



Mn-Zn

# Ferrite Core for Switching Power Supplies

## E series

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EI  
EE, EF  
EER  
ETD

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**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.

Please understand that we are not responsible for any damage or liability caused by use of the products in any of the applications below or for any other use exceeding the range or conditions set forth in this specification sheet.

If you intend to use the products in the applications listed below or if you have special requirements exceeding the range or conditions set forth in the each catalog, please contact us.

- |   |  |
|---|--|
| (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

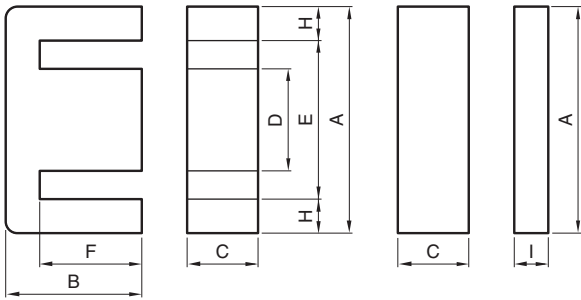
- RoHS Directive Compliant Product: See the following for more details related to RoHS Directive compliant products. <http://product.tdk.com/en/environment/rohs/>
- Halogen-free: Indicates that Cl content is less than 900ppm, Br content is less than 900ppm, and that the total Cl and Br content is less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

 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 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 <sup>+0.7</sup> <sub>-0.5</sub>	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

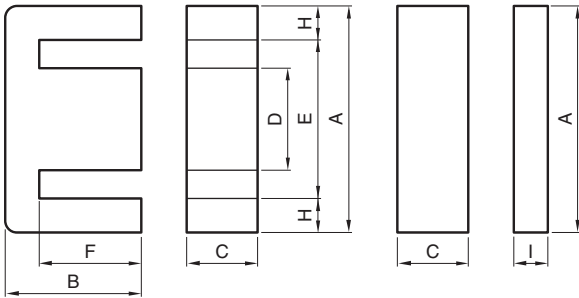
Part No.	Effective parameter					Electrical characteristics		
	Core factor C <sub>1</sub> (mm <sup>-1</sup> )	Effective cross-sectional area A <sub>e</sub> (mm <sup>2</sup> )	Effective magnetic path length ℓ <sub>e</sub> (mm)	Effective core volume V <sub>e</sub> (mm <sup>3</sup> )	Weight (g)	AL-value (nH/N <sup>2</sup> ) 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

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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)

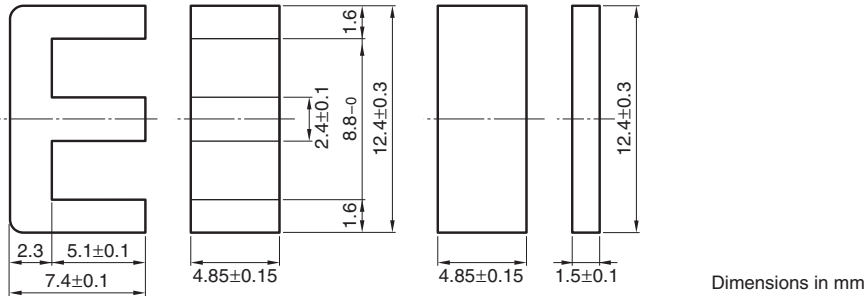
Part No.	JIS	Dimensions (mm)							
		A	B	C	D	E min.	F	H	I
PC47EI30-Z	JIS FEI 30	30.0 <sup>+0.7</sup> <sub>-0.4</sub>	21.25±0.25	10.7±0.3	10.7±0.3	19.7	16.25±0.25	5.0	5.5±0.2
PC47EI33/29/13-Z		33.0 <sup>+0.8</sup> <sub>-0.5</sub>	23.75±0.25	12.7±0.3	9.7±0.3	23.4	19.25±0.25	4.45	5.0±0.3
PC47EI35-Z	JIS 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 <sup>+1.2</sup> <sub>-0.7</sub>	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 <sup>+1.4</sup> <sub>-0.8</sub>	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 $C_1(\text{mm}^{-1})$	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 <sup>2</sup> ) 1kHz 0.5mA 100Ts Without air gap   With air gap		Core loss (W) max. 100kHz 200mT 100°C
PC47EI30-Z	0.522	111	58.0	6440	34	4690±25%	200±5% 400±7%	2.2
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



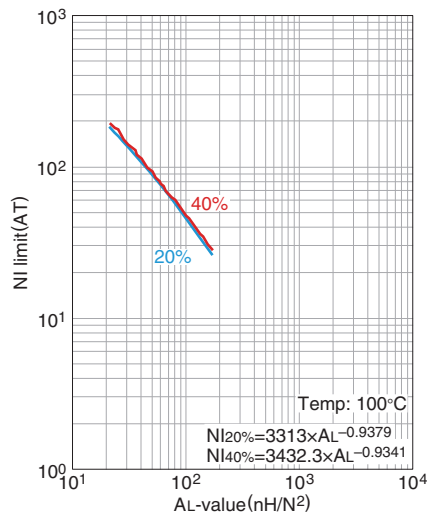
Based on JIS FEI 12.5.

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $l_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss
$C_1$ (mm <sup>-1</sup> )								(nH/N <sup>2</sup> ) 1kHz 0.5mA	100kHz 200mT	(W)max. 100kHz 200mT 100°C
1.48	21.3	14.4	308	11.6	10.8	17.3	1.9	1200±25%	2120 min.	0.10

\* Coil : ø0.2 2UEW 100Ts

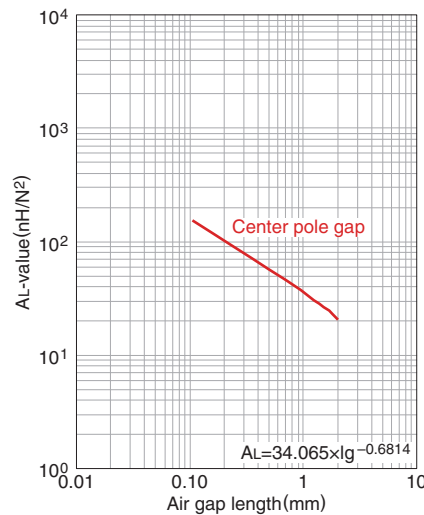
○ Calculated output power (forward converter mode): 11.5W (100kHz)

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



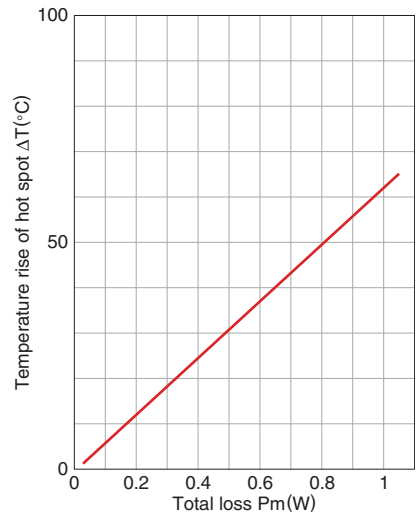
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

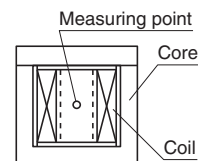


Measuring conditions  
 • Coil : ø0.2 2UEW 100Ts  
 • Frequency : 1kHz  
 • Current level : 0.5mA  
 • Ambient temperature : 25°C

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



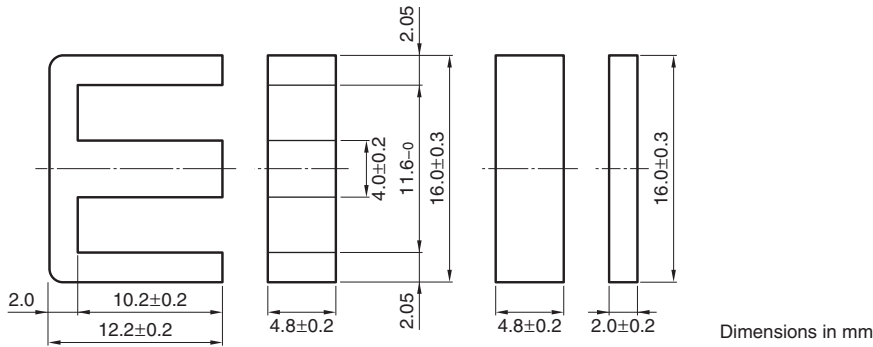
Measuring conditions  
 • Room space: approx. 400x300x 300cm  
 • Ambient temperature : 25°C  
 • Humidity: 45(%)RH.



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

## SHAPES AND DIMENSIONS



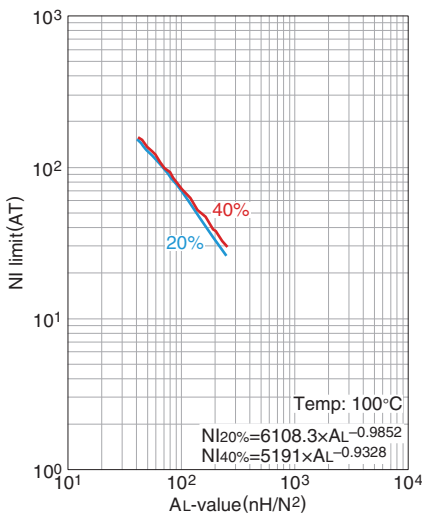
Based on JIS FEI 16.

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $l_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss
C <sub>1</sub> (mm <sup>-1</sup> )								(nH/N <sup>2</sup> )		(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 :  $\phi$ 0.23 2UEW 100Ts

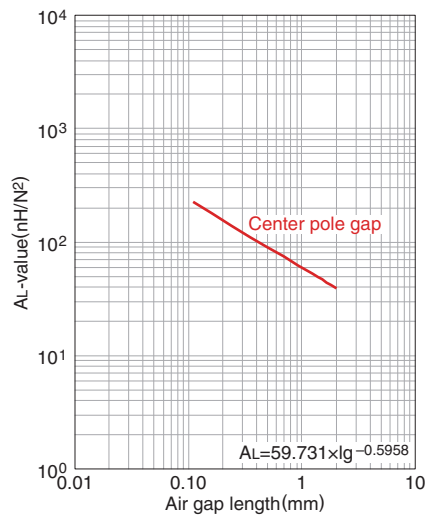
○ Calculated output power (forward converter mode): 33W (100kHz)

## 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.

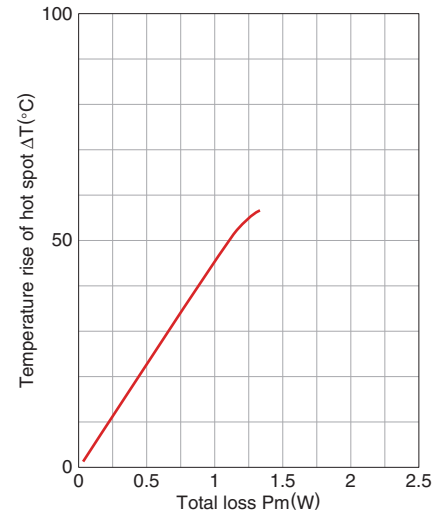
## AL-value vs. Air gap length (Typ.)



Measuring conditions

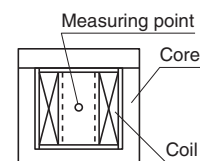
- Coil :  $\phi$ 0.23 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

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



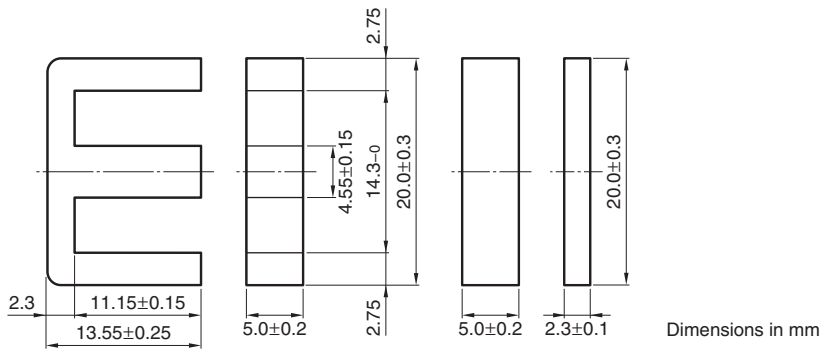
Measuring conditions

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



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

## SHAPES AND DIMENSIONS



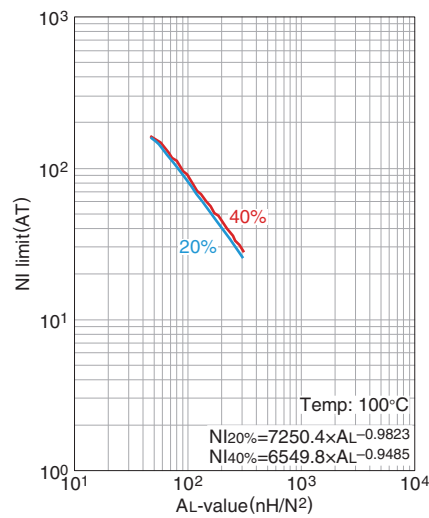
Based on JIS FEI 12.5.

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $\ell_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss
C1 (mm <sup>-1</sup> )								(nH/N <sup>2</sup> )		(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

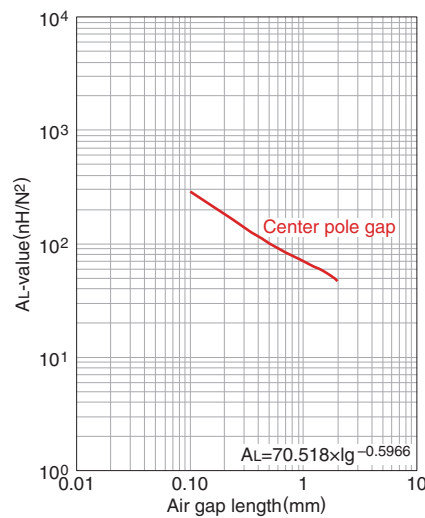
○ Calculated output power (forward converter mode): 45W (100kHz)

## 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.

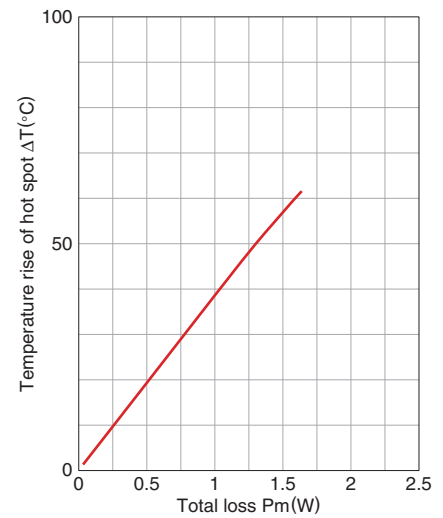
## AL-value vs. Air gap length (Typ.)



Measuring conditions

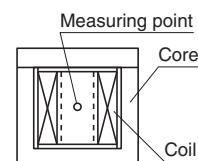
- Coil : ø0.23 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

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



Measuring conditions

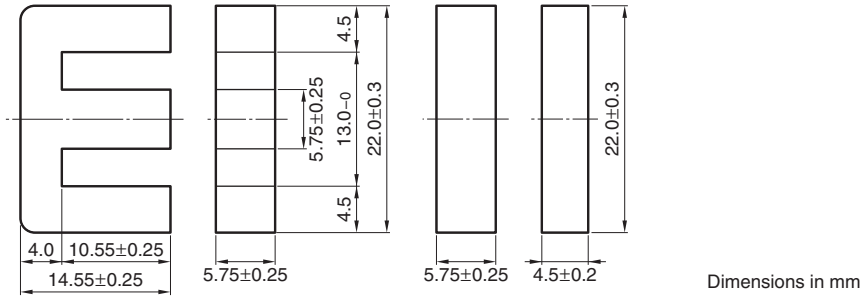
- Room space: approx. 400x300x 300cm
- Ambient temperature : 25°C
- Humidity : 45(%)RH.





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

## ■ SHAPES AND DIMENSIONS



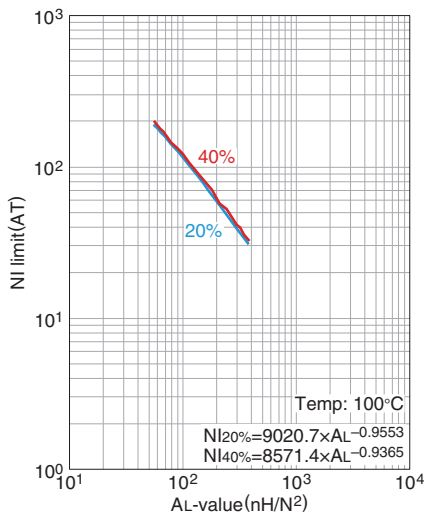
Based on JIS FEI 12.5.

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $\ell_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss
C1 (mm <sup>-1</sup> )								(nH/N <sup>2</sup> )		(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

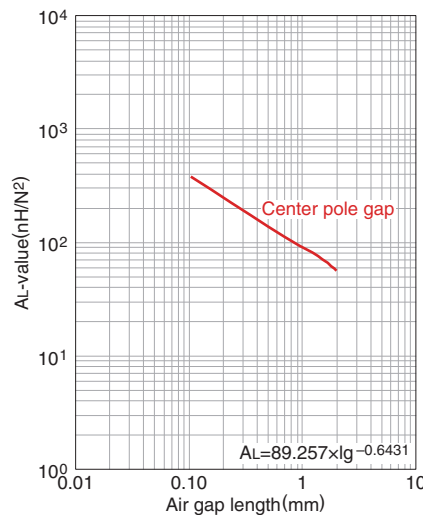
○ Calculated output power (forward converter mode): 49W (100kHz)

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



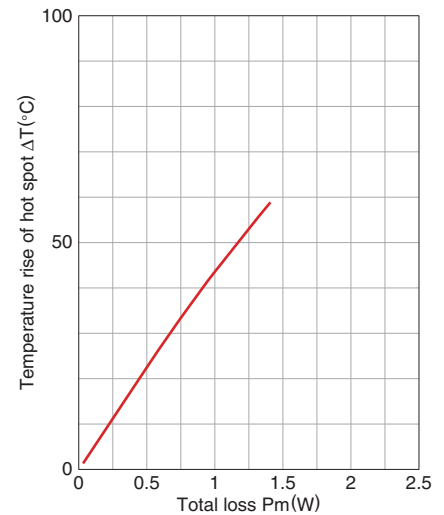
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

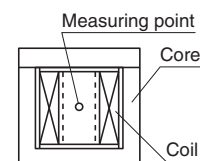


Measuring conditions  
 • Coil : ø0.23 2UEW 100Ts  
 • Frequency : 1kHz  
 • Current level : 0.5mA  
 • Ambient temperature : 25°C

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



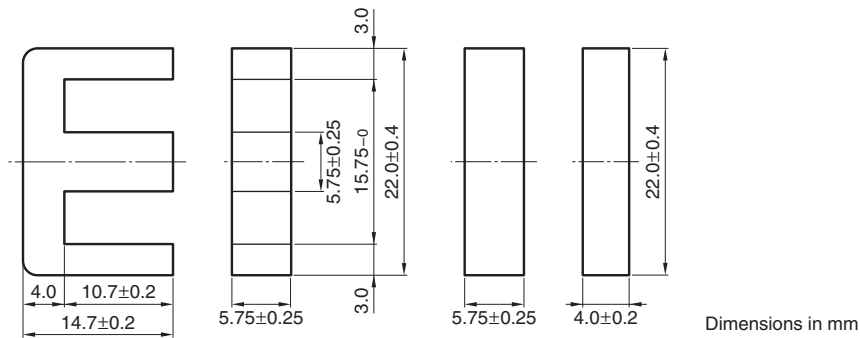
Measuring conditions  
 • Room space: approx. 400x300x 300cm  
 • Ambient temperature : 25°C  
 • Humidity : 45(%RH).



