# Ferrite for Switching Power Supplies

## Original cores

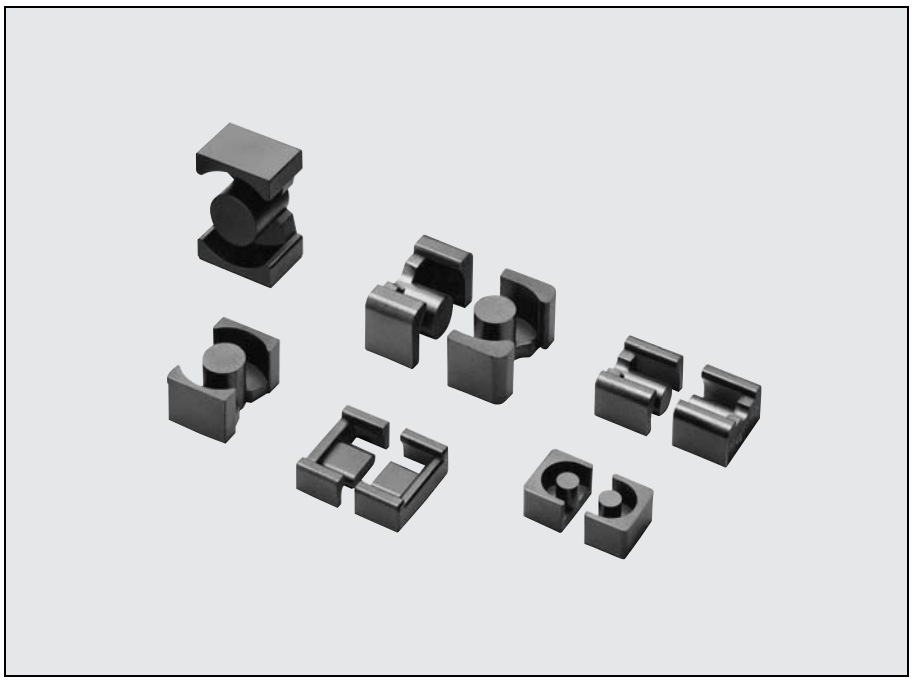
## PQ/LP/EPC/EP series

Issue date: March 2010

- All specifications are subject to change without notice.
- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

# Ferrite for Switching Power Supplies
# Original Cores

**PQ20/16 to PQ50/50**
**LP23/8 to LP32/13**
**EPC10 to EPC30**
**EP7 to EP20**



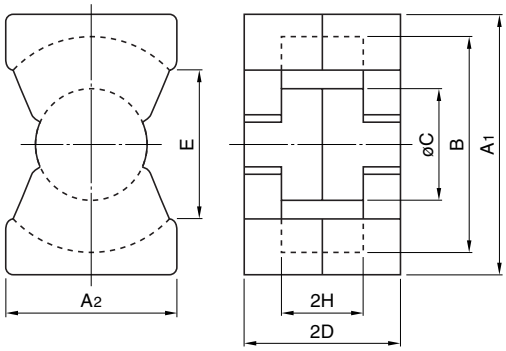
## Ordering Code System

**PC44 PQ 26/25 A400 – 2 2**

- Material: PC44
- Size of PQ core: PQ 26/25
- AL-value(Z: without air gap): A400
- Type: 2
  - 1: Without air gap
  - 2: With air gap
- Number of Lead Slot: 2

# PQ CORES

DE. PAT. 2,944,583
DE. DES. 15,655
EP. PAT. 26,104(DE, FR, GB, NL)
GB. PAT. 2,035,706
GB. DES. 990,685
JP. U. M 1,589,580
JP. U. M 1,621,895
JP. U. M PUB.
85(60)-3556 1,647,781
JP. U. M PUB.
86(61)-5779 1655608
JP. DES. 580,081
JP. DES. 649,618
KR. U. M 23,487
NL. PAT. 178,826
NL. DES. 5,777
US. PAT. 4,352,080
US. DES. 264,959



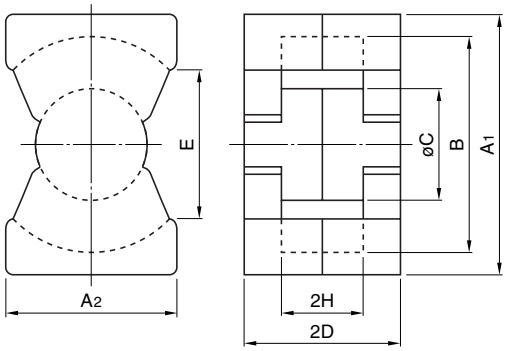

| Part No. | Dimensions in mm | | | | | | |
|---|---|---|---|---|---|---|---|
| | **$A_1$** | **$A_2$** | **B** | **øC** | **2D** | **E min.** | **2H** |
| **PC44PQ20/16Z-12**<br>**PC90PQ20/16Z-12**<br>**PC95PQ20/16Z-12** | 20.5±0.4 | 14.0±0.4 | 18.0±0.4 | 8.8±0.2 | 16.2±0.2 | 12.0 | 10.3±0.3 |
| **PC44PQ20/20Z-12**<br>**PC90PQ20/20Z-12**<br>**PC95PQ20/20Z-12** | 20.5±0.4 | 14.0±0.4 | 18.0±0.4 | 8.8±0.2 | 20.2±0.2 | 12.0 | 14.3±0.3 |
| **PC44PQ26/20Z-12**<br>**PC90PQ26/20Z-12**<br>**PC95PQ26/20Z-12** | 26.5±0.45 | 19.0±0.45 | 22.5±0.45 | 12.0±0.2 | 20.15±0.25 | 15.5 | 11.5±0.3 |
| **PC44PQ26/25Z-12**<br>**PC90PQ26/25Z-12**<br>**PC95PQ26/25Z-12** | 26.5±0.45 | 19.0±0.45 | 22.5±0.45 | 12.0±0.2 | 24.75±0.25 | 15.5 | 16.1±0.3 |
| **PC44PQ32/20Z-12**<br>**PC90PQ32/20Z-12**<br>**PC95PQ32/20Z-12** | 32.0±0.5 | 22.0±0.5 | 27.5±0.5 | 13.45±0.25 | 20.55±0.25 | 19.0 | 11.5±0.3 |

| Part No. | Effective parameter | | | | Electrical characteristics | | | Weight (g) |
|---|---|---|---|---|---|---|---|---|
| | **$C_1$ ($mm^{-1}$)** | **Ae ($mm^2$)** | **$\ell e$ (mm)** | **Ve ($mm^3$)** | **$A_L$-value ($nH/N^2$)*** | | **Core loss (W) max.** | |
| | | | | | **Without air gap** | **With air gap** | **100kHz, 200mT, 100°C** | |
| **PC44PQ20/16Z-12** | | | | | 3880±25% | 100±5% | 0.84 | |
| **PC90PQ20/16Z-12** | 0.605 | 62 | 37.4 | 2310 | 3100±25% | 250±7% | 1.10 | 13 |
| **PC95PQ20/16Z-12** | | | | | 4480±25% | 400±10% | 1.14/0.96/1.14** | |
| **PC44PQ20/20Z-12** | | | | | 3150±25% | 100±5% | 1.02 | |
| **PC90PQ20/20Z-12** | 0.738 | 62 | 45.4 | 2790 | 2700±25% | 160±5% | 1.35 | 15 |
| **PC95PQ20/20Z-12** | | | | | 4000±25% | 250±7% | 1.38/1.16/1.38** | |
| **PC44PQ26/20Z-12** | | | | | 6170±25% | 160±5% | 1.94 | |
| **PC90PQ26/20Z-12** | 0.391 | 119 | 46.3 | 5490 | 5550±25% | 315±5% | 2.45 | 31 |
| **PC95PQ26/20Z-12** | | | | | 7470±25% | 630±10% | 2.62/2.20/2.62** | |
| **PC44PQ26/25Z-12** | | | | | 5250±25% | 160±5% | 2.32 | |
| **PC90PQ26/25Z-12** | 0.472 | 118 | 55.5 | 6530 | 4500±25% | 315±5% | 2.9 | 36 |
| **PC95PQ26/25Z-12** | | | | | 6520±25% | 630±10% | 3.14/2.63/3.14** | |
| **PC44PQ32/20Z-12** | | | | | 7310±25% | 160±5% | 2.92 | |
| **PC90PQ32/20Z-12** | 0.326 | 170 | 55.5 | 9420 | 6400±25% | 315±5% | 3.7 | 42 |
| **PC95PQ32/20Z-12** | | | | | 9120±25% | 630±7% | 3.94/3.31/3.94** | |

* $A_L$-value: 1kHz, 0.5mA, 100Ts
** Core loss: 100kHz, 200mT, 25°C/80°C/120°C

# PQ CORES

DE. PAT. 2,944,583
DE. DES. 15,655
EP. PAT. 26,104(DE, FR, GB, NL)
GB. PAT. 2,035,706
GB. DES. 990,685
JP. U. M 1,589,580
JP. U. M 1,621,895
JP. U. M PUB.
85(60)-3556 1,647,781
JP. U. M PUB.
86(61)-5779 1655608
JP. DES. 580,081
JP. DES. 649,618
KR. U. M 23,487
NL. PAT. 178,826
NL. DES. 5,777
US. PAT. 4,352,080
US. DES. 264,959

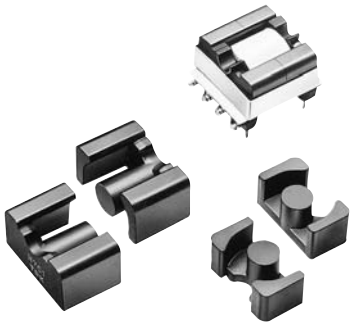



| Part No. | Dimensions in mm | | | | | | |
|---|---|---|---|---|---|---|---|
| | **$A_1$** | **$A_2$** | **B** | **øC** | **2D** | **E min.** | **2H** |
| **PC44PQ32/30Z-12** | | | | | | | |
| **PC90PQ32/30Z-12** | 32.0±0.5 | 22.0±0.5 | 27.5±0.5 | 13.45±0.25 | 30.35±0.25 | 19.0 | 21.3±0.3 |
| **PC95PQ32/30Z-12** | | | | | | | |
| **PC44PQ35/35Z-12** | | | | | | | |
| **PC90PQ35/35Z-12** | 35.1±0.6 | 26.0±0.5 | 32.0±0.5 | 14.35±0.25 | 34.75±0.25 | 23.5 | 25.0±0.3 |
| **PC95PQ35/35Z-12** | | | | | | | |
| **PC44PQ40/40Z-12** | | | | | | | |
| **PC90PQ40/40Z-12** | 40.5±0.9 | 28.0±0.6 | 37.0±0.6 | 14.9±0.3 | 39.75±0.25 | 28.0 | 29.5±0.3 |
| **PC95PQ40/40Z-12** | | | | | | | |
| **PC44PQ50/50Z-12** | | | | | | | |
| **PC90PQ50/50Z-12** | 50.0±0.7 | 32.0±0.5 | 44.0±0.7 | 20.0±0.35 | 49.95±0.25 | 31.5 | 36.1±0.3 |
| **PC95PQ50/50Z-12** | | | | | | | |

