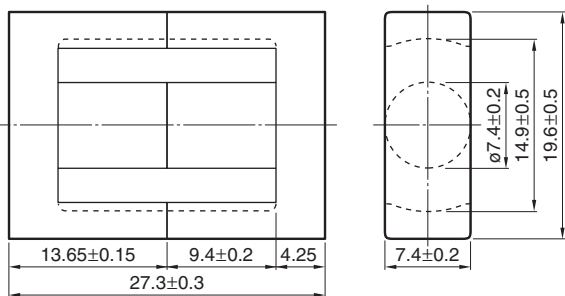
| Part No. | JIS | Dimensions (mm) | | | | | |
|-------------|------------------|-----------------|------------|------------|----------|----------|----------|
| | | A | B | C | øD | E | F |
| PC47ETD19-Z | | 19.6±0.5 | 13.65±0.15 | 7.4±0.2 | 7.4±0.2 | 14.9±0.5 | 9.4±0.2 |
| PC47ETD24-Z | | 24.4±0.6 | 14.45±0.15 | 8.5±0.4 | 8.5±0.2 | 18.6±0.6 | 10.1±0.2 |
| PC47ETD29-Z | | 29.8±0.8 | 15.80±0.15 | 9.5±0.3 | 9.5±0.3 | 22.7±0.7 | 11.0±0.3 |
| PC47ETD34-Z | JIS FEER 34.2 | 34.2±0.8 | 17.3±0.2 | 10.88±0.38 | 10.8±0.3 | 26.3±0.7 | 12.1±0.3 |
| PC47ETD39-Z | JIS FEER 39.1 | 39.1±0.9 | 19.8±0.2 | 12.58±0.38 | 12.5±0.3 | 30.1±0.8 | 14.6±0.4 |
| PC47ETD44-Z | JIS FEER 44 | 44.0±1.0 | 22.3±0.2 | 14.9±0.5 | 14.8±0.4 | 33.3±0.8 | 16.5±0.4 |
| PC47ETD49-Z | JIS FEER 48.7 | 48.7±1.1 | 24.7±0.2 | 16.4±0.5 | 16.3±0.4 | 37.0±0.9 | 18.1±0.4 |

| Part No. | Effective parameter | | | | | Electrical characteristics | | |
|-------------|--------------------------------------|--|--|---|---------------|---|-------------------|---|
| | Core factor $C_1(\text{mm}^{-1})$ | Effective cross-sectional area $A_e(\text{mm}^2)$ | Effective magnetic path length $l_e(\text{mm})$ | Effective core volume $V_e(\text{mm}^3)$ | Weight (g) | AL-value (nH/N ²) 1kHz 0.5mA 100Ts Without air gap | | Core loss (W) max. 100kHz 200mT 100°C |
| PC47ETD19-Z | 1.32 | 41.3 | 54.6 | 2260 | 14 | 1720±25% | 80±5% 160±7% | 1.01 |
| PC47ETD24-Z | 1.100 | 56.3 | 61.9 | 3480 | 20 | 2125±25% | 100±5% 200±7% | 1.51 |
| PC47ETD29-Z | 0.959 | 73.6 | 70.6 | 5200 | 28 | 2500±25% | 200±5% 400±10% | 1.75 |
| PC47ETD34-Z | 0.810 | 97.1 | 78.6 | 7630 | 40 | 2780±25% | 200±5% 400±7% | 2.52 |
| PC47ETD39-Z | 0.737 | 125 | 92.1 | 11500 | 60 | 3150±25% | 200±5% 400±7% | 3.96 |
| PC47ETD44-Z | 0.589 | 175 | 103 | 18000 | 94 | 4000±25% | 250±5% 400±7% | 6.20 |
| PC47ETD49-Z | 0.535 | 213 | 114 | 24300 | 124 | 4440±25% | 250±5% 400±7% | 10.25 |

⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC47ETD19-Z

■ SHAPES AND DIMENSIONS



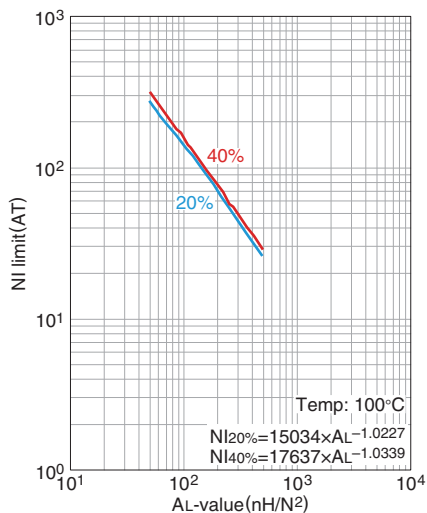
Dimensions in mm

| Effective parameter | | | | | | | | Electrical characteristics | | |
|---------------------------|---|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length l_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C_1 (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 1.32 | 54.6 | 41.3 | 2260 | 43 | 40.7 | 70.5 | 13.3 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 1720±25% | 2380 min. | 1.01 |

* Coil : ø0.35 2UEW 100Ts

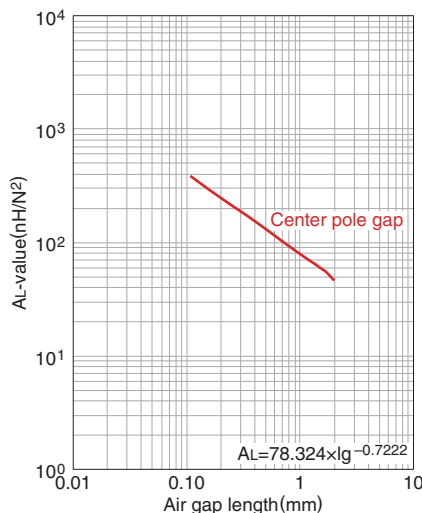
○ Calculated output power (forward converter mode): 114W (100kHz)

NI limit vs. AL-value (Typ.)



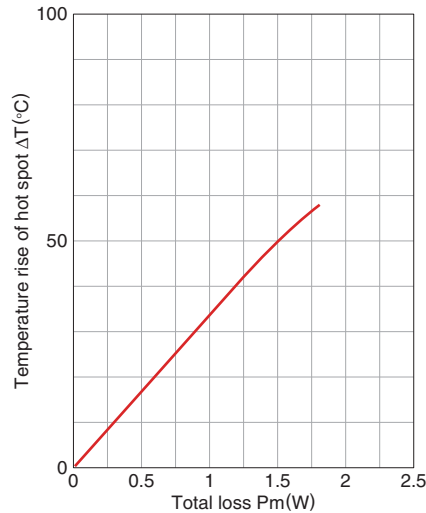
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

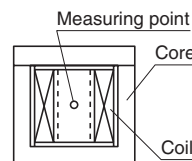


Measuring conditions
 • Coil : ø0.35 2UEW 100Ts
 • Frequency : 1kHz
 • Current level : 0.5mA
 • Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



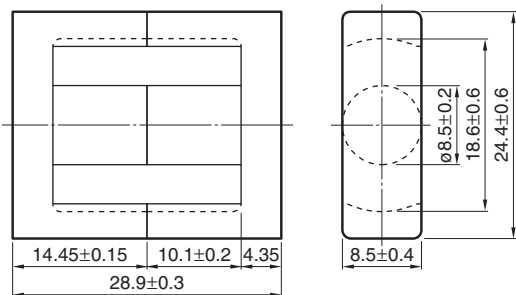
Measuring conditions
 • Room space: approx. 400x300x 300cm
 • Ambient temperature : 25°C
 • Humidity: 45%(%)RH.