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

## SHAPES AND DIMENSIONS



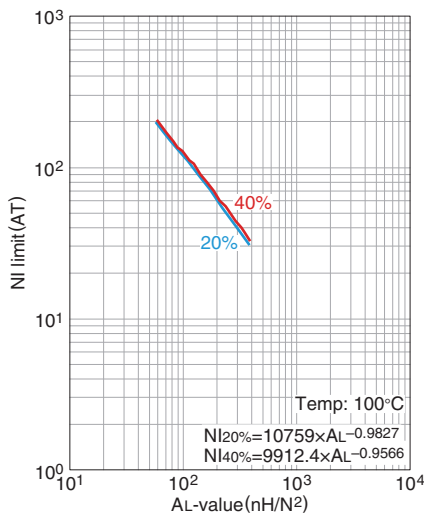
Based on JIS FEI 22.

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $\ell_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss
C <sub>1</sub> (mm <sup>-1</sup> )								(nH/N <sup>2</sup> )		(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

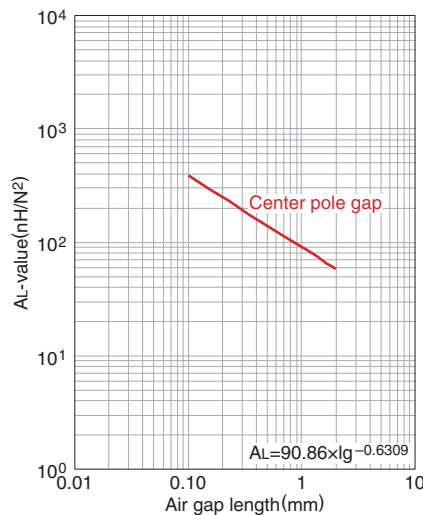
○ Calculated output power (forward converter mode): 59W (100kHz)

## 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.

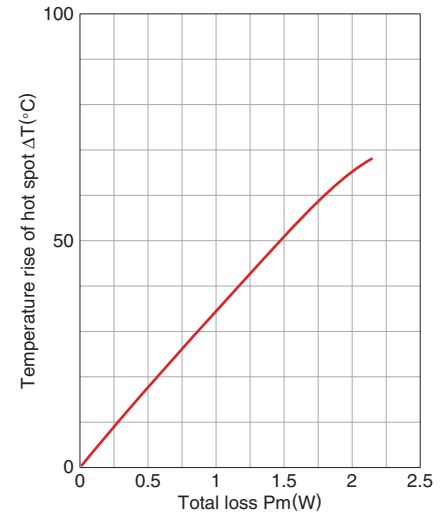
## AL-value vs. Air gap length (Typ.)



Measuring conditions

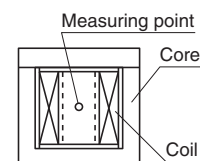
- Coil : ø0.23 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

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



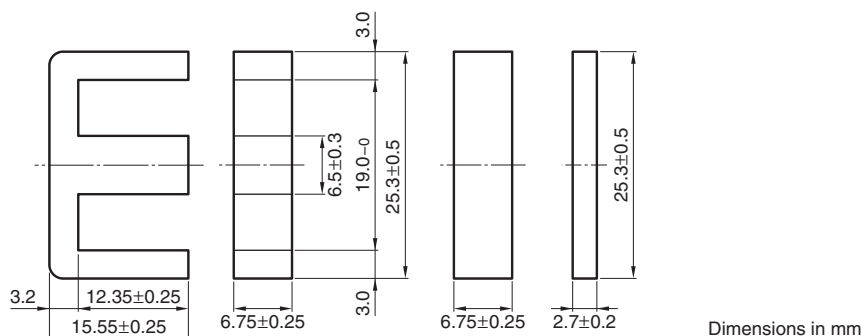
Measuring conditions

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



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

## ■ SHAPES AND DIMENSIONS



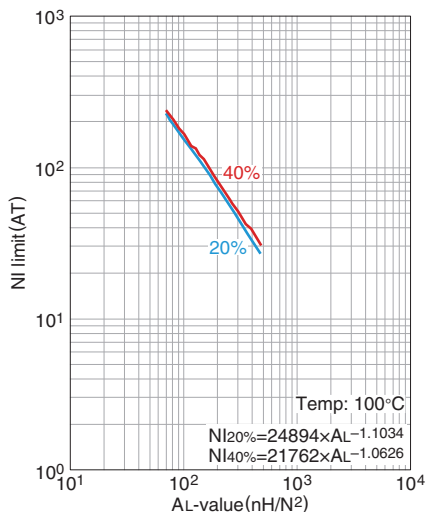
Based on JIS FEI 12.5.

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

\* Coil : ø0.35 2UEW 100Ts

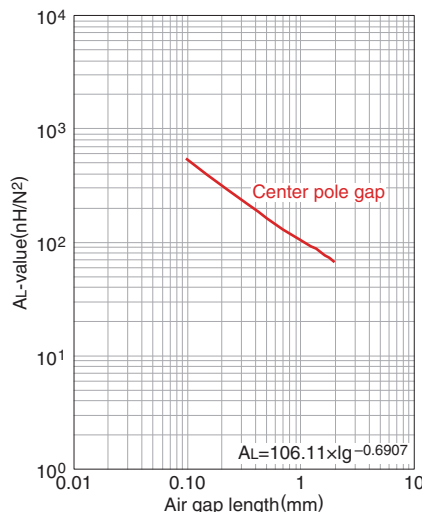
○ Calculated output power (forward converter mode): 82W (100kHz)

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



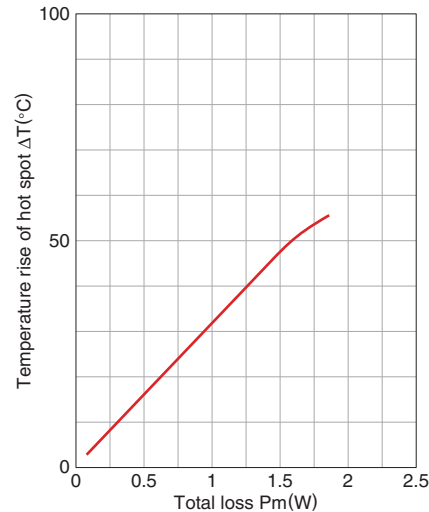
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

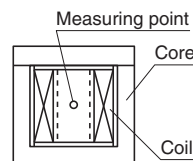


Measuring conditions  
 • Coil : ø0.35 2UEW 100Ts  
 • Frequency : 1kHz  
 • Current level : 0.5mA  
 • Ambient temperature : 25°C

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



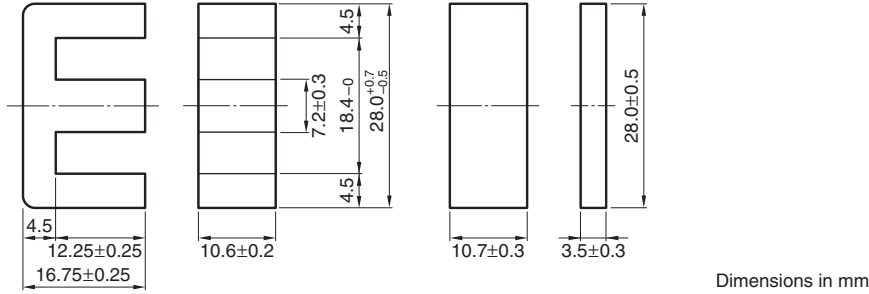
Measuring conditions  
 • Room space: approx. 400x300x 300cm  
 • Ambient temperature : 25°C  
 • Humidity: 45(%RH).



⚠ 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



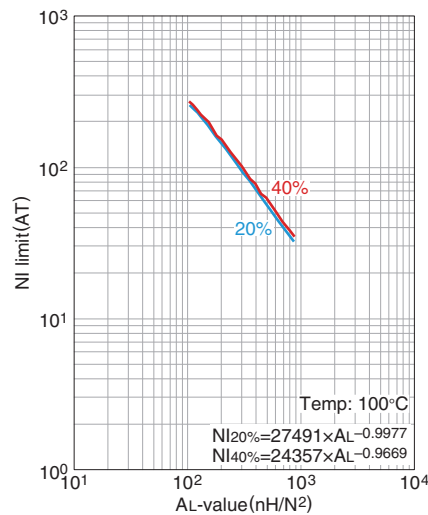
Based on JIS FEI 28.

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $\ell_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss
C1 (mm <sup>-1</sup> )								(nH/N <sup>2</sup> )		(W)max.
0.560	48.2	86.0	4150	76.3	71.8	69.8	22	1kHz 0.5mA	100kHz 200mT	100kHz 200mT 100°C
								4300±25%	6060 min.	1.58

\* Coil : ø0.35 2UEW 100Ts

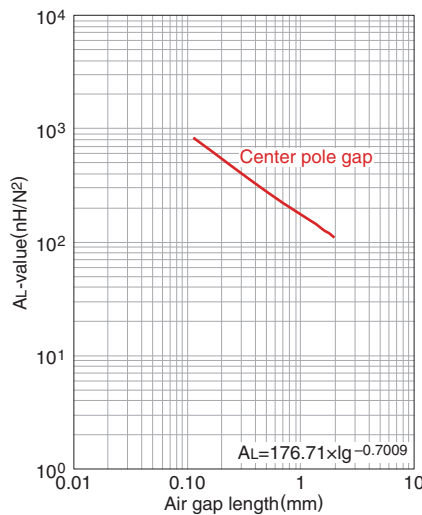
○ Calculated output power (forward converter mode): 145W (100kHz)

**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.

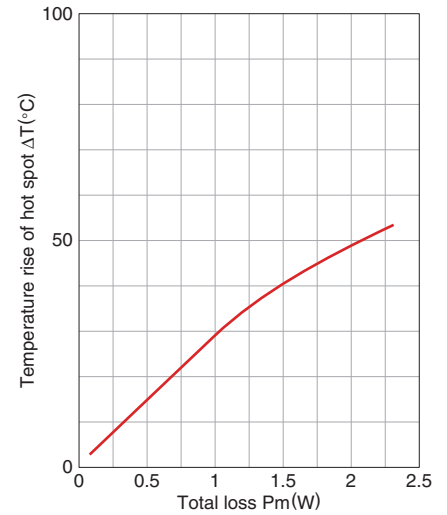
**AL-value vs. Air gap length (Typ.)**



Measuring conditions

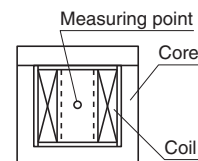
- Coil : ø0.35 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

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



Measuring conditions

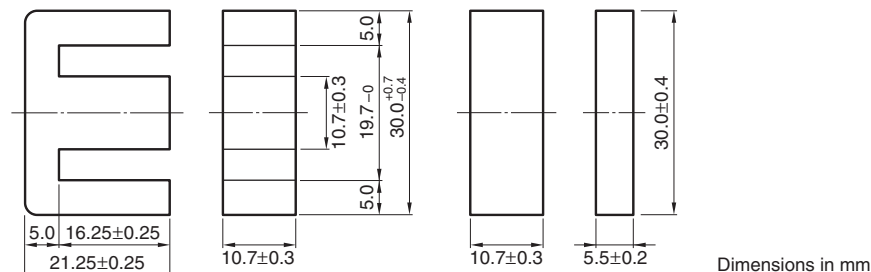
- Room space: approx. 400x300x 300cm
- Ambient temperature : 25°C
- Humidity: 45%(%)RH.



⚠ 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.: PC47EI30-Z

## ■ SHAPES AND DIMENSIONS



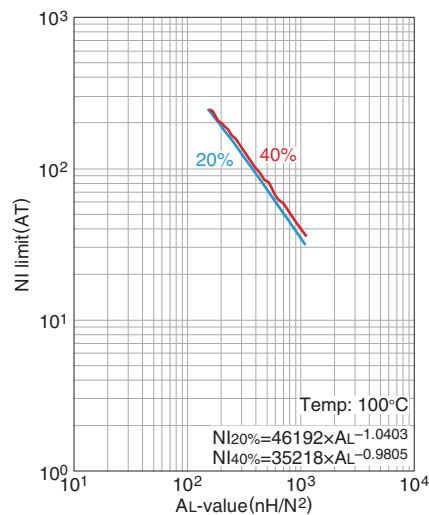
Based on JIS FEI 30.

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $l_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss
C1 (mm <sup>-1</sup> )								(nH/N <sup>2</sup> )		(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

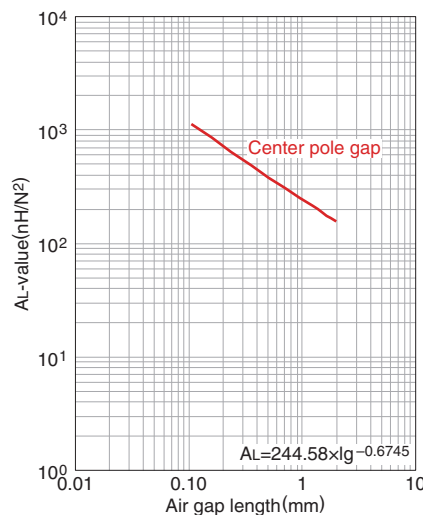
○ Calculated output power (forward converter mode): 214W (100kHz)

NI limit vs. AL-value (Typ.)



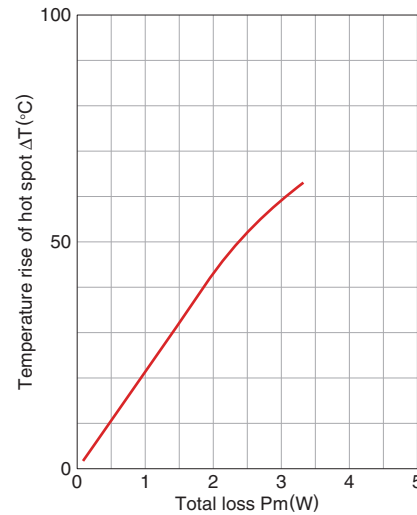
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

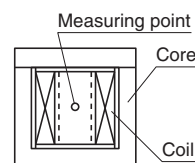


Measuring conditions  
 • Coil : ø0.35 2UEW 100Ts  
 • Frequency : 1kHz  
 • Current level : 0.5mA  
 • Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



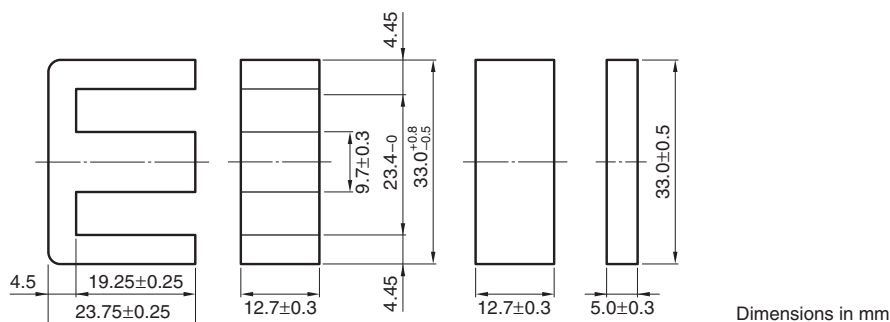
Measuring conditions  
 • Room space: approx. 400x300x 300cm  
 • Ambient temperature : 25°C  
 • Humidity : 45(%)RH.



⚠ 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

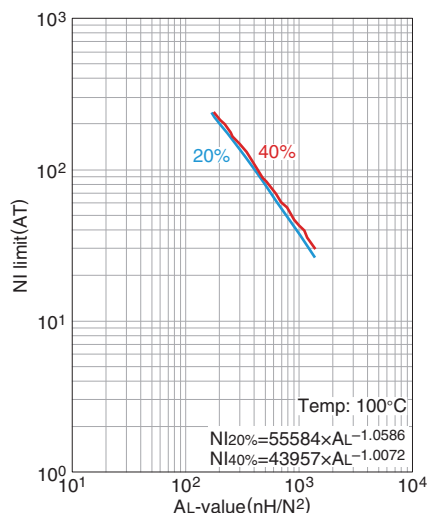


Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $\ell_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss
C <sub>1</sub> (mm <sup>-1</sup> )								(nH/N <sup>2</sup> )		(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

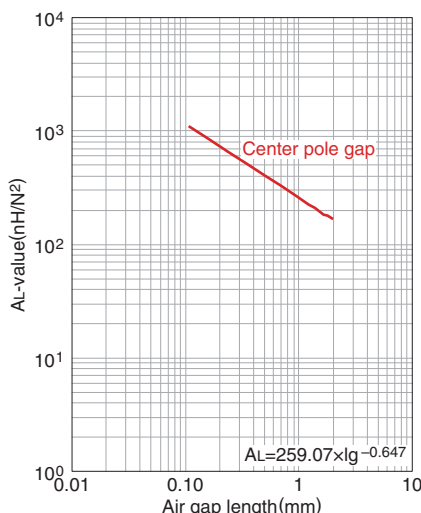
○ Calculated output power (forward converter mode): 288W (100kHz)

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



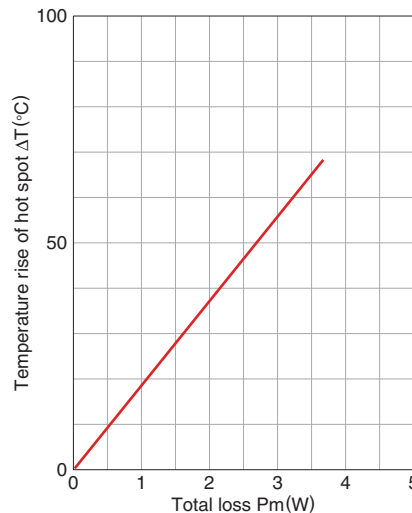
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

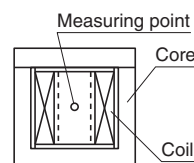


Measuring conditions  
 • Coil : ø0.35 2UEW 100Ts  
 • Frequency : 1kHz  
 • Current level : 0.5mA  
 • Ambient temperature : 25°C

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



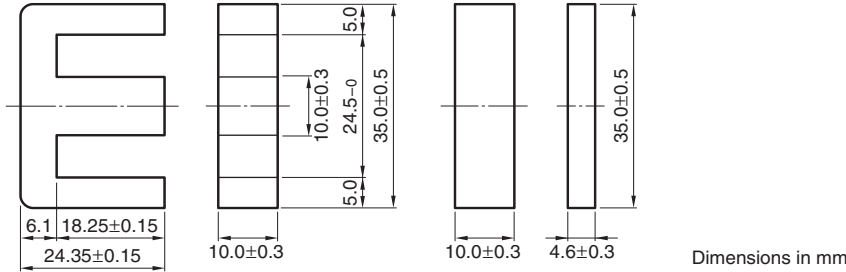
Measuring conditions  
 • Room space: approx. 400x300x 300cm  
 • Ambient temperature : 25°C  
 • Humidity: 45(%)RH.