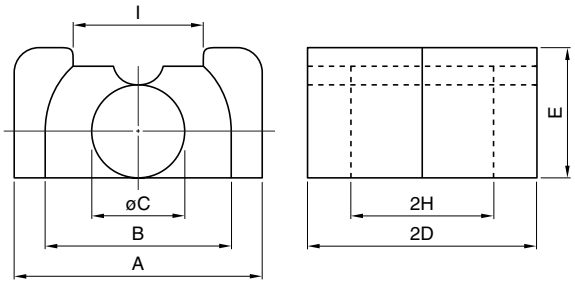
| Part No. | Effective parameter | | | | Electrical characteristics | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | **$A_L$-value (nH/N²)*** | | **Core loss (W) max.** | **Weight (g)** |
| | **$C_1$ ($mm^{-1}$)** | **Ae ($mm^2$)** | **$\ell e$ (mm)** | **Ve ($mm^3$)** | **Without air gap** | **With air gap** | **100kHz, 200mT, 100°C** | |
| **PC44PQ32/30Z-12** | | | | | 5140±25% | 160±5% | 3.92 | |
| **PC90PQ32/30Z-12** | 0.464 | 161 | 74.6 | 12000 | 4900±25% | 315±5% | 4.90 | 55 |
| **PC95PQ32/30Z-12** | | | | | 7000±25% | 630±7% | 5.30/4.45/5.30*** | |
| **PC44PQ35/35Z-12** | | | | | 4860±25% | 160±5% | 5.27 | |
| **PC90PQ35/35Z-12** | 0.448 | 196 | 87.9 | 17300 | 4700±25% | 315±5% | 6.6 | 73 |
| **PC95PQ35/35Z-12** | | | | | 7320±25% | 630±7% | 7.12/5.98/7.12*** | |
| **PC44PQ40/40Z-12** | | | | | 4300±25% | 160±5% | 6.56 | |
| **PC90PQ40/40Z-12** | 0.508 | 201 | 102 | 20500 | 4300±25% | 315±5% | 8.2 | 95 |
| **PC95PQ40/40Z-12** | | | | | 6400±25% | 630±7% | 8.87/7.45/8.87*** | |
| **PC44PQ50/50Z-12** | | | | | 6720±25% | 250±5% | 6.10** | |
| **PC90PQ50/50Z-12** | 0.346 | 328 | 113 | 37200 | 6250±25% | 400±5% | 8.4 | 195 |
| **PC95PQ50/50Z-12** | | | | | 9700±25% | 630±5% | 9.00/7.50/9.00*** | |

* $A_L$-value: 1kHz, 0.5mA, 100Ts
** Core loss: 100kHz, 150mT, 100°C
*** Core loss: 100kHz, 200mT, 25°C/80°C/120°C

# LP CORES



DE. DES. 19,581
EP. PAT. 68,745(DE, FR, GB, NL)
FR. DES. 201,586
GB. DES. 1,007,200
JP. U. M PRO. PUB. 82(57)-201,824
JP. DES. 630,754
NL. DES. 9,767
US. PAT. 4,424,504
US. DES. 280,810

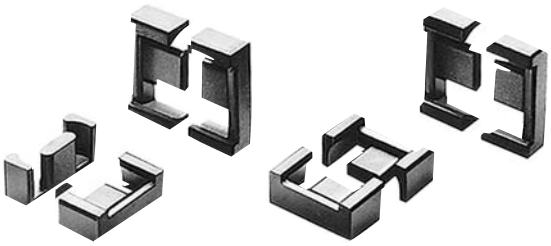



| Part No. | Dimensions in mm | | | | | | |
|---|---|---|---|---|---|---|---|
| | **A** | **B** | **øC** | **2D** | **E** | **2H** | **I** |
| **PC44LP23/8Z-12** | 16.5±0.3 | 12.5±0.3 | 5.7±0.1 | 23.4±0.2 | 8.7±0.2 | 17.4±0.2 | 9.0±0.5 |
| **PC44LP22/13Z-12** | 25.0±0.4 | 19.0±0.3 | 8.6±0.2 | 22.4±0.2 | 12.9±0.3 | 16.4±0.3 | 13.5±0.5 |
| **PC44LP32/13Z-12** | 25.0±0.4 | 19.0±0.3 | 8.6±0.2 | 31.8±0.2 | 12.9±0.3 | 24.1±0.3 | 13.5±0.5 |

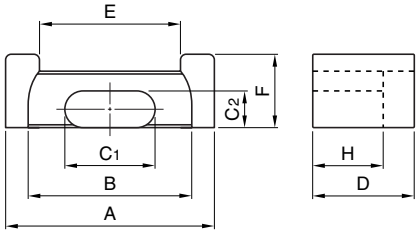
| Part No. | Effective parameter | | | | Electrical characteristics | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | **AL-value (nH/N²)*** | | **Core loss (W) max.** | **Weight (g)** |
| | **C1 (mm⁻¹)** | **Ae (mm²)** | **ℓe (mm)** | **Ve (mm³)** | **Without air gap** | **With air gap** | **100kHz, 200mT, 100°C** | |
| **PC44LP23/8Z-12** | 1.41 | 31.3 | 44.1 | 1380 | 1600±25% | 63±5%<br>100±7%<br>250±13% | 0.42 | 9.6 |
| **PC44LP22/13Z-12** | 0.721 | 67.9 | 49.0 | 3330 | 3310±25% | 100±5%<br>200±7%<br>400±10% | 1.05 | 21 |
| **PC44LP32/13Z-12** | 0.909 | 70.3 | 64.0 | 4500 | 2630±25% | 100±5%<br>200±7%<br>400±10% | 1.38 | 30 |

* AL-value: 1kHz, 0.5mA, 100Ts

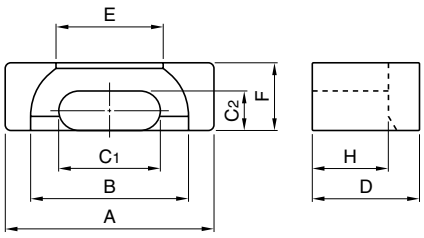
# EPC CORES



US. PAT. 4,760,366
EP. PAT. 245,083(DE, FR, GB, NL)
KS. UM 50,836
TW. UM 39,406
JP. PENDING




Type 1



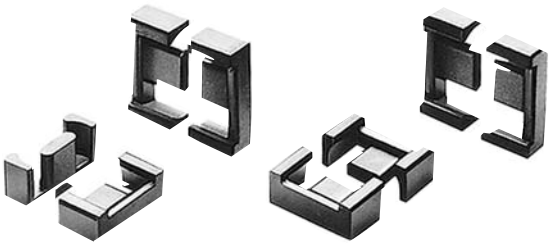

Type 2

| Part No. | Type | Dimensions in mm | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | A | B min. | $C_1$ | $C_2$ | D | E min. | F | H |
| PC44EPC10-Z<br>PC90EPC10-Z<br>PC95EPC10-Z | 2 | 10.2±0.2 | 7.6 | 5.0±0.1 | 1.9±0.1 | 4.05±0.10 | 5.3 | 3.4±0.1 | 2.65±0.10 |
| PC44EPC13-Z<br>PC90EPC13-Z<br>PC95EPC13-Z | 1 | 13.25±0.3 | 10.5 | 5.60±0.15 | 2.05±0.10 | 6.6±0.2 | 8.3 | 4.60±0.15 | 4.5±0.2 |
| PC44EPC17-Z<br>PC90EPC17-Z<br>PC95EPC17-Z | 1 | 17.6±0.4 | 14.3 | 7.70±0.15 | 2.8±0.1 | 8.55±0.20 | 11.5 | 6.00±0.15 | 6.05±0.20 |
| PC44EPC19-Z<br>PC90EPC19-Z<br>PC95EPC19-Z | 1 | 19.1±0.4 | 15.8 | 8.50±0.15 | 2.5±0.1 | 9.75±0.20 | 13.1 | 6.00±0.15 | 7.25±0.20 |

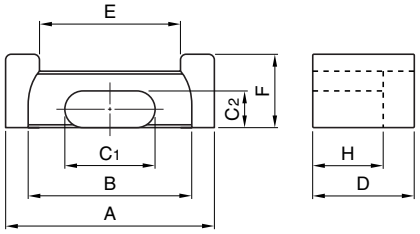
| Part No. | Effective parameter | | | | Electrical characteristics | | | Weight (g) |
|---|---|---|---|---|---|---|---|---|
| | $C_1$ ($mm^{-1}$) | Ae ($mm^2$) | $\ell e$ (mm) | Ve ($mm^3$) | $A_L$-value ($nH/N^2$)* | | Core loss (W) max. | |
| | | | | | Without air gap | With air gap | 100kHz, 200mT, 100°C | |
| PC44EPC10-Z<br>PC90EPC10-Z<br>PC95EPC10-Z | 1.89 | 9.39 | 17.8 | 167 | 1000±25%<br>900±25%<br>1040±25% | 40±7%<br>63±10% | 0.072<br>0.090<br>0.100/0.080/0.100** | 1.1 |
| PC44EPC13-Z<br>PC90EPC13-Z<br>PC95EPC13-Z | 2.45 | 12.5 | 30.6 | 382 | 870±25%<br>800±25%<br>1060±25% | 40±4%<br>63±5% | 0.14<br>0.17<br>0.17/0.15/0.17** | 2.1 |
| PC44EPC17-Z<br>PC90EPC17-Z<br>PC95EPC17-Z | 1.76 | 22.8 | 40.2 | 917 | 1150±25%<br>1100±25%<br>1500±25% | 80±4%<br>125±5% | 0.35<br>0.45<br>0.45/0.35/0.45** | 4.5 |
| PC44EPC19-Z<br>PC90EPC19-Z<br>PC95EPC19-Z | 2.03 | 22.7 | 46.1 | 1050 | 940±25%<br>940±25%<br>1400±25% | 80±4%<br>125±5% | 0.4<br>0.5<br>0.5/0.4/0.5** | 5.3 |

