TDK

March 2014

Mn-Zn

Ferrite Core for Switching Power Supplies

E series

EI
EE, EF
EER
ETD

⚠ REMINDERS FOR USING THESE PRODUCTS

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

The products listed on this catalog are intended for use in general electronic equipment (AV equipment, telecommunications equipment, home appliances, amusement equipment, computer equipment, personal equipment, office equipment, measurement equipment, industrial robots) under a normal operation and use condition.
The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require a more stringent level of safety or reliability, or whose failure, malfunction or trouble could cause serious damage to society, person or property.
When using the products for specific purposes, please first make confirmations in areas such as safety, reliability, and quality.
Please understand that we are not in a position to be held responsible for any damage or the like caused by any use exceeding the range or conditions of this specification sheet or by any use in the specific applications.

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

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

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

PC47 EI12.5 - Z

Material	Size of E core	AL-value (Z: without air gap)
PC47		
PC95		

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		

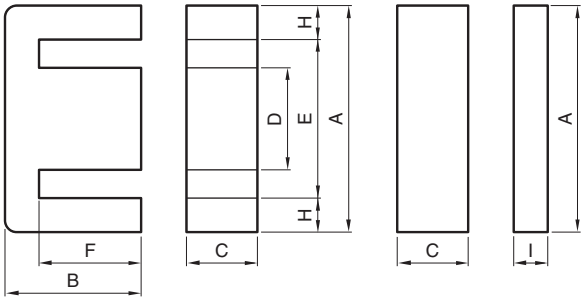
RANGE OF USE AND STORAGE TEMPERATURE

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://www.tdk.co.jp/rohs/
- Halogen-free: Indicates that Cl content is less than 900ppm, Br content is less than 900ppm, and that the total Cl and Br content is less than 1500ppm.

Mn-Zn EI Cores

SHAPES AND DIMENSIONS



PC47 | EI12.5 - Z

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

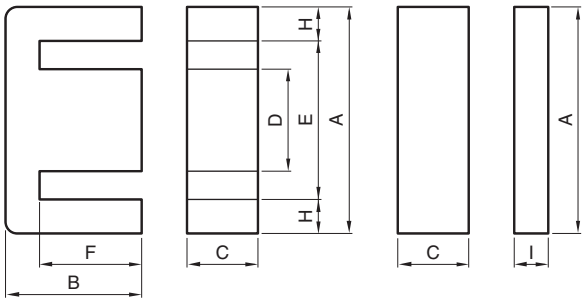
Part No.	JIS	Dimensions (mm)							
		A	B	C	D	E min.	F	H	I
PC47EI12.5-Z	JIS FEI 12.5	12.4±0.3	7.4±0.1	4.85±0.15	2.4±0.1	8.8	5.1±0.1	1.6	1.5±0.1
PC47EI16-Z	JIS FEI 16	16.0±0.3	12.2±0.2	4.8±0.2	4.0±0.2	11.6	10.2±0.2	2.05	2.0±0.2
PC47EI19-Z		20.0±0.3	13.55±0.25	5.0±0.2	4.55±0.15	14.3	11.15±0.15	2.75	2.3±0.1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

Part No.	Effective parameter					Electrical characteristics		
	Core factor $C_1(mm^{-1})$	Effective cross-sectional area $Ae(mm^2)$	Effective magnetic path length $\ell e(mm)$	Effective core volume $Ve(mm^3)$	Weigh (g)	AL-value (nH/N^2) 1kHz 0.5mA 100Ts		Core loss (W) max. 100kHz 200mT 100°C
						Without air gap	With air gap	
PC47EI12.5-Z	1.48	14.4	21.3	308	1.9	1200±25%	63±7% 100±10%	0.1
PC47EI16-Z	1.75	19.8	34.6	685	3.3	1100±25%	80±7% 160±10%	0.3
PC47EI19-Z	1.65	24.0	39.6	950	5.1	1400±25%	80±7% 160±10%	0.4
PC47EI22-Z	0.936	42.0	39.3	1650	9.8	2400±25%	125±7% 250±10%	0.6
PC47EI22/19/6-Z	1.13	37.0	41.8	1550	8.5	2000±25%	125±7% 250±10%	0.6
PC47EI25-Z	1.15	41.0	47.0	1930	9.8	2140±25%	125±7% 250±10%	0.8
PC47EI28-Z	0.56	86.0	48.2	4150	22	4300±25%	200±5% 400±7%	1.6
PC47EI30-Z	0.522	111	58.0	6440	34	4690±25%	200±5% 400±7%	2.2

• All specifications are subject to change without notice.

Mn-Zn EI Cores

SHAPES AND DIMENSIONS



PC47 EI40 - Z

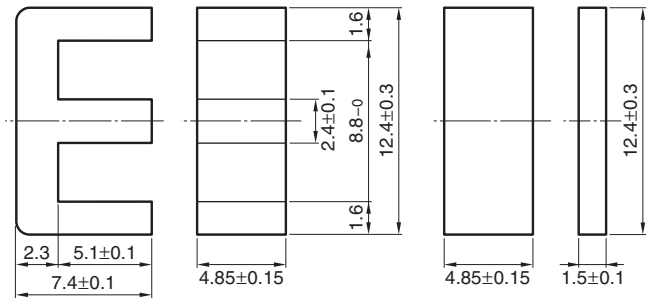
Material	Size of E core	AL-value (Z: without air gap)

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

Part No.	Effective parameter					Electrical characteristics		
	Core factor $C_1(mm^{-1})$	Effective cross-sectional area $Ae(mm^2)$	Effective magnetic path length $\ell e(mm)$	Effective core volume $Ve(mm^3)$	Weigh (g)	AL-value (nH/N^2) 1kHz 0.5mA 100Ts		Core loss (W) max. 100kHz 200mT 100°C
						Without air gap	With air gap	
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

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

SHAPES AND DIMENSIONS



Dimensions in mm

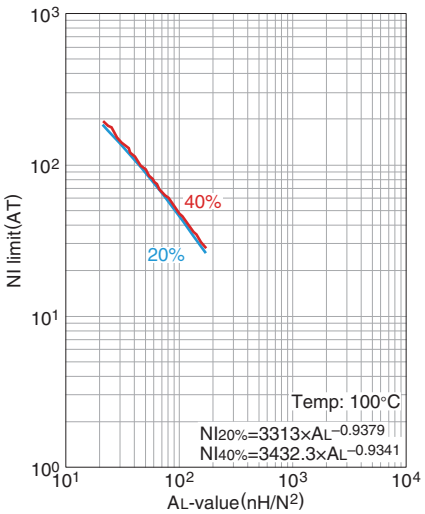
Based on JIS FEI 12.5.

Effective parameter								Electrical characteristics		
Core factor C_1 (mm^{-1})	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm^2)	Effective core volume Ve (mm^3)	Cross-sectional center pole area Acp (mm^2)	Minimum cross-sectional center pole are Acp min. (mm^2)	Cross-sectional winding area of core Acw (mm^2)	Weigh (g/set)	A_L-value * (nH/N^2) 1kHz 0.5mA	A_L-value * (nH/N^2) 100kHz 200mT	Core loss (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

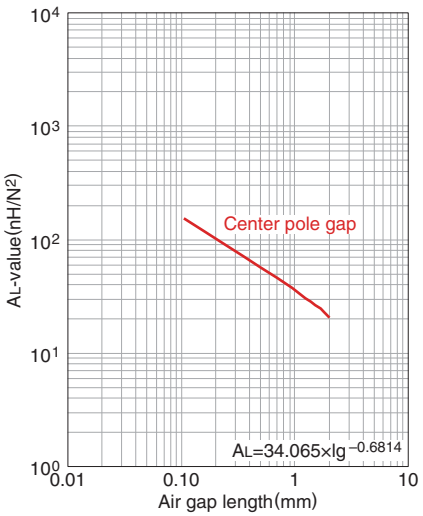
○ Calculated output power (forward converter mode): 11.5W (100kHz)

NI limit vs. A_L-value (Typ.)



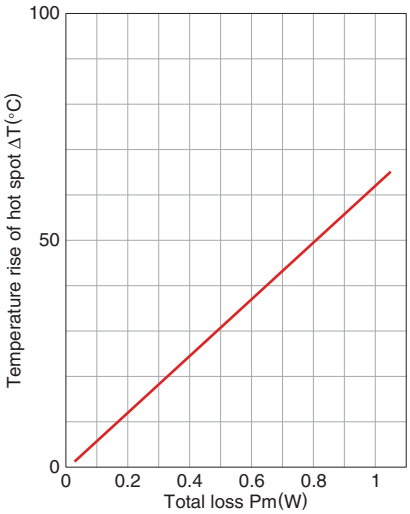
The 20% and 40% graph shows when a 20% and 40% drop from the initial A_L-value has been made due to the DC superimposition.

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

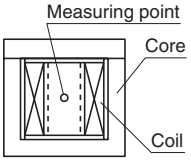


Measuring conditions
- Coil：ø0.2 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

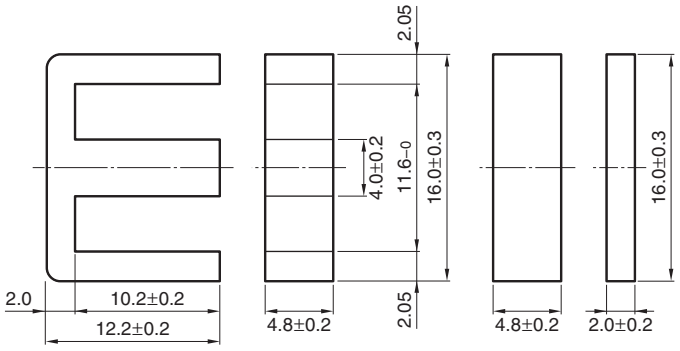


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



Dimensions in mm

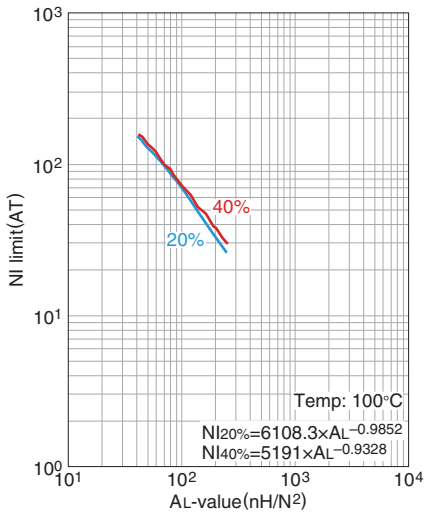
Based on JIS FEI 16.

Effective parameter								Electrical characteristics		
Core factor C_1 (mm^{-1})	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm^2)	Effective core volume Ve (mm^3)	Cross-sectional center pole area Acp (mm^2)	Minimum cross-sectional center pole are Acp min. (mm^2)	Cross-sectional winding area of core Acw (mm^2)	Weigh (g/set)	A_L-value * (nH/N^2) 1kHz 0.5mA	(nH/N^2) 100kHz 200mT	Core loss (W)max. 100kHz 200mT 100°C
1.75	34.6	19.8	685	19.2	17.5	40.3	3.3	1100±25%	1750 min.	0.29

* Coil：ø0.23 2UEW 100Ts

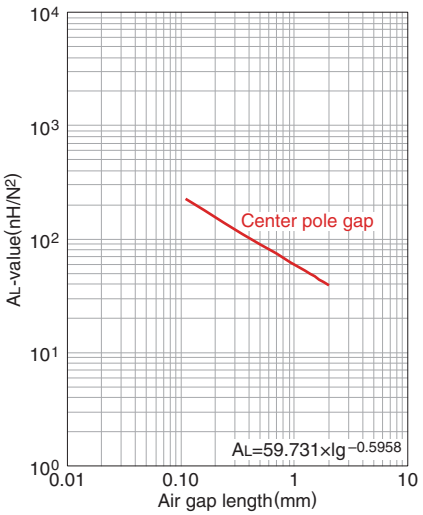
○ Calculated output power (forward converter mode): 33W (100kHz)

NI limit vs. A_L-value (Typ.)



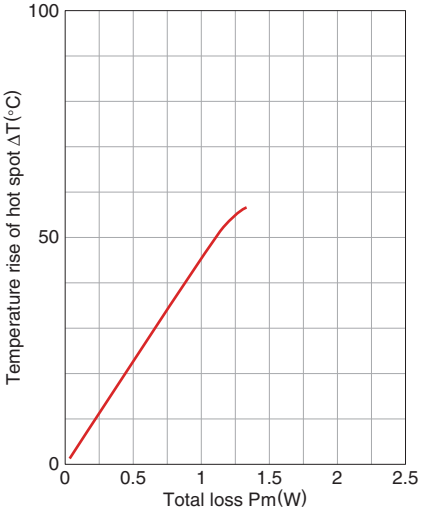
The 20% and 40% graph shows when a 20% and 40% drop from the initial A_L-value has been made due to the DC superimposition.

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

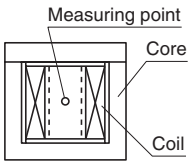


Measuring conditions
- Coil：ø0.23 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

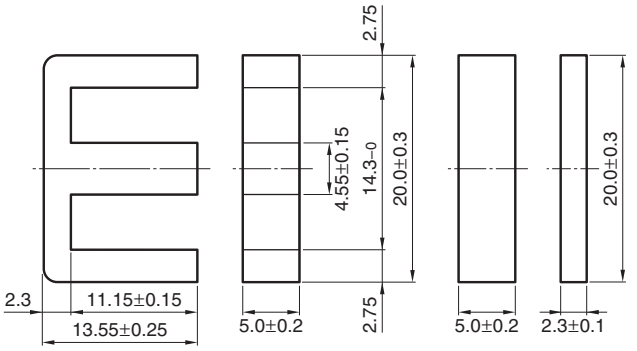


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



Dimensions in mm

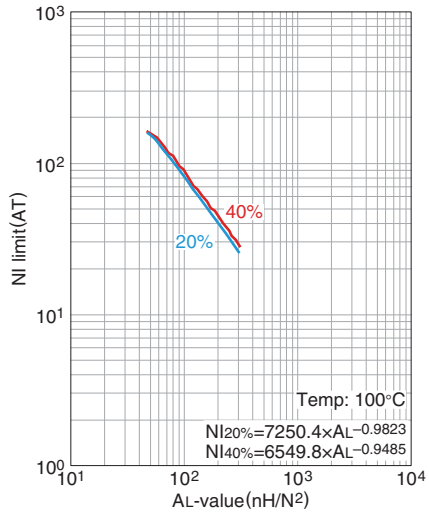
Based on JIS FEI 12.5.

Effective parameter								Electrical characteristics		
Core factor C_1 (mm^{-1})	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm^2)	Effective core volume Ve (mm^3)	Cross-sectional center pole area Acp (mm^2)	Minimum cross-sectional center pole are Acp min. (mm^2)	Cross-sectional winding area of core Acw (mm^2)	Weigh (g/set)	A_L-value * (nH/N^2) 1kHz 0.5mA	A_L-value * (nH/N^2) 100kHz 200mT	Core loss (W)max. 100kHz 200mT 100°C
1.65	39.6	24.0	950	22.8	21.1	55.5	5.1	1400±25%	1830 min.	0.39

* Coil：ø0.23 2UEW 100Ts

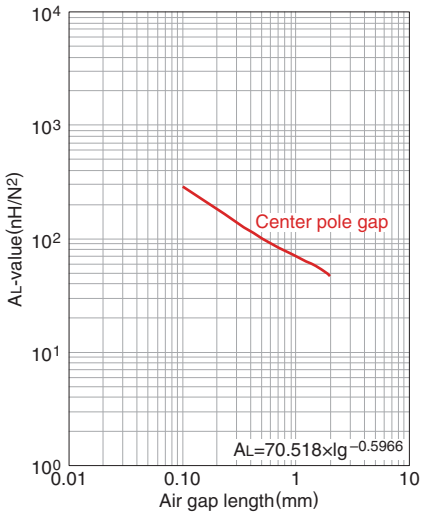
○ Calculated output power (forward converter mode): 45W (100kHz)

NI limit vs. A_L-value (Typ.)



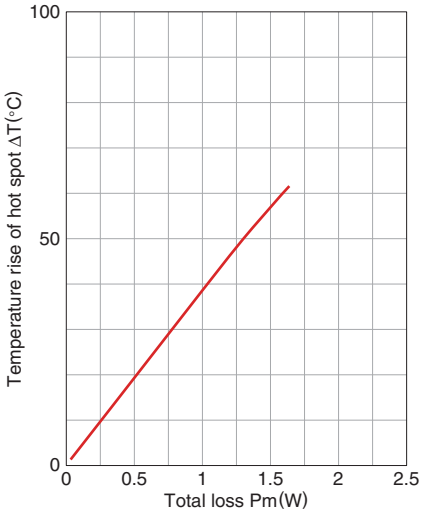
The 20% and 40% graph shows when a 20% and 40% drop from the initial A_L-value has been made due to the DC superimposition.

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

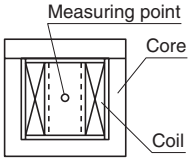


Measuring conditions
- Coil：ø0.23 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

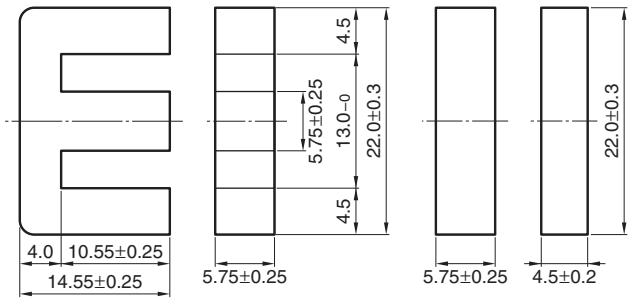


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



Dimensions in mm

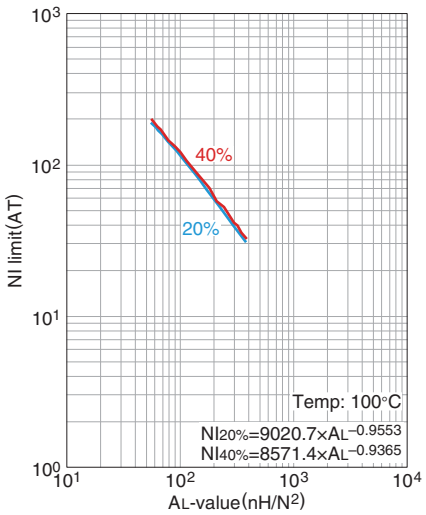
Based on JIS FEI 12.5.

Effective parameter								Electrical characteristics		
Core factor C_1 (mm^{-1})	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm^2)	Effective core volume Ve (mm^3)	Cross-sectional center pole area Acp (mm^2)	Minimum cross-sectional center pole are Acp min. (mm^2)	Cross-sectional winding area of core Acw (mm^2)	Weigh (g/set)	A_L-value * (nH/N^2) 1kHz 0.5mA	A_L-value * (nH/N^2) 100kHz 200mT	Core loss (W)max. 100kHz 200mT 100°C
0.936	39.3	42.0	1650	33.1	30.3	38.2	9.8	2400±25%	3360 min.	0.56

* Coil：ø0.23 2UEW 100Ts

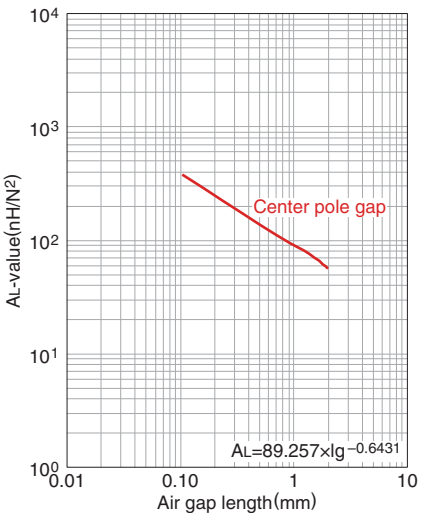
○ Calculated output power (forward converter mode): 49W (100kHz)

NI limit vs. A_L-value (Typ.)



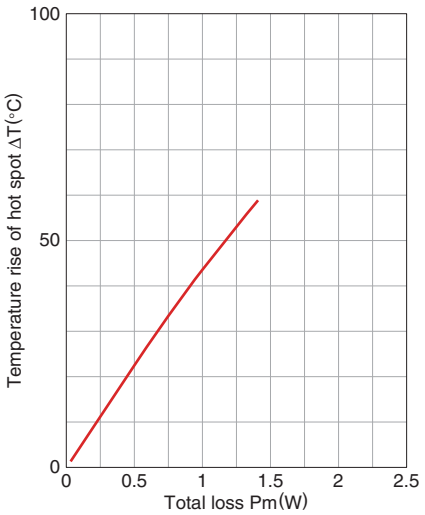
The 20% and 40% graph shows when a 20% and 40% drop from the initial A_L-value has been made due to the DC superimposition.