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC47ETD24-Z

SHAPES AND DIMENSIONS



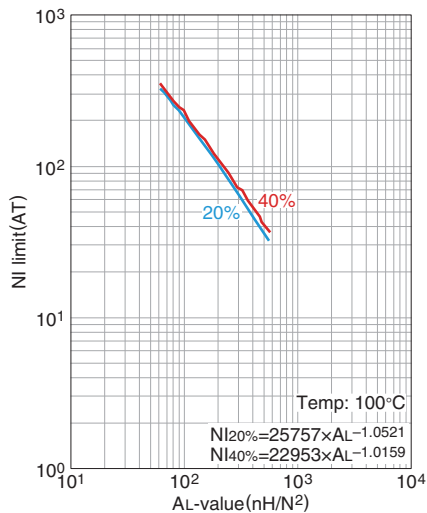
Dimensions in mm

| Effective parameter | | | | | | | Electrical characteristics | | | |
|------------------------------------|---|---|--|--|---|--|----------------------------|----------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length l_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C ₁ (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 1.10 | 61.9 | 56.3 | 3480 | 56.7 | 54.1 | 102 | 19.5 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 2125±25% | 2860 min. | 1.51 |

* Coil : ø0.35 2UEW 100Ts

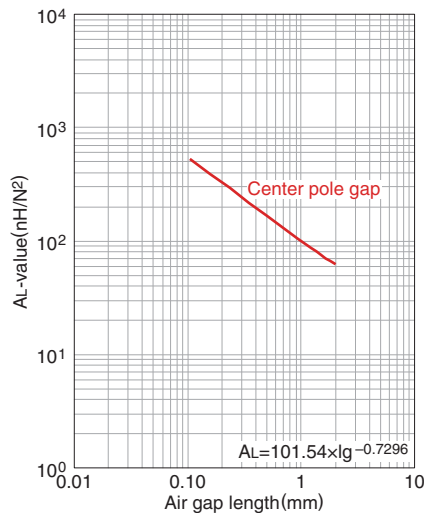
○ Calculated output power (forward converter mode): 131W (100kHz)

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.

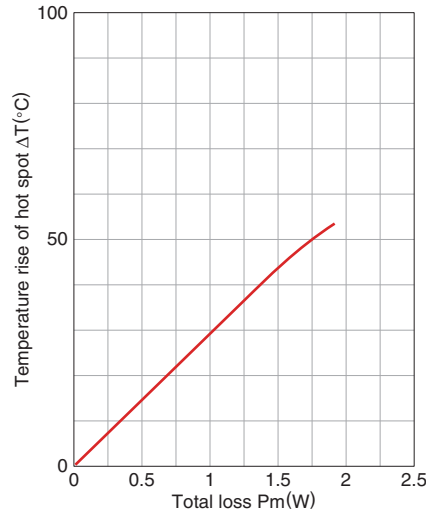
AL-value vs. Air gap length (Typ.)



Measuring conditions

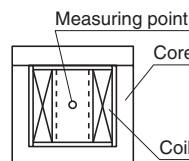
- Coil : ø0.35 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



Measuring conditions

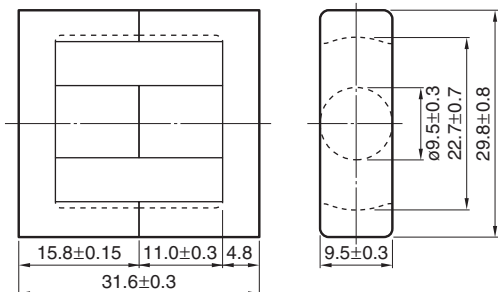
- Room space: approx. 400x300x 300cm
- Ambient temperature : 25°C
- Humidity : 45(%)RH.



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series **Part No.: PC47ETD29-Z**