* $A_L$-value: 1kHz, 0.5mA, 100Ts
** Core loss: 100kHz, 200mT, 25°C/80°C/120°C

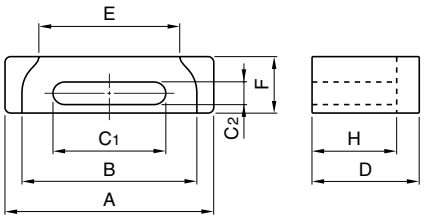
# EPC CORES



US. PAT. 4,760,366
EP. PAT. 245,083(DE, FR, GB, NL)
KS. UM 50,836
TW. UM 39,406
JP. PENDING




Type 1



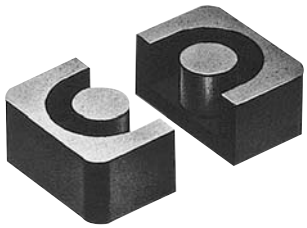

Type 2

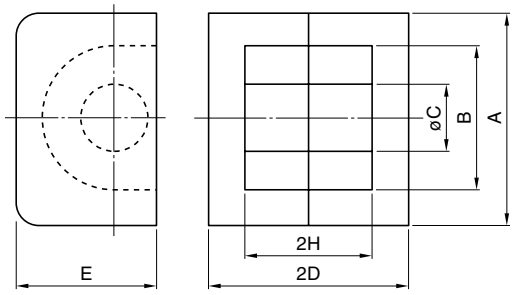
| Part No. | Type | Dimensions in mm | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | A | B min. | $C_1$ | $C_2$ | D | E min. | F | H |
| **PC44EPC25-Z**<br>**PC90EPC25-Z**<br>**PC95EPC25-Z** | 1 | 25.1±0.5 | 20.65 | 11.5±0.2 | 4.0±0.1 | 12.5±0.2 | 17.1 | 8.0±0.2 | 9.0±0.3 |
| **PC44EPC25B-Z**<br>**PC90EPC25B-Z**<br>**PC95EPC25B-Z** | 2 | 25.1±0.5 | 20.4 | 13.8±0.2 | 2.50±0.15 | 11.43±0.15 | 16.5 | 6.5±0.2 | 8.78±0.15 |
| **PC44EPC27-Z**<br>**PC90EPC27-Z**<br>**PC95EPC27-Z** | 1 | 27.1±0.5 | 21.6 | 13.0±0.3 | 4.0±0.1 | 16.0±0.2 | 18.5 | 8.0±0.2 | 12.0±0.3 |
| **PC44EPC30-Z**<br>**PC90EPC30-Z**<br>**PC95EPC30-Z** | 1 | 30.1±0.5 | 23.6 | 15.0±0.3 | 4.0±0.1 | 17.5±0.2 | 20.0 | 8.0±0.2 | 13.0±0.3 |

| Part No. | Effective parameter | | | | Electrical characteristics | | | Weight (g) |
|---|---|---|---|---|---|---|---|---|
| | $C_1$ ($mm^{-1}$) | Ae ($mm^2$) | $\ell e$ (mm) | Ve ($mm^3$) | $A_L$-value ($nH/N^2$)* | | Core loss (W) max. | |
| | | | | | Without air gap | With air gap | 100kHz, 200mT, 100°C | |
| **PC44EPC25-Z**<br>**PC90EPC25-Z**<br>**PC95EPC25-Z** | 1.40 | 40.4 | 56.3 | 2280 | 1560±25%<br>1400±25%<br>2200±25% | 125±5%<br>200±7% | 1.11<br>1.4<br>1.4/1.2/1.4** | 13 |
| **PC44EPC25B-Z**<br>**PC90EPC25B-Z**<br>**PC95EPC25B-Z** | 1.39 | 33.3 | 46.2 | 1540 | 1560±25%<br>1400±25%<br>2200±25% | 80±5%<br>125±7% | 0.65<br>0.8<br>0.8/0.65/0.8** | 11 |
| **PC44EPC27-Z**<br>**PC90EPC27-Z**<br>**PC95EPC27-Z** | 1.43 | 48.6 | 69.4 | 3370 | 1540±25%<br>1400±25%<br>2200±25% | 125±5%<br>200±7% | 1.56<br>2.0<br>2.0/1.7/2.0** | 18 |
| **PC44EPC30-Z**<br>**PC90EPC30-Z**<br>**PC95EPC30-Z** | 1.35 | 55.6 | 75.3 | 4190 | 1570±25%<br>1700±25%<br>2300±25% | 125±5%<br>200±7% | 2.03<br>2.5<br>2.3/2.0/2.3** | 23 |

* $A_L$-value: 1kHz, 0.5mA, 100Ts
** Core loss: 100kHz, 200mT, 25°C/80°C/120°C

# EP CORES



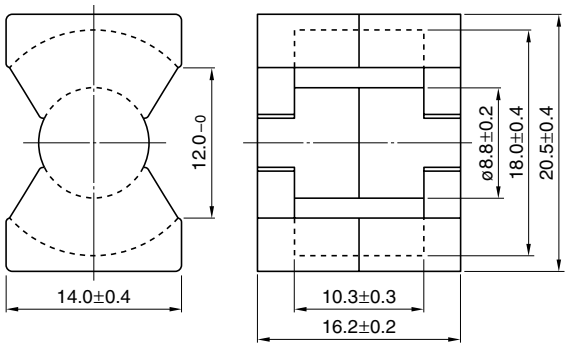



| Part No. | Dimensions in mm | | | | | |
|---|---|---|---|---|---|---|
| | **A** | **B** | **øC** | **2D** | **E** | **2H** |
| **PC40EP7-Z** | 9.2±0.2 | 7.4±0.2 | 3.3±0.1 | 7.4±0.1 | 6.35±0.15 | 5.2±0.2 |
| **PC40EP10-Z** | 11.5±0.3 | 9.4±0.2 | 3.3±0.15 | 10.2±0.2 | 7.65±0.2 | 7.4±0.2 |
| **PC40EP13-Z** | 12.5±0.3 | 10.0±0.3 | 4.35±0.15 | 12.85±0.15 | 8.8±0.2 | 9.2±0.2 |
| **PC40EP17-Z** | 18.0±0.4 | 12.0±0.4 | 5.68±0.18 | 16.8±0.2 | 11.0±0.25 | 11.3±0.3 |
| **PC40EP20-Z** | 24.0±0.5 | 16.5±0.4 | 8.75±0.25 | 21.4±0.2 | 14.95±0.35 | 14.3±0.3 |

| Part No. | Effective parameter | | | | Electrical characteristics | | | Weight (g) |
|---|---|---|---|---|---|---|---|---|
| | **$C_1$ ($mm^{-1}$)** | **Ae ($mm^2$)** | **$\ell e$ (mm)** | **Ve ($mm^3$)** | **$A_L$-value ($nH/N^2$)*** | | **Core loss (W) max.** | |
| | | | | | **Without air gap** | **With air gap** | **100kHz, 200mT, 100°C** | |
| **PC40EP7-Z** | 1.52 | 10.3 | 15.7 | 162 | 830 min. | 63±3%<br>100±4% | 0.065 | 1.4 |
| **PC40EP10-Z** | 1.70 | 11.3 | 19.2 | 217 | 800 min.<br>800±25% | 63±3%<br>100±4% | 0.08 | 2.8 |
| **PC40EP13-Z** | 1.24 | 19.5 | 24.2 | 472 | 1170 min.<br>1100±25% | 100±3%<br>160±3% | 0.17 | 5.1 |
| **PC40EP17-Z** | 0.84 | 33.9 | 28.5 | 966 | 1840 min. | 100±5%<br>250±7% | 0.33 | 12 |
| **PC40EP20-Z** | 0.508 | 78 | 39.8 | 3120 | 3200 min. | 100±5%<br>250±7% | 1.1 | 28 |

* $A_L$-value: 1kHz, 0.5mA, 100Ts

# PQ Series PQ20/16 Cores




Dimensions in mm

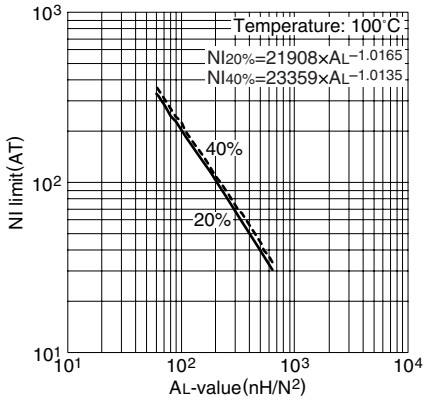
**PARAMETER**

| | | | |
|---|---|---|---|
| **Core factor** | C1 | $mm^{-1}$ | 0.605 |
| **Effective magnetic path length** | ℓe | mm | 37.4 |
| **Effective cross-sectional area** | Ae | $mm^2$ | 62 |
| **Effective core volume** | Ve | $mm^3$ | 2310 |
| **Cross-sectional center pole area** | Acp | $mm^2$ | 60.8 |
| **Minimum cross-sectional center pole area** | Acp min. | $mm^2$ | 58.1 |
| **Cross-sectional winding area of core** | Acw | $mm^2$ | 47.4 |
| **Weight (approx.)** | | g | 13 |

| Part No. | AL-value ($nH/N^2$)* | Core loss (W) max. 100kHz, 200mT | Calculated output power (forward converter mode) |
|---|---|---|---|
| **PC44PQ20/16Z-12** | 3880±25% (1kHz, 0.5mA) | 0.84(100°C) | 70W (100kHz) |
| **PC90PQ20/16Z-12** | 3100±25% (1kHz, 0.5mA) | 1.10(100°C) | 70W |
| **PC95PQ20/16Z-12** | 4480±25% (1kHz, 0.5mA) | 1.14/0.96/1.14(25°C/80°C/120°C) | 74W |

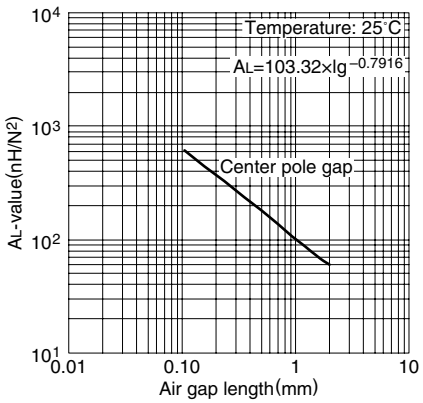
* Coil: ø0.35 2UEW 100Ts

**NI limit vs. AL-value for PC44PQ20/16 gapped core (Typical)**



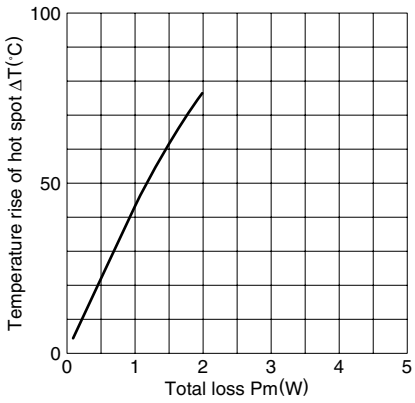

Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

**AL-value vs. Air gap length for PC44PQ20/16 core (Typical)**

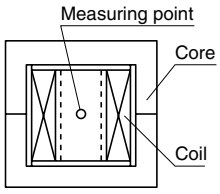



Measuring conditions
- Coil: ø0.35 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