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

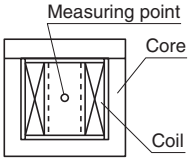


Measuring conditions
- Coil：ø0.23 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

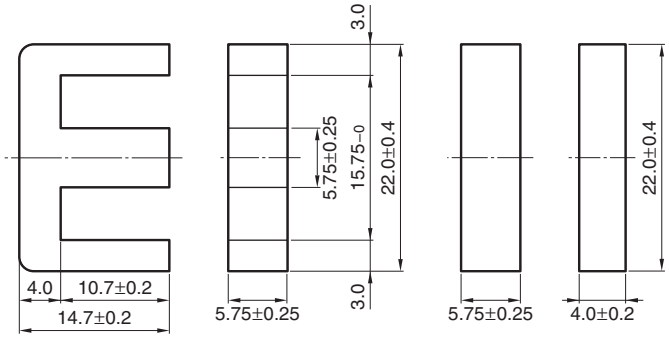


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



Dimensions in mm

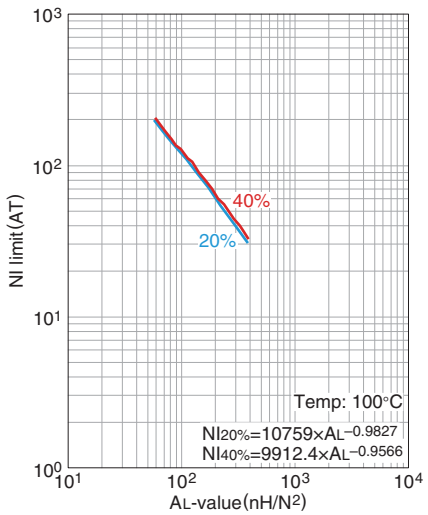
Based on JIS FEI 22.

Effective parameter								Electrical characteristics		
Core factor C_1 (mm^{-1})	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm^2)	Effective core volume Ve (mm^3)	Cross-sectional center pole area Acp (mm^2)	Minimum cross-sectional center pole are Acp min. (mm^2)	Cross-sectional winding area of core Acw (mm^2)	Weigh (g/set)	AL-value * (nH/N²) 1kHz 0.5mA	AL-value * (nH/N²) 100kHz 200mT	Core loss (W)max. 100kHz 200mT 100°C
1.13	41.8	37.0	1550	33.1	30.3	54.8	8.5	2000±25%	2780 min.	0.59

* Coil：ø0.23 2UEW 100Ts

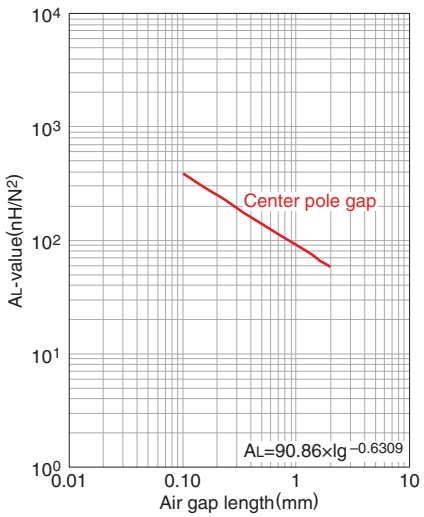
○ Calculated output power (forward converter mode): 59W (100kHz)

NI limit vs. AL-value (Typ.)



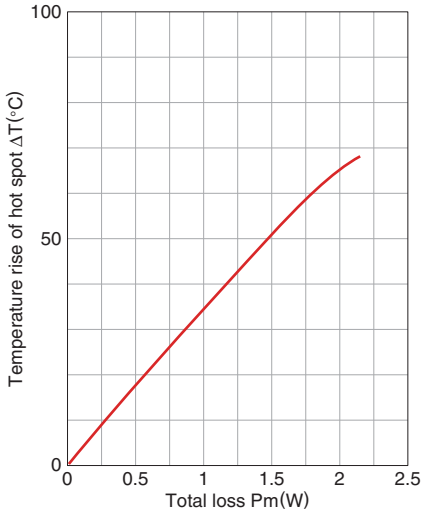
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

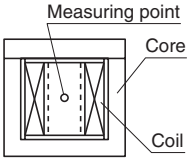


Measuring conditions
- Coil：ø0.23 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

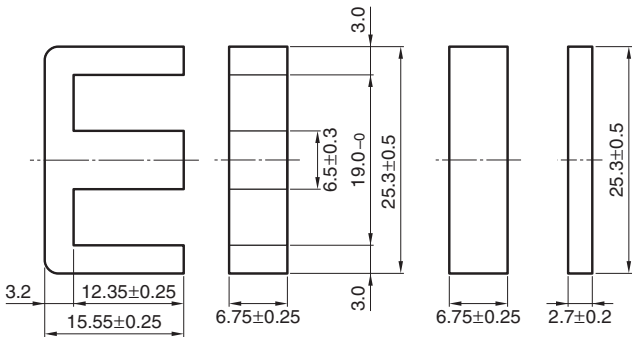


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



Dimensions in mm

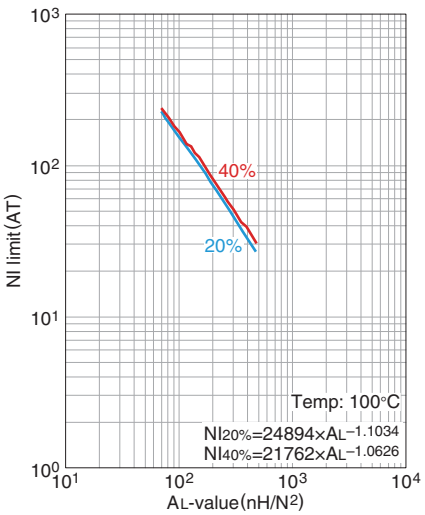
Based on JIS FEI 12.5.

Effective parameter								Electrical characteristics		
Core factor C_1 (mm^{-1})	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm^2)	Effective core volume Ve (mm^3)	Cross-sectional center pole area Acp (mm^2)	Minimum cross-sectional center pole are Acp min. (mm^2)	Cross-sectional winding area of core Acw (mm^2)	Weigh (g/set)	A_L-value * (nH/N^2) 1kHz 0.5mA	A_L-value * (nH/N^2) 100kHz 200mT	Core loss (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

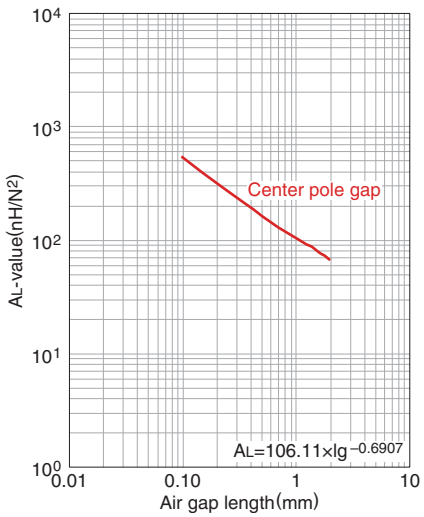
○ Calculated output power (forward converter mode): 82W (100kHz)

NI limit vs. A_L-value (Typ.)



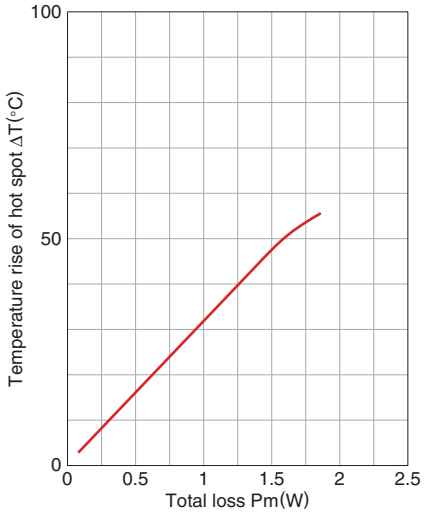
The 20% and 40% graph shows when a 20% and 40% drop from the initial A_L-value has been made due to the DC superimposition.

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

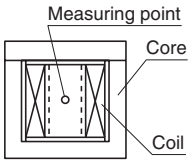


Measuring conditions
- Coil：ø0.35 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

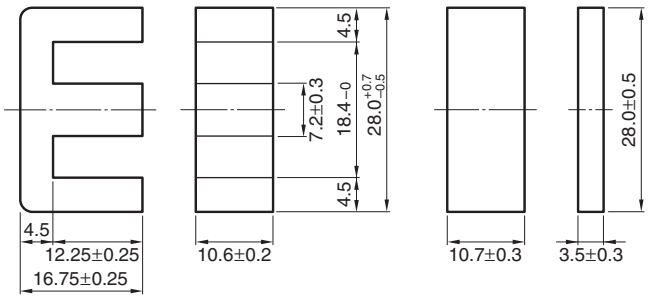


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



Dimensions in mm

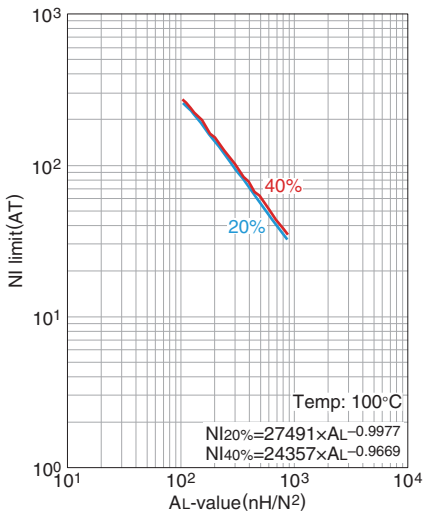
Based on JIS FEI 28.

Effective parameter								Electrical characteristics		
Core factor C_1 (mm^{-1})	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm^2)	Effective core volume Ve (mm^3)	Cross-sectional center pole area Acp (mm^2)	Minimum cross-sectional center pole are Acp min. (mm^2)	Cross-sectional winding area of core Acw (mm^2)	Weigh (g/set)	AL-value * (nH/N^2) 1kHz 0.5mA	AL-value * (nH/N^2) 100kHz 200mT	Core loss (W)max. 100kHz 200mT 100°C
0.560	48.2	86.0	4150	76.3	71.8	69.8	22	4300±25%	6060 min.	1.58

* Coil：ø0.35 2UEW 100Ts

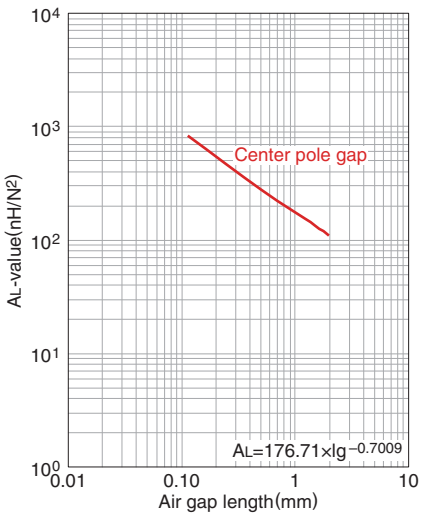
○ Calculated output power (forward converter mode): 145W (100kHz)

NI limit vs. AL-value (Typ.)



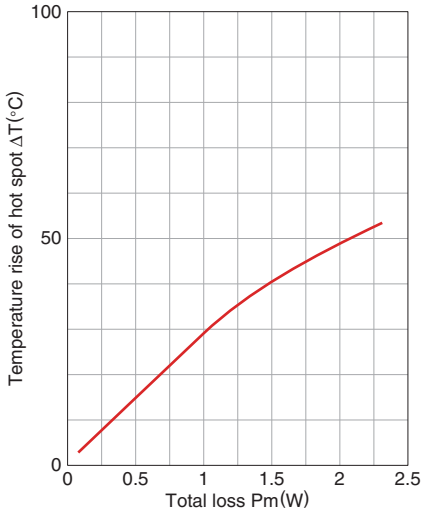
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

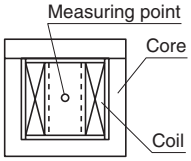


Measuring conditions
- Coil：ø0.35 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

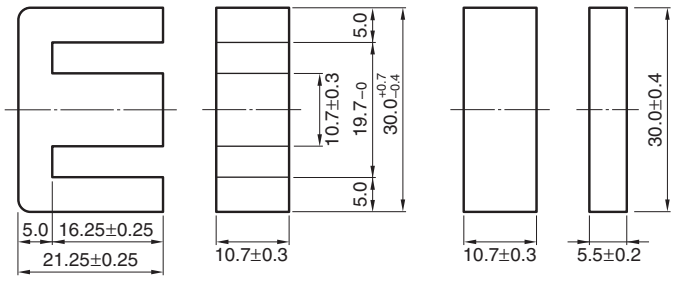


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



Dimensions in mm

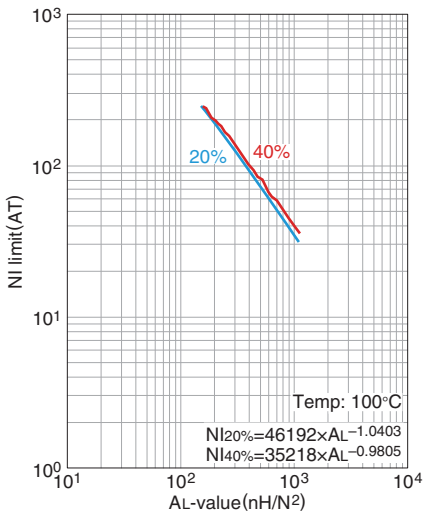
Based on JIS FEI 30.

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length	Effective cross-sectional area	Effective core volume	Cross-sectional center pole area	Minimum cross-sectional center pole are	Cross-sectional winding area of core	Weigh	AL-value *		Core loss
C1	ℓe	Ae	Ve	Acp	Acp min.	Acw				
(mm−1)	(mm)	(mm2)	(mm3)	(mm2)	(mm2)	(mm2)	(g/set)	(nH/N2)		(W)max.
								1kHz 0.5mA	100kHz 200mT	100kHz 200mT 100°C
0.523	58.0	111	6440	114	108	75.6	34	4690±25%	6490 min.	2.17

*Coil：ø0.35 2UEW 100Ts

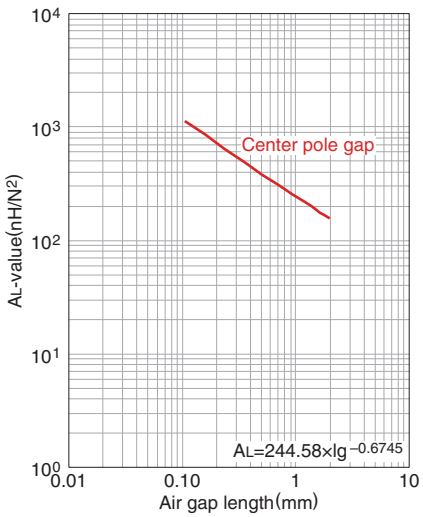
○ Calculated output power (forward converter mode): 214W (100kHz)

NI limit vs. AL-value (Typ.)



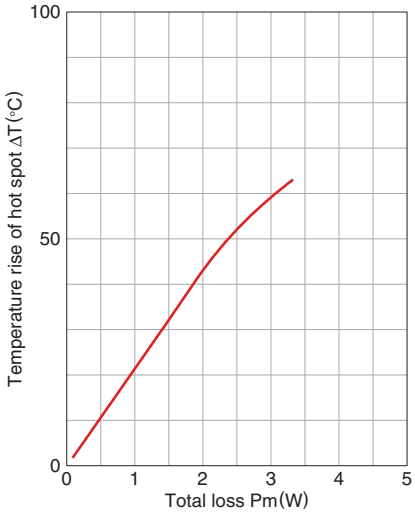
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

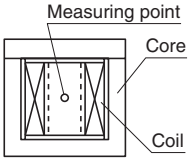


Measuring conditions
- Coil：ø0.35 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

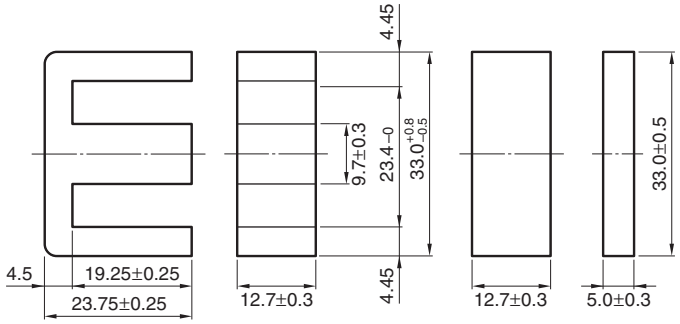


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



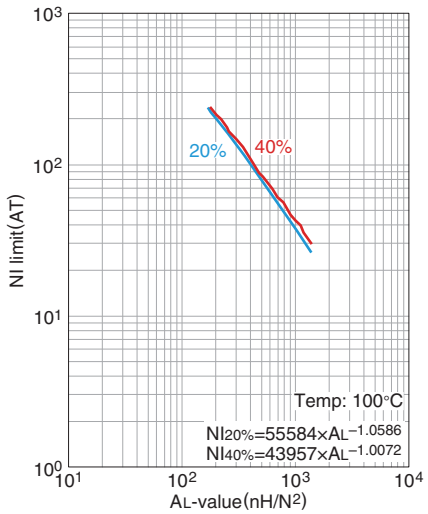
Dimensions in mm

Effective parameter								Electrical characteristics		
Core factor C_1 (mm^{-1})	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm^2)	Effective core volume Ve (mm^3)	Cross-sectional center pole area Acp (mm^2)	Minimum cross-sectional center pole are Acp min. (mm^2)	Cross-sectional winding area of core Acw (mm^2)	Weigh (g/set)	A_L-value * (nH/N^2) 1kHz 0.5mA	A_L-value * (nH/N^2) 100kHz 200mT	Core loss (W)max. 100kHz 200mT 100°C
0.567	67.5	119	8030	123	117	138.6	41	4400±25%	5980 min.	2.67

* Coil：ø0.35 2UEW 100Ts

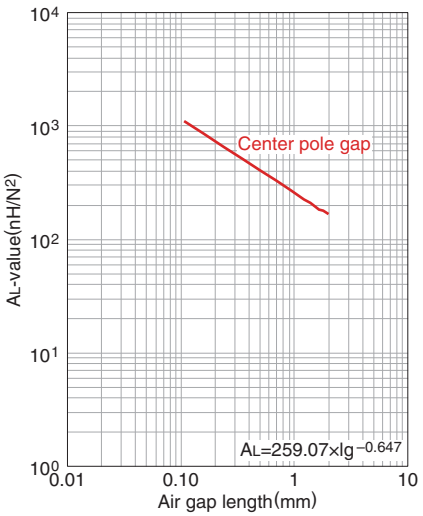
○ Calculated output power (forward converter mode): 288W (100kHz)

NI limit vs. A_L-value (Typ.)



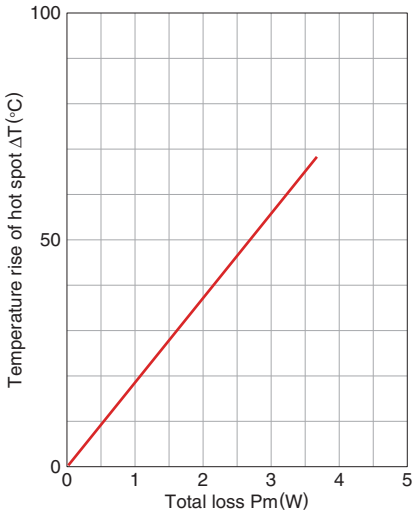
The 20% and 40% graph shows when a 20% and 40% drop from the initial A_L-value has been made due to the DC superimposition.

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

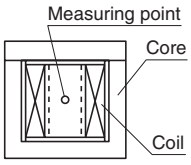


Measuring conditions
- Coil：ø0.35 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

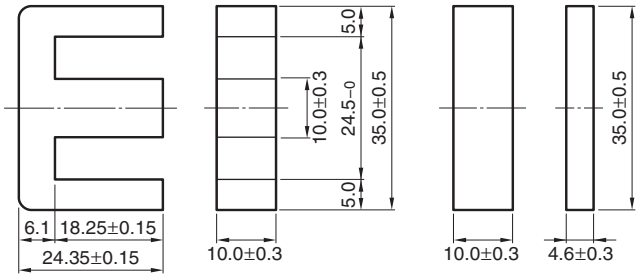


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



Dimensions in mm

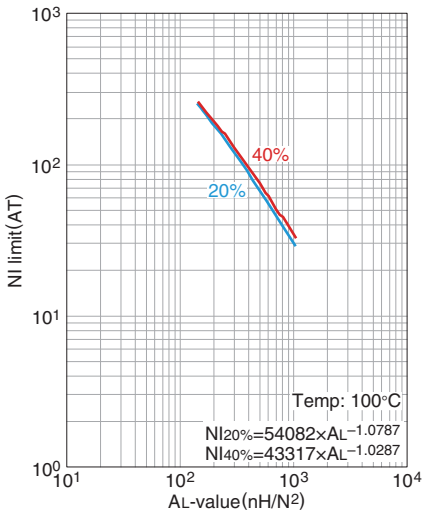
Based on JIS FEI 35.