SHAPES AND DIMENSIONS



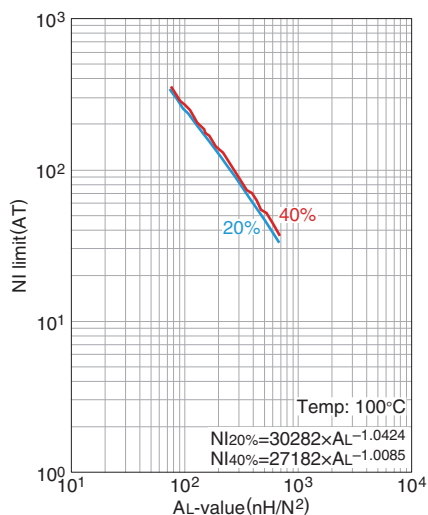
Dimensions in mm

| Effective parameter | | | | | | | | Electrical characteristics | | |
|-------------------------------|--------------------------------------|--------------------------------------|-----------------------------|---|--|---|---------|--------------------------------------|-----------------|-------------------------------------|
| Core factor | Effective magnetic path length l_e | Effective cross-sectional area A_e | Effective core volume V_e | Cross-sectional center pole area A_{cp} | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ | Cross-sectional winding area of core A_{cw} | Weight | AL-value * | | Core loss |
| C_1 (mm^{-1}) | (mm) | (mm^2) | (mm^3) | (mm^2) | (mm^2) | (mm^2) | (g/set) | (nH/N^2) 1kHz 0.5mA | 100kHz 200mT | (W)max. 100kHz 200mT 100°C |
| 0.959 | 70.6 | 73.6 | 5200 | 70.9 | 66.5 | 145.2 | 28 | 2500±25% | 3540 min. | 1.75 |

* Coil : $\phi 0.35$ 2UEW 100Ts

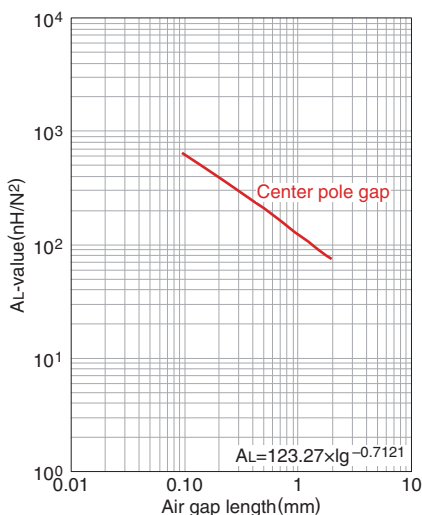
○ Calculated output power (forward converter mode): 242W (100kHz)

NI limit vs. AL-value (Typ.)



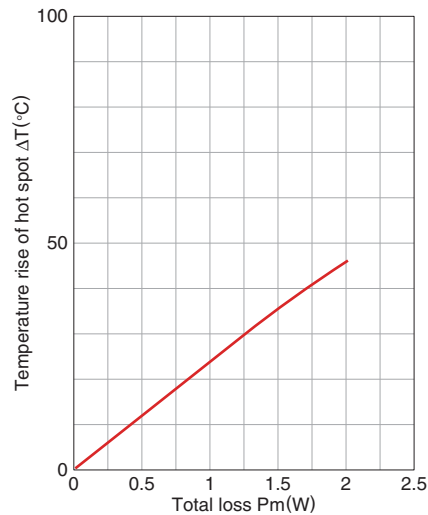
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

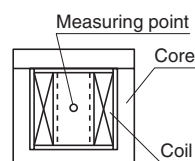


Measuring conditions
 • Coil : $\phi 0.35$ 2UEW 100Ts
 • Frequency : 1kHz
 • Current level : 0.5mA
 • Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



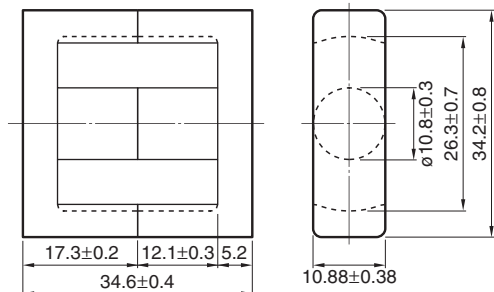
Measuring conditions
 • Room space: approx. 400x300x 300cm
 • Ambient temperature : 25°C
 • Humidity : 45%(%)RH.