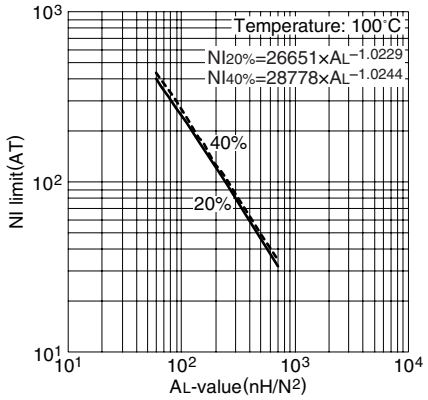
**Temperature rise vs. Total loss for PQ20/16 core (Typical) (Ambient temperature: 25°C)**



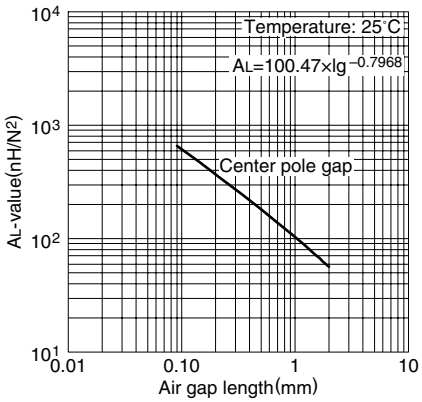

Note: The temperature rise is measured in the room whose temperature and humidity are fixed to 25°C and 45(%)RH. respectively. (approx. 400×300×300cm)



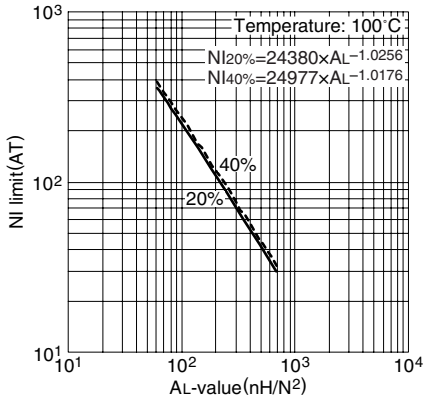
**NI limit vs. AL-value for PC90PQ20/16 gapped core (Typical)**



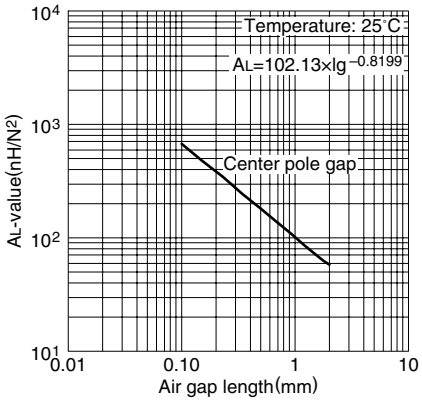

**AL-value vs. Air gap length for PC90PQ20/16 core (Typical)**




**NI limit vs. AL-value for PC95PQ20/16 gapped core (Typical)**



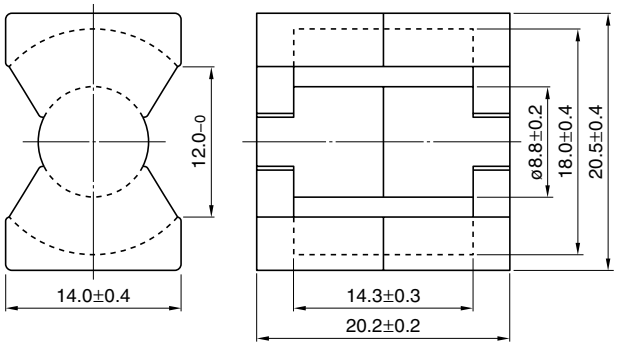

**AL-value vs. Air gap length for PC95PQ20/16 core (Typical)**




Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

Measuring conditions
- Coil: ø0.35 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

# PQ Series PQ20/20 Cores




Dimensions in mm

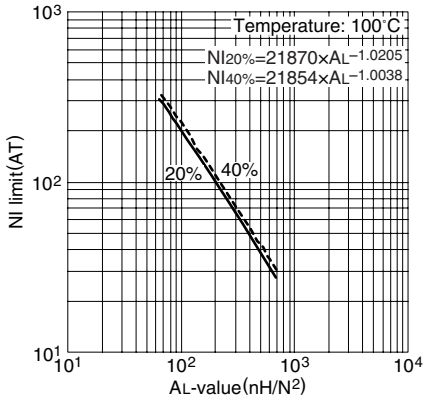
**PARAMETER**

| | | | |
|---|---|---|---|
| **Core factor** | C1 | $mm^{-1}$ | 0.738 |
| **Effective magnetic path length** | ℓe | mm | 45.4 |
| **Effective cross-sectional area** | Ae | $mm^2$ | 62 |
| **Effective core volume** | Ve | $mm^3$ | 2790 |
| **Cross-sectional center pole area** | Acp | $mm^2$ | 60.8 |
| **Minimum cross-sectional center pole area** | Acp min. | $mm^2$ | 58.1 |
| **Cross-sectional winding area of core** | Acw | $mm^2$ | 65.8 |
| **Weight (approx.)** | | g | 15 |

| Part No. | AL-value ($nH/N^2$)* | Core loss (W) max. 100kHz, 200mT | Calculated output power (forward converter mode) |
|---|---|---|---|
| **PC44PQ20/20Z-12** | 3150±25% (1kHz, 0.5mA) | 1.02(100°C) | 92W (100kHz) |
| **PC90PQ20/20Z-12** | 2700±25% (1kHz, 0.5mA) | 1.35(100°C) | 92W |
| **PC95PQ20/20Z-12** | 4000±25% (1kHz, 0.5mA) | 1.38/1.16/1.38(25°C/80°C/120°C) | 96W |

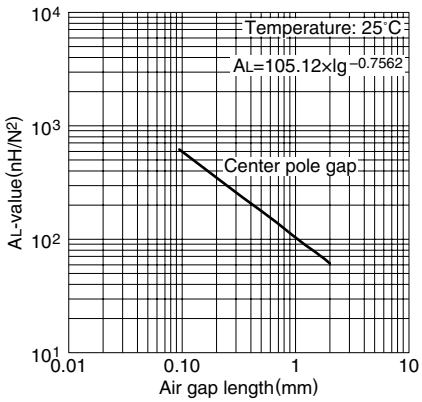
* Coil: ø0.35 2UEW 100Ts

**NI limit vs. AL-value for PC44PQ20/20 gapped core (Typical)**



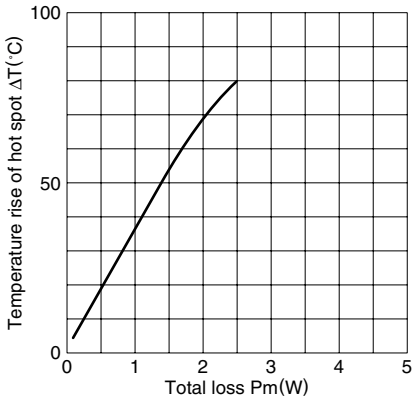

Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

**AL-value vs. Air gap length for PC44PQ20/20 core (Typical)**

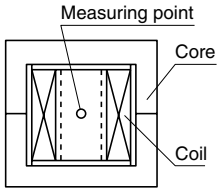



Measuring conditions
- Coil: ø0.35 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

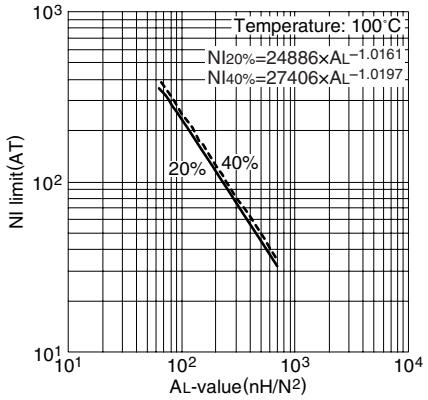
**Temperature rise vs. Total loss for PQ20/20 core (Typical) (Ambient temperature: 25°C)**



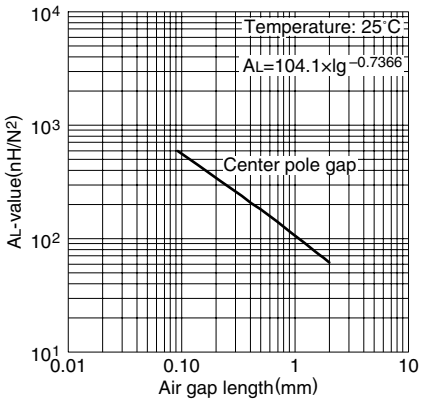

Note: The temperature rise is measured in the room whose temperature and humidity are fixed to 25°C and 45(%)RH. respectively. (approx. 400×300×300cm)



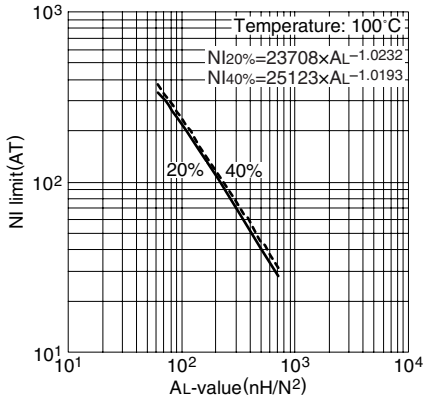
**NI limit vs. AL-value for PC90PQ20/20 gapped core (Typical)**



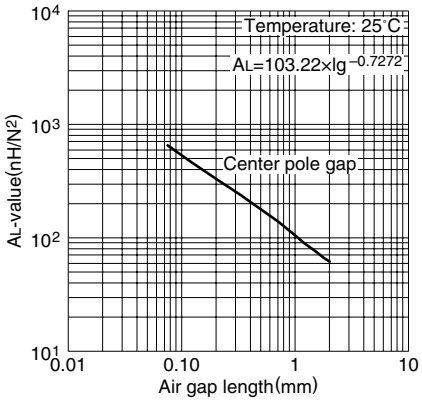

**AL-value vs. Air gap length for PC90PQ20/20 core (Typical)**




**NI limit vs. AL-value for PC95PQ20/20 gapped core (Typical)**



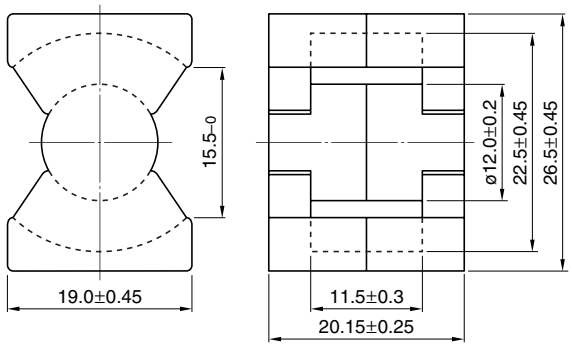

**AL-value vs. Air gap length for PC95PQ20/20 core (Typical)**




Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

Measuring conditions
- Coil: ø0.35 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