Effective parameter								Electrical characteristics		
Core factor C_1 (mm^{-1})	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm^2)	Effective core volume Ve (mm^3)	Cross-sectional center pole area Acp (mm^2)	Minimum cross-sectional center pole are Acp min. (mm^2)	Cross-sectional winding area of core Acw (mm^2)	Weigh (g/set)	A_L-value * (nH/N^2) 1kHz 0.5mA	A_L-value * (nH/N^2) 100kHz 200mT	Core loss (W)max. 100kHz 200mT 100°C
0.664	67.1	101	6780	100	94.1	131.6	36	3800±25%	5110 min.	2.35

* Coil：ø0.35 2UEW 100Ts

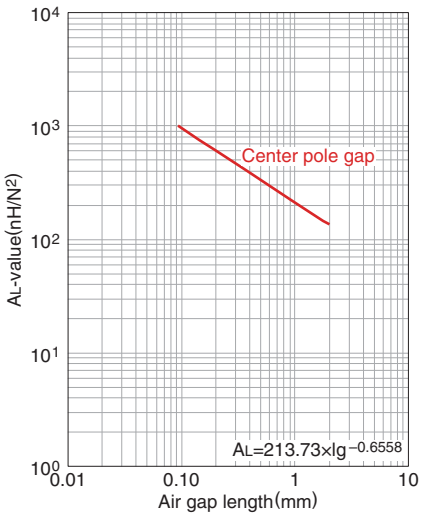
○ Calculated output power (forward converter mode): 266W (100kHz)

NI limit vs. A_L-value (Typ.)



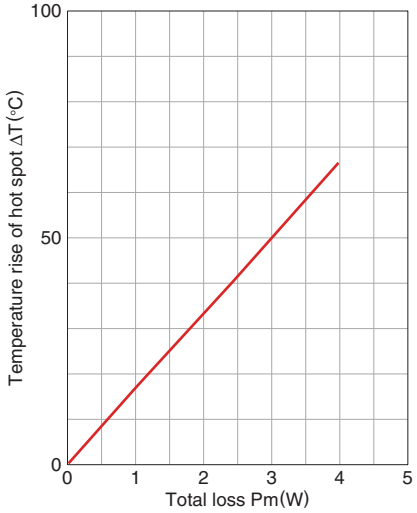
The 20% and 40% graph shows when a 20% and 40% drop from the initial A_L-value has been made due to the DC superimposition.

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

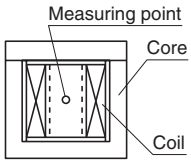


Measuring conditions
- Coil：ø0.35 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

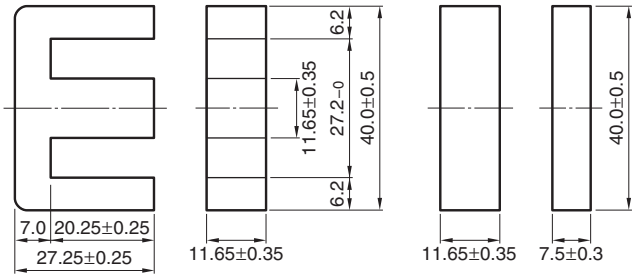


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



Dimensions in mm

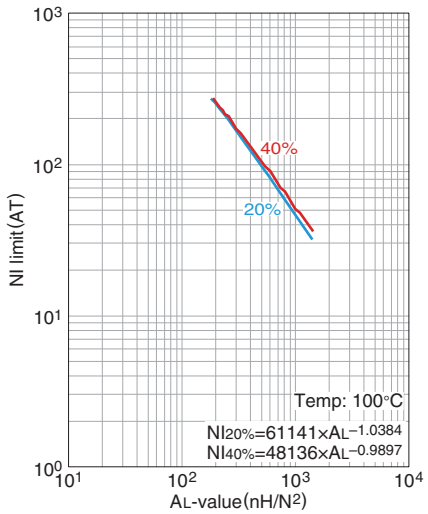
Based on JIS FEI 40.

Effective parameter								Electrical characteristics		
Core factor C_1 (mm^{-1})	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm^2)	Effective core volume Ve (mm^3)	Cross-sectional center pole area Acp (mm^2)	Minimum cross-sectional center pole are Acp min. (mm^2)	Cross-sectional winding area of core Acw (mm^2)	Weigh (g/set)	A_L-value * (nH/N^2) 1kHz 0.5mA	A_L-value * (nH/N^2) 100kHz 200mT	Core loss (W)max. 100kHz 200mT 100°C
0.520	77.0	148	11400	136	128	160.5	60	4860±25%	6520 min.	3.66

* Coil：ø0.35 2UEW 100Ts

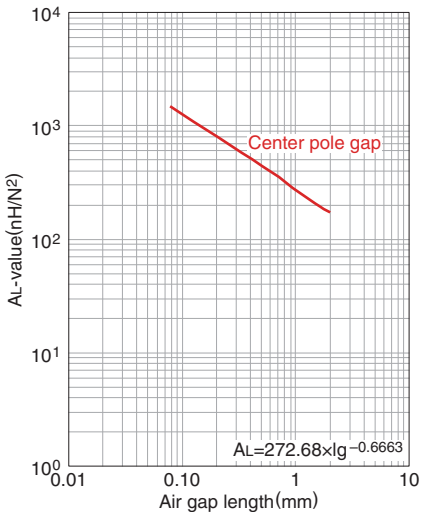
○ Calculated output power (forward converter mode): 361W (100kHz)

NI limit vs. A_L-value (Typ.)



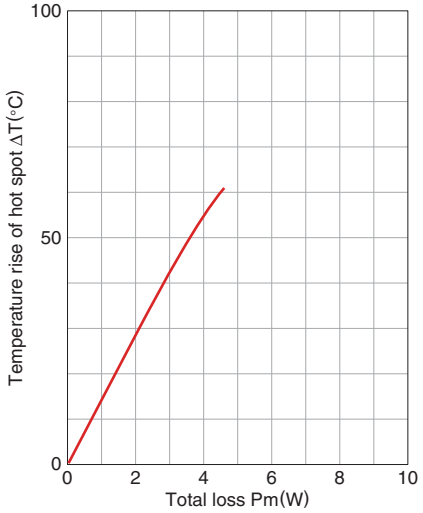
The 20% and 40% graph shows when a 20% and 40% drop from the initial A_L-value has been made due to the DC superimposition.

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

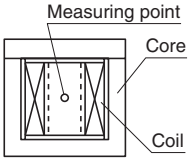


Measuring conditions
- Coil：ø0.35 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

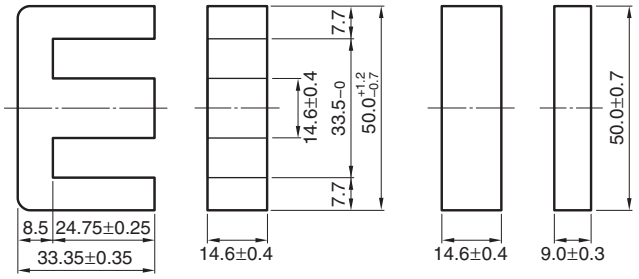


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



Dimensions in mm

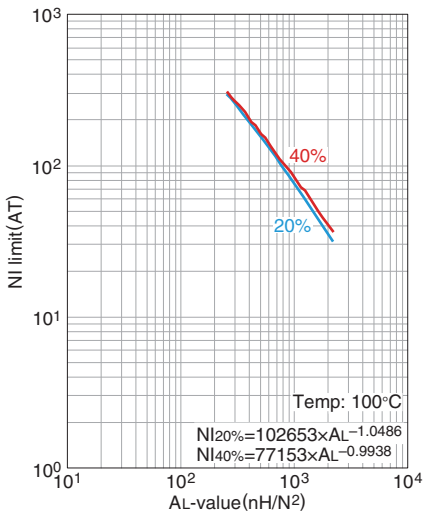
Based on JIS FEI 50.

Effective parameter								Electrical characteristics		
Core factor C_1 (mm^{-1})	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm^2)	Effective core volume Ve (mm^3)	Cross-sectional center pole area Acp (mm^2)	Minimum cross-sectional center pole are Acp min. (mm^2)	Cross-sectional winding area of core Acw (mm^2)	Weigh (g/set)	AL-value * (nH/N^2) 1kHz 0.5mA	AL-value * (nH/N^2) 100kHz 200mT	Core loss (W)max. 100kHz 200mT 100°C
0.409	94.0	230	21620	213	202	246.3	115	6110±25%	8300 min.	8.62

* Coil：ø0.35 2UEW 100Ts

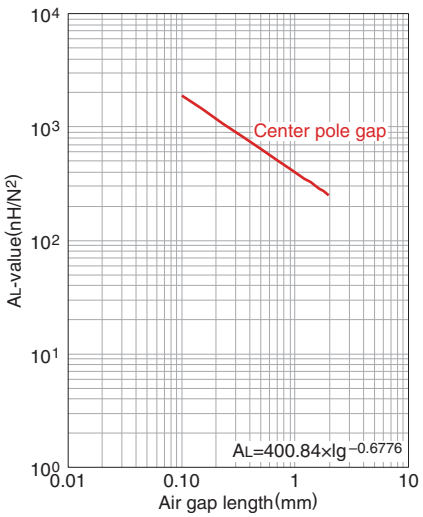
○ Calculated output power (forward converter mode): 554W (100kHz)

NI limit vs. AL-value (Typ.)



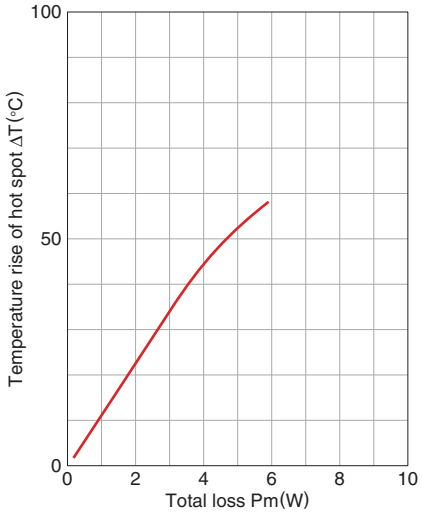
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

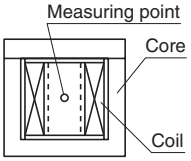


Measuring conditions
- Coil：ø0.35 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

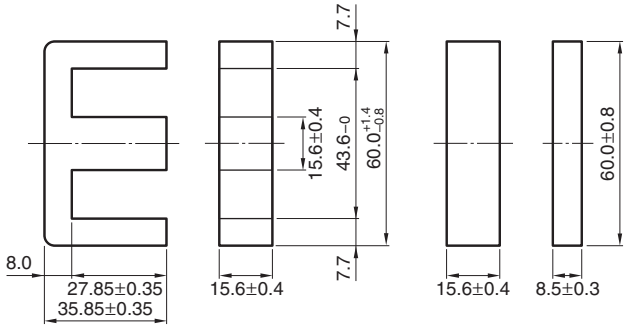


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



Dimensions in mm

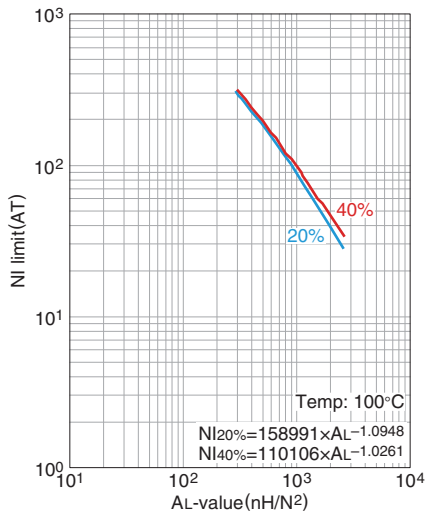
Based on JIS FEI 60.

Effective parameter								Electrical characteristics		
Core factor C1 (mm−1)	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm2)	Effective core volume Ve (mm3)	Cross-sectional center pole area Acp (mm2)	Minimum cross-sectional center pole are Acp min. (mm2)	Cross-sectional winding area of core Acw (mm2)	Weigh (g/set)	AL-value * (nH/N2) 1kHz 0.5mA	 100kHz 200mT	Core loss (W)max. 100kHz 200mT 100°C
0.441	109	247	26900	243	231	402.4	139	5670±25%	7690 min.	9.16

* Coil：ø0.35 2UEW 100Ts

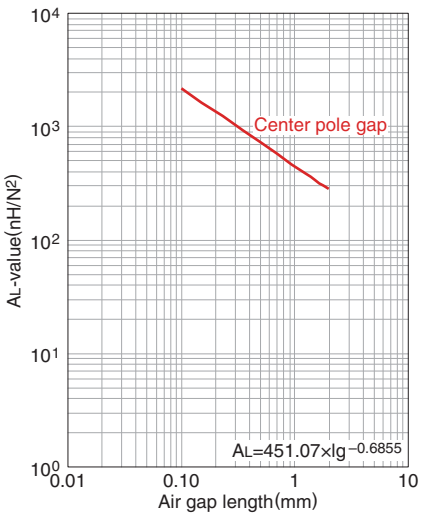
○ Calculated output power (forward converter mode): 712W (100kHz)

NI limit vs. AL-value (Typ.)



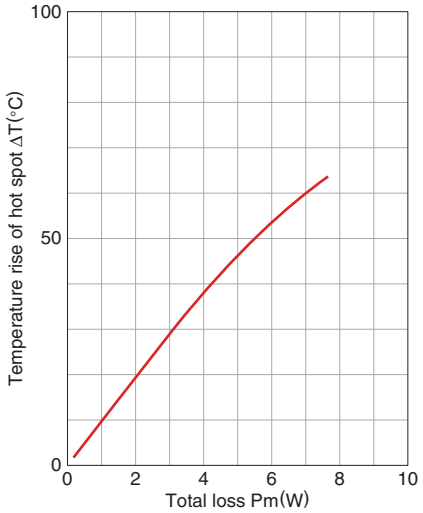
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

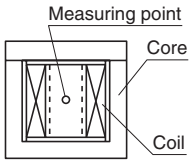


Measuring conditions
- Coil：ø0.35 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)



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



Mn-Zn EE, EF Cores

SHAPES AND DIMENSIONS

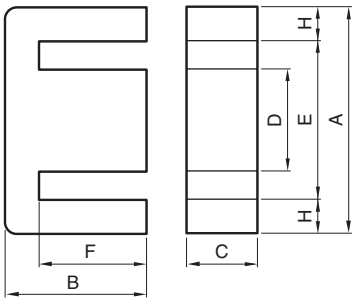


Fig. 1

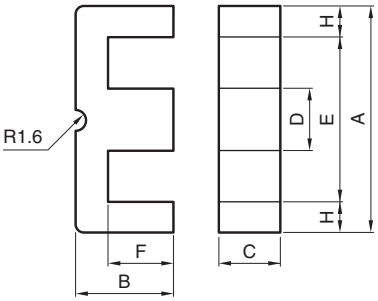


Fig 2

PC47 EE8 - Z

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

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

Part No.	Effective parameter: Core factor C1(mm⁻¹)	Effective cross-sectional area Ae(mm²)	Effective magnetic path length ℓe(mm)	Effective core volume Ve(mm³)	Weigh (g)	Electrical characteristics: AL-value (nH/N²) 1kHz 0.5mA 100Ts Without air gap	AL-value 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

Mn-Zn EE, EF Cores

SHAPES AND DIMENSIONS

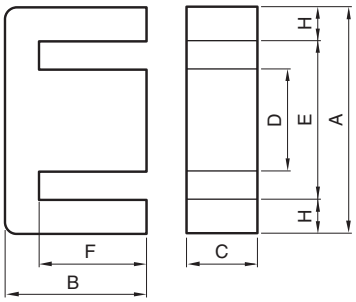


Fig. 1

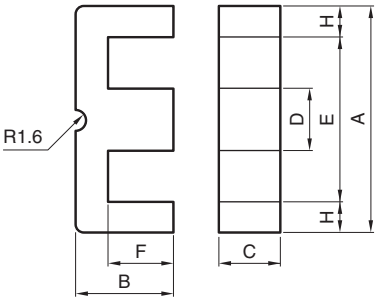


Fig 2

PC47 (Material) EE19/16 (Size of E core) - Z (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: Core factor $C_1(mm^{-1})$	Effective cross-sectional area $Ae(mm^2)$	Effective magnetic path length $\ell e(mm)$	Effective core volume $Ve(mm^3)$	Weigh (g)	Electrical characteristics: AL-value (nH/N²) 1kHz 0.5mA 100Ts Without air gap	AL-value 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

Mn-Zn EE, EF Cores

SHAPES AND DIMENSIONS

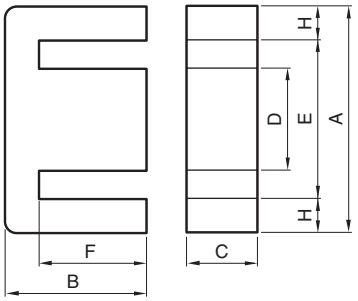


Fig. 1

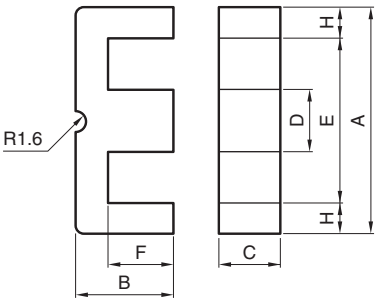


Fig 2

PC47 | EE30/30/7 - Z

- PC47: Material
- EE30/30/7: Size of E core
- Z: 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: Core factor $C_1(mm^{-1})$	Effective cross-sectional area $Ae(mm^2)$	Effective magnetic path length $\ell e(mm)$	Effective core volume $Ve(mm^3)$	Weigh (g)	Electrical characteristics: AL-value (nH/N^2) 1kHz 0.5mA 100Ts		Core loss (W) max. 100kHz 200mT 100°C
						Without air gap	With air gap	
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

• All specifications are subject to change without notice.

Mn-Zn EE, EF Cores

SHAPES AND DIMENSIONS

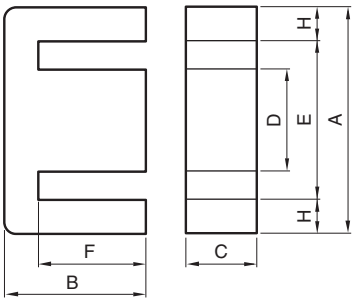


Fig. 1

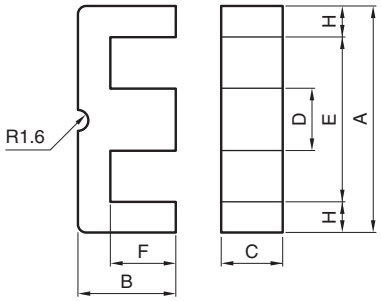


Fig 2

PC47 | 42/42/20 | - | Z

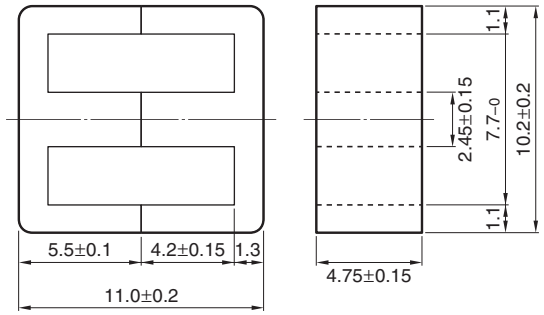
Material | Size of E core | AL-value (Z: without air gap)

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

Part No.	Effective parameter					Electrical characteristics		
	Core factor $C_1(mm^{-1})$	Effective cross-sectional area Ae(mm^2)	Effective magnetic path length ℓ e(mm)	Effective core volume Ve(mm^3)	Weigh (g)	AL-value (nH/N^2) 1kHz 0.5mA 100Ts		Core loss (W) max. 100kHz 200mT 100°C
						Without air gap	With air gap	
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

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

SHAPES AND DIMENSIONS



Dimensions in mm

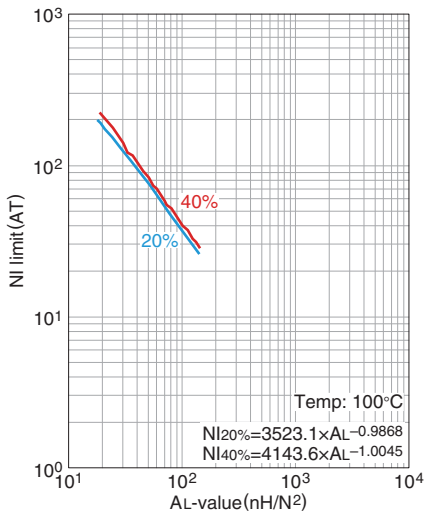
Based on JIS FEE 10.2.