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC47ETD34-Z

SHAPES AND DIMENSIONS



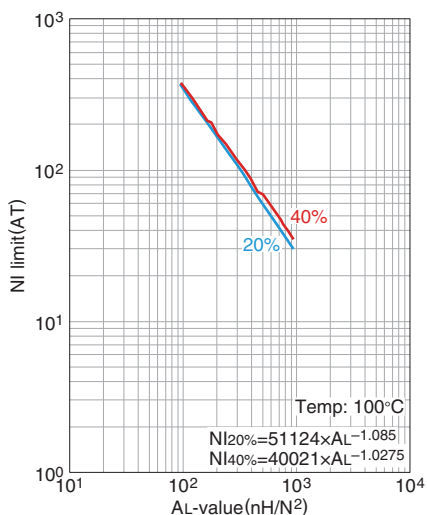
Dimensions in mm

| Effective parameter | | | | | | | | Electrical characteristics | | |
|-------------------------------|--------------------------------------|--------------------------------------|-----------------------------|---|--|---|---------|--------------------------------------|-----------------|-------------------------------------|
| Core factor | Effective magnetic path length l_e | Effective cross-sectional area A_e | Effective core volume V_e | Cross-sectional center pole area A_{cp} | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ | Cross-sectional winding area of core A_{cw} | Weight | AL-value * | | Core loss |
| C_1 (mm^{-1}) | (mm) | (mm^2) | (mm^3) | (mm^2) | (mm^2) | (mm^2) | (g/set) | (nH/N^2) 1kHz 0.5mA | 100kHz 200mT | (W)max. 100kHz 200mT 100°C |
| 0.810 | 78.6 | 97.1 | 7630 | 91.6 | 86.6 | 188 | 40 | 2780±25% | 4190 min. | 2.52 |

* Coil : $\phi 0.35$ 2UEW 100Ts

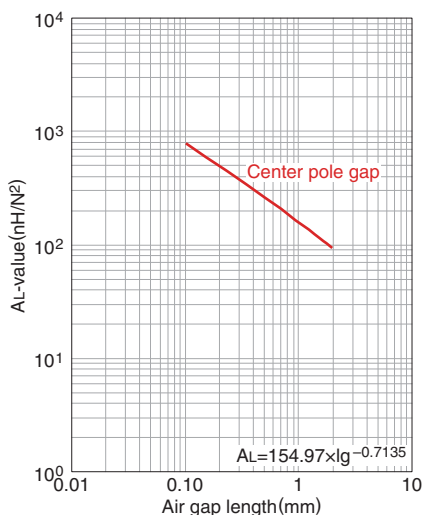
○ Calculated output power (forward converter mode): 321W (100kHz)

NI limit vs. AL-value (Typ.)



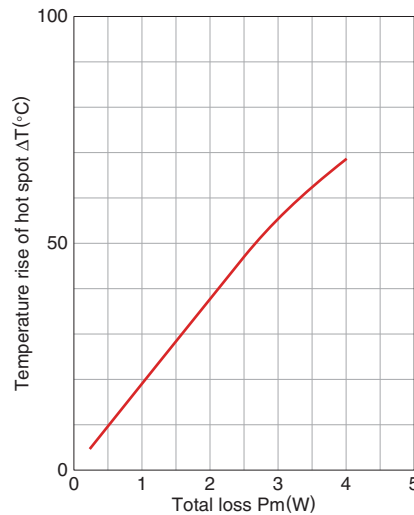
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

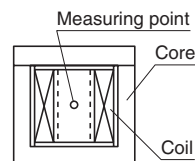


Measuring conditions
 • Coil : $\phi 0.35$ 2UEW 100Ts
 • Frequency : 1kHz
 • Current level : 0.5mA
 • Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



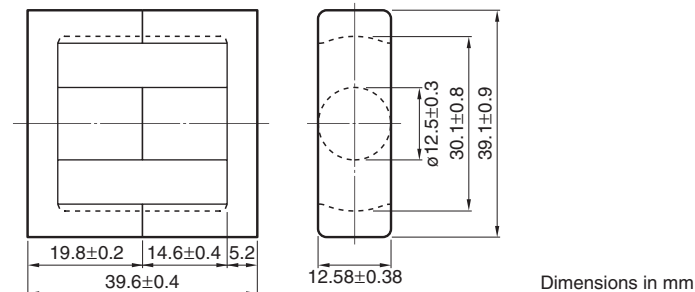
Measuring conditions
 • Room space: approx. 400x300x 300cm
 • Ambient temperature : 25°C
 • Humidity : 45%(%)RH.