# PQ Series PQ26/20 Cores




Dimensions in mm

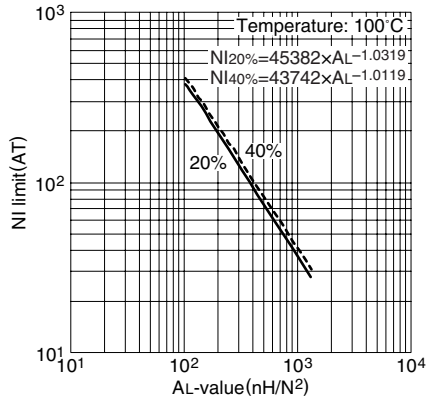
**PARAMETER**

| | | | |
|---|---|---|---|
| **Core factor** | C1 | $mm^{-1}$ | 0.391 |
| **Effective magnetic path length** | ℓe | mm | 46.3 |
| **Effective cross-sectional area** | Ae | $mm^2$ | 119 |
| **Effective core volume** | Ve | $mm^3$ | 5490 |
| **Cross-sectional center pole area** | Acp | $mm^2$ | 113 |
| **Minimum cross-sectional center pole area** | Acp min. | $mm^2$ | 109 |
| **Cross-sectional winding area of core** | Acw | $mm^2$ | 60.4 |
| **Weight (approx.)** | | g | 31 |

| Part No. | AL-value ($nH/N^2$)* | Core loss (W) max. 100kHz, 200mT | Calculated output power (forward converter mode) |
|---|---|---|---|
| **PC44PQ26/20Z-12** | 6170±25% (1kHz, 0.5mA) | 1.94(100°C) | 170W (100kHz) |
| **PC90PQ26/20Z-12** | 5500±25% (1kHz, 0.5mA) | 2.45(100°C) | 170W |
| **PC95PQ26/20Z-12** | 7470±25% (1kHz, 0.5mA) | 2.62/2.20/2.62(25°C/80°C/120°C) | 179W |

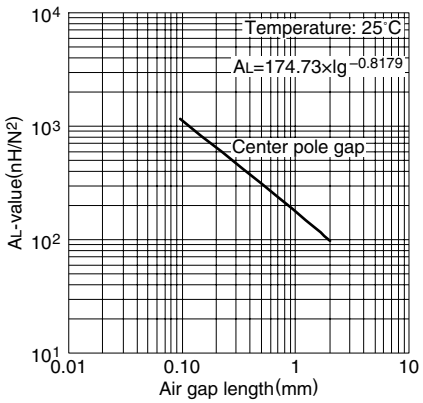
* Coil: ø0.35 2UEW 100Ts

**NI limit vs. AL-value for PC44PQ26/20 gapped core (Typical)**



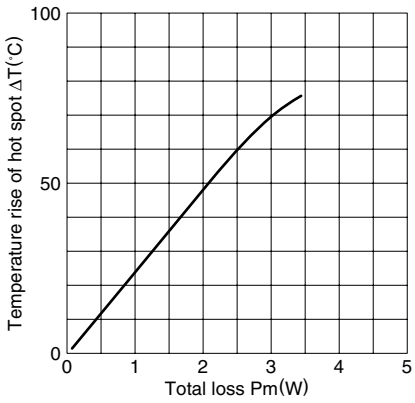

Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

**AL-value vs. Air gap length for PC44PQ26/20 core (Typical)**

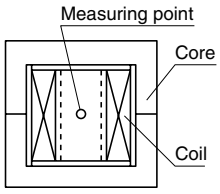



Measuring conditions
- Coil: ø0.35 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

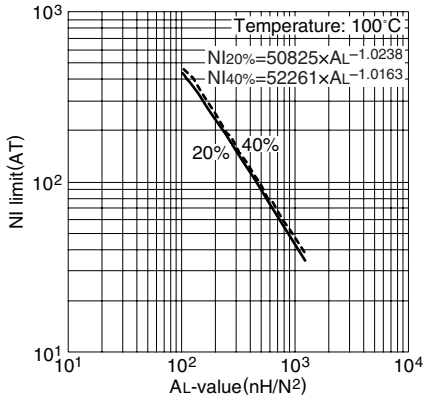
**Temperature rise vs. Total loss for PQ26/20 core (Typical) (Ambient temperature: 25°C)**



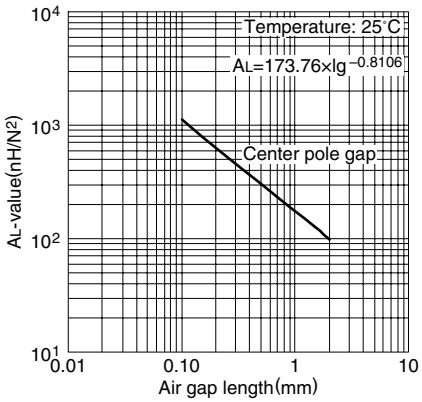

Note: The temperature rise is measured in the room whose temperature and humidity are fixed to 25°C and 45(%)RH. respectively. (approx. 400×300×300cm)



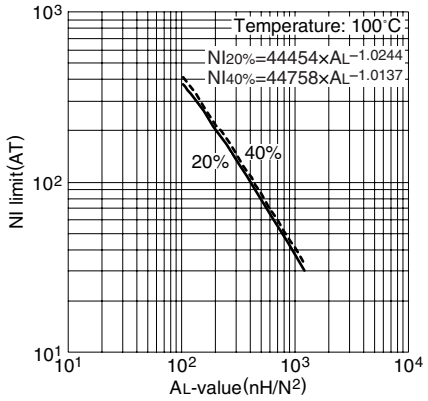
**NI limit vs. AL-value for PC90PQ26/20 gapped core (Typical)**



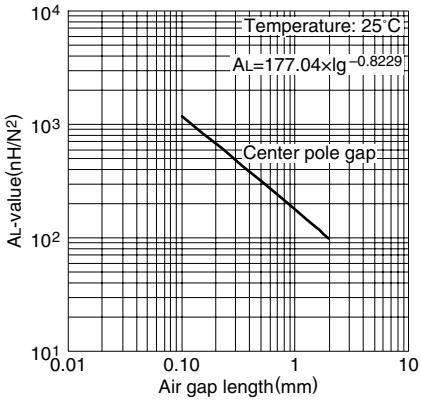

**AL-value vs. Air gap length for PC90PQ26/20 core (Typical)**




**NI limit vs. AL-value for PC95PQ26/20 gapped core (Typical)**



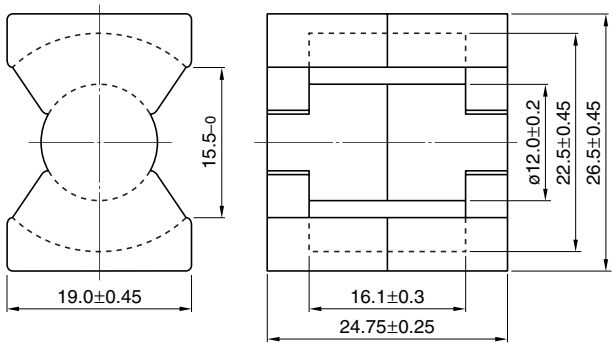

**AL-value vs. Air gap length for PC95PQ26/20 core (Typical)**




Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

Measuring conditions
- Coil: ø0.35 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

# PQ Series PQ26/25 Cores




Dimensions in mm

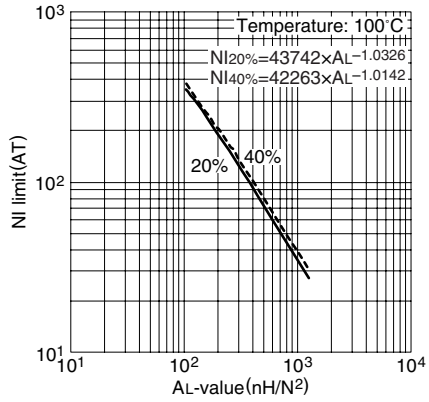
**PARAMETER**

| | | | |
|---|---|---|---|
| **Core factor** | C1 | $mm^{-1}$ | 0.472 |
| **Effective magnetic path length** | ℓe | mm | 55.5 |
| **Effective cross-sectional area** | Ae | $mm^2$ | 118 |
| **Effective core volume** | Ve | $mm^3$ | 6530 |
| **Cross-sectional center pole area** | Acp | $mm^2$ | 113 |
| **Minimum cross-sectional center pole area** | Acp min. | $mm^2$ | 109 |
| **Cross-sectional winding area of core** | Acw | $mm^2$ | 84.5 |
| **Weight (approx.)** | | g | 36 |

| Part No. | AL-value ($nH/N^2$)* | Core loss (W) max. 100kHz, 200mT | Calculated output power (forward converter mode) |
|---|---|---|---|
| **PC44PQ26/25Z-12** | 5250±25% (1kHz, 0.5mA) | 2.32(100°C) | 195W (100kHz) |
| **PC90PQ26/25Z-12** | 4500±25% (1kHz, 0.5mA) | 2.9(100°C) | 195W |
| **PC95PQ26/25Z-12** | 6520±25% (1kHz, 0.5mA) | 3.14/2.63/3.14(25°C/80°C/120°C) | 206W |

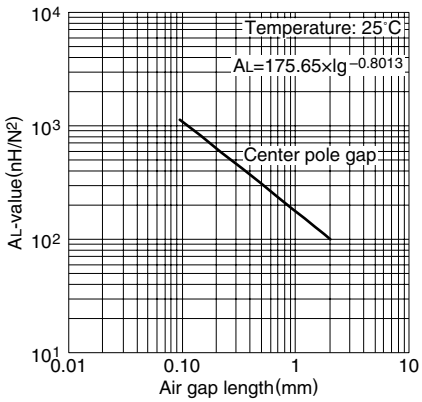
* Coil: ø0.35 2UEW 100Ts

**NI limit vs. AL-value for PC44PQ26/25 gapped core (Typical)**



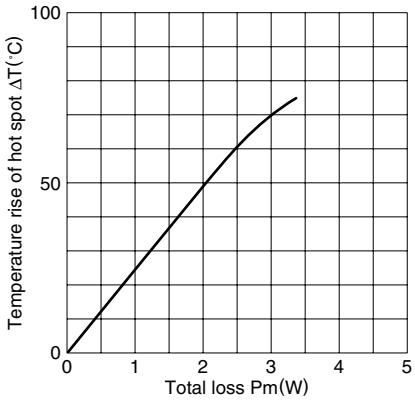

Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

**AL-value vs. Air gap length for PC44PQ26/25 core (Typical)**

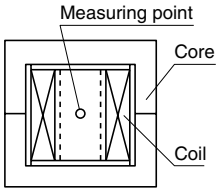



Measuring conditions
- Coil: ø0.35 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