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length	Effective cross-sectional area	Effective core volume	Cross-sectional center pole area	Minimum cross-sectional center pole are	Cross-sectional winding area of core	Weigh	AL-value *		Core loss
C1	ℓe	Ae	Ve	Acp	Acp min.	Acw				
(mm−1)	(mm)	(mm2)	(mm3)	(mm2)	(mm2)	(mm2)	(g/set)	(nH/N2)		(W)max.
								1kHz 0.5mA	100kHz 200mT	100kHz 200mT 100°C
2.16	26.1	12.1	315	11.6	10.6	23.3	1.5	850±25%	1450 min.	0.12

* Coil：ø0.18 2UEW 100Ts

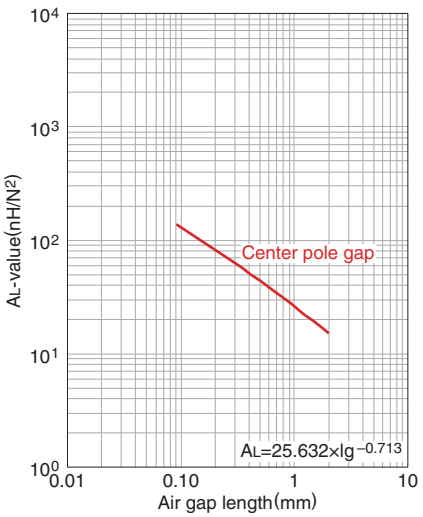
○ Calculated output power (forward converter mode): 12.1W (100kHz)

NI limit vs. AL-value (Typ.)



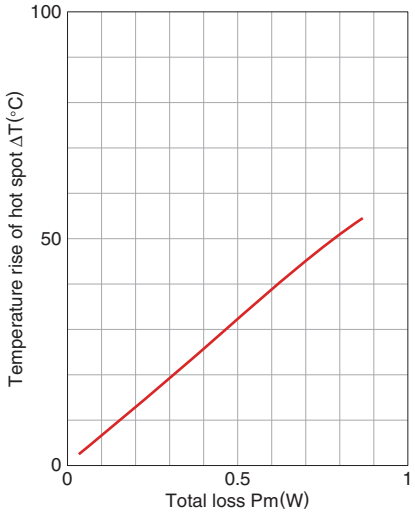
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

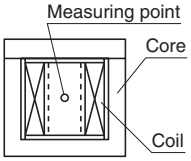


Measuring conditions
- Coil：ø0.18 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

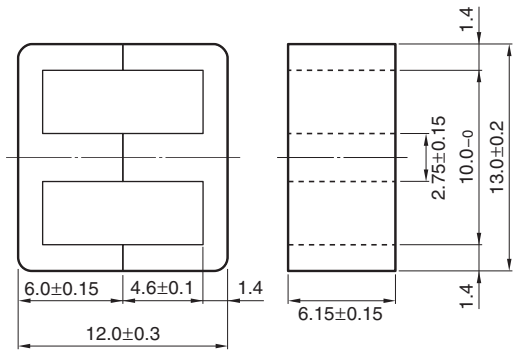


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



Dimensions in mm

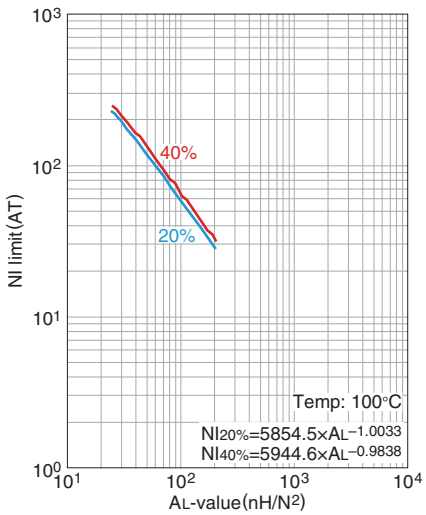
Based on JIS FEI 12.5.

Effective parameter								Electrical characteristics		
Core factor C_1 (mm^{-1})	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm^2)	Effective core volume Ve (mm^3)	Cross-sectional center pole area Acp (mm^2)	Minimum cross-sectional center pole are Acp min. (mm^2)	Cross-sectional winding area of core Acw (mm^2)	Weigh (g/set)	A_L-value * (nH/N²) 1kHz 0.5mA	A_L-value * (nH/N²) 100kHz 200mT	Core loss (W)max. 100kHz 200mT 100°C
1.77	30.2	17.1	517	16.9	15.6	34.3	2.7	1130±25%	1770 min.	0.22

* Coil：ø0.18 2UEW 100Ts

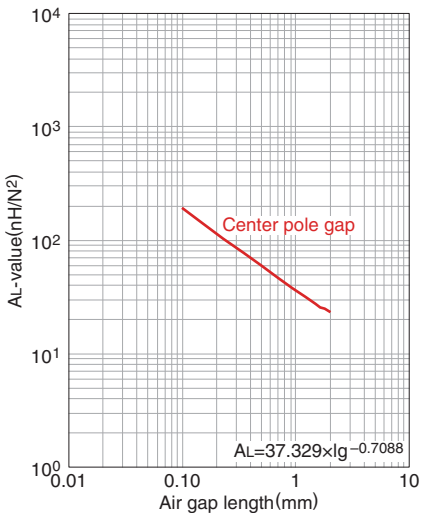
○ Calculated output power (forward converter mode): 25W (100kHz)

NI limit vs. A_L-value (Typ.)



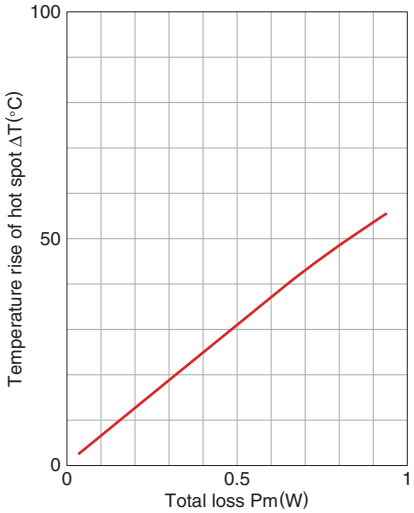
The 20% and 40% graph shows when a 20% and 40% drop from the initial A_L-value has been made due to the DC superimposition.

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

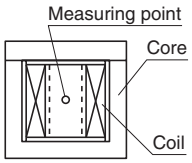


Measuring conditions
- Coil：ø0.18 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

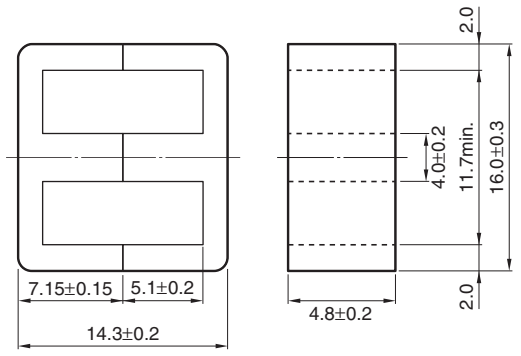


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



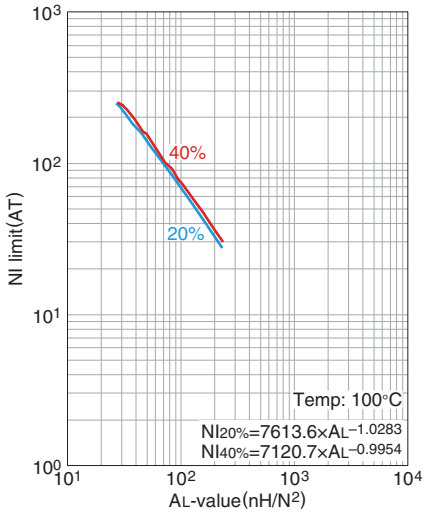
Dimensions in mm

Effective parameter								Electrical characteristics		
Core factor C_1 (mm^{-1})	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm^2)	Effective core volume Ve (mm^3)	Cross-sectional center pole area Acp (mm^2)	Minimum cross-sectional center pole are Acp min. (mm^2)	Cross-sectional winding area of core Acw (mm^2)	Weigh (g/set)	A_L-value * (nH/N^2) 1kHz 0.5mA	 100kHz 200mT	Core loss (W)max. 100kHz 200mT 100°C
1.82	34.5	19.0	656	19.2	17.5	41.4	3.3	1140±25%		0.28

* Coil：ø0.18 2UEW 100Ts

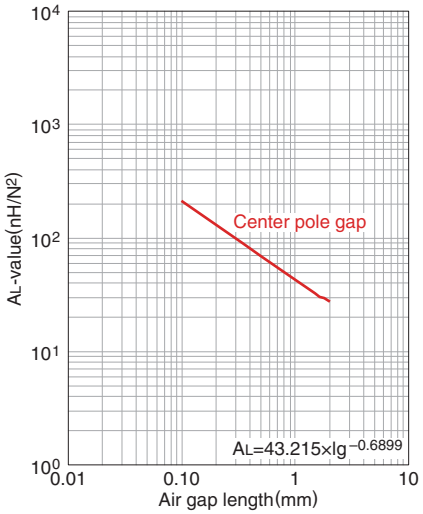
○ Calculated output power (forward converter mode): 32W (100kHz)

NI limit vs. A_L-value (Typ.)



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

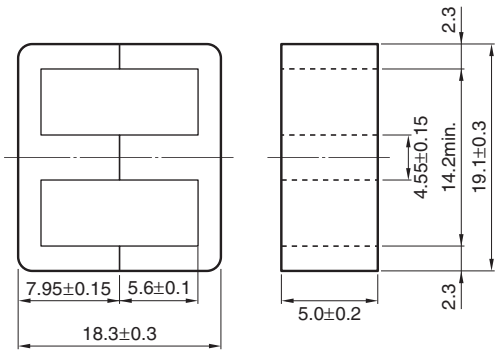
A_L-value vs. Air gap length (Typ.)



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

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

SHAPES AND DIMENSIONS



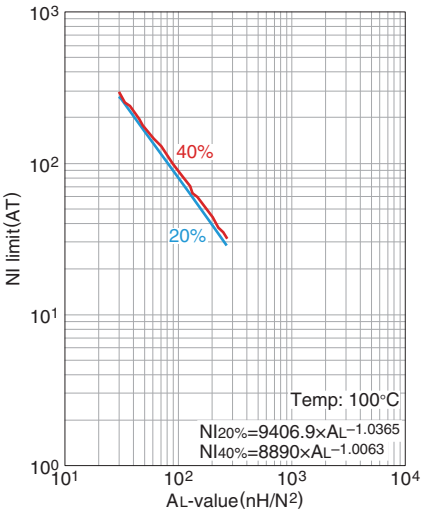
Dimensions in mm

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length	Effective cross-sectional area	Effective core volume	Cross-sectional center pole area	Minimum cross-sectional center pole are	Cross-sectional winding area of core	Weigh	AL-value *		Core loss
C1	ℓe	Ae	Ve	Acp	Acp min.	Acw				
(mm−1)	(mm)	(mm2)	(mm3)	(mm2)	(mm2)	(mm2)	(g/set)	(nH/N2)		(W)max.
								1kHz 0.5mA	100kHz 200mT	100kHz 200mT 100°C
1.71	39.4	23.0	906	22.8	21.1	55.8	4.8	1250±25%		0.39

* Coil：ø0.18 2UEW 100Ts

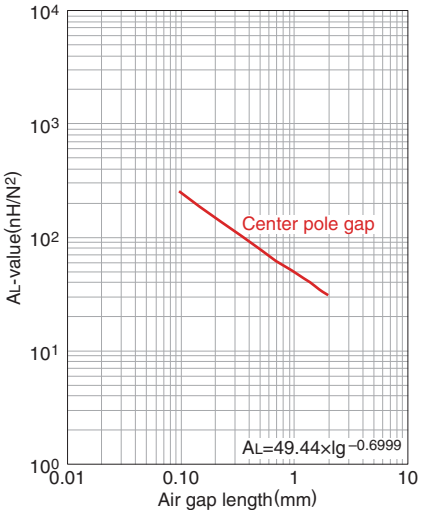
○ Calculated output power (forward converter mode): 45W (100kHz)

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.

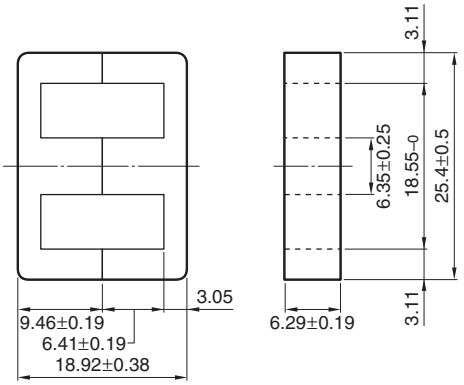
AL-value vs. Air gap length (Typ.)



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

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

SHAPES AND DIMENSIONS



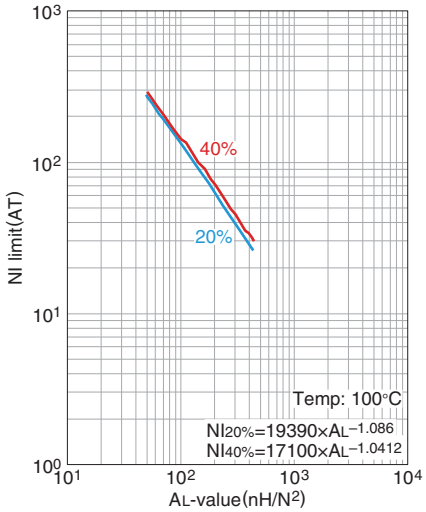
Dimensions in mm

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length	Effective cross-sectional area	Effective core volume	Cross-sectional center pole area	Minimum cross-sectional center pole are	Cross-sectional winding area of core	Weigh	AL-value *		Core loss
C1	ℓe	Ae	Ve	Acp	Acp min.	Acw				
(mm−1)	(mm)	(mm2)	(mm3)	(mm2)	(mm2)	(mm2)	(g/set)	(nH/N2)		(W)max.
								1kHz 0.5mA	100kHz 200mT	100kHz 200mT 100°C
1.22	48.7	40.0	1950	39.9	37.2	79.0	9.1	2000±25%	2570 min.	0.80

* Coil：ø0.23 2UEW 100Ts

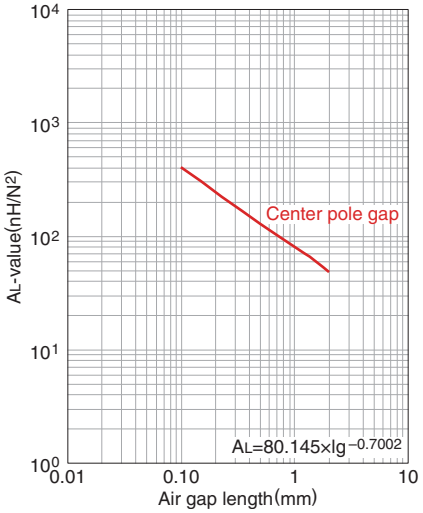
○ Calculated output power (forward converter mode): 93W (100kHz)

NI limit vs. AL-value (Typ.)



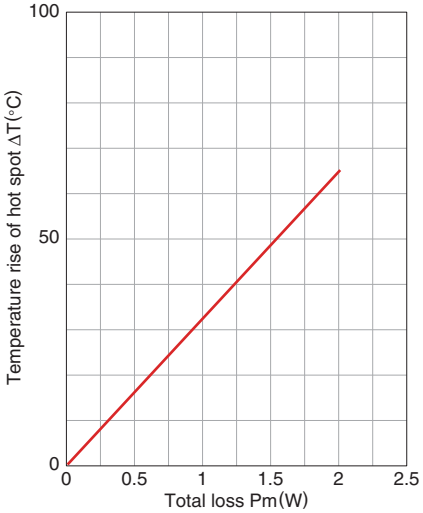
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

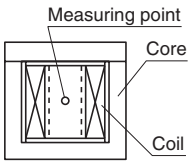


Measuring conditions
- Coil：ø0.23 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

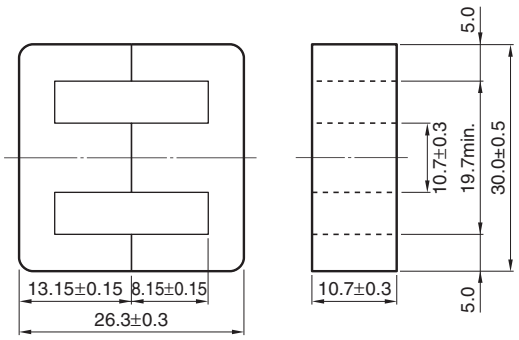


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



Dimensions in mm

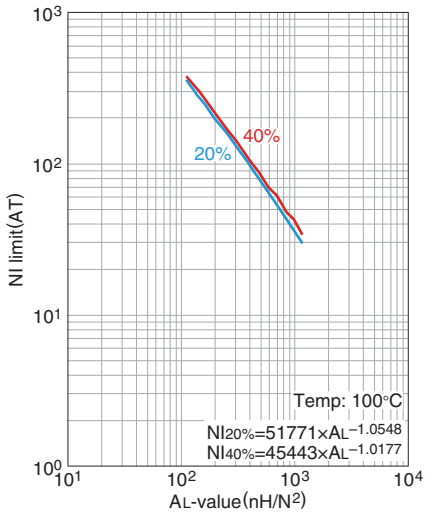
Based on DIN 41295.

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length	Effective cross-sectional area	Effective core volume	Cross-sectional center pole area	Minimum cross-sectional center pole are	Cross-sectional winding area of core	Weigh	AL-value *		Core loss
C1	ℓe	Ae	Ve	Acp	Acp min.	Acw				
(mm−1)	(mm)	(mm2)	(mm3)	(mm2)	(mm2)	(mm2)	(g/set)	(nH/N2)		(W)max.
								1kHz 0.5mA	100kHz 200mT	100kHz 200mT 100°C
0.529	57.7	109.9	6290	114	108	75.8	32	4690±25%		2.03

* Coil：ø0.35 2UEW 100Ts

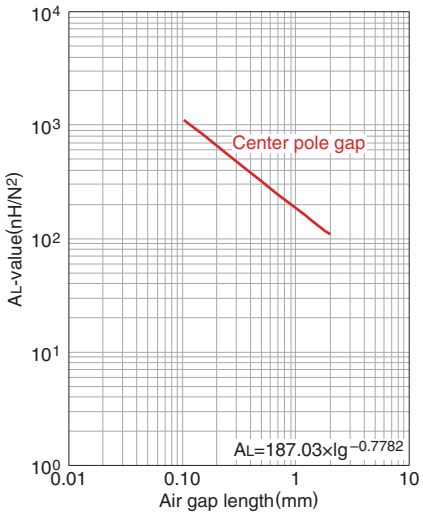
○ Calculated output power (forward converter mode): 203W (100kHz)

NI limit vs. AL-value (Typ.)



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

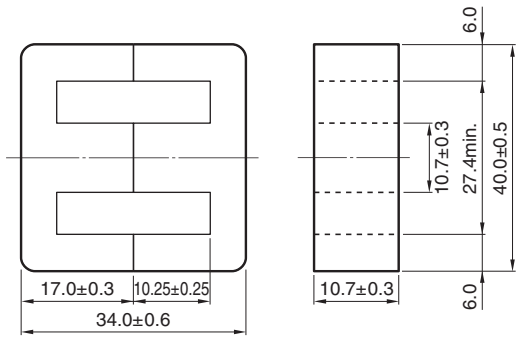
AL-value vs. Air gap length (Typ.)