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC47ETD39-Z

■ SHAPES AND DIMENSIONS



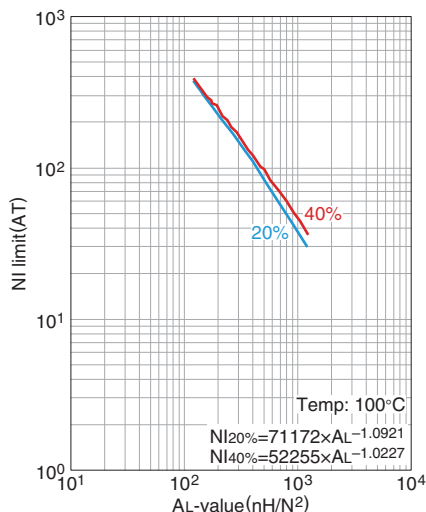
Based on JIS FEI 12.5.

| Effective parameter | | | | | | | | Electrical characteristics | | |
|------------------------|--|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length ℓ_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C1 (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 0.737 | 92.1 | 125 | 11500 | 123 | 117 | 257 | 60 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 3150±25% | 4600 min. | 3.96 |

* Coil : $\phi 0.35$ 2UEW 100Ts

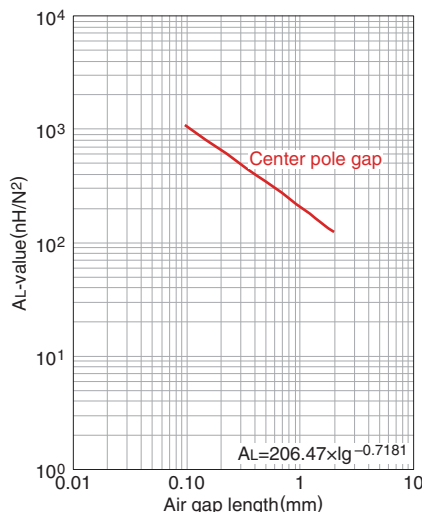
○ Calculated output power (forward converter mode): 450W (100kHz)

NI limit vs. AL-value (Typ.)



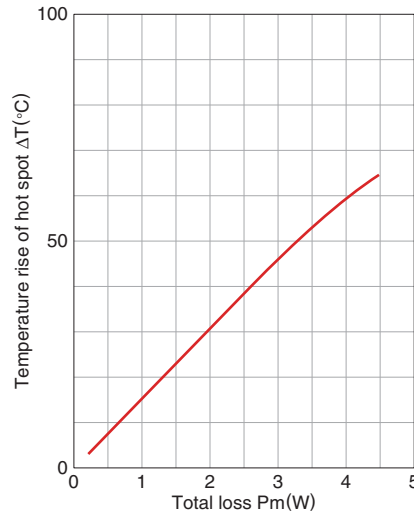
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

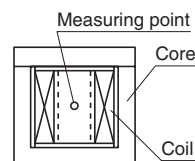


Measuring conditions
 • Coil : $\phi 0.35$ 2UEW 100Ts
 • Frequency : 1kHz
 • Current level : 0.5mA
 • Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



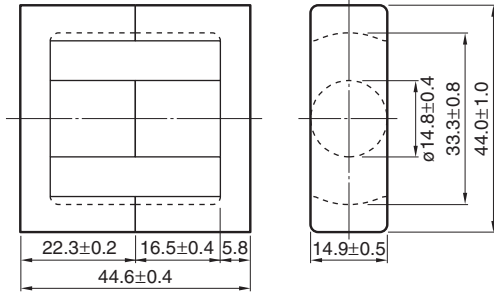
Measuring conditions
 • Room space: approx. 400x300x 300cm
 • Ambient temperature : 25°C
 • Humidity : 45(%RH).



Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC47ETD44-Z

■ SHAPES AND DIMENSIONS



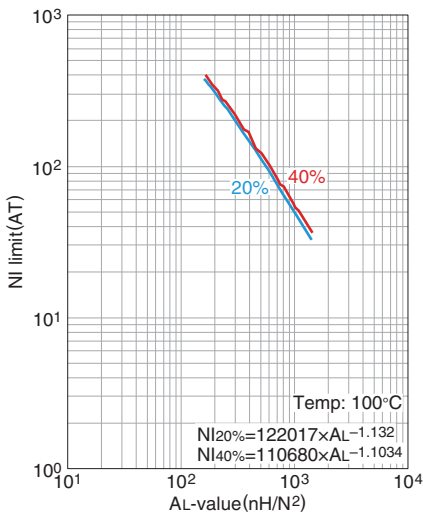
Dimensions in mm

| Effective parameter | | | | | | | | Electrical characteristics | | |
|-------------------------------|--------------------------------------|--------------------------------------|-----------------------------|---|--|---|---------|---|-----------------|-------------------------------------|
| Core factor | Effective magnetic path length l_e | Effective cross-sectional area A_e | Effective core volume V_e | Cross-sectional center pole area A_{cp} | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ | Cross-sectional winding area of core A_{cw} | Weight | AL-value * | | Core loss |
| C_1 (mm^{-1}) | (mm) | (mm^2) | (mm^3) | (mm^2) | (mm^2) | (mm^2) | (g/set) | (nH/N^2) 1kHz 0.5mA | 100kHz 200mT | (W)max. 100kHz 200mT 100°C |
| 0.589 | 103 | 175 | 18000 | 172 | 163 | 305 | 94 | 4000±25% | 5760 min. | 6.2 |

* Coil : $\phi 0.35$ 2UEW 100Ts

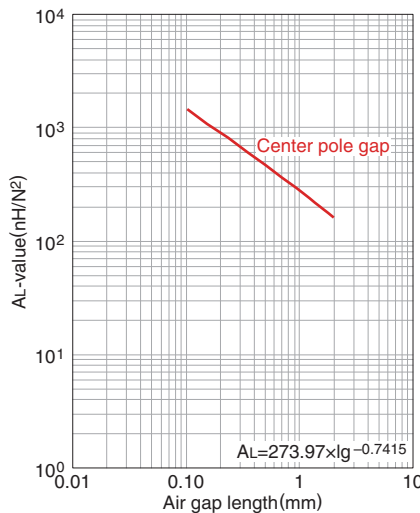
○ Calculated output power (forward converter mode): 581W (100kHz)

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.

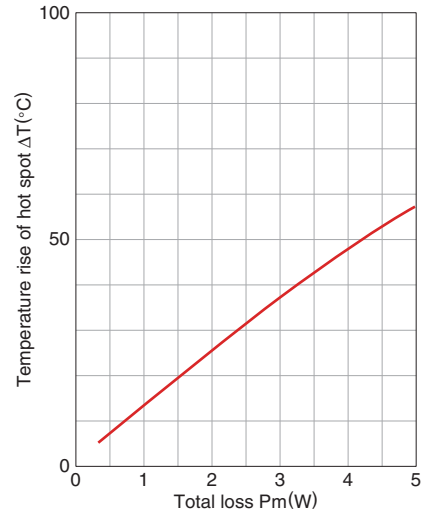
AL-value vs. Air gap length (Typ.)



Measuring conditions

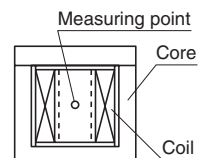
- Coil : $\phi 0.35$ 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



Measuring conditions

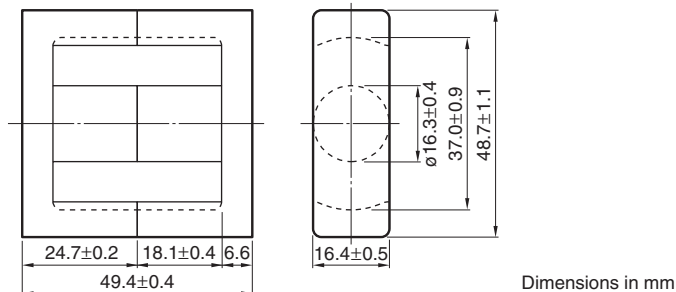
- Room space: approx. 400x300x 300cm
- Ambient temperature : 25°C
- Humidity: 45%(%)RH.



Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn E series Part No.: PC47ETD49-Z

SHAPES AND DIMENSIONS



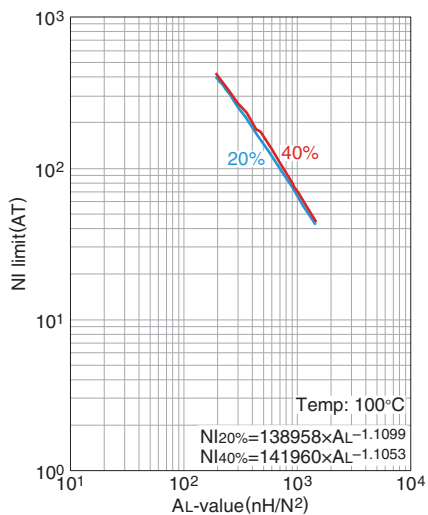
Based on JIS FEI 12.5.

| Effective parameter | | | | | | | | Electrical characteristics | | |
|------------------------|--|---|--|--|---|--|----------------|----------------------------|-----------------|--------------------------|
| Core factor | Effective magnetic path length ℓ_e (mm) | Effective cross-sectional area A_e (mm ²) | Effective core volume V_e (mm ³) | Cross-sectional center pole area A_{cp} (mm ²) | Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm ²) | Cross-sectional winding area of core A_{cw} (mm ²) | Weight (g/set) | AL-value * | | Core loss |
| C1 (mm ⁻¹) | | | | | | | | (nH/N ²) | | (W)max. |
| 0.535 | 114 | 213 | 24300 | 209 | 199 | 375 | 124 | 1kHz 0.5mA | 100kHz 200mT | 100kHz 200mT 100°C |
| | | | | | | | | 4440±25% | 6340 min. | 10.25 |

* Coil : $\phi 0.35$ 2UEW 100Ts

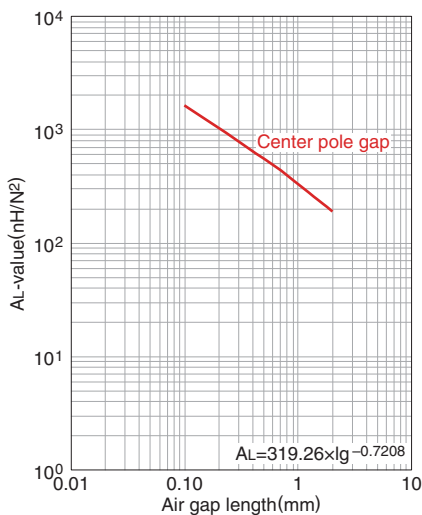
○ Calculated output power (forward converter mode): 692W (100kHz)

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.

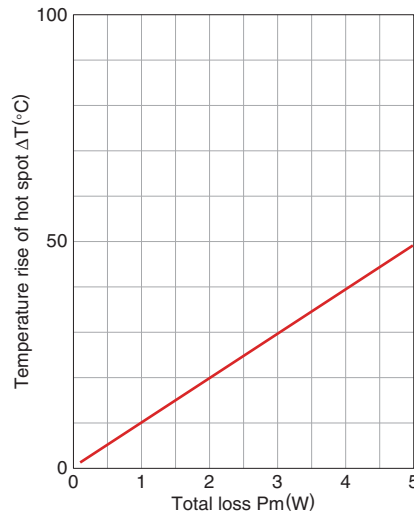
AL-value vs. Air gap length (Typ.)



Measuring conditions

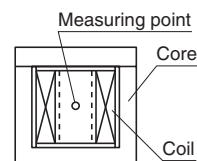
- Coil : $\phi 0.35$ 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



Measuring conditions

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



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

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