⚠ 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



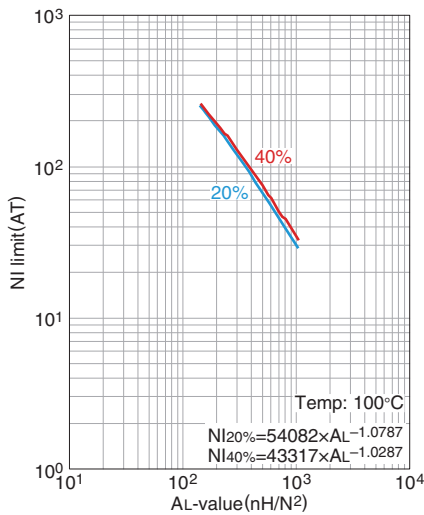
Based on JIS FEI 35.

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $l_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss
C <sub>1</sub> (mm <sup>-1</sup> )								(nH/N <sup>2</sup> )		(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 : ø0.35 2UEW 100Ts

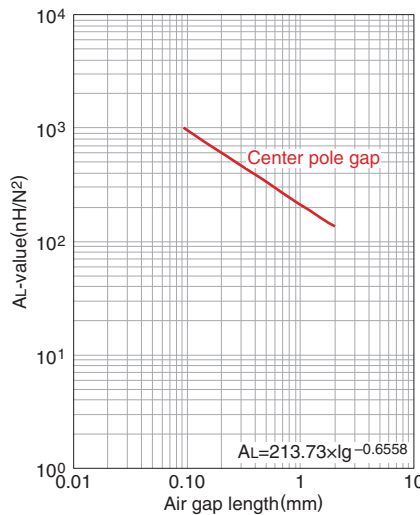
○ Calculated output power (forward converter mode): 266W (100kHz)

**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.

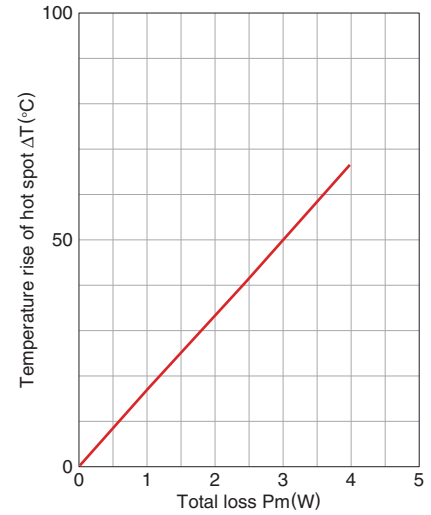
**AL-value vs. Air gap length (Typ.)**



Measuring conditions

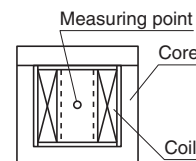
- Coil : ø0.35 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

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



Measuring conditions

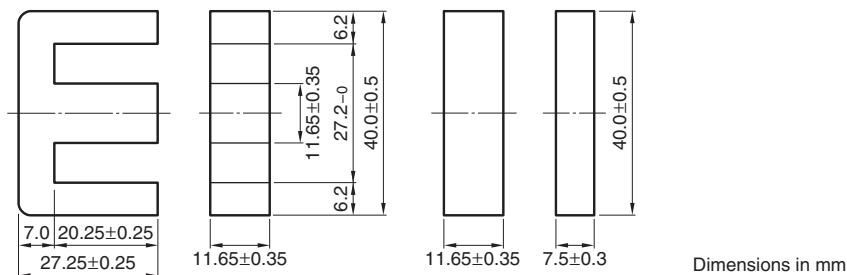
- Room space: approx. 400x300x 300cm
- Ambient temperature : 25°C
- Humidity: 45(%)RH.



⚠ 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.: PC47EI40-Z

## ■ SHAPES AND DIMENSIONS



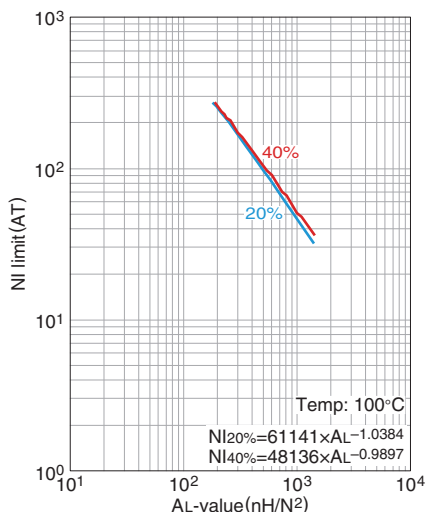
Based on JIS FEI 40.

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $\ell_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss
C <sub>1</sub> (mm <sup>-1</sup> )								(nH/N <sup>2</sup> )		(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

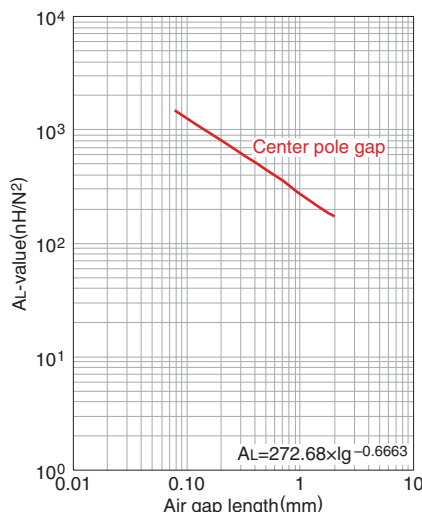
○ Calculated output power (forward converter mode): 361W (100kHz)

**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.

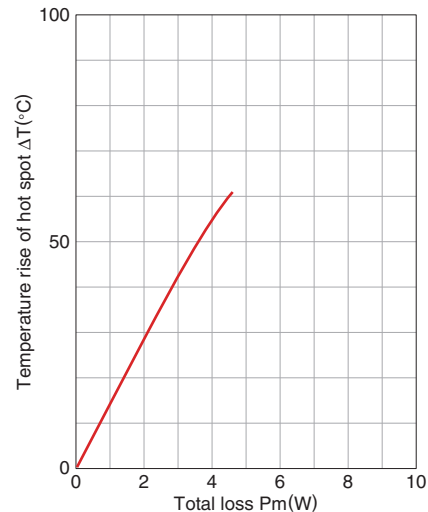
**AL-value vs. Air gap length (Typ.)**



Measuring conditions

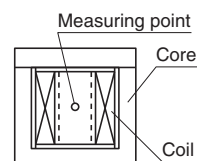
- Coil :  $\phi 0.35$  2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

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



Measuring conditions

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

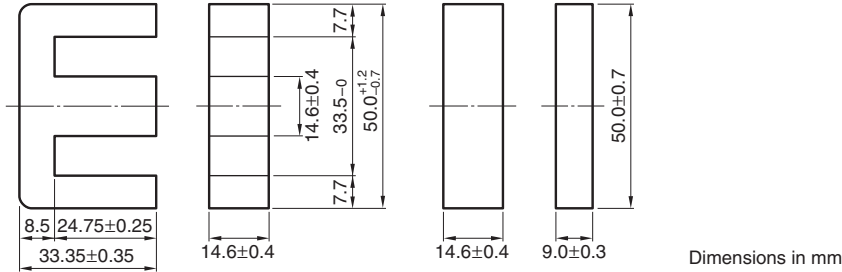


⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.



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

## ■ SHAPES AND DIMENSIONS



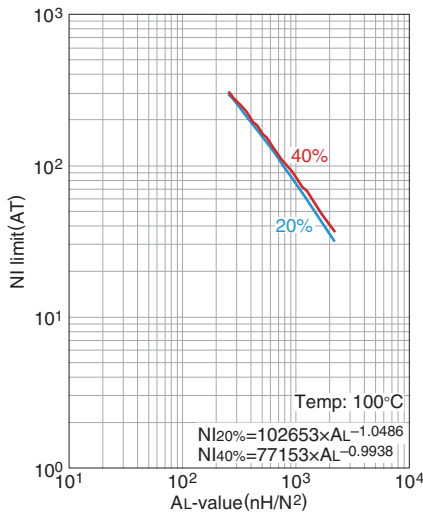
Based on JIS FEI 50.

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $\ell_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss
C1 (mm <sup>-1</sup> )								(nH/N <sup>2</sup> )		(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

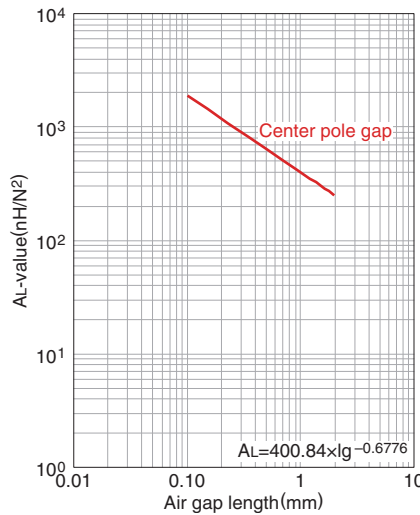
○ Calculated output power (forward converter mode): 554W (100kHz)

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



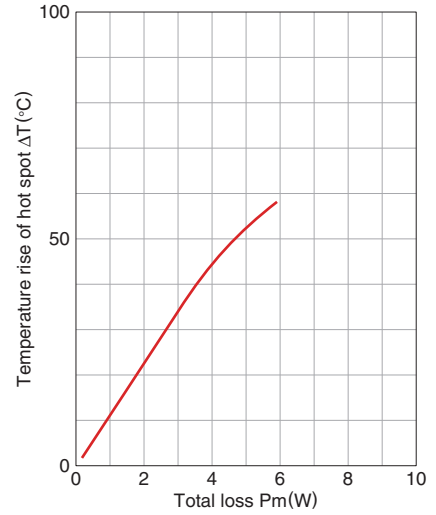
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

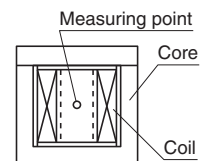


Measuring conditions  
 • Coil : ø0.35 2UEW 100Ts  
 • Frequency : 1kHz  
 • Current level : 0.5mA  
 • Ambient temperature : 25°C

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



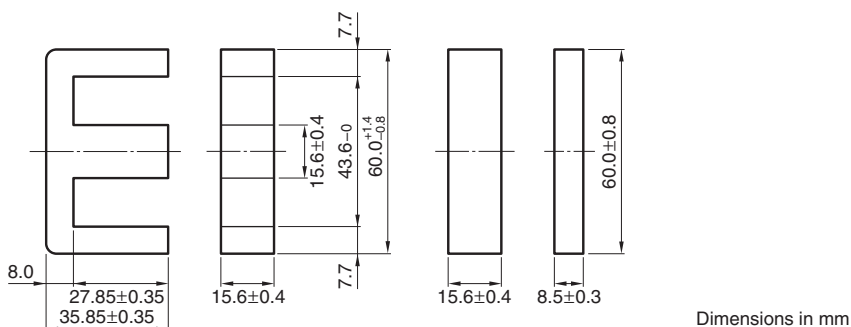
Measuring conditions  
 • Room space: approx. 400x300x 300cm  
 • Ambient temperature : 25°C  
 • Humidity : 45(%RH).



⚠ 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



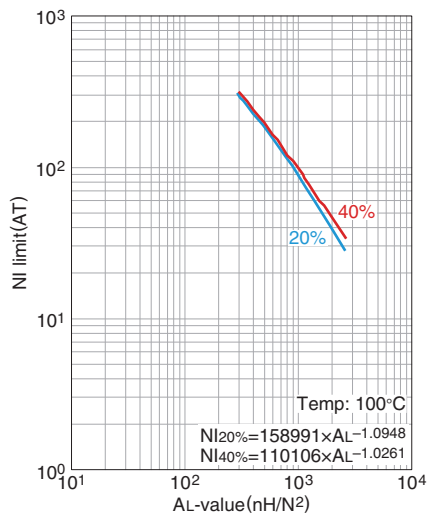
Based on JIS FEI 60.

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $\ell_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss
C <sub>1</sub> (mm <sup>-1</sup> )								(nH/N <sup>2</sup> )		(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 : ø0.35 2UEW 100Ts

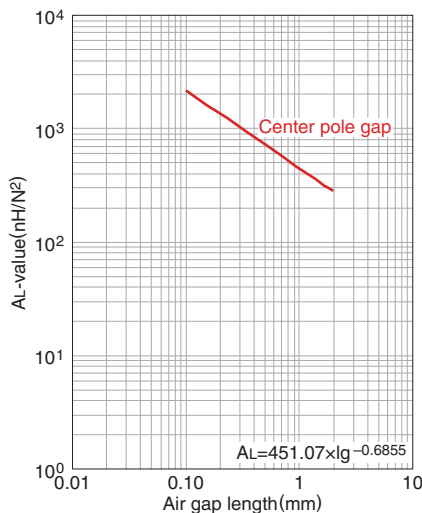
○ Calculated output power (forward converter mode): 712W (100kHz)

**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.

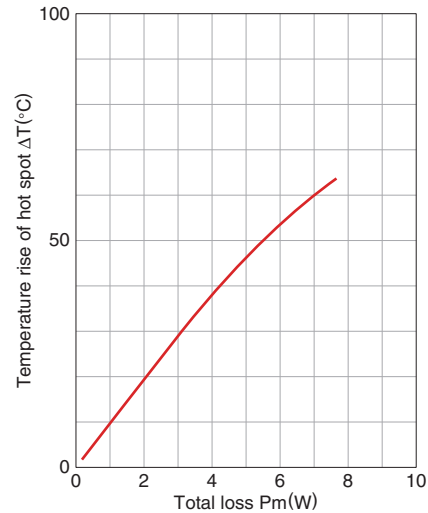
**AL-value vs. Air gap length (Typ.)**



Measuring conditions

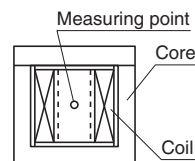
- Coil : ø0.35 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

**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 EE, EF Cores

## SHAPES AND DIMENSIONS

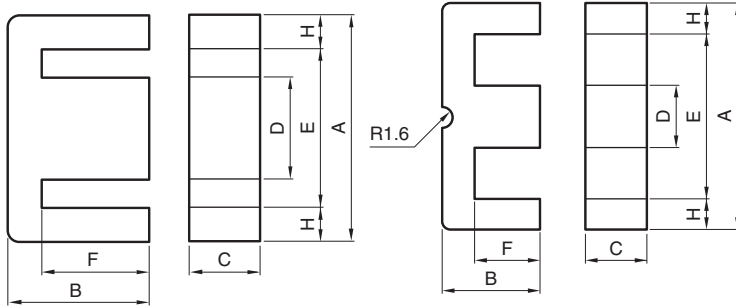


Fig. 1

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	5.0±0.2/0	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 $V_e(\text{mm}^3)$	Weigh (g)	AL-value (nH/N <sup>2</sup> ) 1kHz 0.5mA 100Ts Without air gap   With air gap		Core loss (W) max. 100kHz 200mT 100°C
PC47EE8-Z	2.75	7.0	19.2	134	0.7	610±25%	40±7% 63±10%	0.05
PC47EE10/11-Z	2.16	12.1	26.1	315	1.5	850±25%	40±7% 63±10%	0.12
PC47EF12.6-Z	2.28	13.0	29.6	385	2.0	810±25%	63±7% 100±10%	0.16
PC47EE13-Z	1.77	17.1	30.2	517	2.7	1130±25%	63±7% 100±10%	0.22
PC47EE16-Z	1.82	19.0	34.5	656	3.3	1140±25%	80±7% 160±10%	0.28
PC47SEE16-Z	1.69	21.7	36.6	795	4.1	1240±25%	80±7% 160±10%	0.34
PC47EF16-Z	1.87	20.1	37.6	754	3.9	1100±25%	63±7% 100±10%	0.31
PC47EE19-Z	1.71	23.0	39.4	906	4.8	1250±25%	80±7% 160±10%	0.39

⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use.  
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## Mn-Zn EE, EF Cores

## SHAPES AND DIMENSIONS

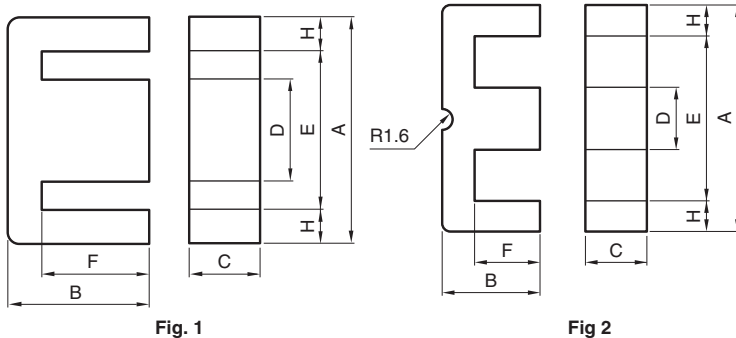


Fig. 1

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 $C_1$ (mm <sup>-1</sup> )	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective magnetic path length $\ell_e$ (mm)	Effective core volume $V_e$ (mm <sup>3</sup> )	Weight (g)	AL-value (nH/N <sup>2</sup> ) 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

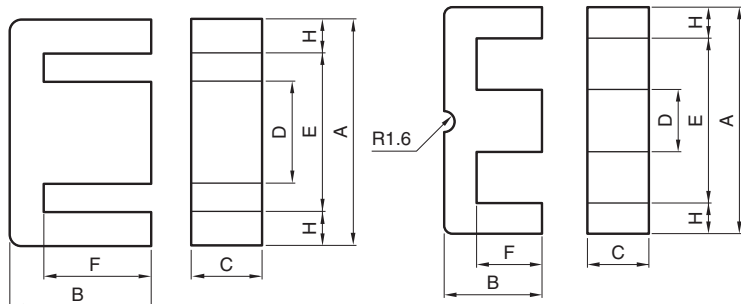


Fig. 1

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 <sup>2</sup> ) 1kHz 0.5mA 100Ts Without air gap   With air gap		Core loss (W) max. 100kHz 200mT 100°C
PC47EE30/30/7-Z	1.12	59.7	66.9	4000	22	2100±25%   160±5% 250±7%		1.41
PC47EF32-Z	0.893	83.2	74.3	6180	32	2590±25%   160±5% 250±7%		2.09
PC47EE35/28B-Z	0.819	84.9	69.6	5907	28	2950±25%   200±5% 400±7%		2.02
PC47EE35-Z	0.774	89.3	69.2	6179	57	3170±25%   200±5% 400±7%		2.14
PC47EE40-Z	0.606	128	77.3	9890	50	4150±25%   200±5% 400±7%		3.10
PC47EE41/33C-Z	0.495	157	77.6	12200	64	5060±25%   200±5% 400±7%		4.10
PC47EE42/42/15-Z	0.534	182	97.0	17600	80	4700±25%   250±5% 400±7%		5.94

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## Mn-Zn EE, EF Cores

## SHAPES AND DIMENSIONS

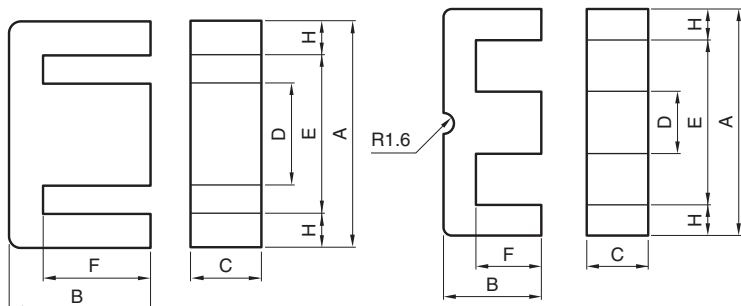


Fig. 1

Fig. 2

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

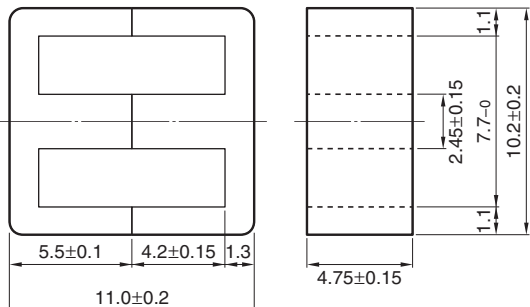
Part No.	U.S. lam. cores, DIN standard JIS		Core	Dimensions (mm)						
	A	B		C	D	E min.	F	H		
PC47EE42/42/20-Z	DIN 41295	JIS FEE42B	1	42.15±0.85	21.0±0.2	19.7±0.3	11.95±0.25	29.5	15.15±0.35	6.025
PC47EE47/39-Z	U.S. EE-625		Fig.1	47.12±0.48	19.63±0.2	15.62±0.25	15.62±0.25	31.72	12.2±0.13	7.49
PC47EE50-Z	JIS FEE50A		Fig.1	50.0 <sup>+1.0</sup> <sub>-0.7</sub>	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 <sup>+1.1</sup> <sub>-0.8</sub>	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 <sub>1</sub> (mm <sup>-1</sup> )	Effective cross-sectional area A <sub>e</sub> (mm <sup>2</sup> )	Effective magnetic path length ℓ <sub>e</sub> (mm)	Effective core volume V <sub>e</sub> (mm <sup>3</sup> )	Weight (g)	AL-value (nH/N <sup>2</sup> ) 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

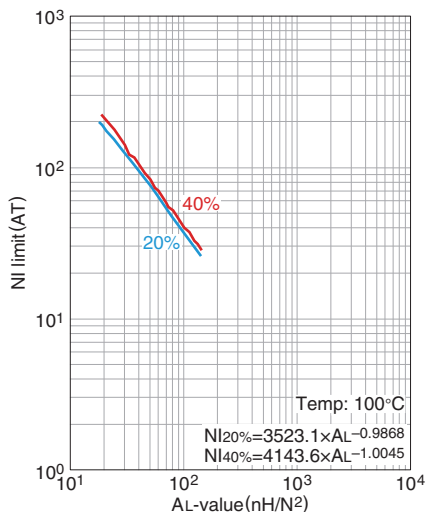
Based on JIS FEE 10.2.