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

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

SHAPES AND DIMENSIONS



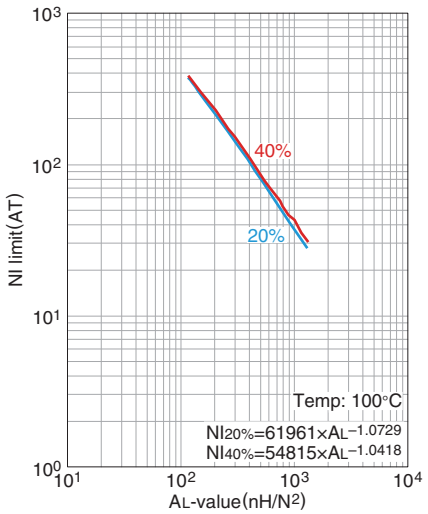
Dimensions in mm

Effective parameter								Electrical characteristics		
Core factor C_1 (mm^{-1})	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm^2)	Effective core volume Ve (mm^3)	Cross-sectional center pole area Acp (mm^2)	Minimum cross-sectional center pole are Acp min. (mm^2)	Cross-sectional winding area of core Acw (mm^2)	Weigh (g/set)	A_L-value * (nH/N^2) 1kHz 0.5mA	 100kHz 200mT	Core loss (W)max. 100kHz 200mT 100°C
0.060	77.3	128	9890	114	108	164	50	4150±25%		3.1

* Coil：ø0.18 2UEW 100Ts

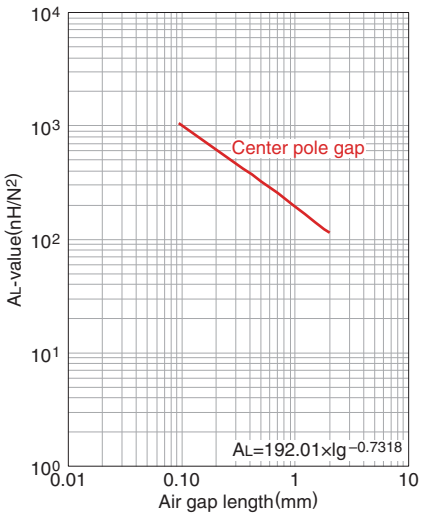
○ Calculated output power (forward converter mode): 311W (100kHz)

NI limit vs. A_L-value (Typ.)



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

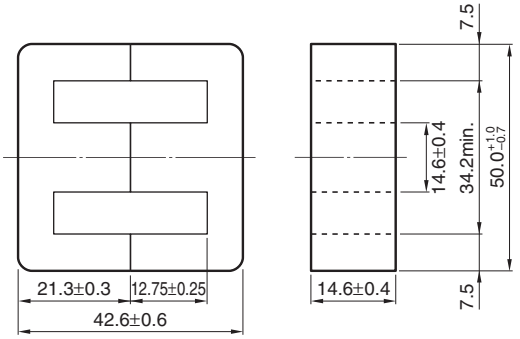
A_L-value vs. Air gap length (Typ.)



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

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

SHAPES AND DIMENSIONS



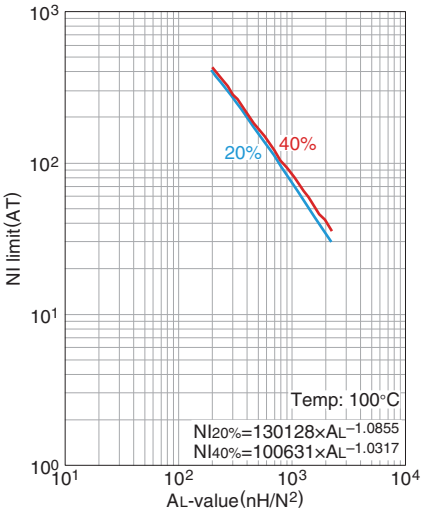
Dimensions in mm

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length	Effective cross-sectional area	Effective core volume	Cross-sectional center pole area	Minimum cross-sectional center pole are	Cross-sectional winding area of core	Weigh	AL-value *		Core loss
C1	ℓe	Ae	Ve	Acp	Acp min.	Acw				
(mm−1)	(mm)	(mm2)	(mm3)	(mm2)	(mm2)	(mm2)	(g/set)	(nH/N2)		(W)max.
								1kHz 0.5mA	100kHz 200mT	100kHz 200mT 100°C
0.425	95.8	226	21600	213	202	262	116	6110±25%		8.78

* Coil：ø0.18 2UEW 100Ts

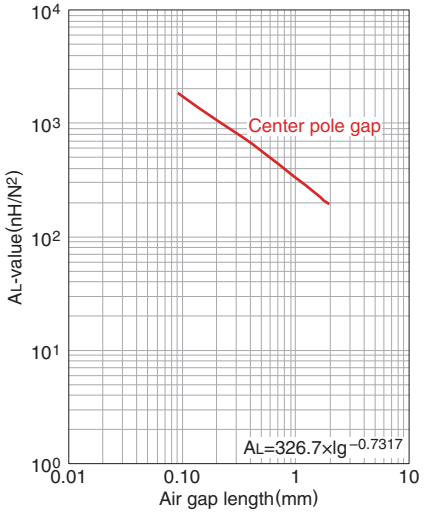
○ Calculated output power (forward converter mode): 556W (100kHz)

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.

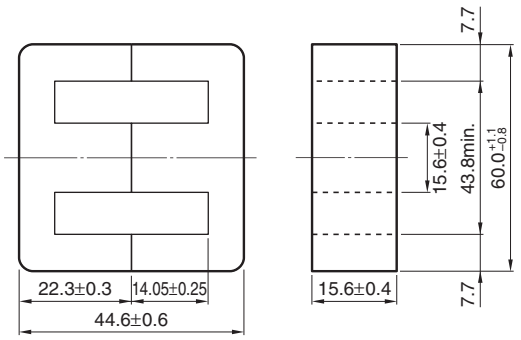
AL-value vs. Air gap length (Typ.)



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

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

SHAPES AND DIMENSIONS



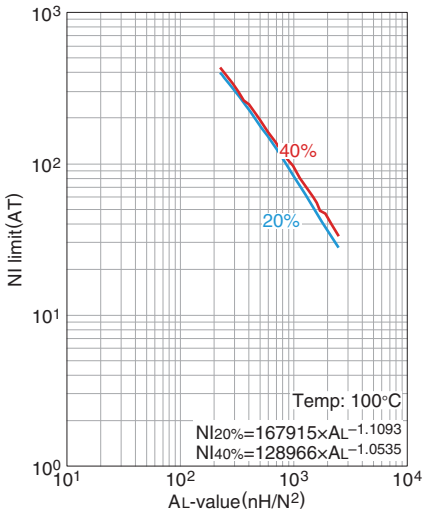
Dimensions in mm

Effective parameter								Electrical characteristics		
Core factor C_1 (mm^{-1})	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm^2)	Effective core volume Ve (mm^3)	Cross-sectional center pole area Acp (mm^2)	Minimum cross-sectional center pole are Acp min. (mm^2)	Cross-sectional winding area of core Acw (mm^2)	Weigh (g/set)	A_L-value * (nH/N^2) 1kHz 0.5mA	 100kHz 200mT	Core loss (W)max. 100kHz 200mT 100°C
0.446	110	247	27100	243	231	407	135	5670±25%		11.35

* Coil : ø0.18 2UEW 100Ts

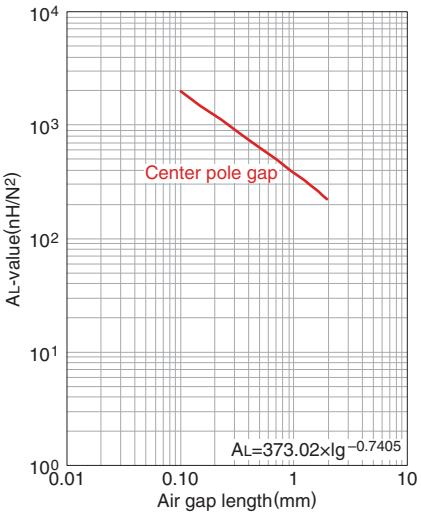
○ Calculated output power (forward converter mode): 713W (100kHz)

NI limit vs. A_L-value (Typ.)



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

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



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

Mn-Zn EER Cores

SHAPES AND DIMENSIONS

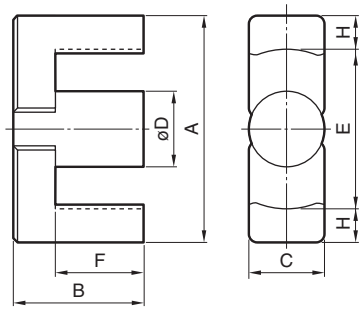


Fig. 1

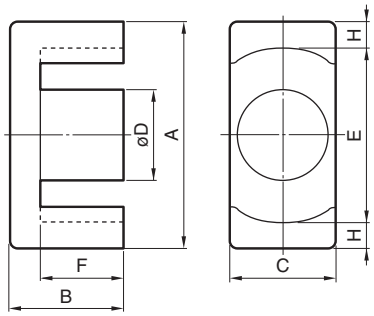


Fig. 2

PC47 | EER25.5 - Z

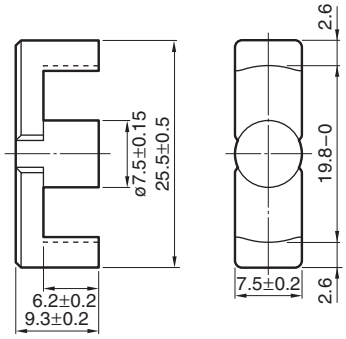
Material	Size of E core	AL-value (Z: without air gap)

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 C1(mm−1)	Effective cross-sectional area Ae(mm2)	Effective magnetic path length ℓe(mm)	Effective core volume Ve(mm3)	Weigh (g)	AL-value (nH/N2) 1kHz 0.5mA 100Ts		Core loss (W) max. 100kHz 200mT			
						Without air gap	With air gap	100°C	25°C	80°C	120°C
PC47EER25.5-Z PC95EER25.5-Z	1.08	44.8	48.2	2160	11	1920±25% 2700±25%	100±5% 200±7%	0.75 —	— 1.1	— 0.9	— 1.1
PC47EER28-Z PC95EER28-Z	0.780	82.1	64.0	5250	28	2870±25% 4000±25%	200±5% 400±7%	1.72 —	— 2.45	— 2.1	— 2.45
PC47EER28L-Z PC95EER28L-Z	0.928	81.4	75.5	6150	33	2520±25% 3500±25%	160±5% 315±7%	2.03 —	— 2.9	— 2.45	— 2.9
PC47EER35-Z PC95EER35-Z	0.849	107	90.8	9720	52	2770±25% 4000±25%	200±5% 400±7%	3.18 —	— 4.55	— 3.8	— 4.55
PC47EER40-Z PC95EER40-Z	0.658	149	98.0	14600	78	3620±25% 5200±25%	200±5% 400±7%	4.77 —	— 6.8	— 5.7	— 6.8
PC47EER42-Z	0.509	194	98.8	19200	102	4690±25%	250±5% 500±7%	6.47	—	—	—
PC47EER42/42/20-Z	0.411	240	98.6	23700	116	5340±25%	250±5% 500±7%	9.96	—	—	—
PC47EER49-Z	0.395	231	91.3	21100	110	6250±25%	250±5% 500±7%	4.03	—	—	—

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

SHAPES AND DIMENSIONS



Dimensions in mm

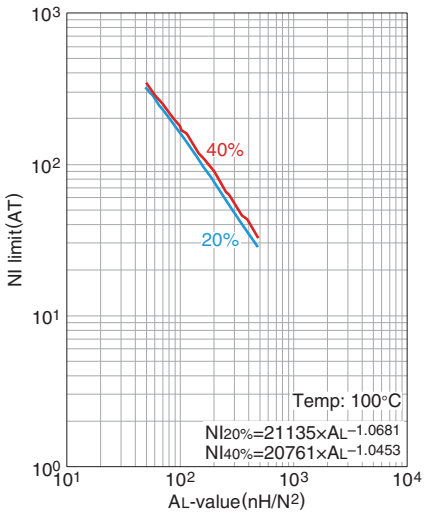
Based on JIS FEER 25.5A.

Effective parameter								Electrical characteristics		
Core factor C_1 (mm^{-1})	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm^2)	Effective core volume Ve (mm^3)	Cross-sectional center pole area Acp (mm^2)	Minimum cross-sectional center pole are Acp min. (mm^2)	Cross-sectional winding area of core Acw (mm^2)	Weigh (g/set)	A_L-value * (nH/N^2) 1kHz 0.5mA	(nH/N^2) 100kHz 200mT	Core loss (W)max. 100kHz 200mT 100°C
1.08	48.2	44.8	2160	44.2	42.4	79.4	11	1920±25%	2910 min.	0.75

* Coil：ø0.35 2UEW 100Ts

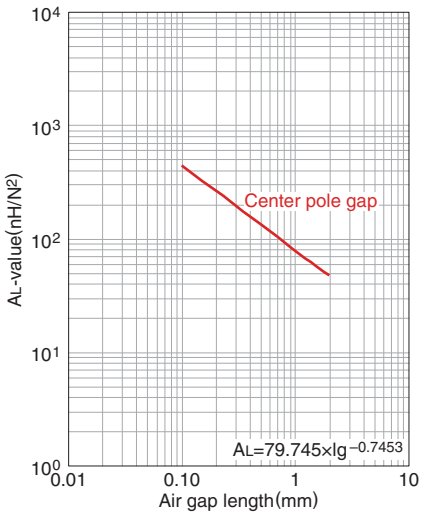
○ Calculated output power (forward converter mode): 112W (100kHz)

NI limit vs. A_L-value (Typ.)



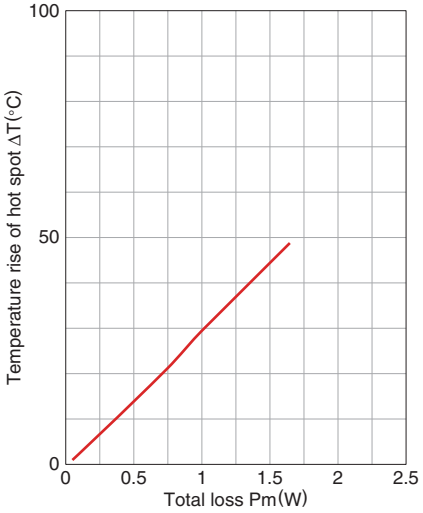
The 20% and 40% graph shows when a 20% and 40% drop from the initial A_L-value has been made due to the DC superimposition.

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

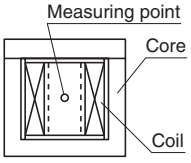


Measuring conditions
- Coil：ø0.35 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

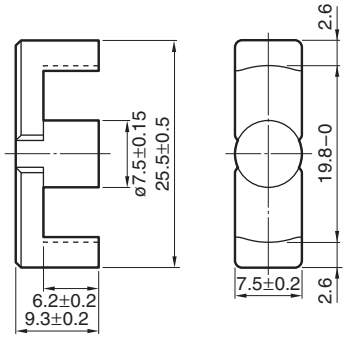


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



Dimensions in mm

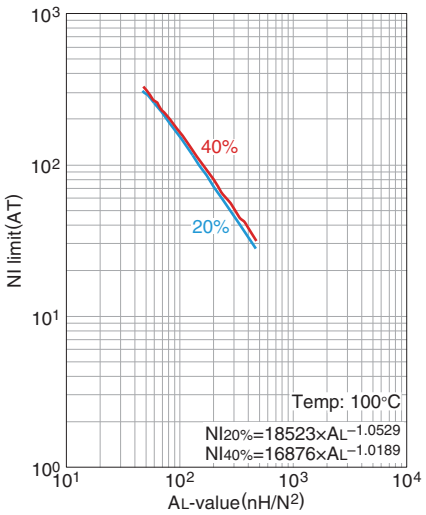
Based on JIS FEER 25.5A.

Effective parameter								Electrical characteristics				
Core factor	Effective magnetic path length	Effective cross-sectional area	Effective core volume	Cross-sectional center pole area	Minimum cross-sectional center pole are	Cross-sectional winding area of core	Weigh	AL-value *		Core loss		
C1	ℓe	Ae	Ve	Acp	Acp min.	Acw						
(mm−1)	(mm)	(mm2)	(mm3)	(mm2)	(mm2)	(mm2)	(g/set)	(nH/N2)		(W)max.		
								1kHz 0.5mA	100kHz 200mT	100kHz 200mT		
										25°C	80°C	120°C
1.08	48.2	44.8	2160	44.2	42.4	79.4	11	1920±25%	2700±25%	1.1	0.9	1.1

* Coil：ø0.35 2UEW 100Ts

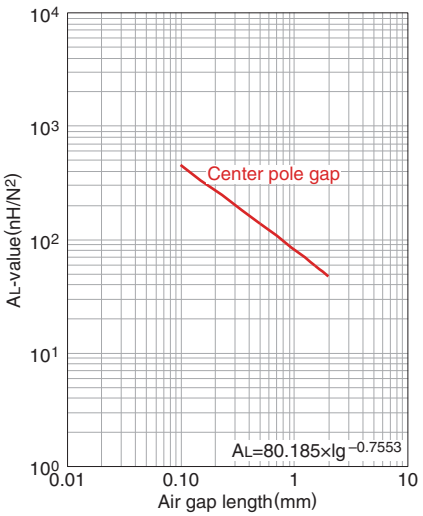
○ Calculated output power (forward converter mode): 96W (100kHz)

NI limit vs. AL-value (Typ.)



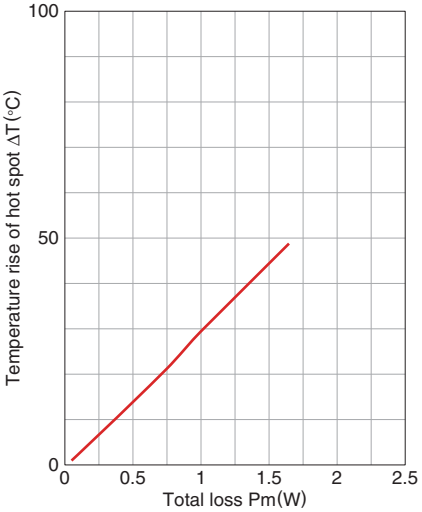
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

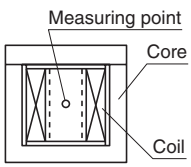


Measuring conditions
- Coil：ø0.35 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

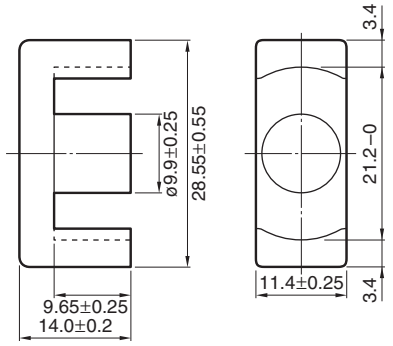


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



Dimensions in mm

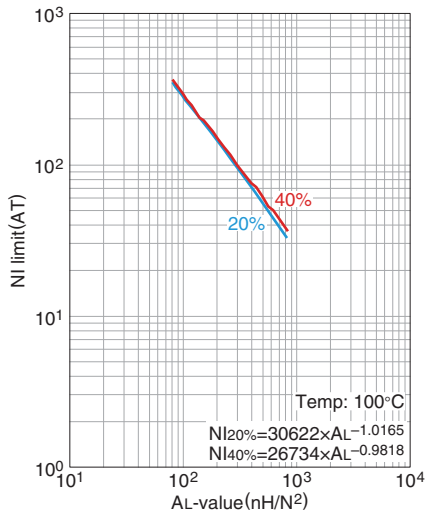
Based on JIS FEER 28.5A.

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length	Effective cross-sectional area	Effective core volume	Cross-sectional center pole area	Minimum cross-sectional center pole are	Cross-sectional winding area of core	Weigh	AL-value *		Core loss
C1	ℓe	Ae	Ve	Acp	Acp min.	Acw				
(mm−1)	(mm)	(mm2)	(mm3)	(mm2)	(mm2)	(mm2)	(g/set)	(nH/N2)		(W)max.
								1kHz 0.5mA	100kHz 200mT	100kHz 200mT 100°C
0.78	64.0	82.1	5250	77.0	73.1	114	28	2870±25%	4350 min.	1.72

* Coil：ø0.35 2UEW 100Ts

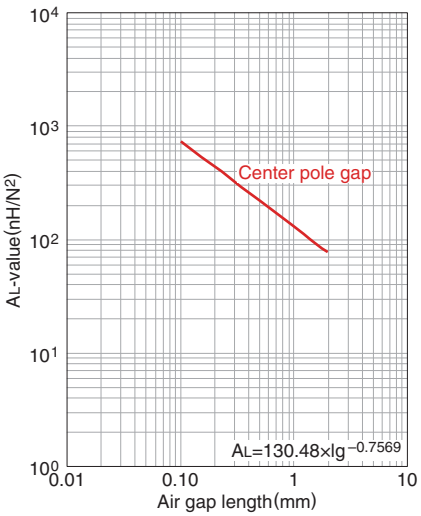
○ Calculated output power (forward converter mode): 233W (100kHz)

NI limit vs. AL-value (Typ.)