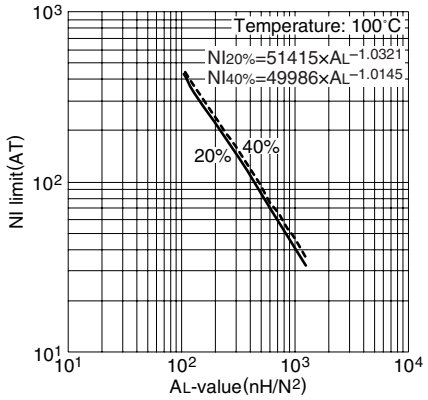
**Temperature rise vs. Total loss for PQ26/25 core (Typical) (Ambient temperature: 25°C)**



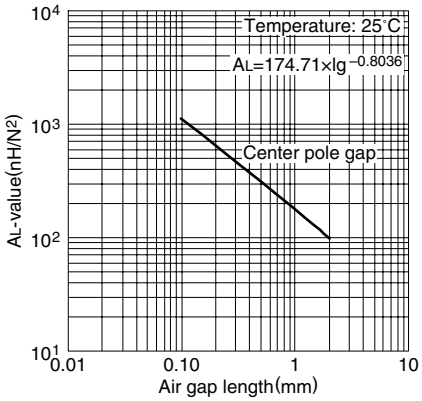

Note: The temperature rise is measured in the room whose temperature and humidity are fixed to 25°C and 45(%)RH. respectively. (approx. 400×300×300cm)



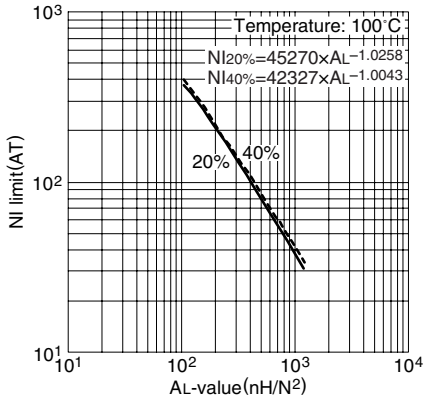
**NI limit vs. AL-value for PC90PQ26/25 gapped core (Typical)**



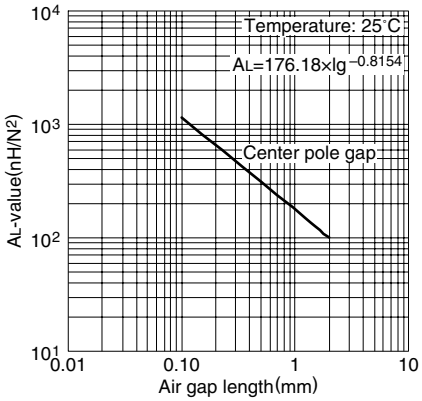

**AL-value vs. Air gap length for PC90PQ26/25 core (Typical)**




**NI limit vs. AL-value for PC95PQ26/25 gapped core (Typical)**



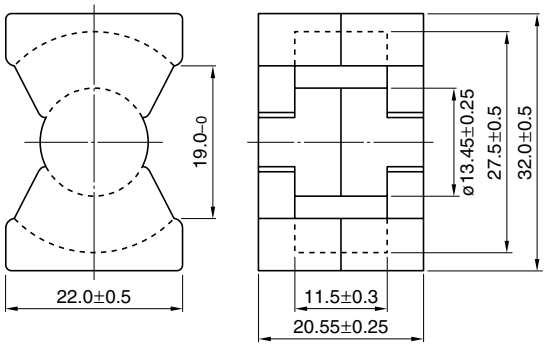

**AL-value vs. Air gap length for PC95PQ26/25 core (Typical)**




Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

Measuring conditions
- Coil: ø0.35 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

# PQ Series PQ32/20 Cores




Dimensions in mm

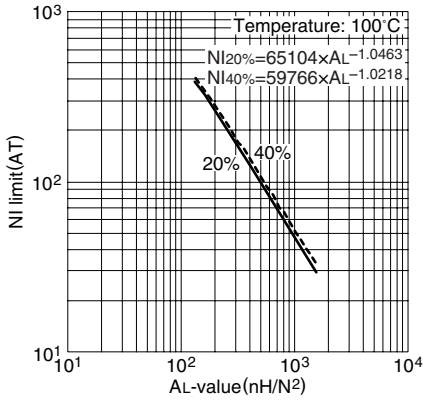
**PARAMETER**

| | | | |
|---|---|---|---|
| **Core factor** | C1 | $mm^{-1}$ | 0.326 |
| **Effective magnetic path length** | ℓe | mm | 55.5 |
| **Effective cross-sectional area** | Ae | $mm^2$ | 170 |
| **Effective core volume** | Ve | $mm^3$ | 9420 |
| **Cross-sectional center pole area** | Acp | $mm^2$ | 142 |
| **Minimum cross-sectional center pole area** | Acp min. | $mm^2$ | 137 |
| **Cross-sectional winding area of core** | Acw | $mm^2$ | 80.8 |
| **Weight (approx.)** | | g | 42 |

| Part No. | AL-value ($nH/N^2$)* | Core loss (W) max. 100kHz, 200mT | Calculated output power (forward converter mode) |
|---|---|---|---|
| **PC44PQ32/20Z-12** | 7310±25% (1kHz, 0.5mA) | 2.92(100°C) | 232W (100kHz) |
| **PC90PQ32/20Z-12** | 6400±25% (1kHz, 0.5mA) | 3.7(100°C) | 238W |
| **PC95PQ32/20Z-12** | 9120±25% (1kHz, 0.5mA) | 3.94/3.31/3.94(25°C/80°C/120°C) | 251W |

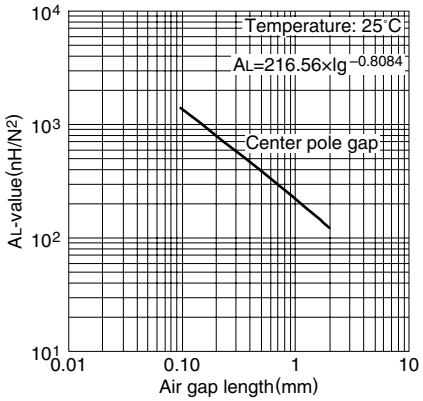
* Coil: ø0.35 2UEW 100Ts

**NI limit vs. AL-value for PC44PQ32/20 gapped core (Typical)**



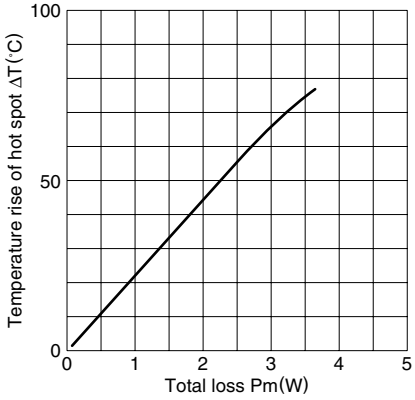

Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

**AL-value vs. Air gap length for PC44PQ32/20 core (Typical)**

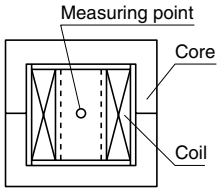



Measuring conditions
- Coil: ø0.35 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

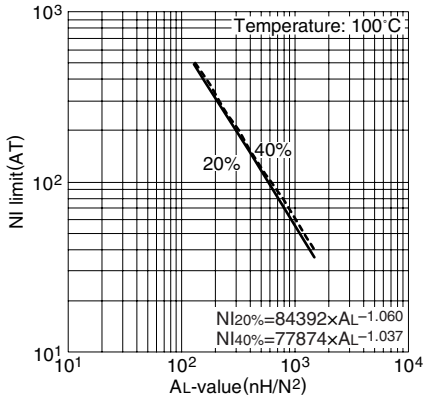
**Temperature rise vs. Total loss for PQ32/20 core (Typical) (Ambient temperature: 25°C)**



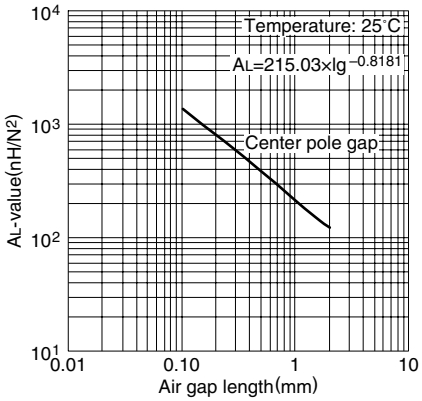

Note: The temperature rise is measured in the room whose temperature and humidity are fixed to 25°C and 45(%)RH. respectively. (approx. 400×300×300cm)



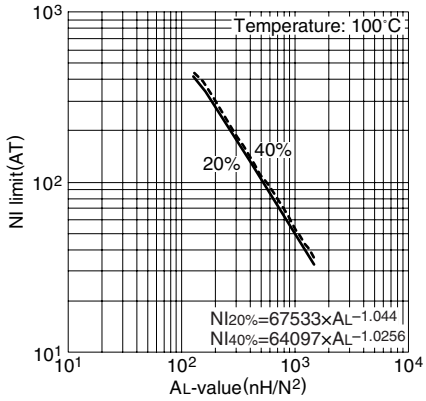
**NI limit vs. AL-value for PC90PQ32/20 gapped core (Typical)**



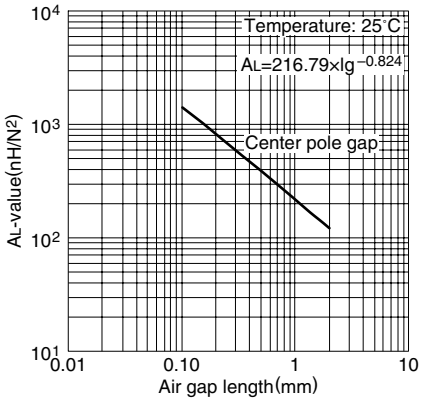

**AL-value vs. Air gap length for PC90PQ32/20 core (Typical)**




**NI limit vs. AL-value for PC95PQ32/20 gapped core (Typical)**



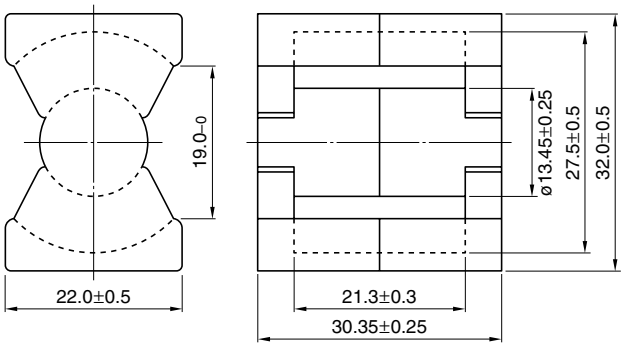

**AL-value vs. Air gap length for PC95PQ32/20 core (Typical)**




Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

Measuring conditions
- Coil: ø0.35 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