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $\ell_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss
C <sub>1</sub> (mm <sup>-1</sup> )								(nH/N <sup>2</sup> )		(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 : ø0.18 2UEW 100Ts

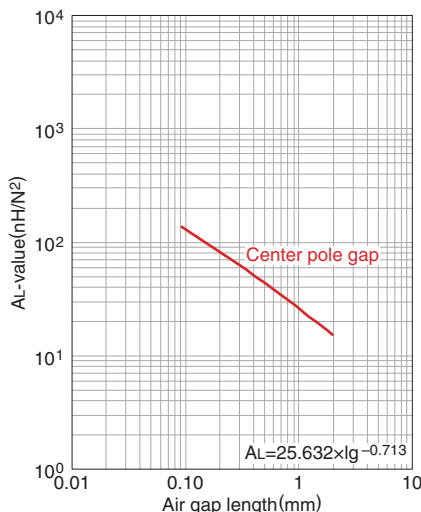
○ Calculated output power (forward converter mode): 12.1W (100kHz)

NI limit vs. AL-value (Typ.)



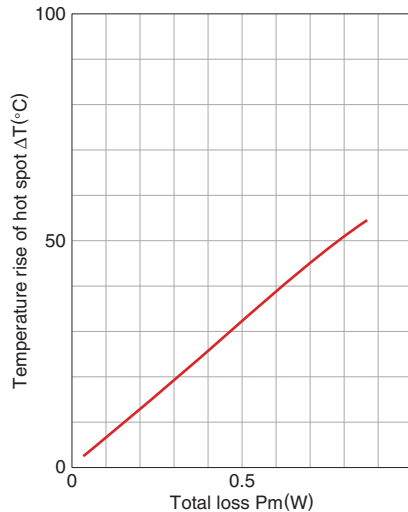
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

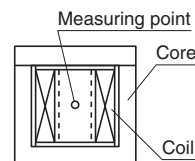


Measuring conditions  
 • Coil : ø0.18 2UEW 100Ts  
 • Frequency : 1kHz  
 • Current level : 0.5mA  
 • Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



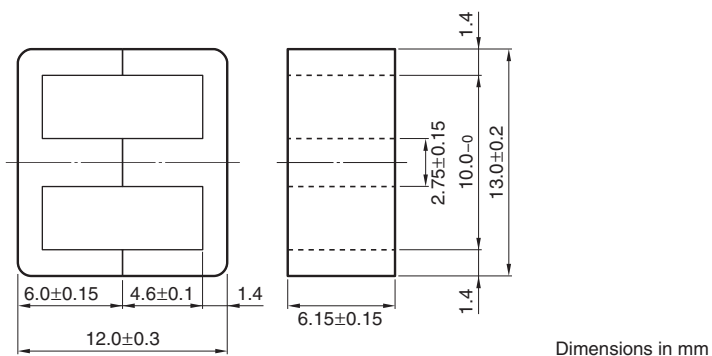
Measuring conditions  
 • Room space: approx. 400x300x 300cm  
 • Ambient temperature : 25°C  
 • Humidity : 45(% )RH.



⚠ 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



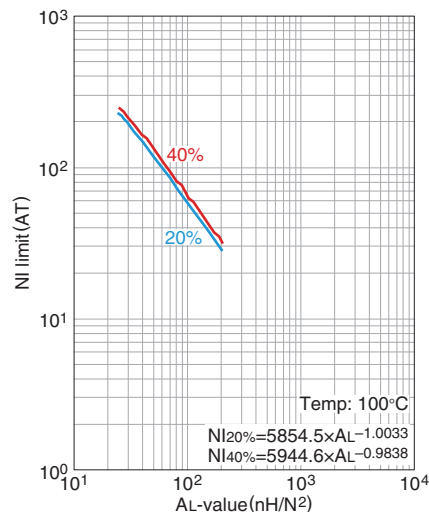
Based on JIS FEI 12.5.

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $\ell_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss
C <sub>1</sub> (mm <sup>-1</sup> )								(nH/N <sup>2</sup> )		(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 : ø0.18 2UEW 100Ts

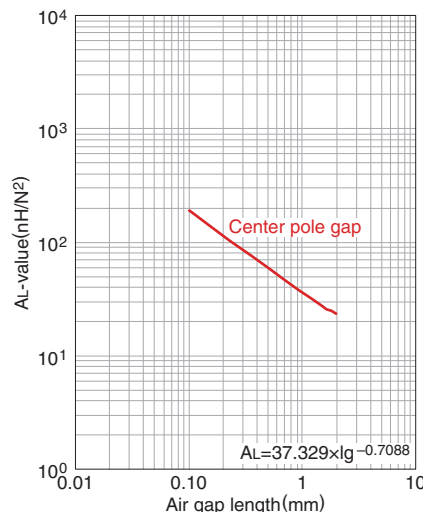
○ Calculated output power (forward converter mode): 25W (100kHz)

**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.

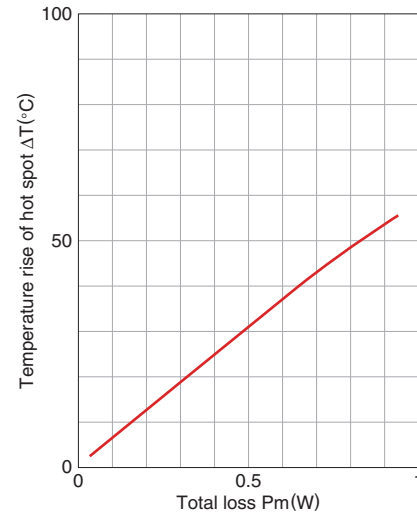
**AL-value vs. Air gap length (Typ.)**



Measuring conditions

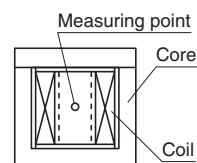
- Coil : ø0.18 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

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



Measuring conditions

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

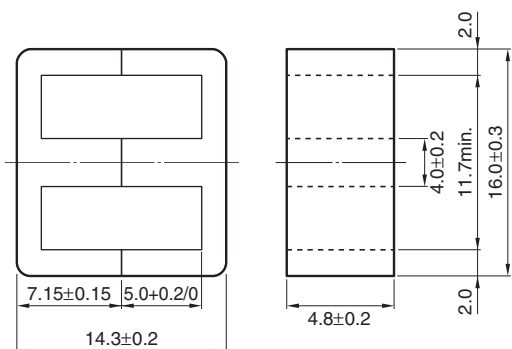


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# Mn-Zn E series Part No.: PC47EE16-Z

## ■ SHAPES AND DIMENSIONS



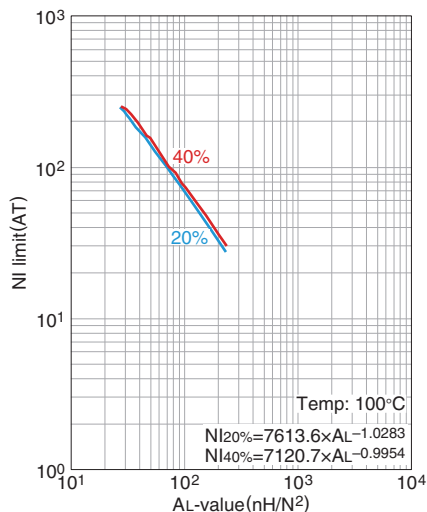
Dimensions in mm

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $\ell_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss
C <sub>1</sub> (mm <sup>-1</sup> )								(nH/N <sup>2</sup> )		(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 : ø0.18 2UEW 100Ts

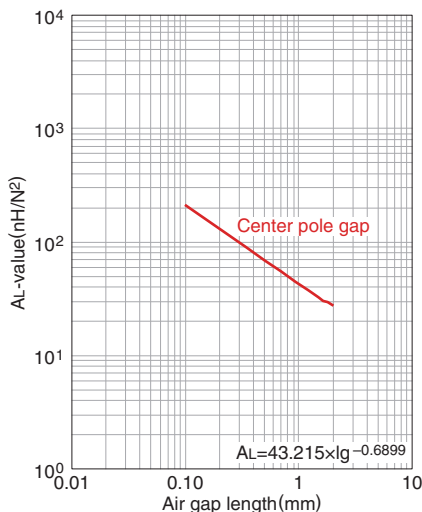
○ Calculated output power (forward converter mode): 32W (100kHz)

### 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.)

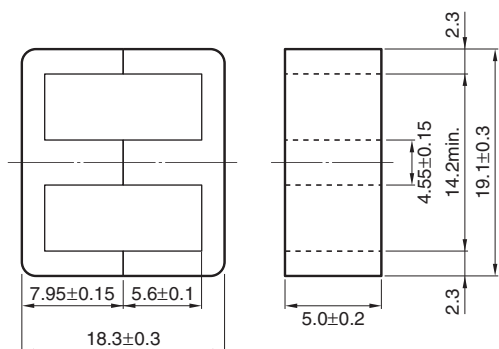


Measuring conditions  
 • Coil : ø0.18 2UEW 100Ts  
 • Frequency : 1kHz  
 • Current level : 0.5mA  
 • Ambient temperature : 25°C

⚠ 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.: PC47EE19-Z

## ■ SHAPES AND DIMENSIONS



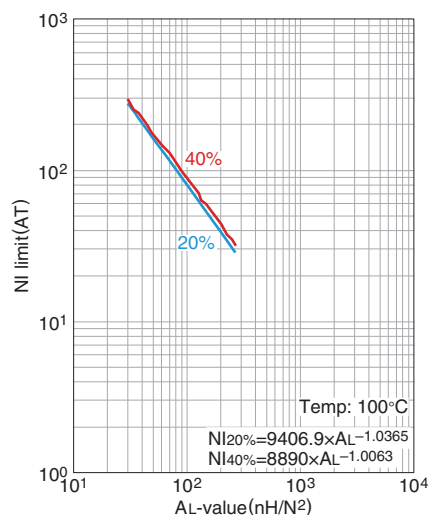
Dimensions in mm

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $l_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss
C <sub>1</sub>	(mm <sup>-1</sup> )							(nH/N <sup>2</sup> )		(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

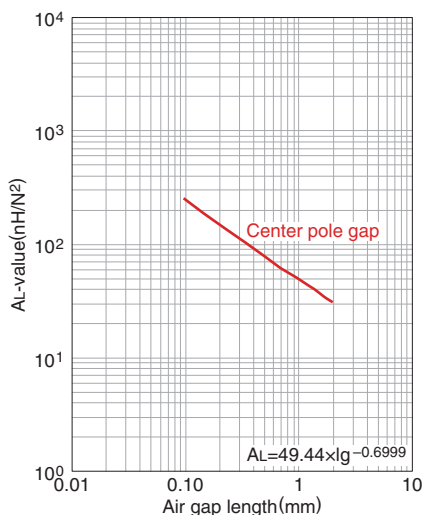
○ Calculated output power (forward converter mode): 45W (100kHz)

### 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.)

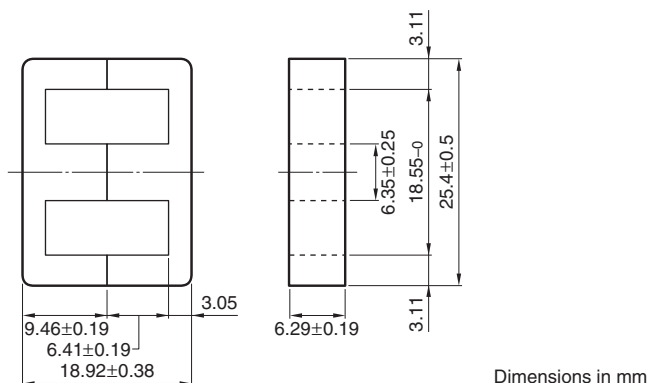


Measuring conditions  
 • Coil : ø0.18 2UEW 100Ts  
 • Frequency : 1kHz  
 • Current level : 0.5mA  
 • Ambient temperature : 25°C

⚠ 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

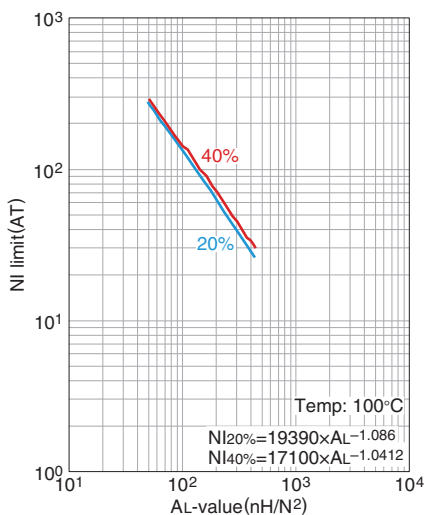
## SHAPES AND DIMENSIONS



Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $l_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss
C <sub>1</sub>	(mm <sup>-1</sup> )							(nH/N <sup>2</sup> )		(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

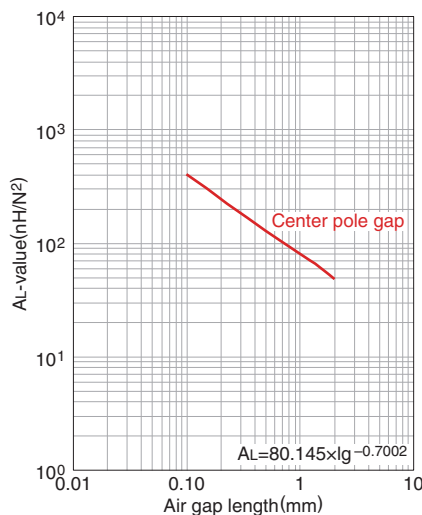
\* Coil : ø0.23 2UEW 100Ts  
 ○ Calculated output power (forward converter mode): 93W (100kHz)

NI limit vs. AL-value (Typ.)



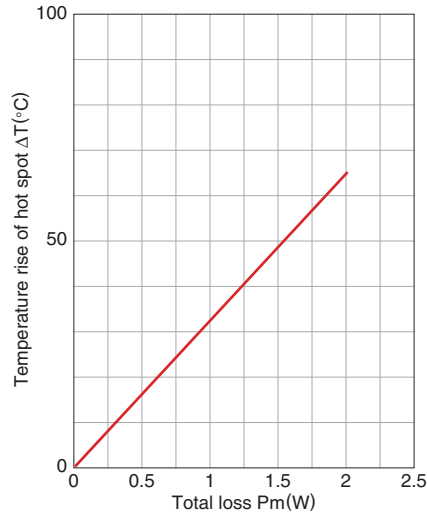
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

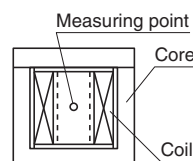


Measuring conditions  
 • Coil : ø0.23 2UEW 100Ts  
 • Frequency : 1kHz  
 • Current level : 0.5mA  
 • Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



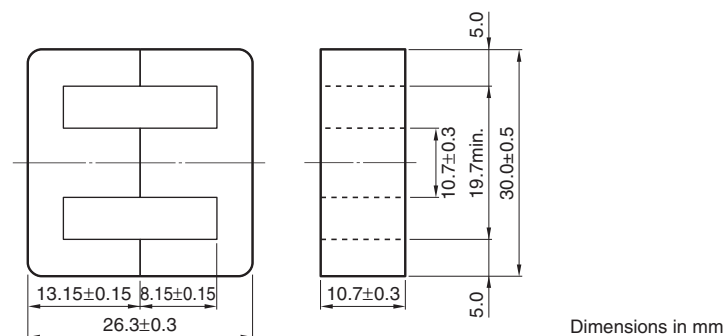
Measuring conditions  
 • Room space: approx. 400x300x 300cm  
 • Ambient temperature : 25°C  
 • Humidity: 45(%RH).



⚠ 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



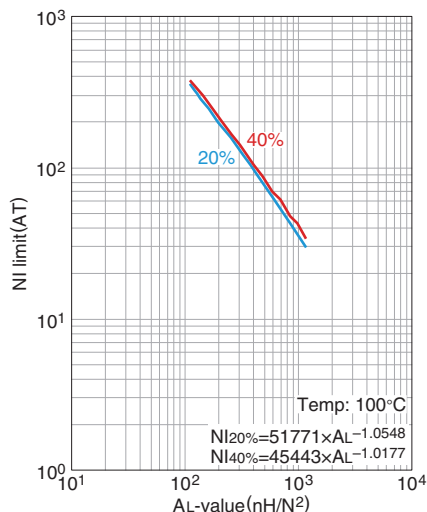
Based on DIN 41295.