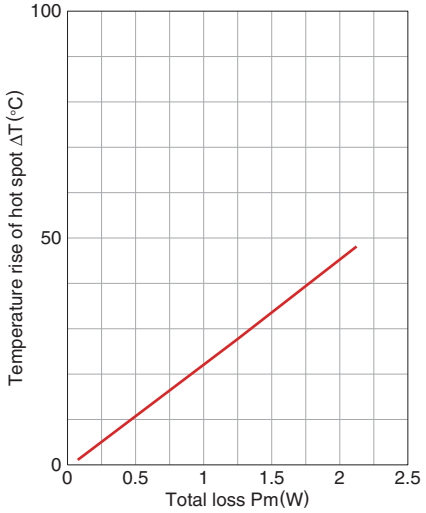
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

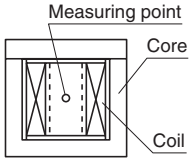


Measuring conditions
- Coil：ø0.35 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

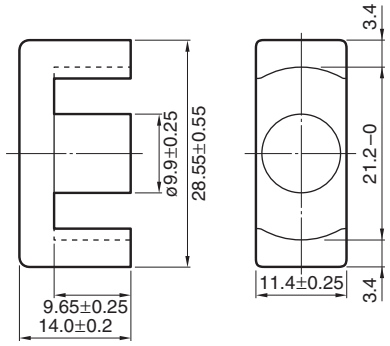


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



Dimensions in mm

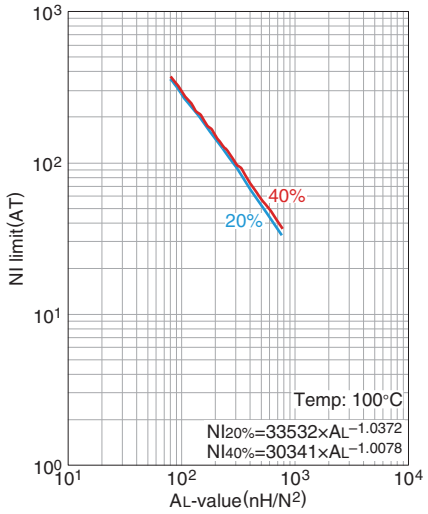
Based on JIS FEER 28.5A.

Effective parameter								Electrical characteristics				
Core factor	Effective magnetic path length	Effective cross-sectional area	Effective core volume	Cross-sectional center pole area	Minimum cross-sectional center pole are	Cross-sectional winding area of core	Weigh	AL-value *		Core loss		
C1	ℓe	Ae	Ve	Acp	Acp min.	Acw						
(mm−1)	(mm)	(mm2)	(mm3)	(mm2)	(mm2)	(mm2)	(g/set)	(nH/N2)		(W)max.		
								1kHz 0.5mA	100kHz 200mT	100kHz 200mT		
										25°C	80°C	120°C
0.78	64.0	82.1	5250	77.0	73.1	114	28	2870±25%	4000±25%	2.45	2.1	2.45

* Coil：ø0.35 2UEW 100Ts

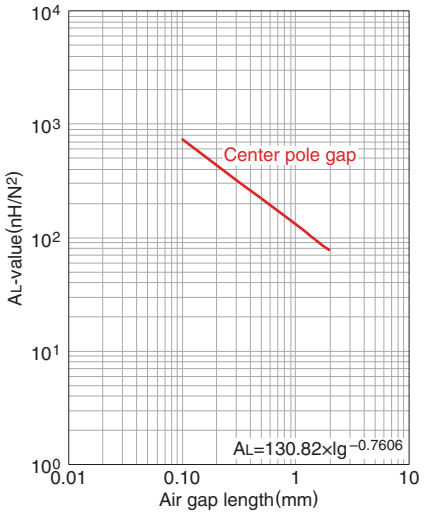
○ Calculated output power (forward converter mode): 223W (100kHz)

NI limit vs. AL-value (Typ.)



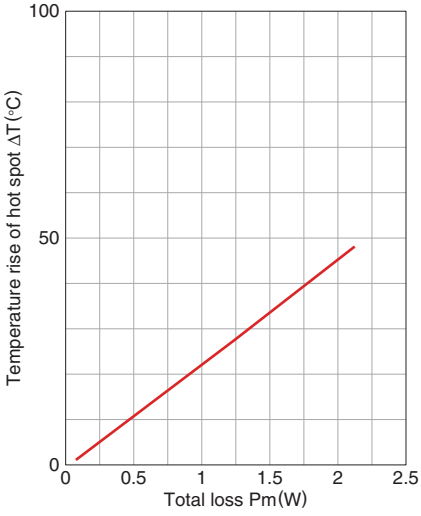
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

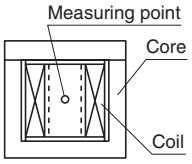


Measuring conditions
- Coil：ø0.35 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

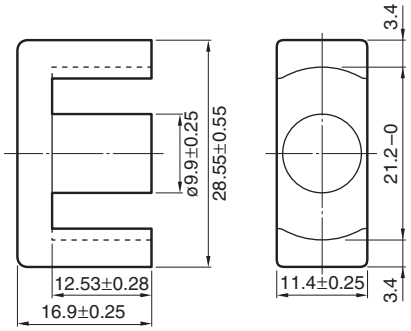


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



Dimensions in mm

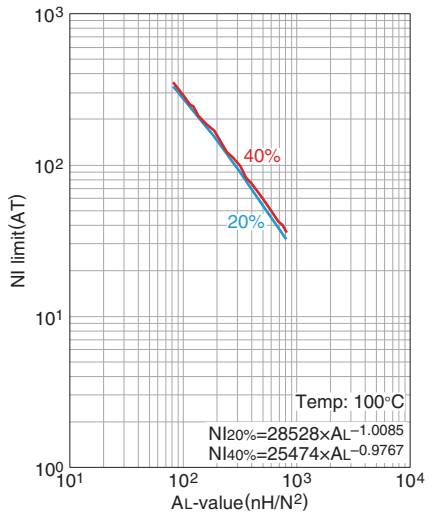
Based on JIS FEER 28.5B.

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length	Effective cross-sectional area	Effective core volume	Cross-sectional center pole area	Minimum cross-sectional center pole are	Cross-sectional winding area of core	Weigh	AL-value *		Core loss
C1	ℓe	Ae	Ve	Acp	Acp min.	Acw				
(mm−1)	(mm)	(mm2)	(mm3)	(mm2)	(mm2)	(mm2)	(g/set)	(nH/N2)		(W)max.
								1kHz 0.5mA	100kHz 200mT	100kHz 200mT 100°C
0.928	75.5	81.4	6150	77.0	73.1	148	33	2520±25%	3660 min.	2.03

* Coil：ø0.35 2UEW 100Ts

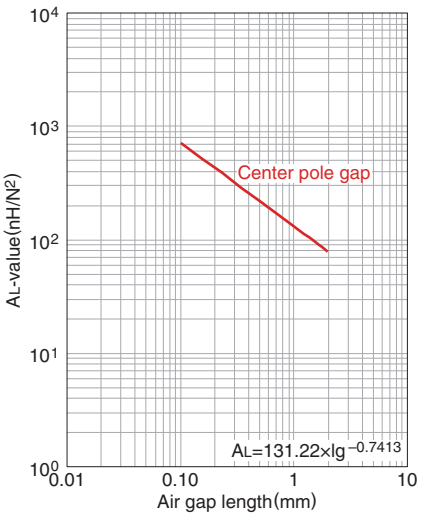
○ Calculated output power (forward converter mode): 267W (100kHz)

NI limit vs. AL-value (Typ.)



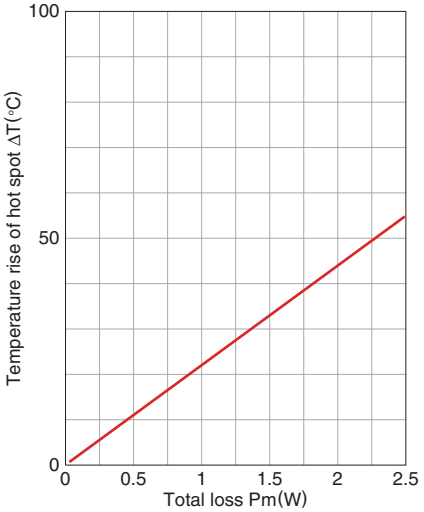
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

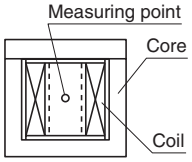


Measuring conditions
- Coil：ø0.35 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

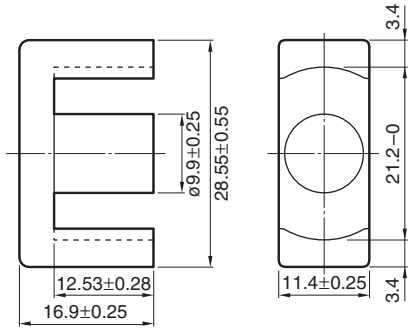


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



Dimensions in mm

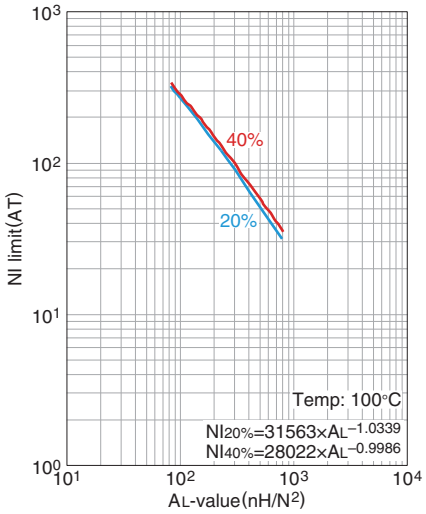
Based on JIS FEER 28.5B.

Effective parameter								Electrical characteristics				
Core factor	Effective magnetic path length	Effective cross-sectional area	Effective core volume	Cross-sectional center pole area	Minimum cross-sectional center pole are	Cross-sectional winding area of core	Weigh	AL-value *		Core loss		
C1	ℓe	Ae	Ve	Acp	Acp min.	Acw						
(mm−1)	(mm)	(mm2)	(mm3)	(mm2)	(mm2)	(mm2)	(g/set)	(nH/N2)		(W)max.		
								1kHz 0.5mA	100kHz 200mT	100kHz 200mT		
										25°C	80°C	120°C
0.928	75.5	81.4	6150	77.0	73.1	148	33	2520±25%	3500±25%	2.9	2.45	2.9

* Coil：ø0.35 2UEW 100Ts

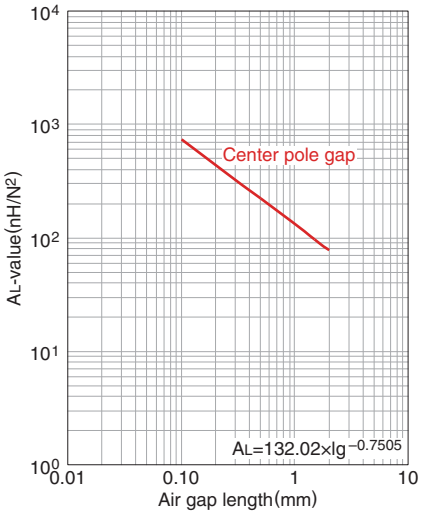
○ Calculated output power (forward converter mode): 250W (100kHz)

NI limit vs. AL-value (Typ.)



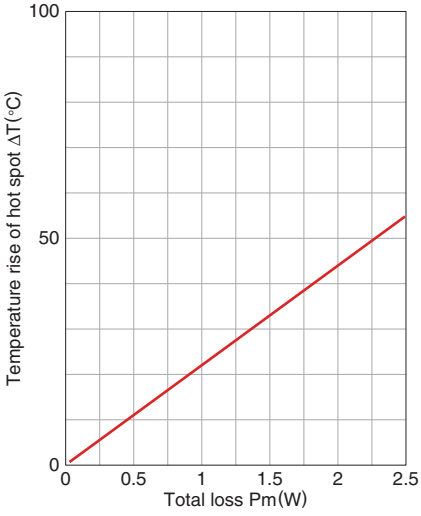
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

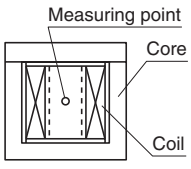


Measuring conditions
- Coil：ø0.35 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

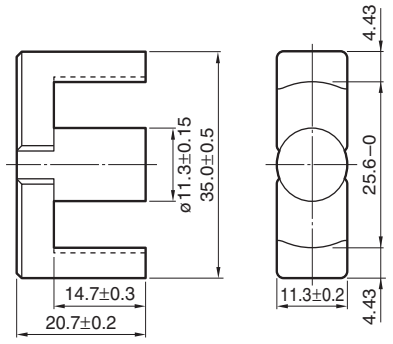


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



Dimensions in mm

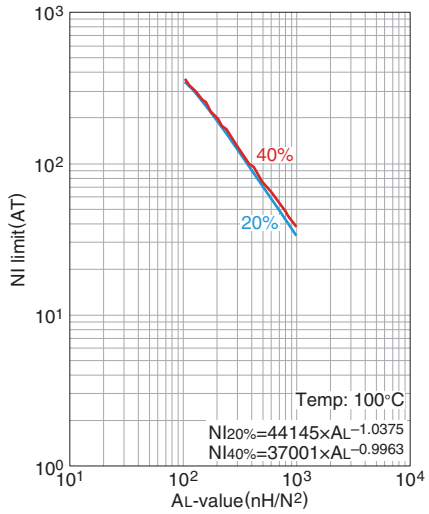
Based on JIS FEER 35A.

Effective parameter								Electrical characteristics		
Core factor C_1 (mm^{-1})	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm^2)	Effective core volume Ve (mm^3)	Cross-sectional center pole area Acp (mm^2)	Minimum cross-sectional center pole are Acp min. (mm^2)	Cross-sectional winding area of core Acw (mm^2)	Weigh (g/set)	A_L-value * (nH/N^2) 1kHz 0.5mA	A_L-value * (nH/N^2) 100kHz 200mT	Core loss (W)max. 100kHz 200mT 100°C
0.849	90.8	107	9720	100	97.6	218	52	2770±25%	4000 min.	3.18

* Coil：ø0.35 2UEW 100Ts

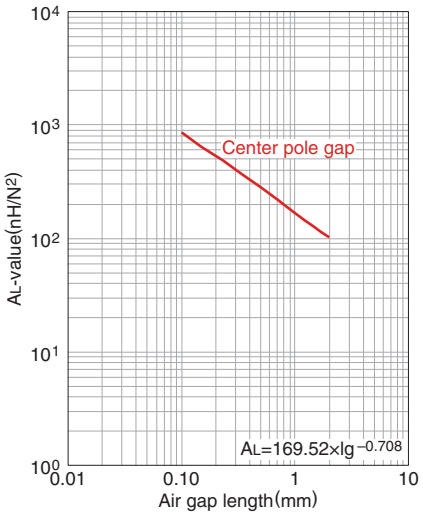
○ Calculated output power (forward converter mode): 376W (100kHz)

NI limit vs. A_L-value (Typ.)



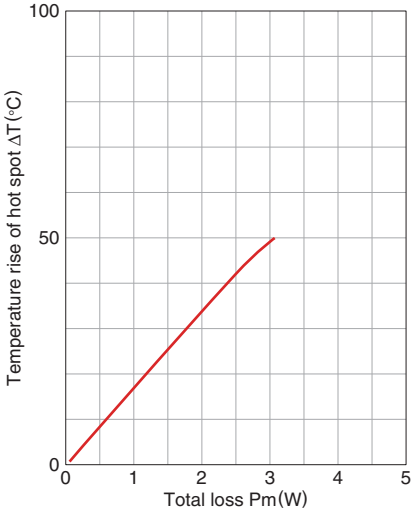
The 20% and 40% graph shows when a 20% and 40% drop from the initial A_L-value has been made due to the DC superimposition.

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

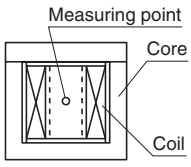


Measuring conditions
- Coil：ø0.35 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

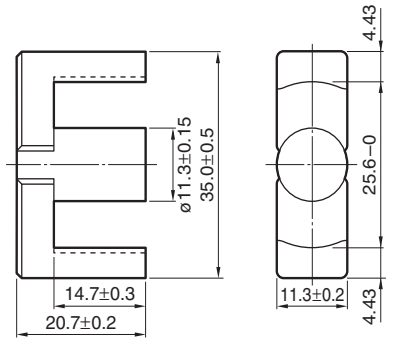


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



Dimensions in mm

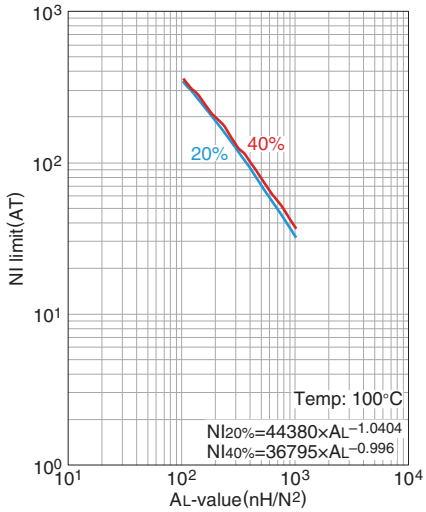
Based on JIS FEER 35A.

Effective parameter								Electrical characteristics				
Core factor	Effective magnetic path length	Effective cross-sectional area	Effective core volume	Cross-sectional center pole area	Minimum cross-sectional center pole are	Cross-sectional winding area of core	Weigh	AL-value *		Core loss		
C1	ℓe	Ae	Ve	Acp	Acp min.	Acw						
(mm−1)	(mm)	(mm2)	(mm3)	(mm2)	(mm2)	(mm2)	(g/set)	(nH/N2)		(W)max.		
								1kHz 0.5mA	100kHz 200mT	100kHz 200mT		
										25°C	80°C	120°C
0.849	90.8	107	9720	100	97.6	218	52	2770±25%	4000±25%	4.55	3.8	4.55

* Coil：ø0.35 2UEW 100Ts

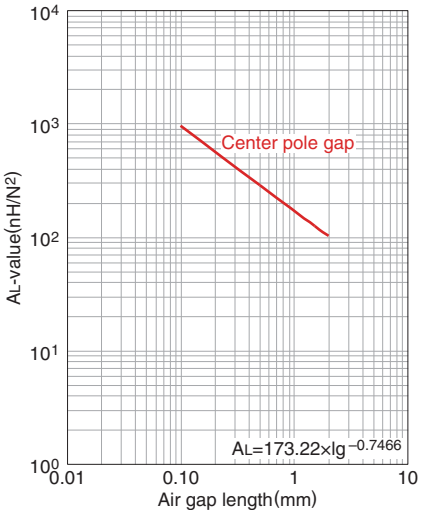
○ Calculated output power (forward converter mode): 336W (100kHz)

NI limit vs. AL-value (Typ.)