# PQ Series PQ32/30 Cores




Dimensions in mm

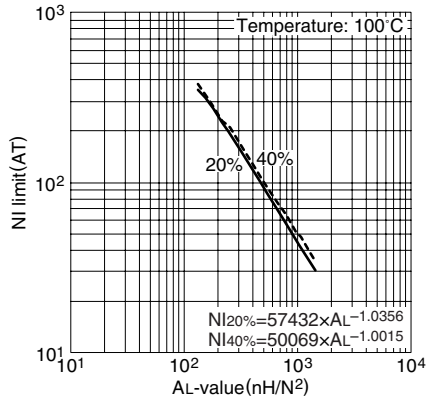
**PARAMETER**

| | | | |
|---|---|---|---|
| **Core factor** | C1 | $mm^{-1}$ | 0.464 |
| **Effective magnetic path length** | ℓe | mm | 74.6 |
| **Effective cross-sectional area** | Ae | $mm^2$ | 161 |
| **Effective core volume** | Ve | $mm^3$ | 12000 |
| **Cross-sectional center pole area** | Acp | $mm^2$ | 142 |
| **Minimum cross-sectional center pole area** | Acp min. | $mm^2$ | 137 |
| **Cross-sectional winding area of core** | Acw | $mm^2$ | 149.6 |
| **Weight (approx.)** | | g | 55 |

| Part No. | AL-value (nH/N2)* | Core loss (W) max. 100kHz, 200mT | Calculated output power (forward converter mode) |
|---|---|---|---|
| **PC44PQ32/30Z-12** | 5140±25% (1kHz, 0.5mA) | 3.92(100°C) | 331W (100kHz) |
| **PC90PQ32/30Z-12** | 4900±25% (1kHz, 0.5mA) | 4.90(100°C) | 348W |
| **PC95PQ32/30Z-12** | 7000±25% (1kHz, 0.5mA) | 5.30/4.45/5.30(25°C/80°C/120°C) | 365W |

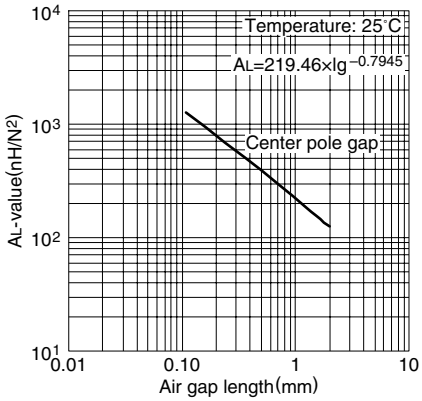
* Coil: ø0.4 2UEW 100Ts

**NI limit vs. AL-value for PC44PQ32/30 gapped core (Typical)**



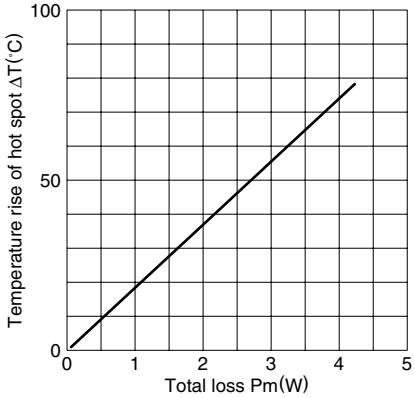

Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

**AL-value vs. Air gap length for PC44PQ32/30 core (Typical)**

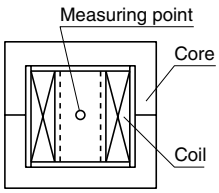



Measuring conditions
- Coil: ø0.4 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

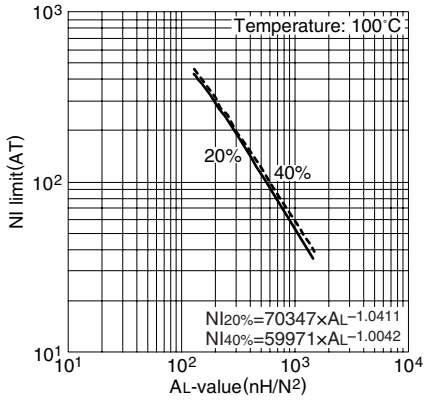
**Temperature rise vs. Total loss for PQ32/30 core (Typical) (Ambient temperature: 25°C)**



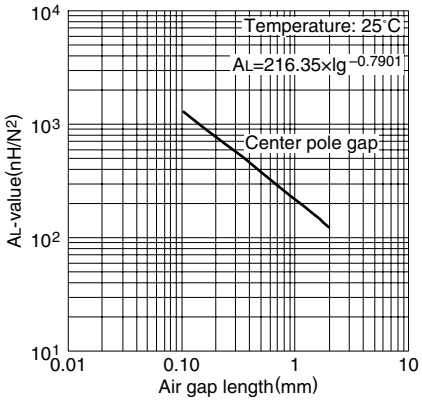

Note: The temperature rise is measured in the room whose temperature and humidity are fixed to 25°C and 45(%)RH. respectively. (approx. 400×300×300cm)



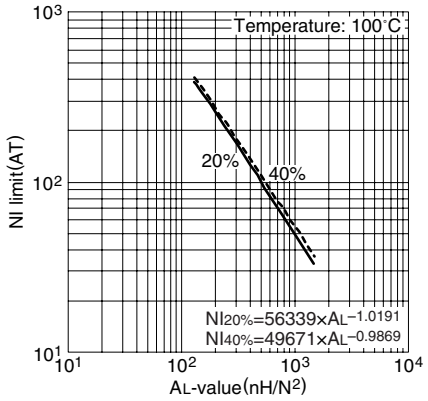
**NI limit vs. AL-value for PC90PQ32/30 gapped core (Typical)**



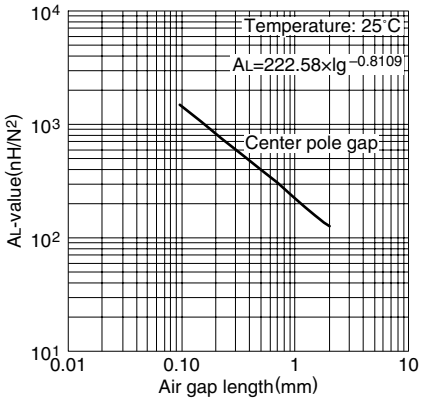

**AL-value vs. Air gap length for PC90PQ32/30 core (Typical)**




**NI limit vs. AL-value for PC95PQ32/30 gapped core (Typical)**



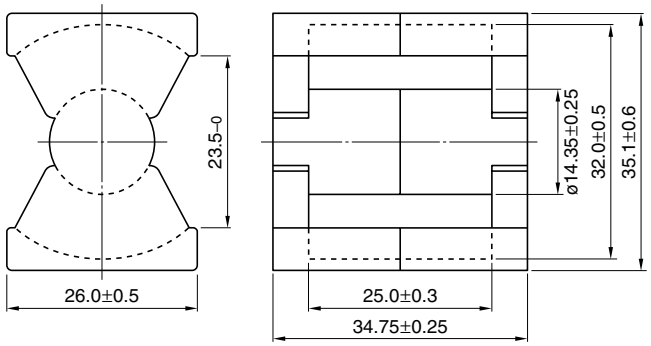

**AL-value vs. Air gap length for PC95PQ32/30 core (Typical)**




Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

Measuring conditions
- Coil: ø0.4 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

# PQ Series PQ35/35 Cores




Dimensions in mm

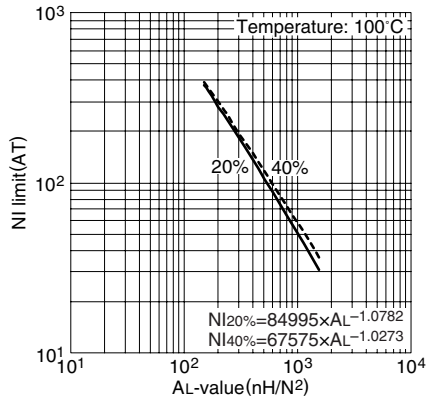
**PARAMETER**

| | | | |
|---|---|---|---|
| **Core factor** | C1 | $mm^{-1}$ | 0.448 |
| **Effective magnetic path length** | ℓe | mm | 87.9 |
| **Effective cross-sectional area** | Ae | $mm^2$ | 196 |
| **Effective core volume** | Ve | $mm^3$ | 17300 |
| **Cross-sectional center pole area** | Acp | $mm^2$ | 162 |
| **Minimum cross-sectional center pole area** | Acp min. | $mm^2$ | 156 |
| **Cross-sectional winding area of core** | Acw | $mm^2$ | 220.6 |
| **Weight (approx.)** | | g | 73 |

| Part No. | AL-value ($nH/N^2$)* | Core loss (W) max. 100kHz, 200mT | Calculated output power (forward converter mode) |
|---|---|---|---|
| **PC44PQ35/35Z-12** | 4860±25% (1kHz, 0.5mA) | 5.27(100°C) | 452W (100kHz) |
| **PC90PQ35/35Z-12** | 4700±25% (1kHz, 0.5mA) | 6.6(100°C) | 475W |
| **PC95PQ35/35Z-12** | 7320±25% (1kHz, 0.5mA) | 7.12/5.98/7.12(25°C/80°C/120°C) | 500W |

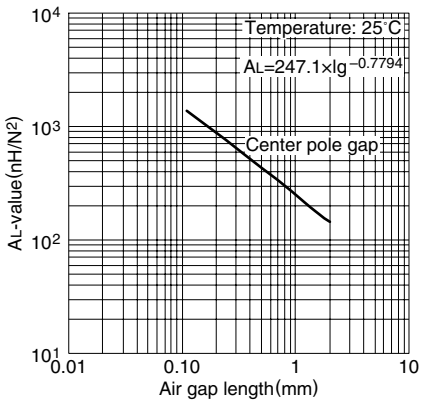
* Coil: ø0.4 2UEW 100Ts

**NI limit vs. AL-value for PC44PQ35/35 gapped core (Typical)**



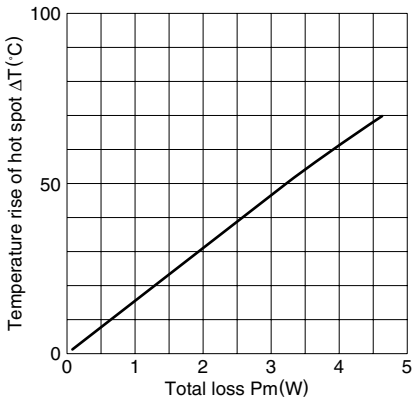

Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

**AL-value vs. Air gap length for PC44PQ35/35 core (Typical)**

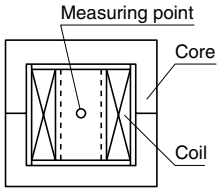



Measuring conditions
- Coil: ø0.4 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