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $\ell_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss
$C_1$ (mm <sup>-1</sup> )								(nH/N <sup>2</sup> )		(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

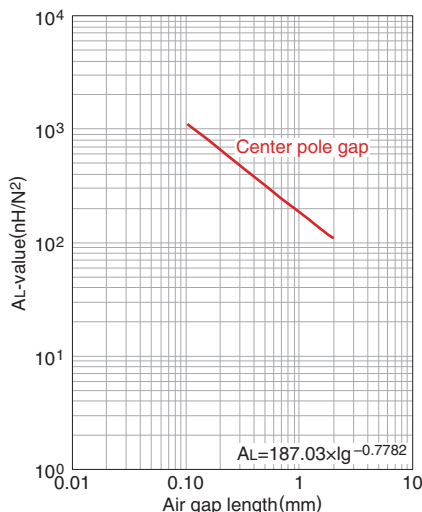
○ Calculated output power (forward converter mode): 203W (100kHz)

**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.)**



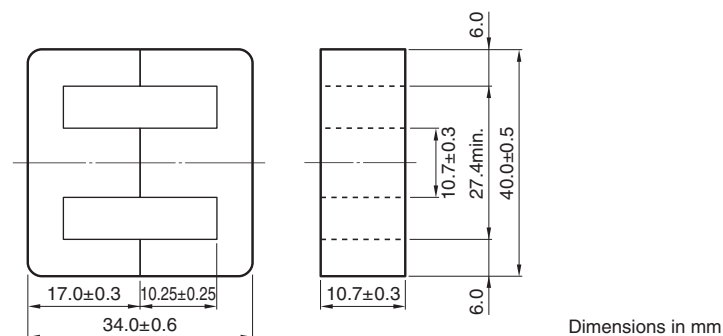
Measuring conditions

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

⚠ 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.: PC47EE40-Z

## ■ SHAPES AND DIMENSIONS

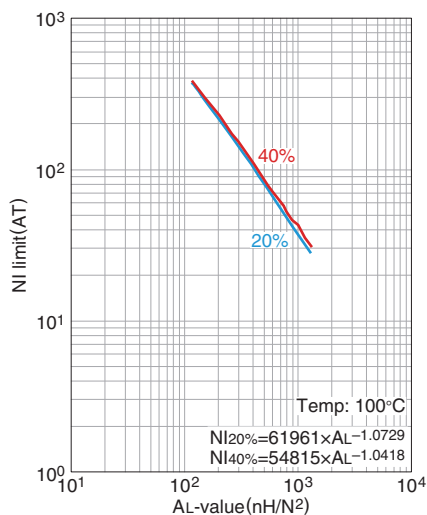


Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $\ell_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional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

\* Coil : ø0.18 2UEW 100Ts

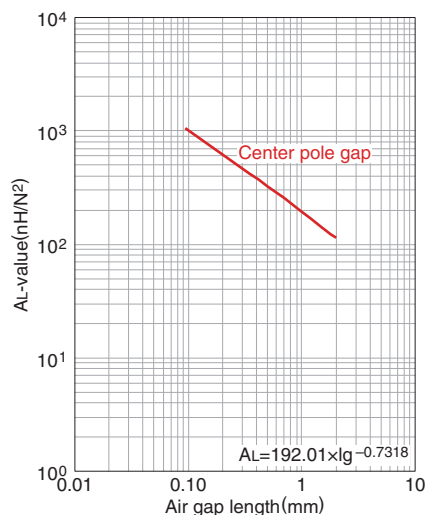
○ Calculated output power (forward converter mode): 311W (100kHz)

**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.)**



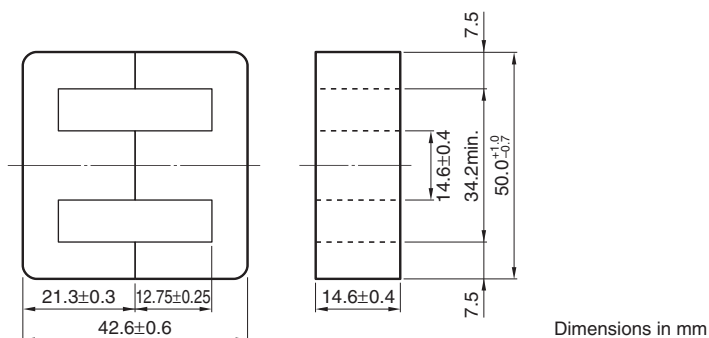
Measuring conditions

- 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

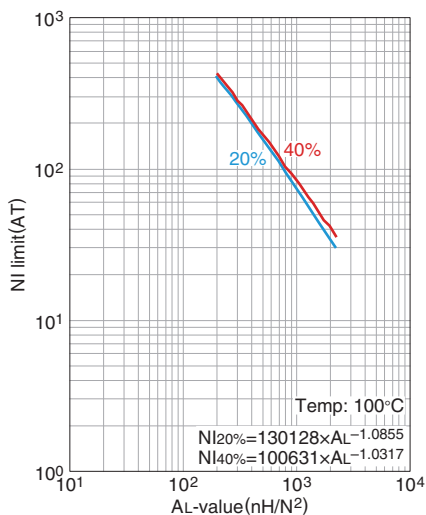
## ■ SHAPES AND DIMENSIONS



Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $\ell_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss
C <sub>1</sub> (mm <sup>-1</sup> )								(nH/N <sup>2</sup> )		(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

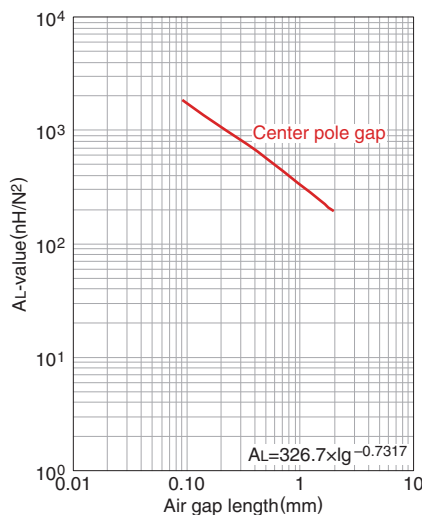
\* Coil : ø0.18 2UEW 100Ts  
 ○ Calculated output power (forward converter mode): 556W (100kHz)

**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.)**



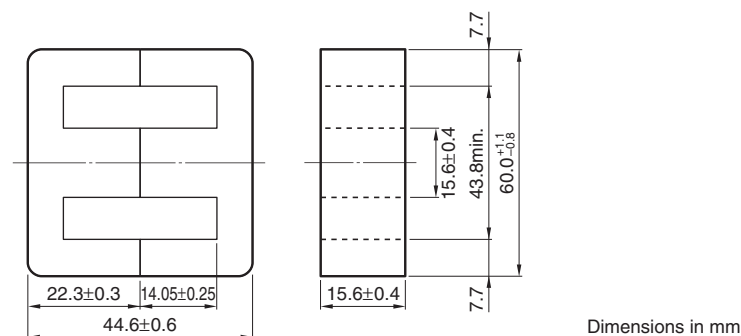
Measuring conditions

- 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

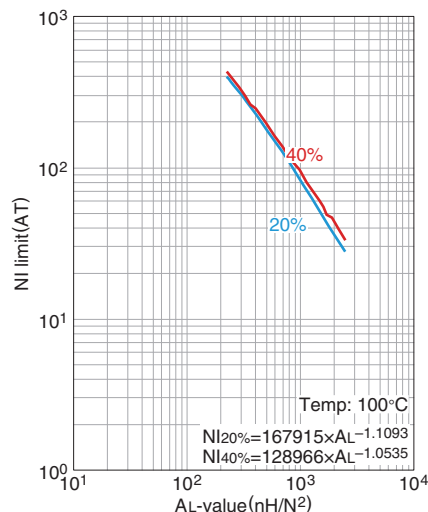


Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $\ell_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional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

\* Coil : ø0.18 2UEW 100Ts

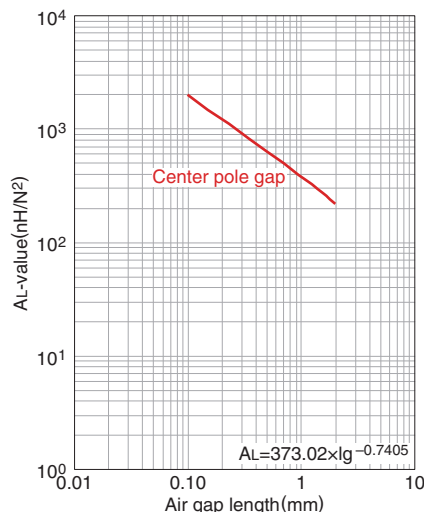
○ Calculated output power (forward converter mode): 713W (100kHz)

**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

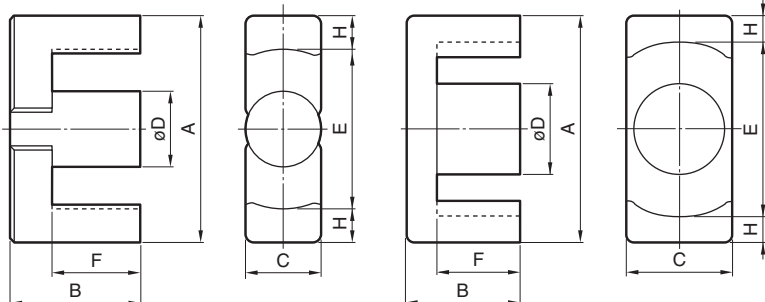


Fig. 1

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

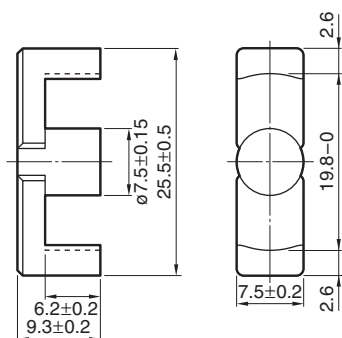
Part No.	Effective parameter					Electrical characteristics					
	Core factor $C_1(\text{mm}^{-1})$	Effective cross-sectional area $A_e(\text{mm}^2)$	Effective magnetic path length $\ell_e(\text{mm})$	Effective core volume $V_e(\text{mm}^3)$	Weigh (g)	AL-value		Core loss			
						(nH/N <sup>2</sup> ) 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	2200±25% 2700±25%	100±5% 200±7%	0.85 —	— 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

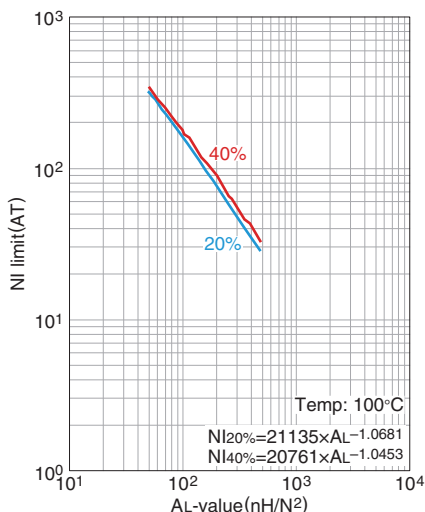
Based on JIS FEER 25.5A.

Effective parameter								Electrical characteristics	
Core factor	Effective magnetic path length $\ell_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value * (nH/N <sup>2</sup> ) 1kHz 0.5mA	Core loss (W)max. 100kHz 200mT 100°C
C1 (mm <sup>-1</sup> )									
1.08	48.2	44.8	2160	44.2	42.4	79.4	11	2200±25%	0.85

\* Coil : ø0.35 2UEW 100Ts

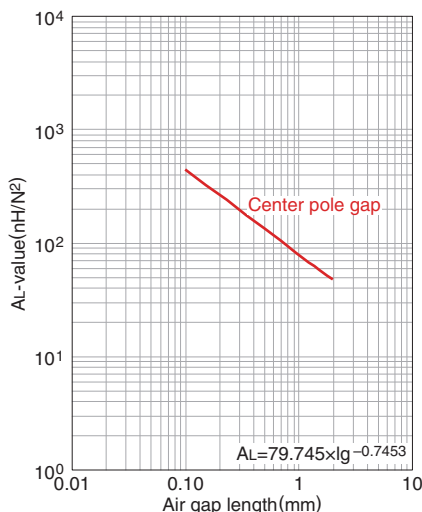
○ Calculated output power (forward converter mode): 112W (100kHz)

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



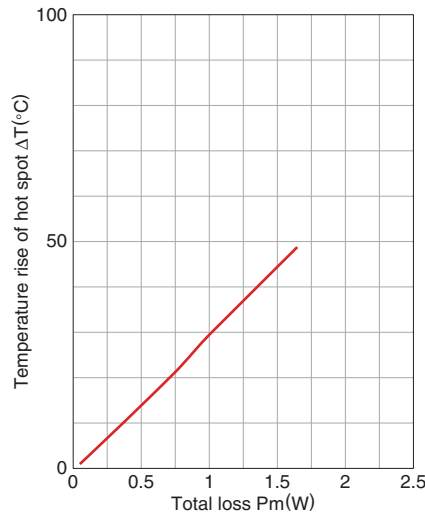
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

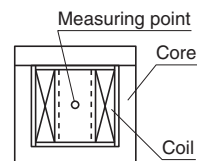


Measuring conditions  
 • Coil : ø0.35 2UEW 100Ts  
 • Frequency : 1kHz  
 • Current level : 0.5mA  
 • Ambient temperature : 25°C

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



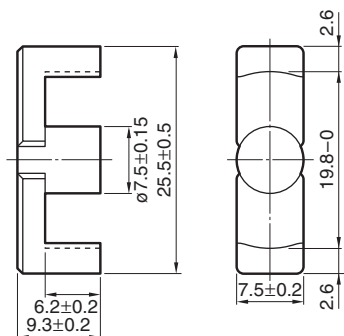
Measuring conditions  
 • Room space: approx. 400x300x 300cm  
 • Ambient temperature : 25°C  
 • Humidity : 45%(%)RH.



⚠ 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

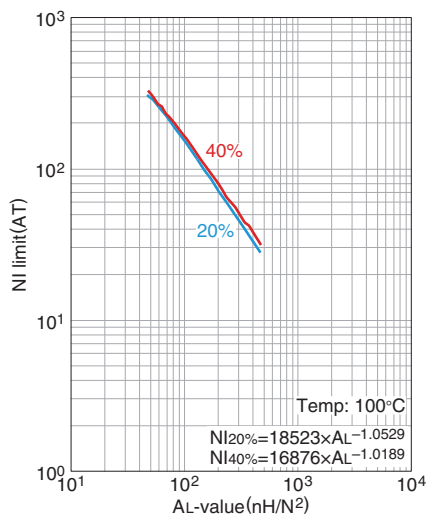
Based on JIS FEER 25.5A.

Effective parameter								Electrical characteristics				
Core factor	Effective magnetic path length $\ell_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *	Core loss			
C1 (mm <sup>-1</sup> )								(nH/N <sup>2</sup> ) 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

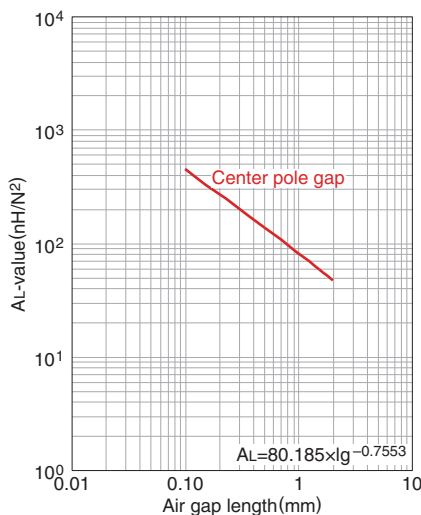
○ Calculated output power (forward converter mode): 96W (100kHz)

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



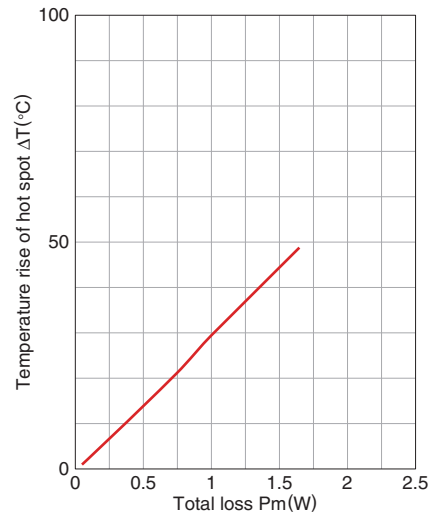
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

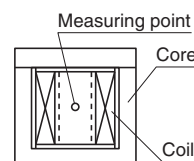


Measuring conditions  
 • Coil : ø0.35 2UEW 100Ts  
 • Frequency : 1kHz  
 • Current level : 0.5mA  
 • Ambient temperature : 25°C

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



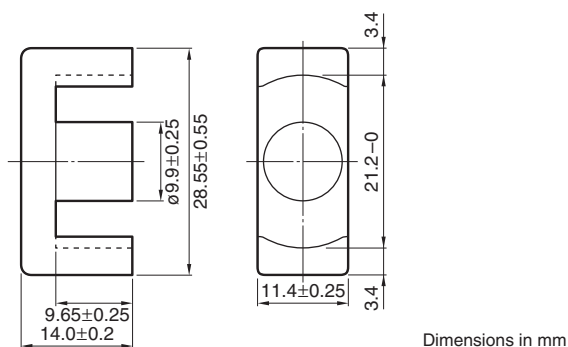
Measuring conditions  
 • Room space: approx. 400x300x 300cm  
 • Ambient temperature : 25°C  
 • Humidity: 45%(%)RH.



⚠ 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



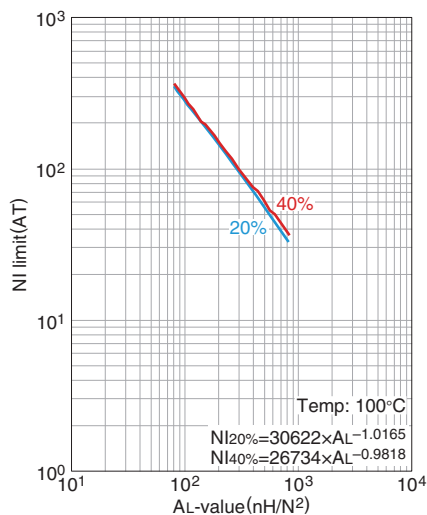
Based on JIS FEER 28.5A.

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $\ell_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss
C <sub>1</sub> (mm <sup>-1</sup> )								(nH/N <sup>2</sup> )		(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

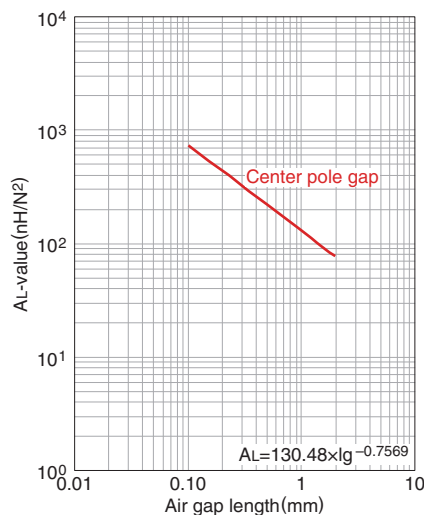
○ Calculated output power (forward converter mode): 233W (100kHz)

NI limit vs. AL-value (Typ.)



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

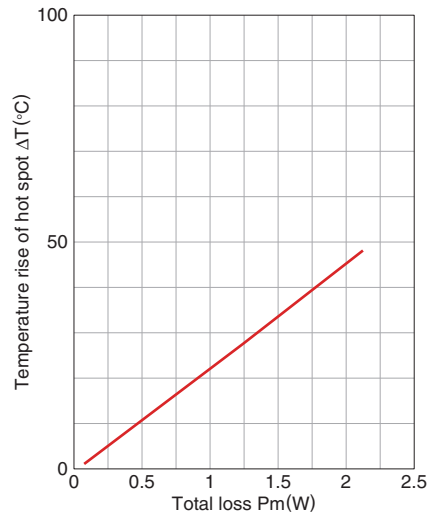
AL-value vs. Air gap length (Typ.)