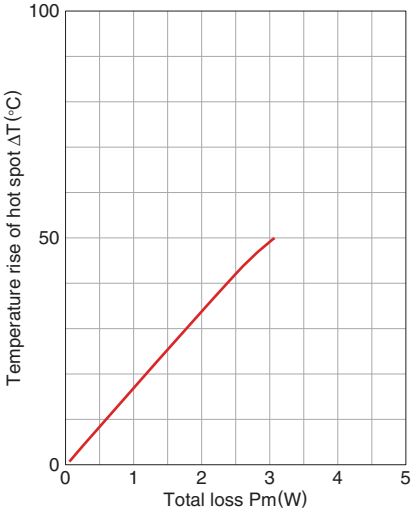
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

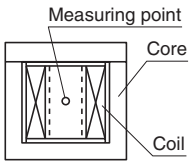


Measuring conditions
- Coil：ø0.35 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

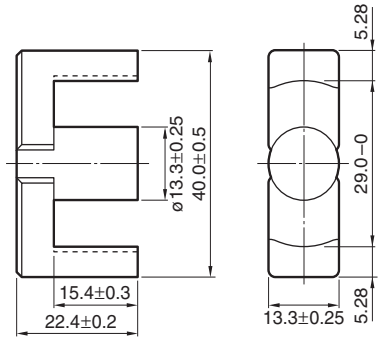


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



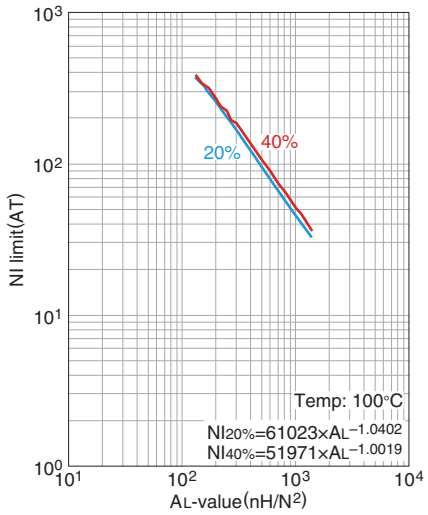
Dimensions in mm

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length	Effective cross-sectional area	Effective core volume	Cross-sectional center pole area	Minimum cross-sectional center pole are	Cross-sectional winding area of core	Weigh	AL-value *		Core loss
C1	ℓe	Ae	Ve	Acp	Acp min.	Acw				
(mm−1)	(mm)	(mm2)	(mm3)	(mm2)	(mm2)	(mm2)	(g/set)	(nH/N2)		(W)max.
								1kHz 0.5mA	100kHz 200mT	100kHz 200mT 100°C
0.658	98.0	149	14600	139	134	249	78	3620±25%	5160 min.	4.77

* Coil：ø0.35 2UEW 100Ts

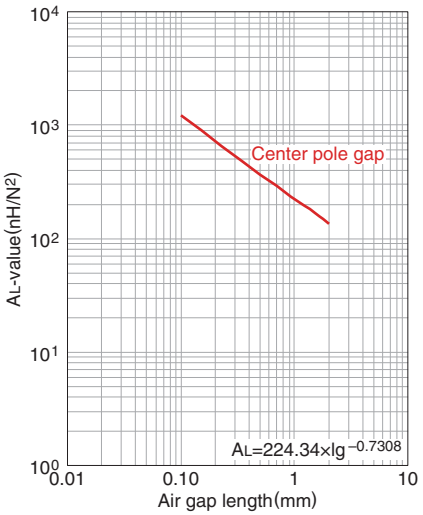
○ Calculated output power (forward converter mode): 484W (100kHz)

NI limit vs. AL-value (Typ.)



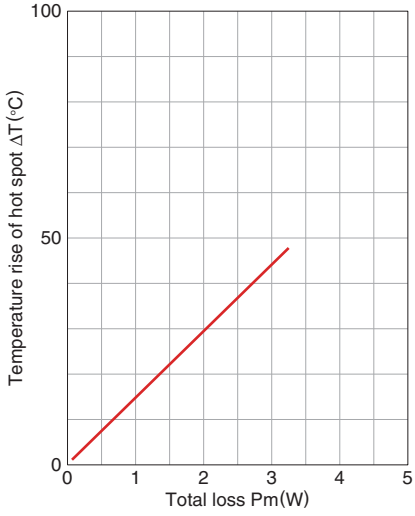
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

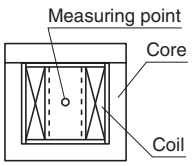


Measuring conditions
- Coil：ø0.35 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

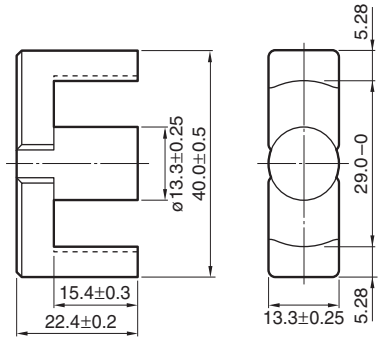


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



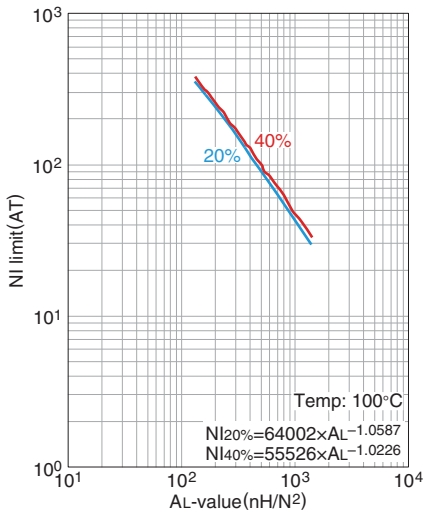
Dimensions in mm

Effective parameter								Electrical characteristics				
Core factor	Effective magnetic path length	Effective cross-sectional area	Effective core volume	Cross-sectional center pole area	Minimum cross-sectional center pole are	Cross-sectional winding area of core	Weigh	AL-value *		Core loss		
C1	ℓe	Ae	Ve	Acp	Acp min.	Acw		(nH/N2)		(W)max.		
(mm−1)	(mm)	(mm2)	(mm3)	(mm2)	(mm2)	(mm2)	(g/set)	1kHz 0.5mA	100kHz 200mT	100kHz 200mT		
										25°C	80°C	120°C
0.658	98.0	149	14600	139	134	249	78	3620±25%	5200±25%	6.8	5.7	6.8

* Coil：ø0.35 2UEW 100Ts

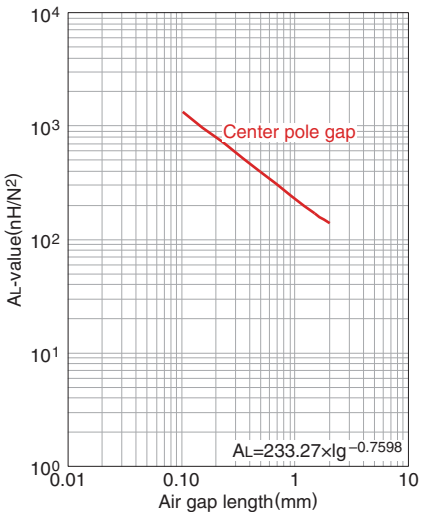
○ Calculated output power (forward converter mode): 446W (100kHz)

NI limit vs. AL-value (Typ.)



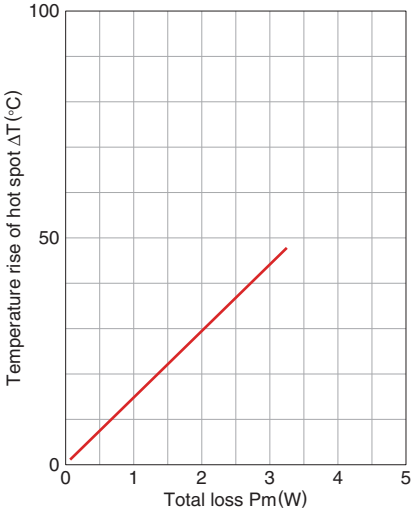
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

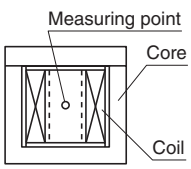


Measuring conditions
- Coil：ø0.35 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

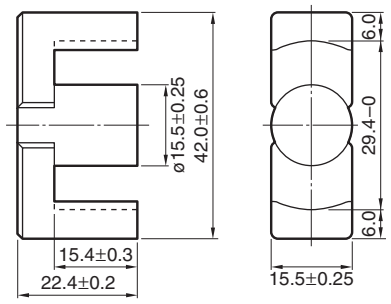


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



Dimensions in mm

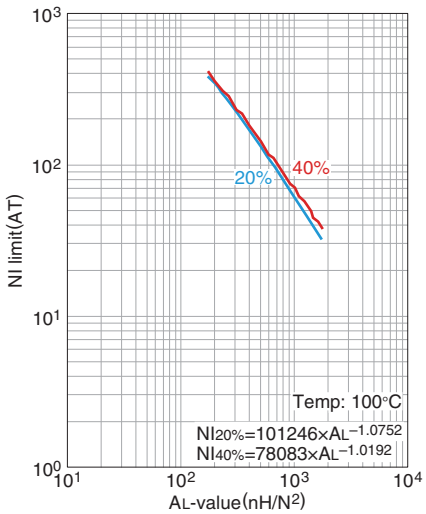
Based on JIS FEER 42.

Effective parameter								Electrical characteristics		
Core factor C_1 (mm^{-1})	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm^2)	Effective core volume Ve (mm^3)	Cross-sectional center pole area Acp (mm^2)	Minimum cross-sectional center pole are Acp min. (mm^2)	Cross-sectional winding area of core Acw (mm^2)	Weigh (g/set)	A_L-value * (nH/N^2) 1kHz 0.5mA	A_L-value * (nH/N^2) 100kHz 200mT	Core loss (W)max. 100kHz 200mT 100°C
0.509	98.8	194	19200	187	183	223	102	4690±25%	6670 min.	6.47

* Coil：ø0.35 2UEW 100Ts

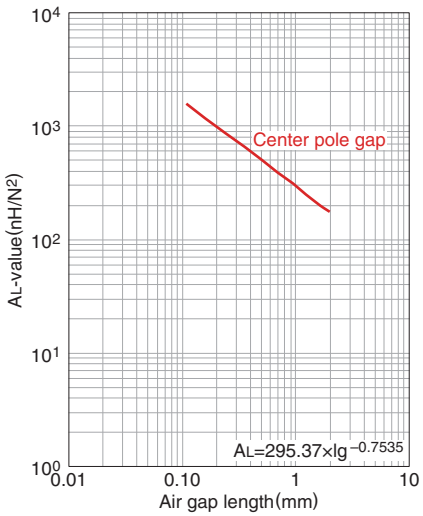
○ Calculated output power (forward converter mode): 540W (100kHz)

NI limit vs. A_L-value (Typ.)



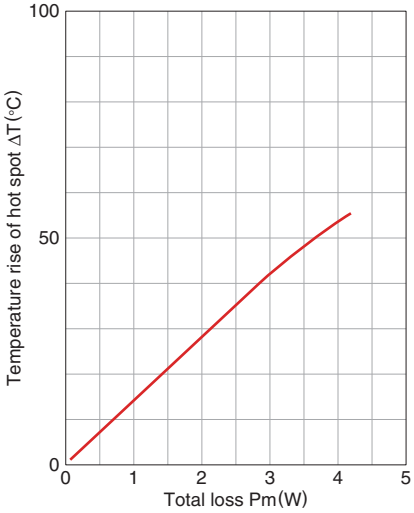
The 20% and 40% graph shows when a 20% and 40% drop from the initial A_L-value has been made due to the DC superimposition.

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

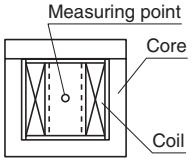


Measuring conditions
- Coil：ø0.35 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

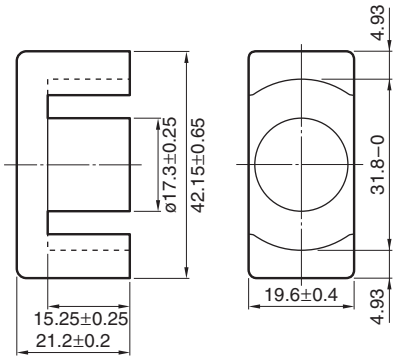


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



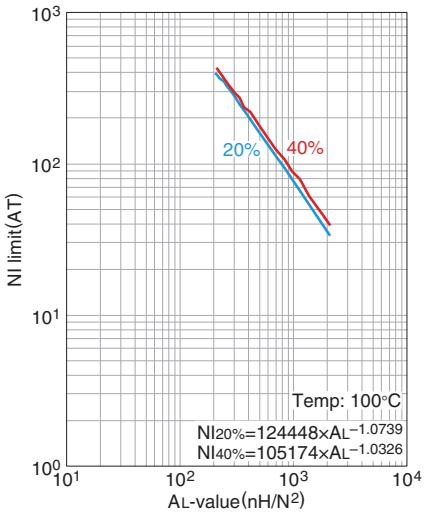
Dimensions in mm

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length	Effective cross-sectional area	Effective core volume	Cross-sectional center pole area	Minimum cross-sectional center pole are	Cross-sectional winding area of core	Weigh	AL-value *		Core loss
C1	ℓe	Ae	Ve	Acp	Acp min.	Acw				
(mm−1)	(mm)	(mm2)	(mm3)	(mm2)	(mm2)	(mm2)	(g/set)	(nH/N2)		(W)max.
								1kHz 0.5mA	100kHz 200mT	100kHz 200mT 100°C
0.411	98.6	240	23700	235	228	229	116	5340±25%	8260 min.	9.96

* Coil：ø0.35 2UEW 100Ts

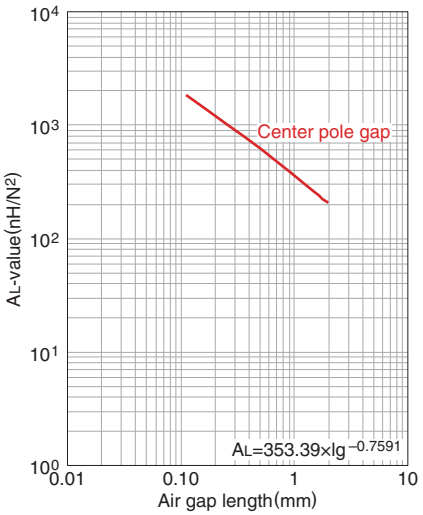
○ Calculated output power (forward converter mode): 647W (100kHz)

NI limit vs. AL-value (Typ.)



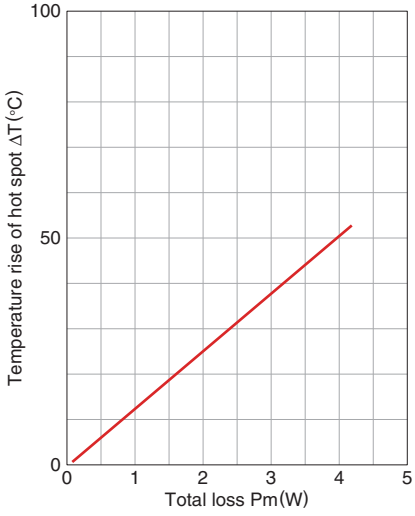
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

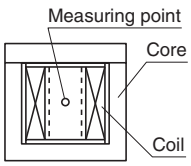


Measuring conditions
- Coil：ø0.35 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

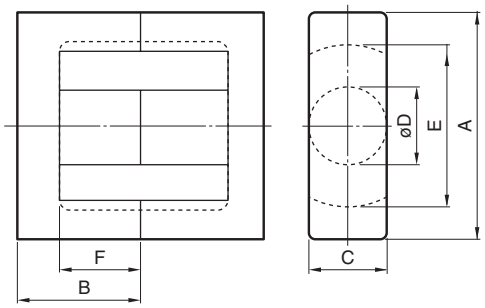


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



Mn-Zn ETD Cores

SHAPES AND DIMENSIONS



PC47 | ETD19 - Z

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

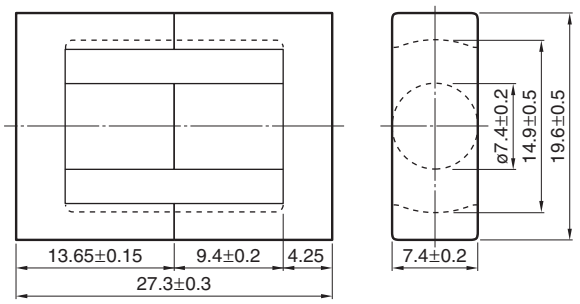
Part No.	JIS	Dimensions (mm)					
		A	B	C	øD	E	F
PC47ETD19-Z		19.6±0.5	13.65±0.15	7.4±0.2	7.4±0.2	14.9±0.5	9.4±0.2
PC47ETD24-Z		24.4±0.6	14.45±0.15	8.5±0.4	8.5±0.2	18.6±0.6	10.1±0.2
PC47ETD29-Z		29.8±0.8	15.80±0.15	9.5±0.3	9.5±0.3	22.7±0.7	11.0±0.3
PC47ETD34-Z	JIS FEER 34.2	34.2±0.8	17.3±0.2	10.88±0.38	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 $C_1(mm^{-1})$	Effective cross-sectional area $Ae(mm^2)$	Effective magnetic path length $\ell e(mm)$	Effective core volume $Ve(mm^3)$	Weigh (g)	AL-value (nH/N^2) 1kHz 0.5mA 100Ts		Core loss (W) max. 100kHz 200mT 100°C
						Without air gap	With air gap	
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

• All specifications are subject to change without notice.

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

SHAPES AND DIMENSIONS



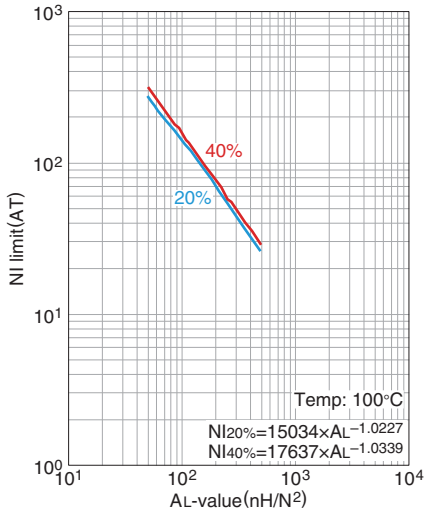
Dimensions in mm

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length	Effective cross-sectional area	Effective core volume	Cross-sectional center pole area	Minimum cross-sectional center pole are	Cross-sectional winding area of core	Weigh	AL-value *		Core loss
C1	ℓe	Ae	Ve	Acp	Acp min.	Acw		(nH/N2)		(W)max.
(mm−1)	(mm)	(mm2)	(mm3)	(mm2)	(mm2)	(mm2)	(g/set)	1kHz 0.5mA	100kHz 200mT	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

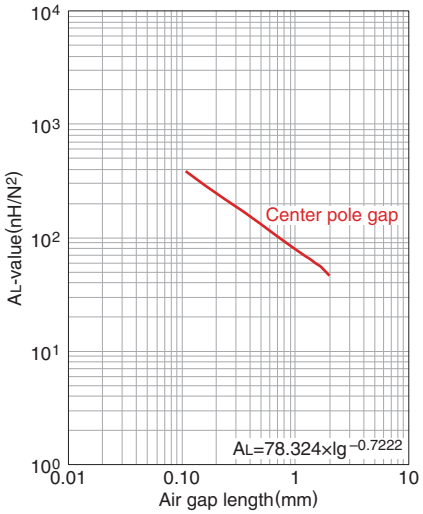
○ Calculated output power (forward converter mode): 114W (100kHz)

NI limit vs. AL-value (Typ.)



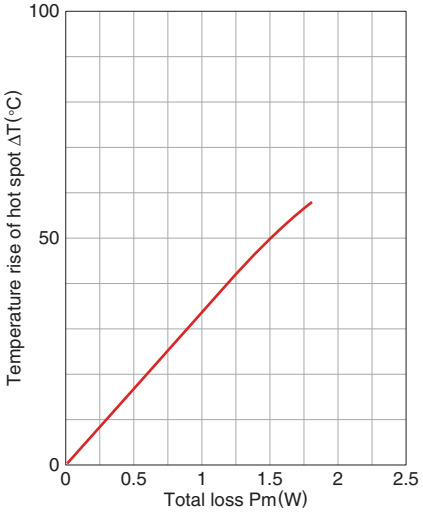
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

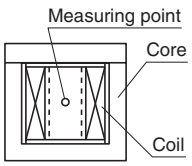


Measuring conditions
- Coil：ø0.35 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

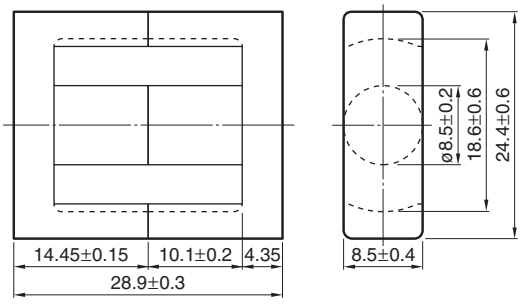


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



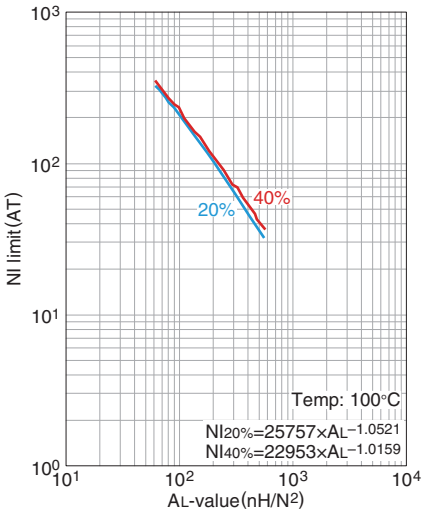
Dimensions in mm

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length	Effective cross-sectional area	Effective core volume	Cross-sectional center pole area	Minimum cross-sectional center pole are	Cross-sectional winding area of core	Weigh	AL-value *		Core loss
C1	ℓe	Ae	Ve	Acp	Acp min.	Acw				
(mm−1)	(mm)	(mm2)	(mm3)	(mm2)	(mm2)	(mm2)	(g/set)	(nH/N2)		(W)max.
								1kHz 0.5mA	100kHz 200mT	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：ø0.35 2UEW 100Ts

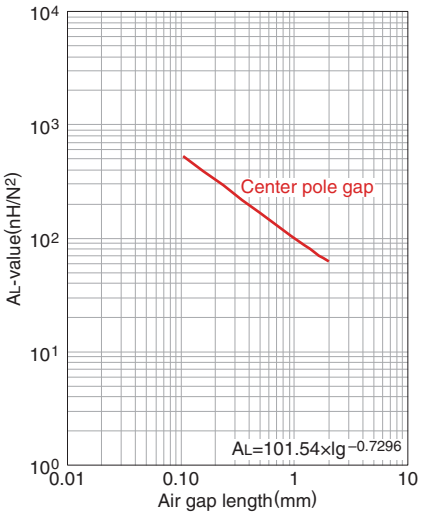
○ Calculated output power (forward converter mode): 131W (100kHz)

NI limit vs. AL-value (Typ.)