Measuring conditions

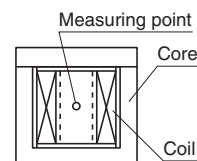
- Coil :  $\phi 0.35$  2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



Measuring conditions

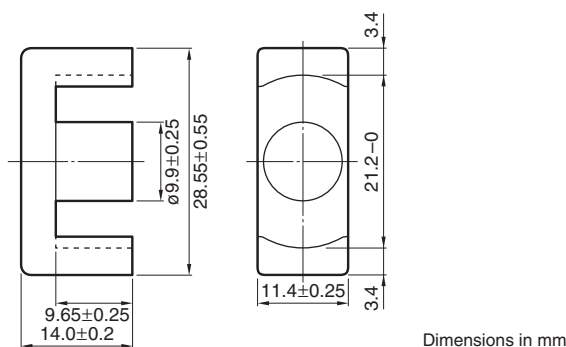
- Room space: approx. 400x300x 300cm
- Ambient temperature : 25°C
- Humidity: 45(%)RH.



⚠ 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



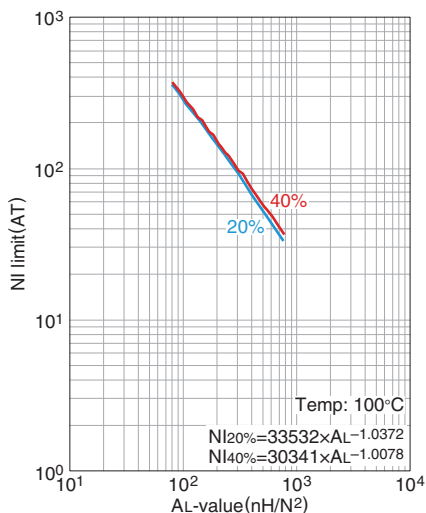
Based on JIS FEER 28.5A.

Effective parameter								Electrical characteristics			
Core factor	Effective magnetic path length $\ell_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss	
C1 (mm <sup>-1</sup> )								(nH/N <sup>2</sup> )	(W)max.		
								1kHz	25°C	80°C	120°C
								0.5mA			
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

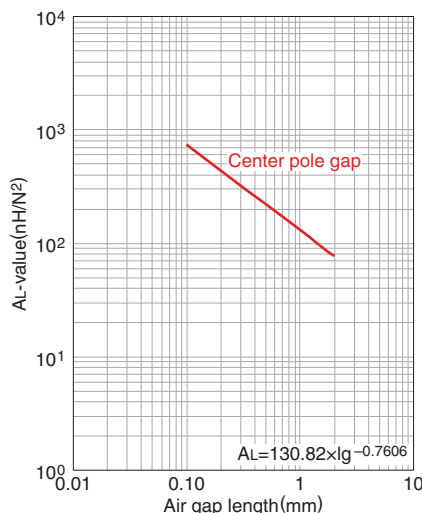
○ Calculated output power (forward converter mode): 223W (100kHz)

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



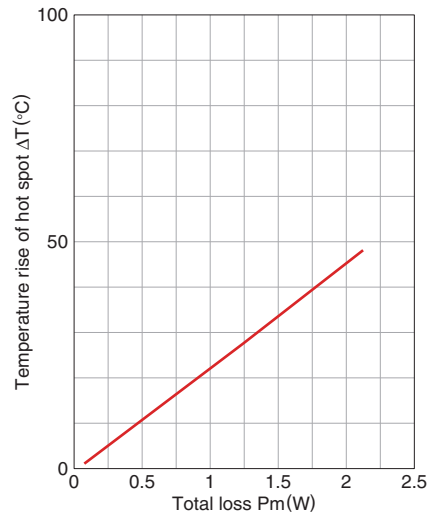
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

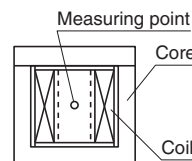


Measuring conditions  
 • Coil :  $\phi 0.35$  2UEW 100Ts  
 • Frequency : 1kHz  
 • Current level : 0.5mA  
 • Ambient temperature : 25°C

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



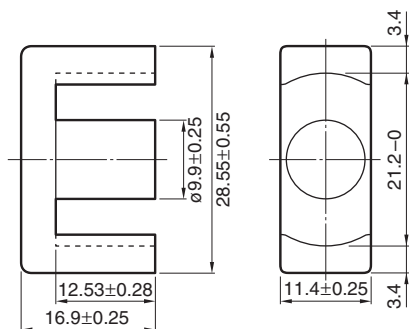
Measuring conditions  
 • Room space: approx. 400x300x 300cm  
 • Ambient temperature : 25°C  
 • Humidity: 45(%)RH.



⚠ 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

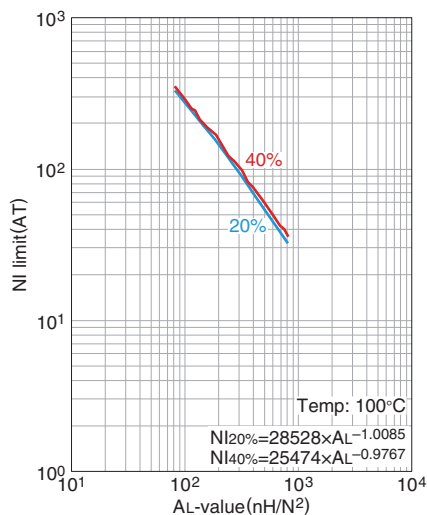
Based on JIS FEER 28.5B.

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $\ell_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss
C <sub>1</sub> (mm <sup>-1</sup> )								(nH/N <sup>2</sup> )		(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

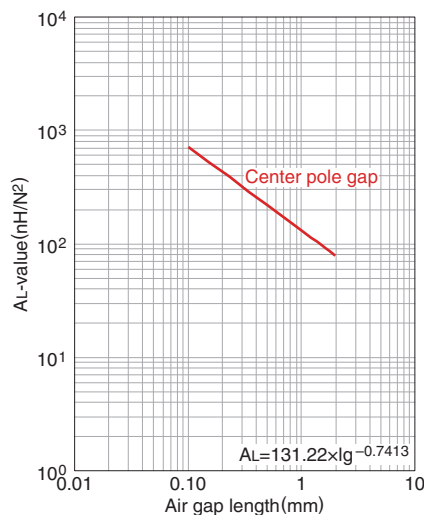
○ Calculated output power (forward converter mode): 267W (100kHz)

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.

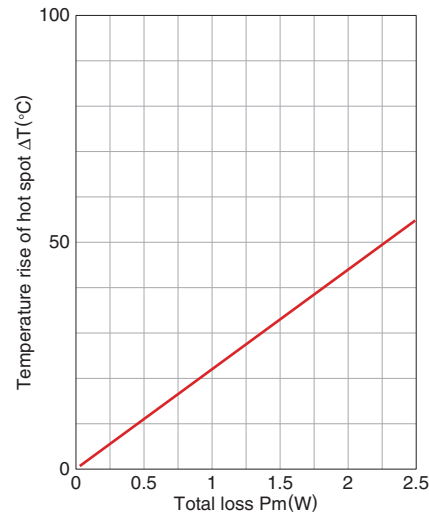
AL-value vs. Air gap length (Typ.)



Measuring conditions

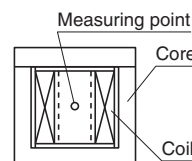
- Coil : ø0.35 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



Measuring conditions

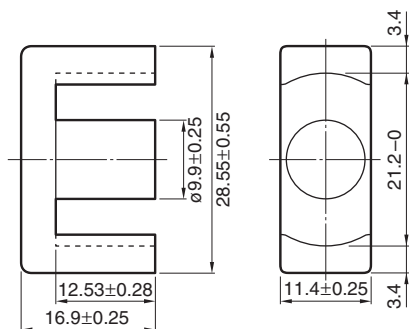
- Room space: approx. 400x300x 300cm
- Ambient temperature : 25°C
- Humidity : 45(%RH).



⚠ 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

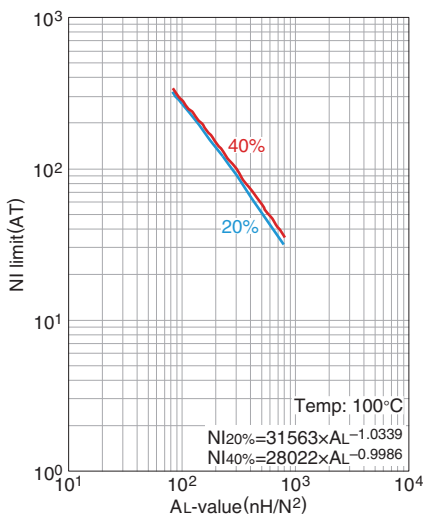
Based on JIS FEER 28.5B.

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

\* Coil : ø0.35 2UEW 100Ts

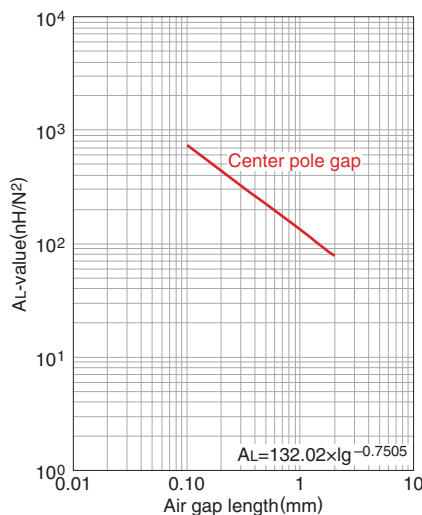
○ Calculated output power (forward converter mode): 250W (100kHz)

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



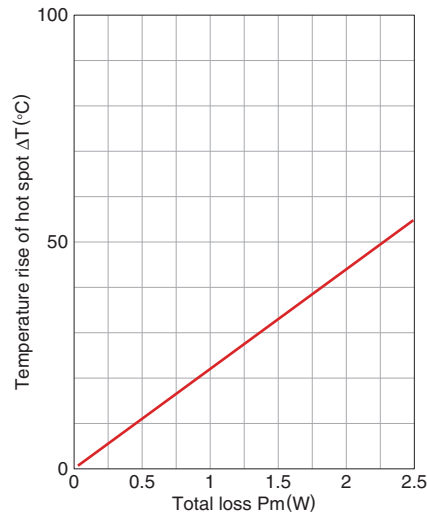
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

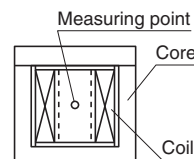


Measuring conditions  
 • Coil : ø0.35 2UEW 100Ts  
 • Frequency : 1kHz  
 • Current level : 0.5mA  
 • Ambient temperature : 25°C

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



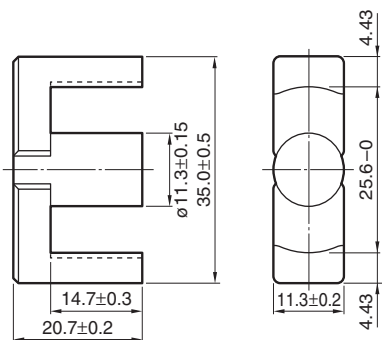
Measuring conditions  
 • Room space: approx. 400x300x 300cm  
 • Ambient temperature : 25°C  
 • Humidity: 45%(%)RH.



⚠ 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

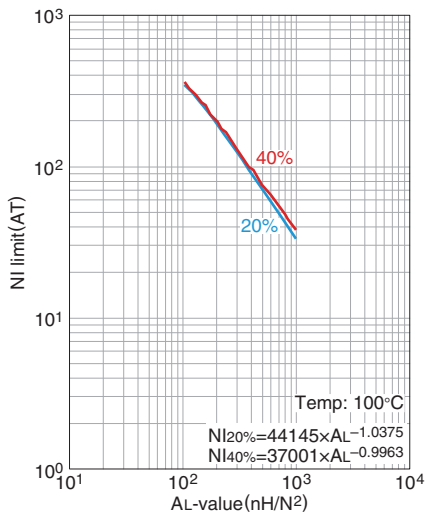
Based on JIS FEER 35A.

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $\ell_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss
C1 (mm <sup>-1</sup> )								(nH/N <sup>2</sup> )		(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

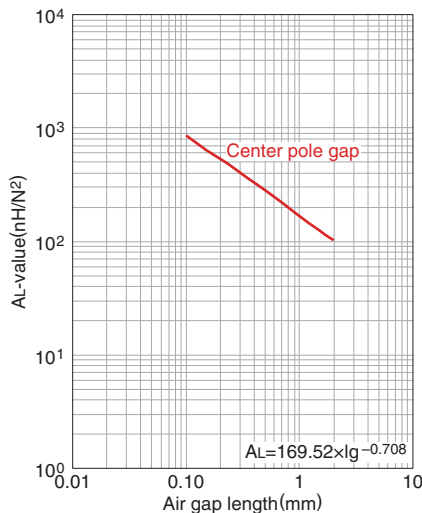
○ Calculated output power (forward converter mode): 376W (100kHz)

NI limit vs. AL-value (Typ.)



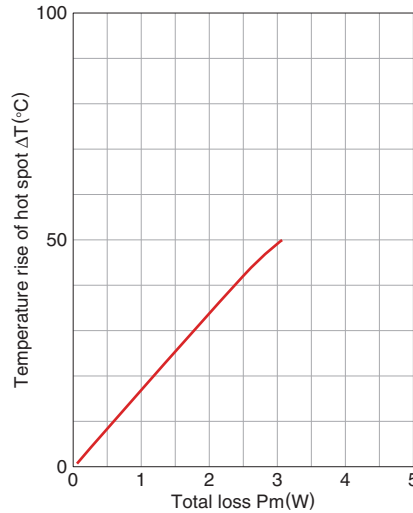
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

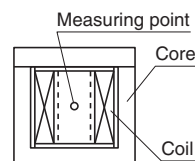


Measuring conditions  
 • Coil : ø0.35 2UEW 100Ts  
 • Frequency : 1kHz  
 • Current level : 0.5mA  
 • Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



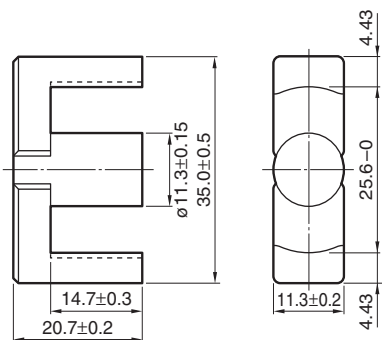
Measuring conditions  
 • Room space: approx. 400x300x 300cm  
 • Ambient temperature : 25°C  
 • Humidity : 45(%)RH.



⚠ 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

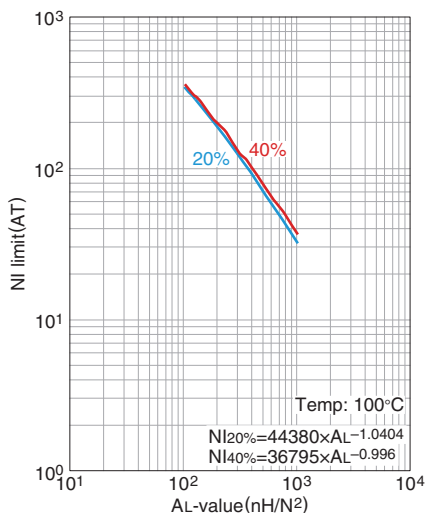
Based on JIS FEER 35A.

Effective parameter								Electrical characteristics				
Core factor	Effective magnetic path length $l_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *	Core loss			
C <sub>1</sub>	(mm <sup>-1</sup> )	(mm)	(mm <sup>3</sup> )	(mm <sup>2</sup> )	(mm <sup>2</sup> )	(mm <sup>2</sup> )	(g/set)	(nH/N <sup>2</sup> ) 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 : ø0.35 2UEW 100Ts

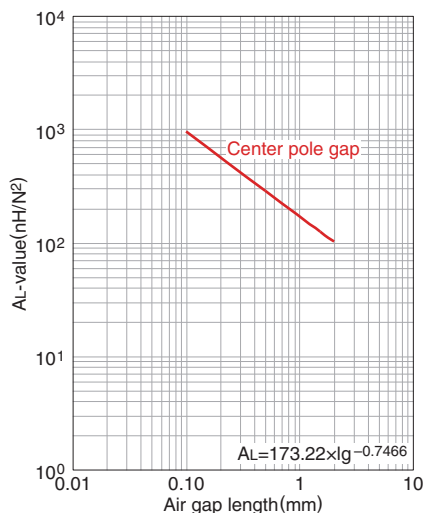
○ Calculated output power (forward converter mode): 336W (100kHz)

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



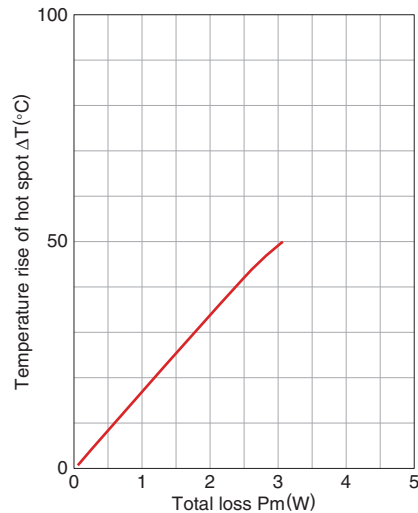
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

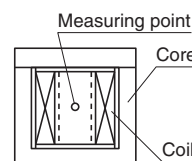


Measuring conditions  
 • Coil : ø0.35 2UEW 100Ts  
 • Frequency : 1kHz  
 • Current level : 0.5mA  
 • Ambient temperature : 25°C

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



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

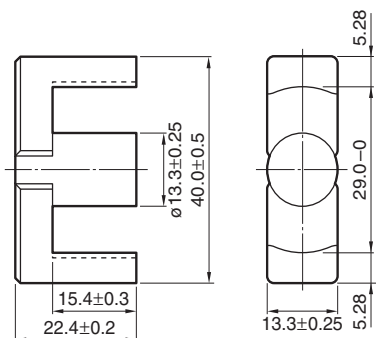


⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.



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

## ■ SHAPES AND DIMENSIONS



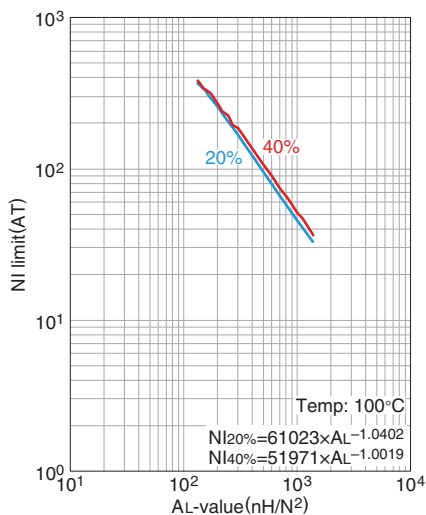
Dimensions in mm

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $l_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss
C <sub>1</sub>	(mm <sup>-1</sup> )							(nH/N <sup>2</sup> )		(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 : ø0.35 2UEW 100Ts

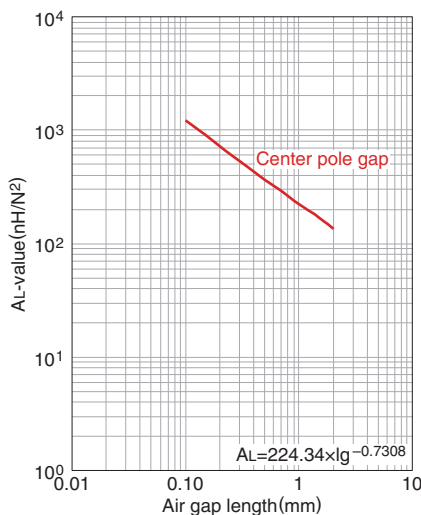
○ Calculated output power (forward converter mode): 484W (100kHz)

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



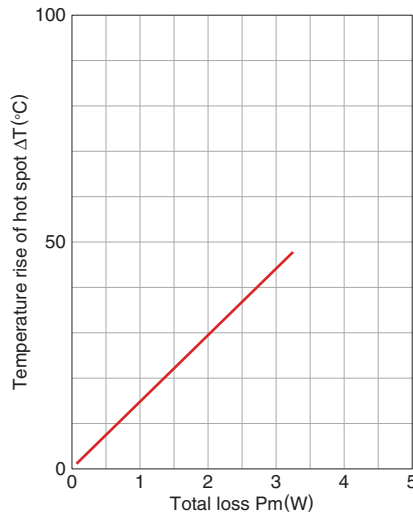
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

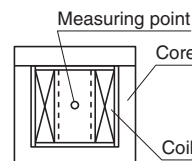


Measuring conditions  
 • Coil : ø0.35 2UEW 100Ts  
 • Frequency : 1kHz  
 • Current level : 0.5mA  
 • Ambient temperature : 25°C

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



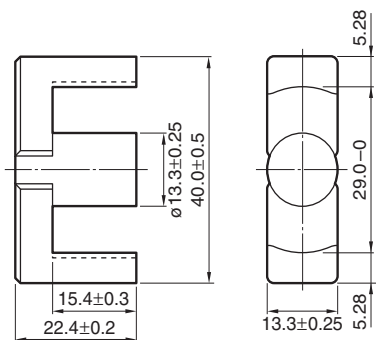
Measuring conditions  
 • Room space: approx. 400x300x 300cm  
 • Ambient temperature : 25°C  
 • Humidity : 45(%)RH.



⚠ 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.: PC95EER40-Z

## ■ SHAPES AND DIMENSIONS



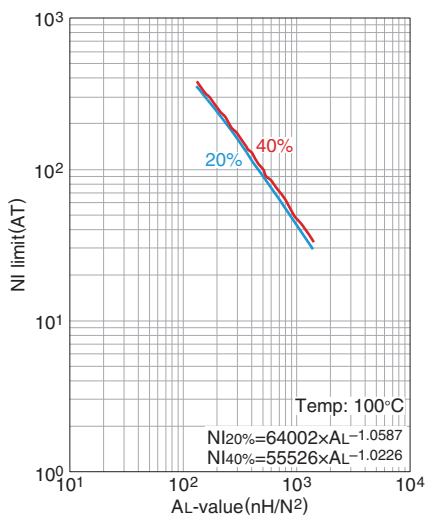
Dimensions in mm

Effective parameter								Electrical characteristics			
Core factor	Effective magnetic path length $l_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value * (nH/N <sup>2</sup> )	Core loss (W)max.		
$C_1$	(mm <sup>-1</sup> )							(nH/N <sup>2</sup> ) 1kHz 0.5mA	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

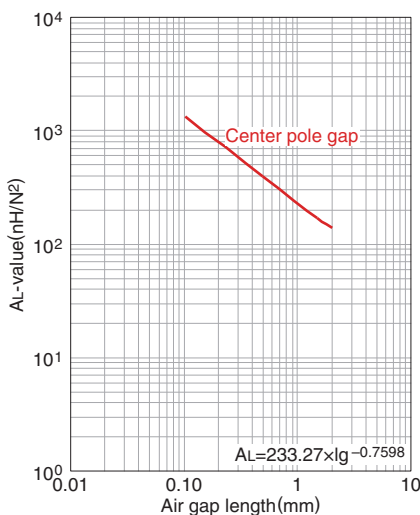
○ Calculated output power (forward converter mode): 446W (100kHz)

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



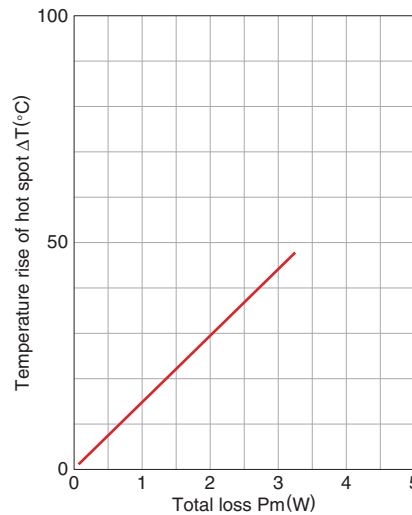
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

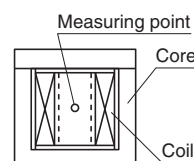


Measuring conditions  
 • Coil : ø0.35 2UEW 100Ts  
 • Frequency : 1kHz  
 • Current level : 0.5mA  
 • Ambient temperature : 25°C

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



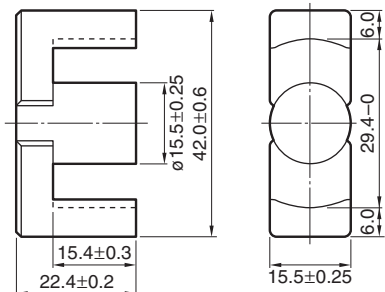
Measuring conditions  
 • Room space: approx. 400x300x 300cm  
 • Ambient temperature : 25°C  
 • Humidity: 45%(%)RH.



⚠ 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

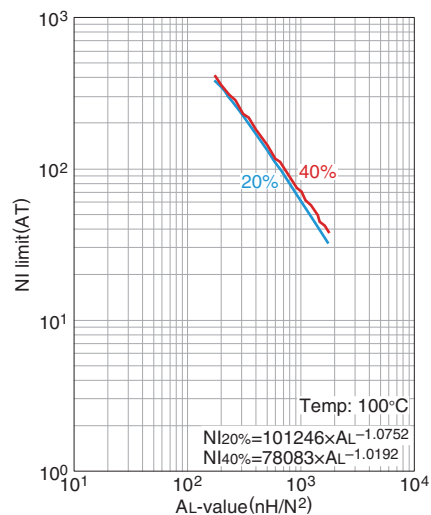
Based on JIS FEER 42.

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $\ell_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss
C <sub>1</sub> (mm <sup>-1</sup> )								(nH/N <sup>2</sup> )		(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

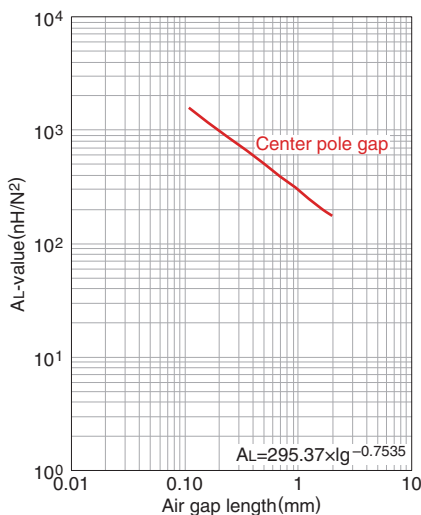
○ Calculated output power (forward converter mode): 540W (100kHz)

NI limit vs. AL-value (Typ.)



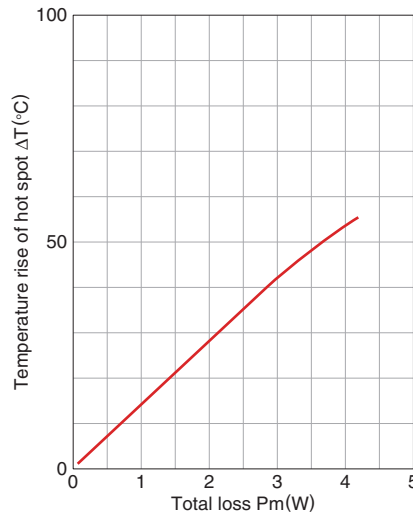
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

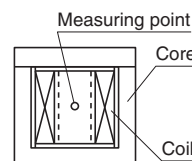


Measuring conditions  
 • Coil :  $\phi 0.35$  2UEW 100Ts  
 • Frequency : 1kHz  
 • Current level : 0.5mA  
 • Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



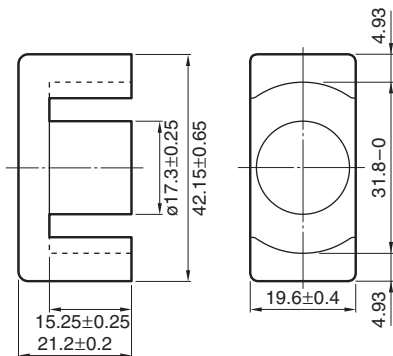
Measuring conditions  
 • Room space: approx. 400x300x 300cm  
 • Ambient temperature : 25°C  
 • Humidity : 45%(%)RH.



⚠ 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



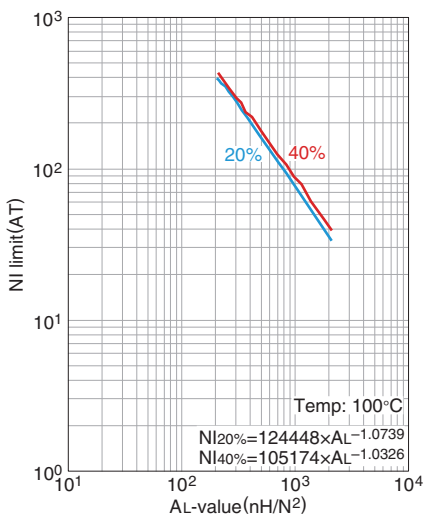
Dimensions in mm

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 <sup>-1</sup> )	(mm)	(mm <sup>3</sup> )	(mm <sup>2</sup> )	(mm <sup>2</sup> )	(mm <sup>2</sup> )	(g/set)	(nH/N <sup>2</sup> )		(W)max.
0.411	98.6	240	23700	235	228	229	116	5340±25%	8260 min.	100kHz 200mT 100°C

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

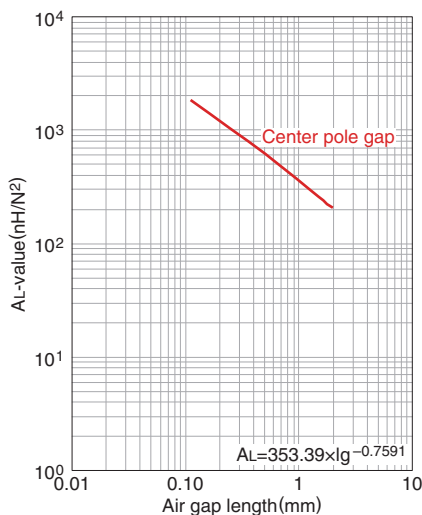
○ Calculated output power (forward converter mode): 647W (100kHz)

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



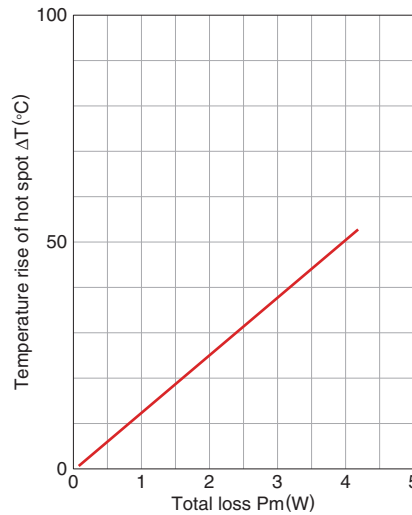
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

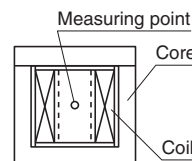


Measuring conditions  
 • Coil :  $\phi 0.35$  2UEW 100Ts  
 • Frequency : 1kHz  
 • Current level : 0.5mA  
 • Ambient temperature : 25°C

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



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

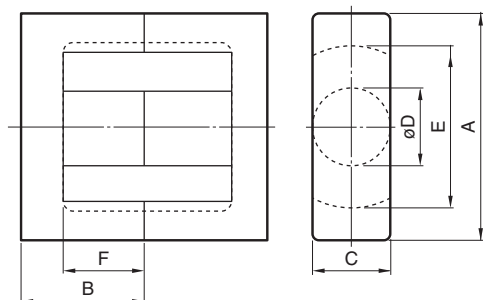


⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

## Mn-Zn ETD Cores



## SHAPES AND DIMENSIONS



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

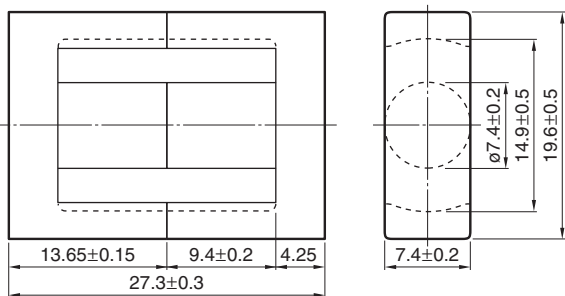
Part No.	JIS	Dimensions (mm)					
		A	B	C	øD	E	F
PC47ETD19-Z		19.6±0.5	13.65±0.15	7.4±0.2	7.4±0.2	14.9±0.5	9.4±0.2
PC47ETD24-Z		24.4±0.6	14.45±0.15	8.5±0.4	8.5±0.2	18.6±0.6	10.1±0.2
PC47ETD29-Z		29.8±0.8	15.80±0.15	9.5±0.3	9.5±0.3	22.7±0.7	11.0±0.3
PC47ETD34-Z	JIS FEER 34.2	34.2±0.8	17.3±0.2	10.88±0.38	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 <sup>2</sup> ) 1kHz 0.5mA 100Ts Without air gap   With 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



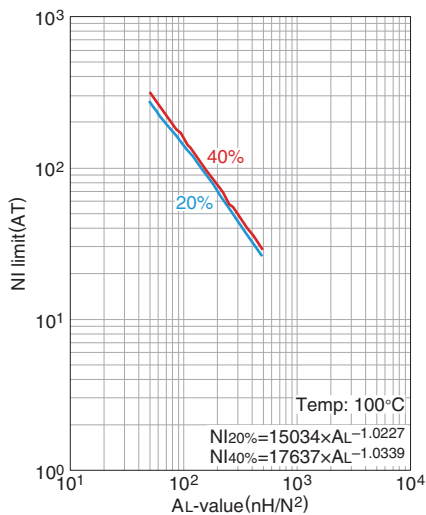
Dimensions in mm

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

\* Coil : ø0.35 2UEW 100Ts

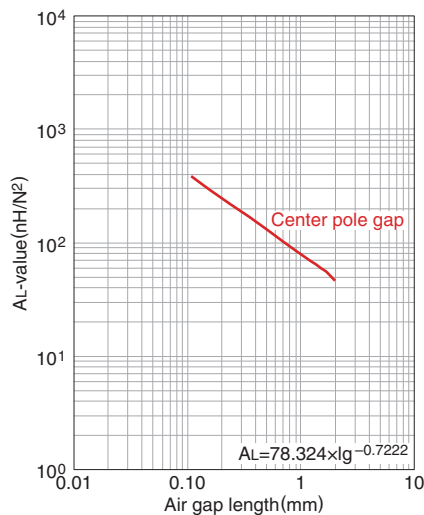
○ Calculated output power (forward converter mode): 114W (100kHz)

### 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.

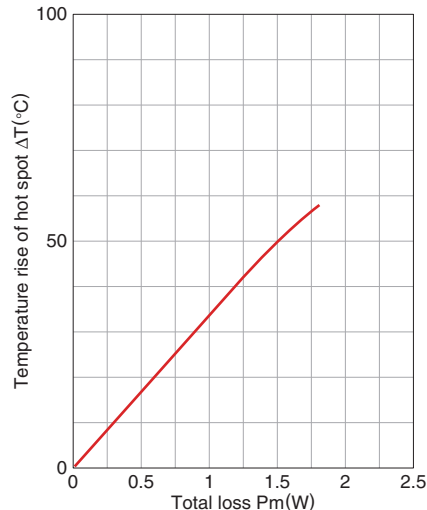
### AL-value vs. Air gap length (Typ.)



#### Measuring conditions

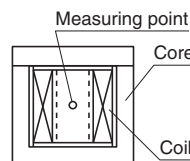
- Coil : ø0.35 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

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



#### Measuring conditions

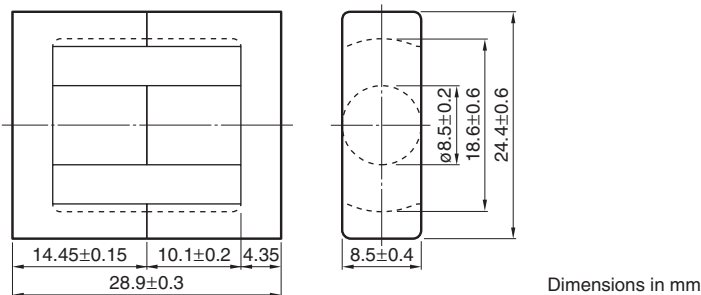
- Room space: approx. 400x300x 300cm
- Ambient temperature : 25°C
- Humidity : 45%(%)RH.



⚠ 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

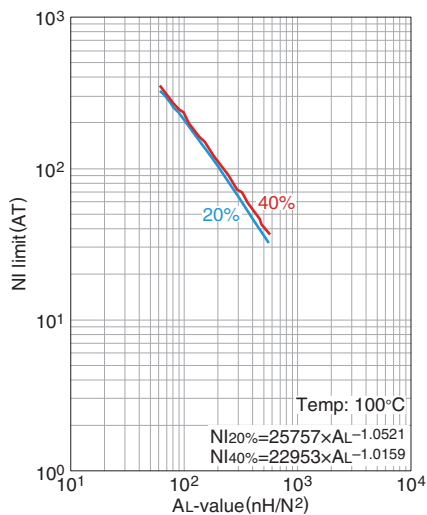


Effective parameter							Electrical characteristics			
Core factor	Effective magnetic path length $l_e$	Effective cross-sectional area $A_e$	Effective core volume $V_e$	Cross-sectional center pole area $A_{cp}$	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$	Cross-sectional winding area of core $A_{cw}$	Weight	AL-value *		Core loss
$C_1$ ( $\text{mm}^{-1}$ )	(mm)	( $\text{mm}^2$ )	( $\text{mm}^3$ )	( $\text{mm}^2$ )	( $\text{mm}^2$ )	( $\text{mm}^2$ )	(g/set)	( $\text{nH/N}^2$ ) 1kHz 0.5mA	100kHz 200mT	(W)max. 100kHz 200mT 100°C
1.10	61.9	56.3	3480	56.7	54.1	102	19.5	2125±25%	2860 min.	1.51

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

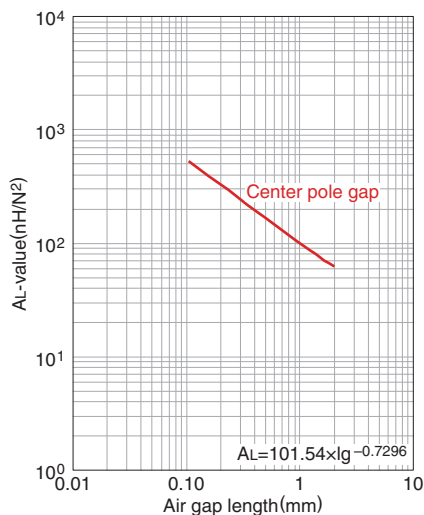
○ Calculated output power (forward converter mode): 131W (100kHz)

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



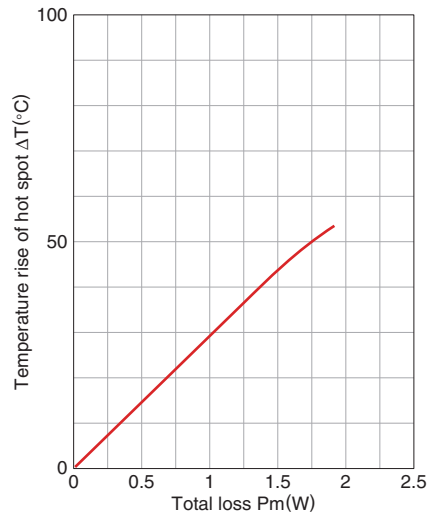
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

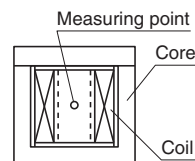


Measuring conditions  
 • Coil :  $\phi 0.35$  2UEW 100Ts  
 • Frequency : 1kHz  
 • Current level : 0.5mA  
 • Ambient temperature : 25°C

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



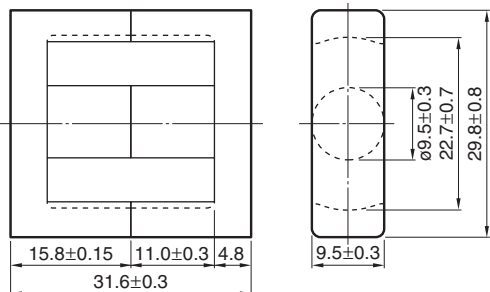
Measuring conditions  
 • Room space: approx. 400x300x 300cm  
 • Ambient temperature : 25°C  
 • Humidity: 45(%)RH.