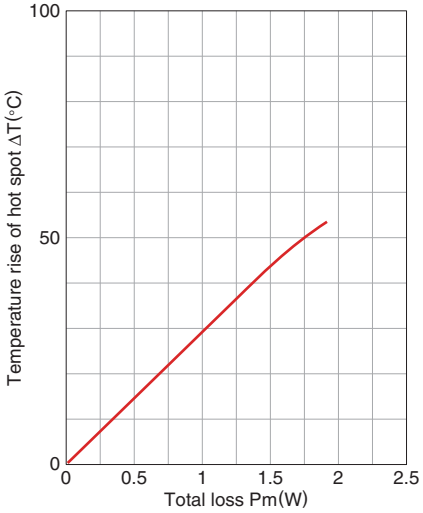
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

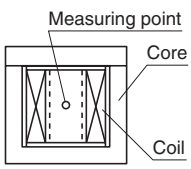


Measuring conditions
- Coil：ø0.35 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

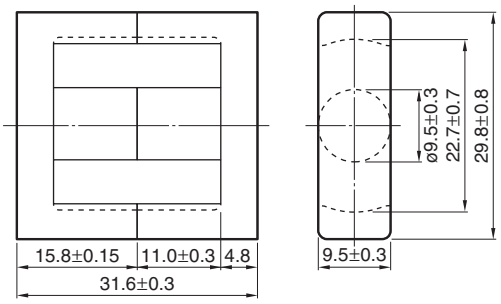


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



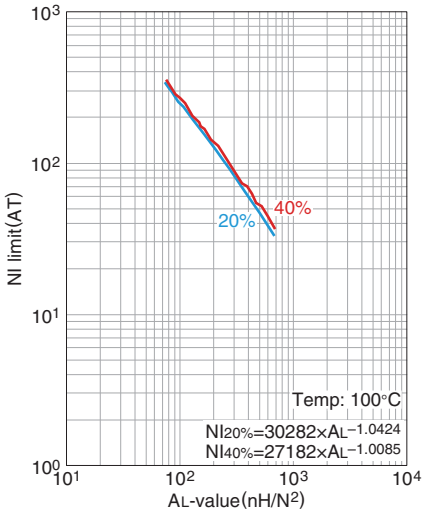
Dimensions in mm

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length	Effective cross-sectional area	Effective core volume	Cross-sectional center pole area	Minimum cross-sectional center pole are	Cross-sectional winding area of core	Weigh	AL-value *		Core loss
C1	ℓe	Ae	Ve	Acp	Acp min.	Acw				
(mm−1)	(mm)	(mm2)	(mm3)	(mm2)	(mm2)	(mm2)	(g/set)	(nH/N2)		(W)max.
								1kHz 0.5mA	100kHz 200mT	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

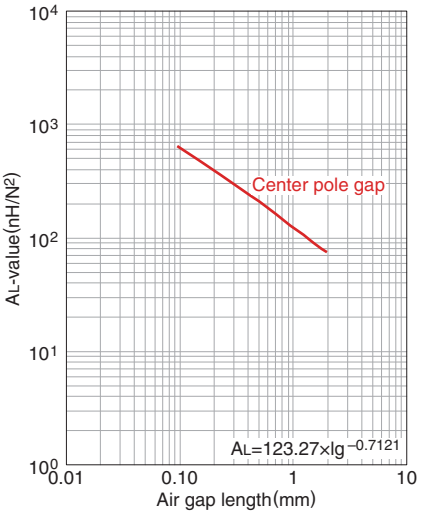
○ Calculated output power (forward converter mode): 242W (100kHz)

NI limit vs. AL-value (Typ.)



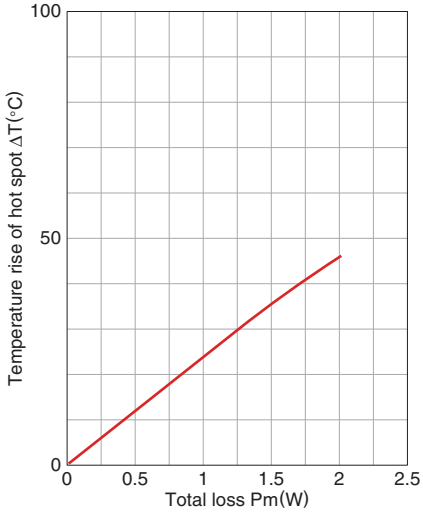
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

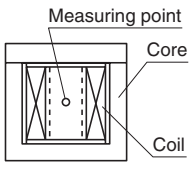


Measuring conditions
- Coil：ø0.35 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

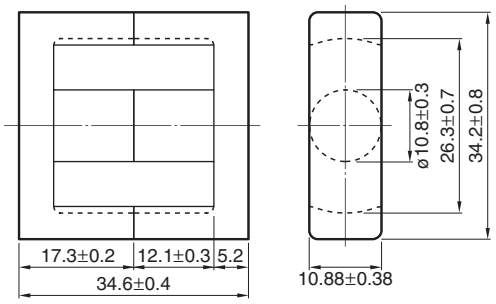


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



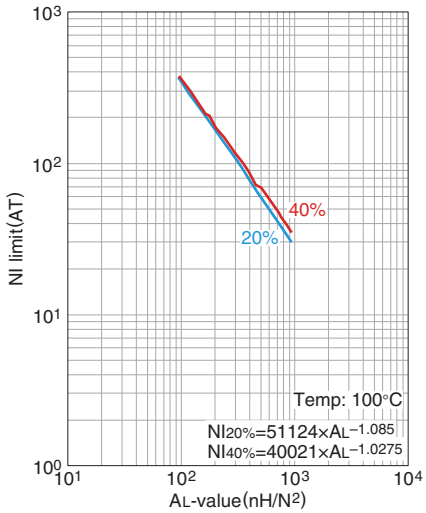
Dimensions in mm

Effective parameter								Electrical characteristics		
Core factor C_1 (mm^{-1})	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm^2)	Effective core volume Ve (mm^3)	Cross-sectional center pole area Acp (mm^2)	Minimum cross-sectional center pole are Acp min. (mm^2)	Cross-sectional winding area of core Acw (mm^2)	Weigh (g/set)	A_L-value * (nH/N^2) 1kHz 0.5mA	A_L-value * (nH/N^2) 100kHz 200mT	Core loss (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：ø0.35 2UEW 100Ts

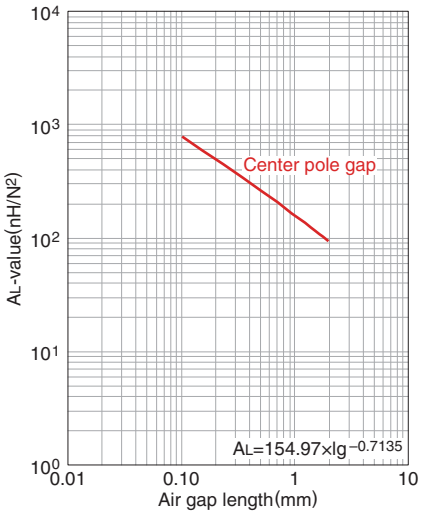
○ Calculated output power (forward converter mode): 321W (100kHz)

NI limit vs. A_L-value (Typ.)



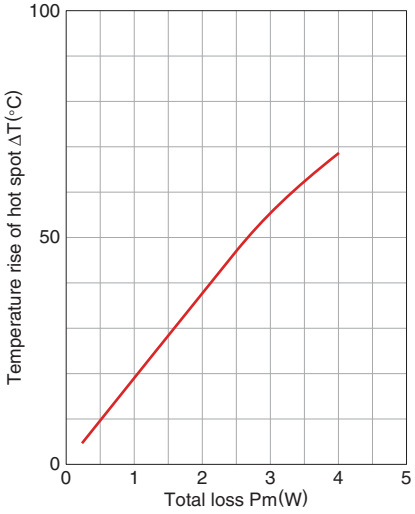
The 20% and 40% graph shows when a 20% and 40% drop from the initial A_L-value has been made due to the DC superimposition.

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

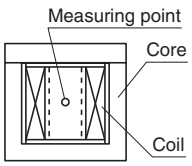


Measuring conditions
- Coil：ø0.35 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

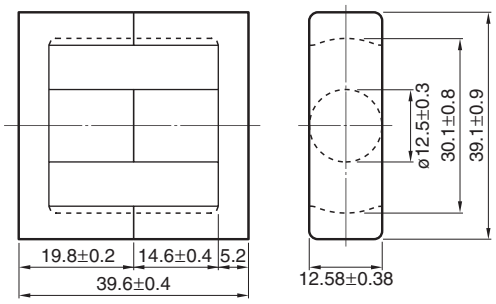


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



Dimensions in mm

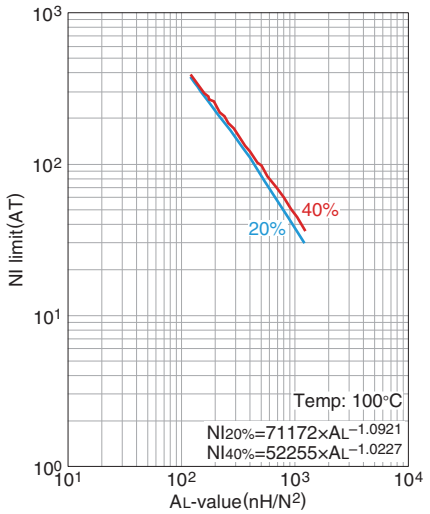
Based on JIS FEI 12.5.

Effective parameter								Electrical characteristics		
Core factor C_1 (mm^{-1})	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm^2)	Effective core volume Ve (mm^3)	Cross-sectional center pole area Acp (mm^2)	Minimum cross-sectional center pole are Acp min. (mm^2)	Cross-sectional winding area of core Acw (mm^2)	Weigh (g/set)	A_L-value * (nH/N^2) 1kHz 0.5mA	A_L-value * (nH/N^2) 100kHz 200mT	Core loss (W)max. 100kHz 200mT 100°C
0.737	92.1	125	11500	123	117	257	60	3150±25%	4600 min.	3.96

* Coil：ø0.35 2UEW 100Ts

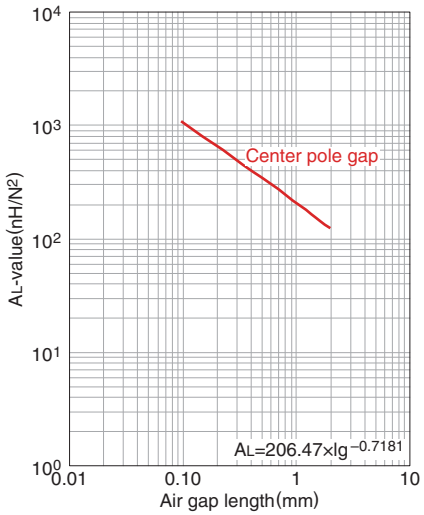
○ Calculated output power (forward converter mode): 450W (100kHz)

NI limit vs. A_L-value (Typ.)



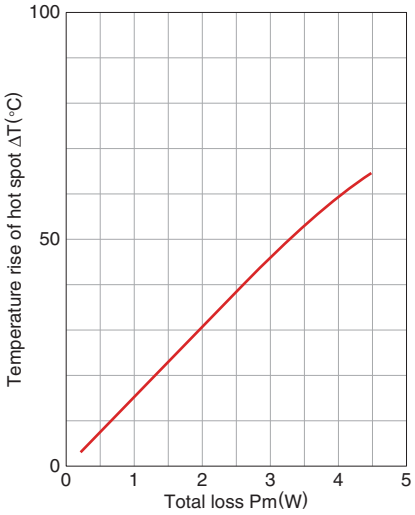
The 20% and 40% graph shows when a 20% and 40% drop from the initial A_L-value has been made due to the DC superimposition.

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

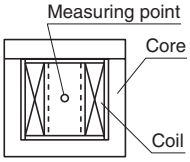


Measuring conditions
- Coil：ø0.35 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

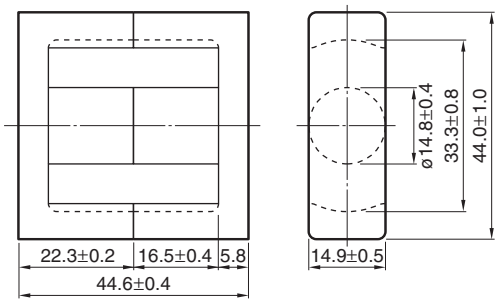


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



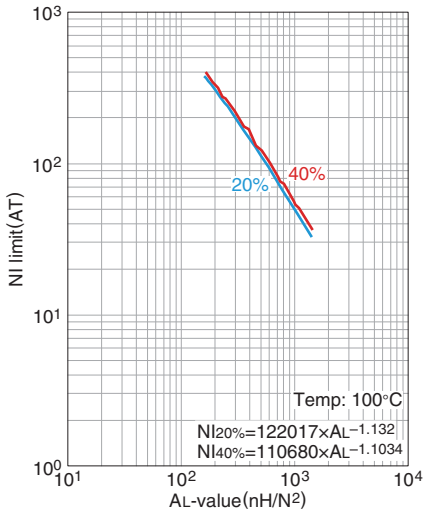
Dimensions in mm

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length	Effective cross-sectional area	Effective core volume	Cross-sectional center pole area	Minimum cross-sectional center pole are	Cross-sectional winding area of core	Weigh	AL-value *		Core loss
C1	ℓe	Ae	Ve	Acp	Acp min.	Acw		(nH/N2)		(W)max.
(mm−1)	(mm)	(mm2)	(mm3)	(mm2)	(mm2)	(mm2)	(g/set)	1kHz 0.5mA	100kHz 200mT	100kHz 200mT 100°C
0.589	103	175	18000	172	163	305	94	4000±25%	5760 min.	6.2

* Coil：ø0.35 2UEW 100Ts

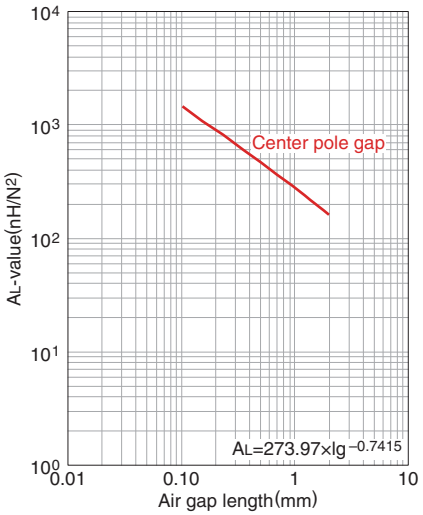
○ Calculated output power (forward converter mode): 581W (100kHz)

NI limit vs. AL-value (Typ.)



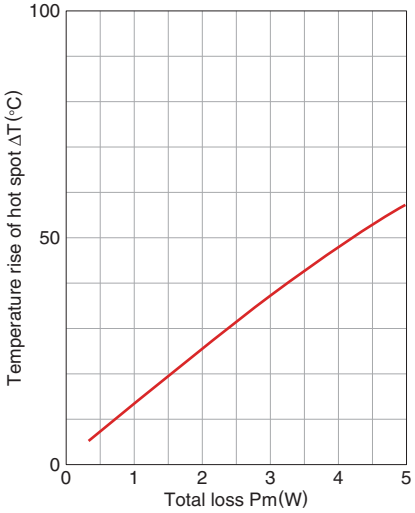
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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

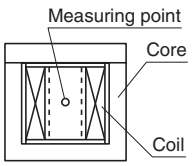


Measuring conditions
- Coil：ø0.35 2UEW 100Ts
- Frequency：1kHz
- Current level：0.5mA
- Ambient temperature：25°C

Temperature rise vs. Total loss (Typ.)

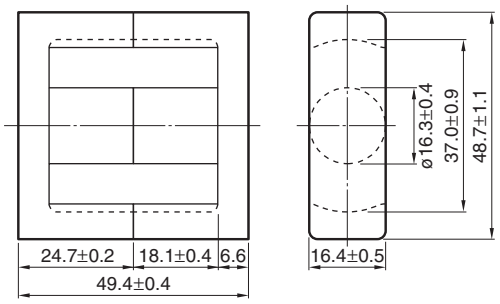


Measuring conditions
- Room space: approx. 400x300x 300cm
- Ambient temperature：25°C
- Humidity：45(%)RH.



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

SHAPES AND DIMENSIONS



Dimensions in mm

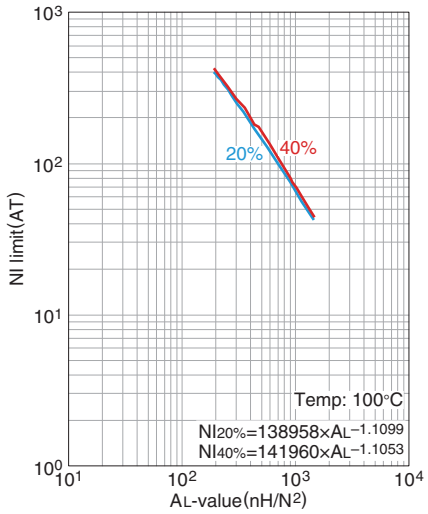
Based on JIS FEI 12.5.

Effective parameter								Electrical characteristics		
Core factor	Effective magnetic path length	Effective cross-sectional area	Effective core volume	Cross-sectional center pole area	Minimum cross-sectional center pole are	Cross-sectional winding area of core	Weigh	AL-value *		Core loss
C1	ℓe	Ae	Ve	Acp	Acp min.	Acw				
(mm−1)	(mm)	(mm2)	(mm3)	(mm2)	(mm2)	(mm2)	(g/set)	(nH/N2)		(W)max.
								1kHz 0.5mA	100kHz 200mT	100kHz 200mT 100°C
0.535	114	213	24300	209	199	375	124	4440±25%	6340 min.	10.25

* Coil：ø0.35 2UEW 100Ts

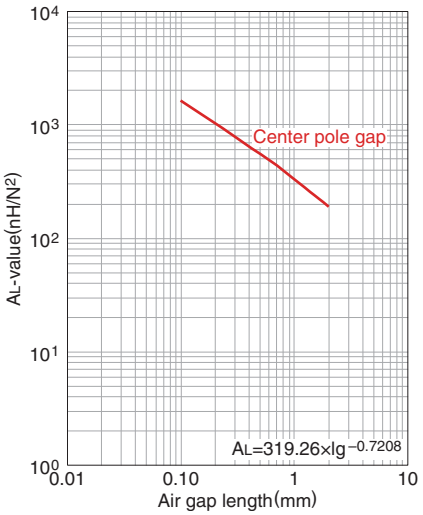
○ Calculated output power (forward converter mode): 692W (100kHz)

NI limit vs. AL-value (Typ.)



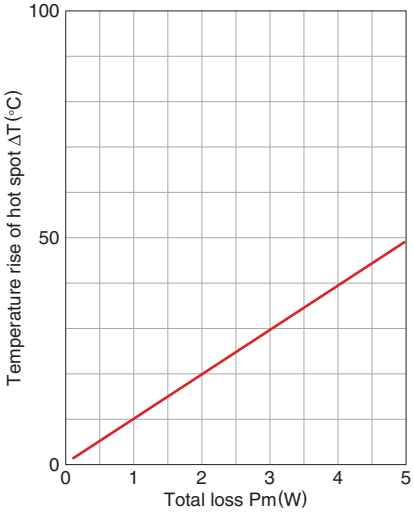
The 20% and 40% graph shows when a 20% and 40% drop from the initial AL-value has been made due to the DC superimposition.

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.