⚠ 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.: PC47ETD29-Z

## ■ SHAPES AND DIMENSIONS



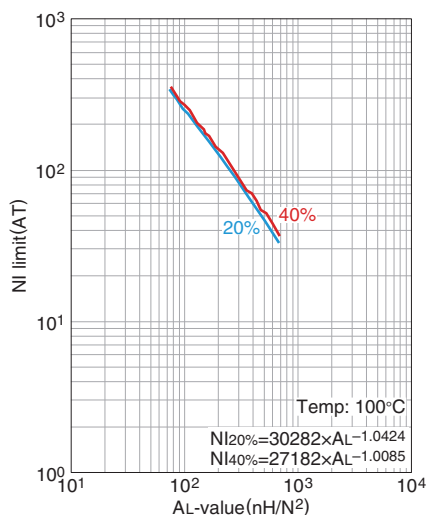
Dimensions in mm

Effective parameter							Electrical characteristics			
Core factor	Effective magnetic path length $l_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss
C <sub>1</sub> (mm <sup>-1</sup> )								(nH/N <sup>2</sup> ) 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 : ø0.35 2UEW 100Ts

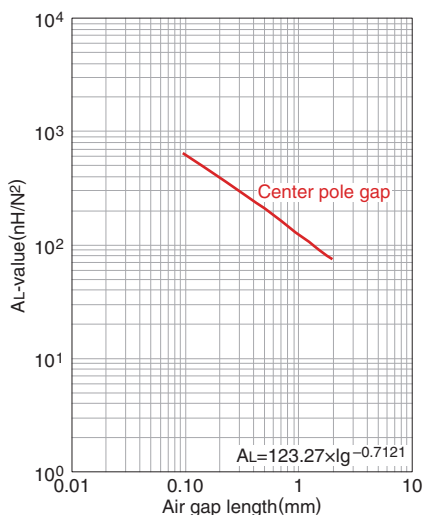
○ Calculated output power (forward converter mode): 242W (100kHz)

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



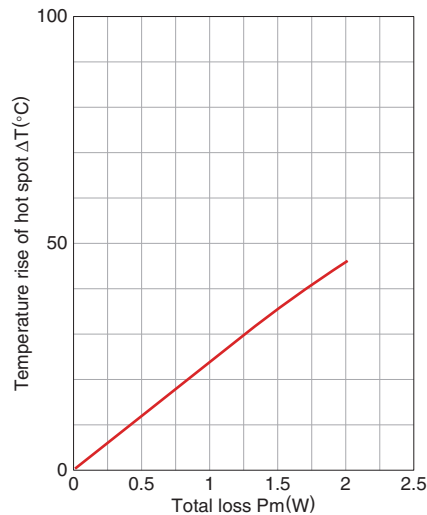
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

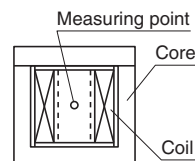


Measuring conditions  
 • Coil : ø0.35 2UEW 100Ts  
 • Frequency : 1kHz  
 • Current level : 0.5mA  
 • Ambient temperature : 25°C

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



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

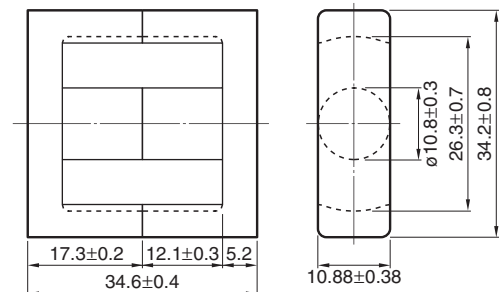


⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.



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

## ■ SHAPES AND DIMENSIONS



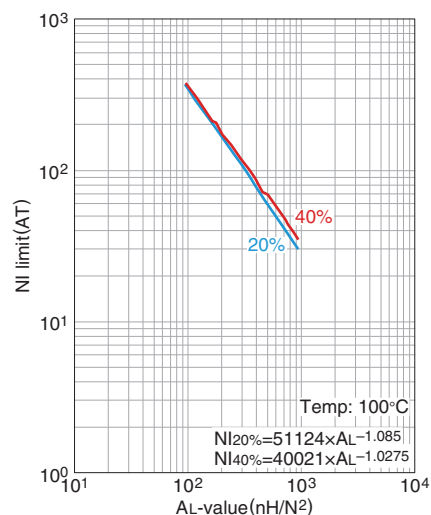
Dimensions in mm

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
$C_1$ ( $\text{mm}^{-1}$ )	(mm)	( $\text{mm}^2$ )	( $\text{mm}^3$ )	( $\text{mm}^2$ )	( $\text{mm}^2$ )	( $\text{mm}^2$ )	(g/set)	( $\text{nH/N}^2$ ) 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

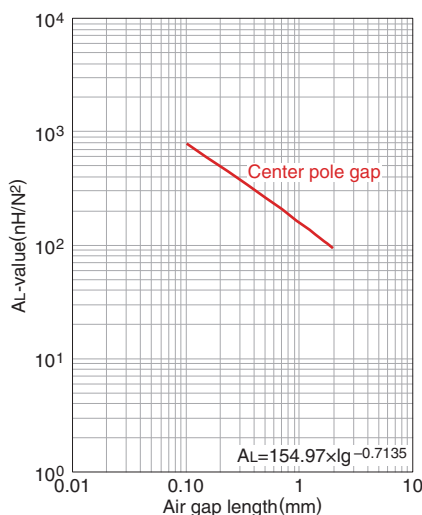
○ Calculated output power (forward converter mode): 321W (100kHz)

### 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.

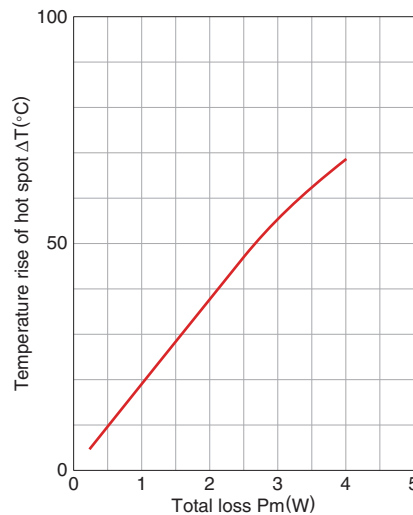
### AL-value vs. Air gap length (Typ.)



Measuring conditions

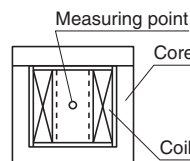
- Coil :  $\phi 0.35$  2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

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



Measuring conditions

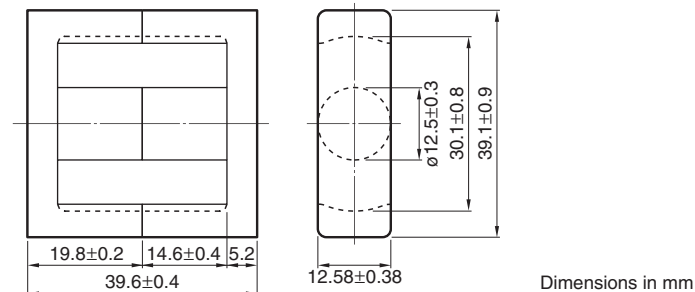
- Room space: approx. 400x300x 300cm
- Ambient temperature : 25°C
- Humidity : 45(%)RH.



⚠ 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



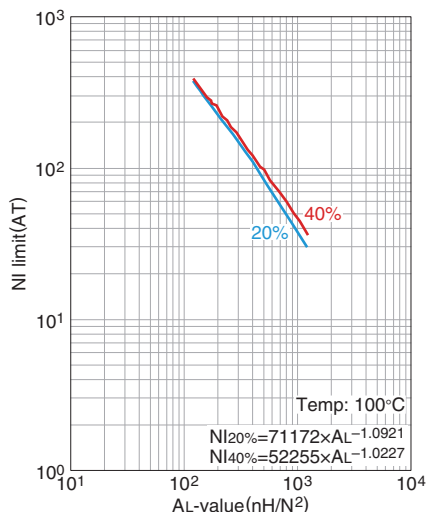
Based on JIS FEI 12.5.

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $\ell_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss
C1 (mm <sup>-1</sup> )								(nH/N <sup>2</sup> )		(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

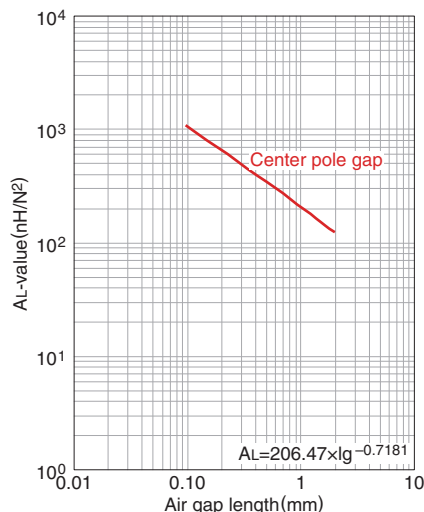
○ Calculated output power (forward converter mode): 450W (100kHz)

NI limit vs. AL-value (Typ.)



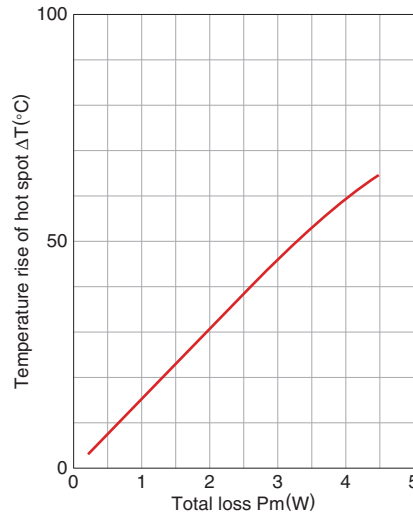
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

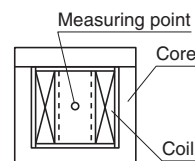


Measuring conditions  
 • Coil :  $\phi 0.35$  2UEW 100Ts  
 • Frequency : 1kHz  
 • Current level : 0.5mA  
 • Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



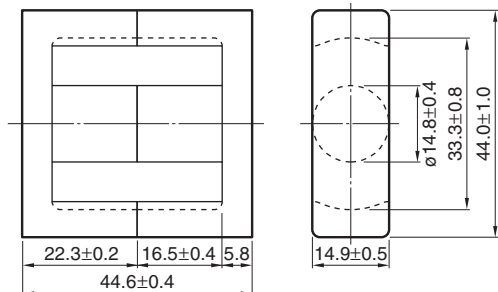
Measuring conditions  
 • Room space: approx. 400x300x 300cm  
 • Ambient temperature : 25°C  
 • Humidity: 45(%RH).



⚠ 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



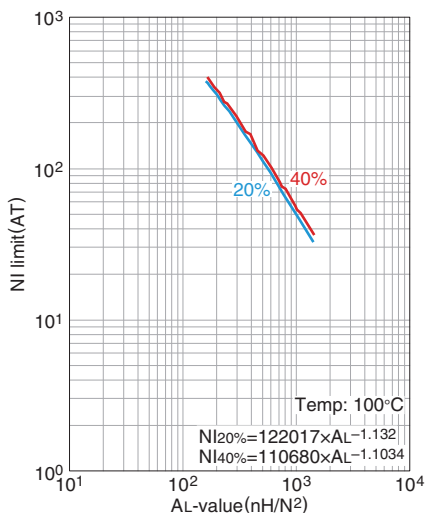
Dimensions in mm

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

\* Coil : ø0.35 2UEW 100Ts

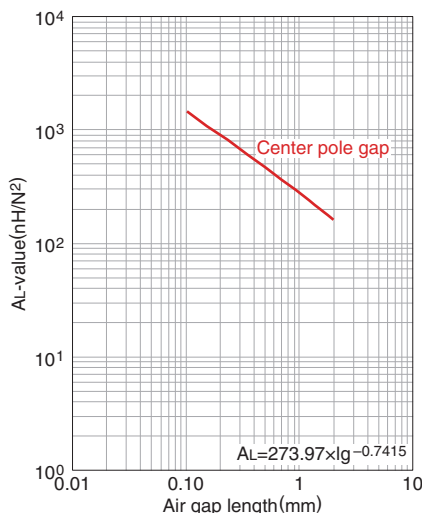
○ Calculated output power (forward converter mode): 581W (100kHz)

### 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.

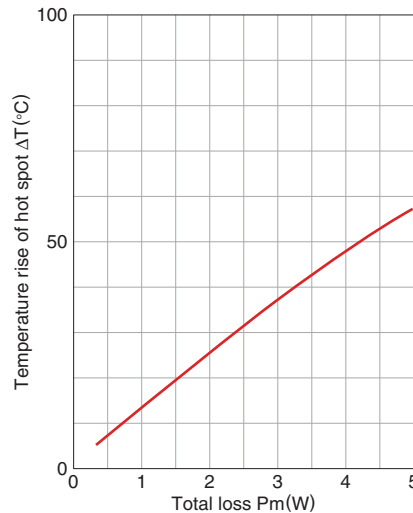
### AL-value vs. Air gap length (Typ.)



Measuring conditions

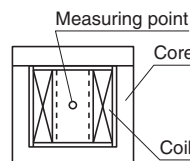
- Coil : ø0.35 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

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



Measuring conditions

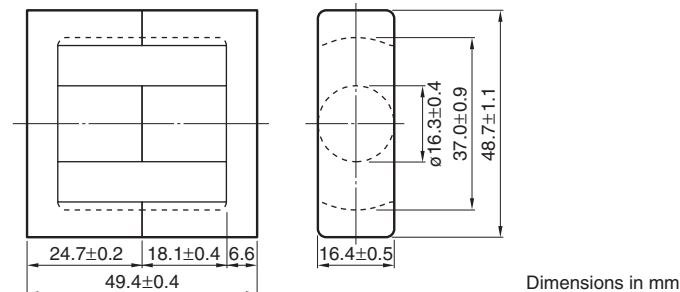
- Room space: approx. 400x300x 300cm
- Ambient temperature : 25°C
- Humidity : 45%(%)RH.



⚠ 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.: PC47ETD49-Z

## ■ SHAPES AND DIMENSIONS



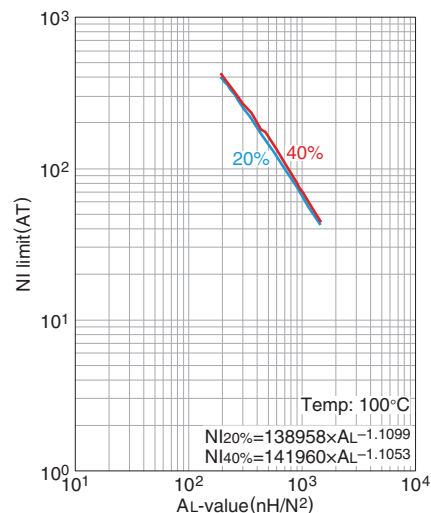
Based on JIS FEI 12.5.

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length $\ell_e$ (mm)	Effective cross-sectional area $A_e$ (mm <sup>2</sup> )	Effective core volume $V_e$ (mm <sup>3</sup> )	Cross-sectional center pole area $A_{cp}$ (mm <sup>2</sup> )	Minimum cross-sectional center pole area $A_{cp \text{ min.}}$ (mm <sup>2</sup> )	Cross-sectional winding area of core $A_{cw}$ (mm <sup>2</sup> )	Weight (g/set)	AL-value *		Core loss
C <sub>1</sub> (mm <sup>-1</sup> )								(nH/N <sup>2</sup> )		(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 : ø0.35 2UEW 100Ts

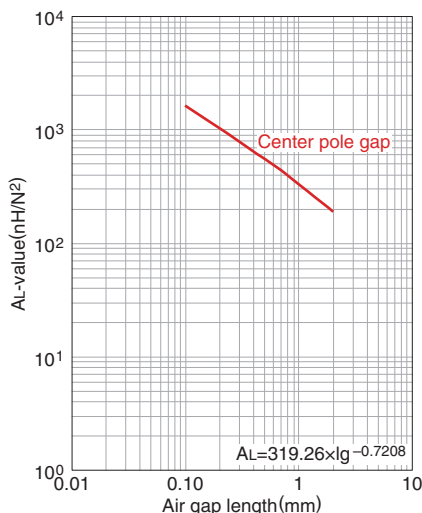
○ Calculated output power (forward converter mode): 692W (100kHz)

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.

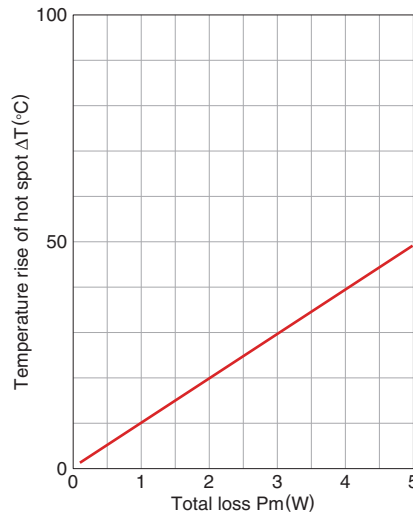
AL-value vs. Air gap length (Typ.)



Measuring conditions

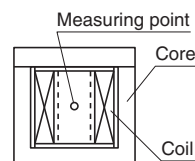
- Coil : ø0.35 2UEW 100Ts
- Frequency : 1kHz
- Current level : 0.5mA
- Ambient temperature : 25°C

Temperature rise vs. Total loss (Typ.)



Measuring conditions

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



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