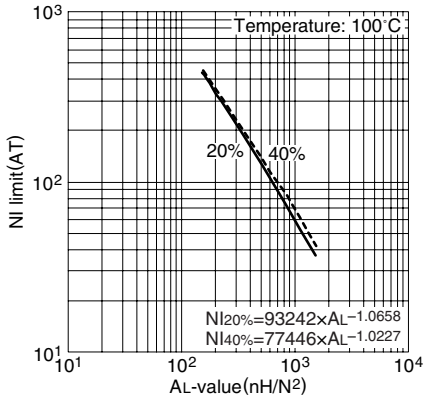
**Temperature rise vs. Total loss for PQ35/35 core (Typical) (Ambient temperature: 25°C)**



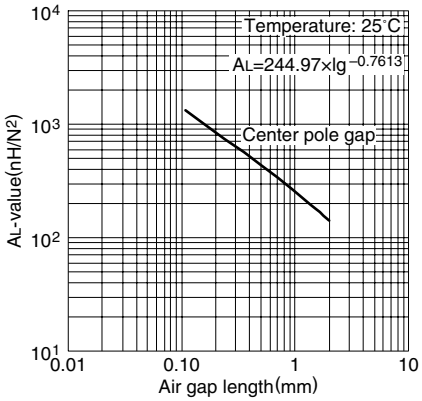

Note: The temperature rise is measured in the room whose temperature and humidity are fixed to 25°C and 45(%)RH. respectively. (approx. 400×300×300cm)



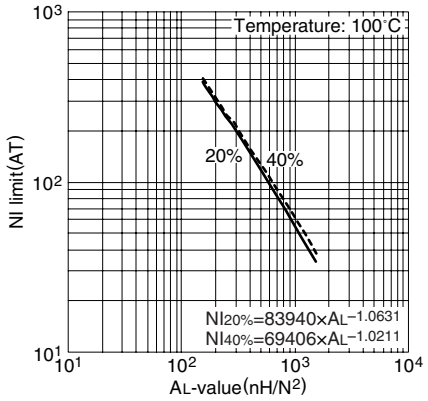
**NI limit vs. AL-value for PC90PQ35/35 gapped core (Typical)**



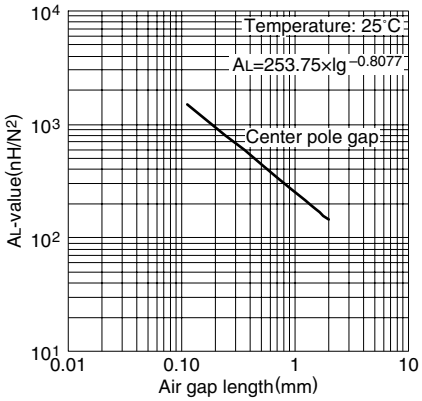

**AL-value vs. Air gap length for PC90PQ35/35 core (Typical)**




**NI limit vs. AL-value for PC95PQ35/35 gapped core (Typical)**



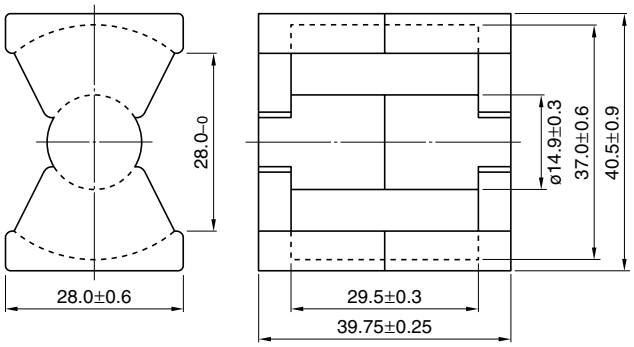

**AL-value vs. Air gap length for PC95PQ35/35 core (Typical)**




Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

Measuring conditions
- Coil: ø0.4 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

# PQ Series PQ40/40 Cores




Dimensions in mm

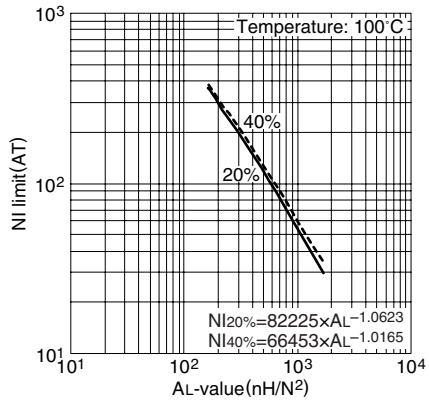
**PARAMETER**

| | | | |
|---|---|---|---|
| **Core factor** | $C_1$ | $mm^{-1}$ | 0.508 |
| **Effective magnetic path length** | $\ell e$ | mm | 102 |
| **Effective cross-sectional area** | Ae | $mm^2$ | 201 |
| **Effective core volume** | Ve | $mm^3$ | 20500 |
| **Cross-sectional center pole area** | Acp | $mm^2$ | 174 |
| **Minimum cross-sectional center pole area** | Acp min. | $mm^2$ | 167 |
| **Cross-sectional winding area of core** | Acw | $mm^2$ | 326 |
| **Weight (approx.)** | | g | 95 |

| Part No. | $A_L$-value ($nH/N^2$)* | Core loss (W) max. 100kHz, 200mT | Calculated output power (forward converter mode) |
|---|---|---|---|
| **PC44PQ40/40Z-12** | 4300±25% (1kHz, 0.5mA) | 6.56(100°C) | 596W (100kHz) |
| **PC90PQ40/40Z-12** | 4300±25% (1kHz, 0.5mA) | 8.2(100°C) | 626W |
| **PC95PQ40/40Z-12** | 6400±25% (1kHz, 0.5mA) | 8.87/7.45/8.87(25°C/80°C/120°C) | 650W |

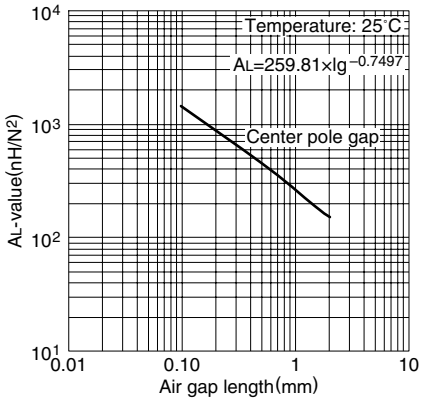
* Coil: ø0.4 2UEW 100Ts

**NI limit vs. $A_L$-value for PC44PQ40/40 gapped core (Typical)**



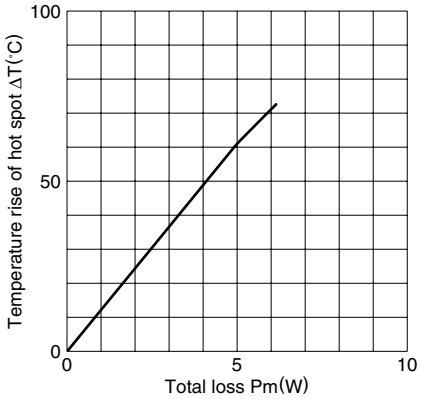

Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

**$A_L$-value vs. Air gap length for PC44PQ40/40 core (Typical)**

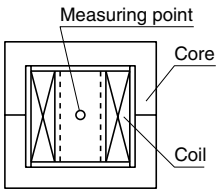



Measuring conditions
- Coil: ø0.4 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

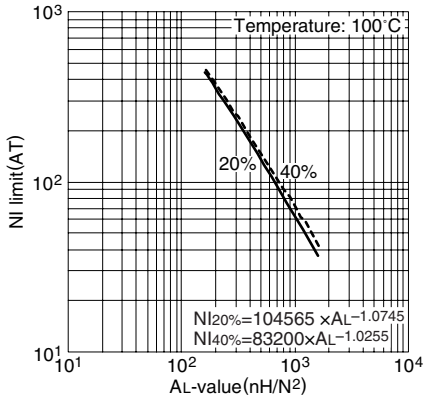
**Temperature rise vs. Total loss for PQ40/40 core (Typical)**



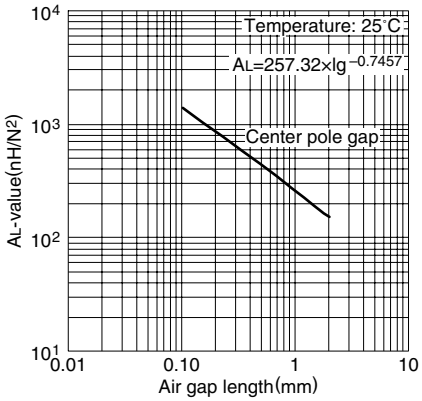

Note: The temperature rise is measured in the room whose temperature and humidity are fixed to 25°C and 45(%)RH. respectively. (approx. 400×300×300cm)



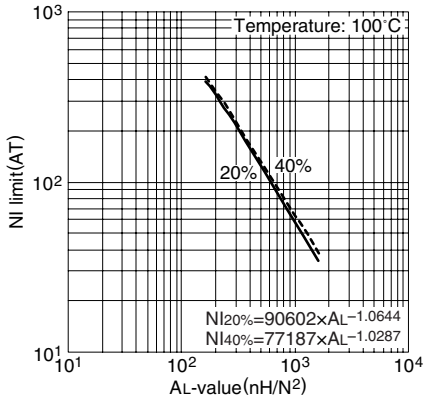
**NI limit vs. AL-value for PC90PQ40/40 gapped core (Typical)**



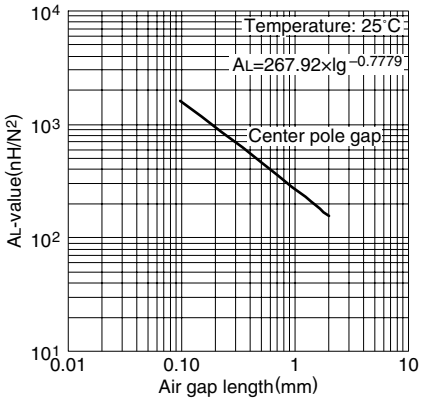

**AL-value vs. Air gap length for PC90PQ40/40 core (Typical)**




**NI limit vs. AL-value for PC95PQ40/40 gapped core (Typical)**



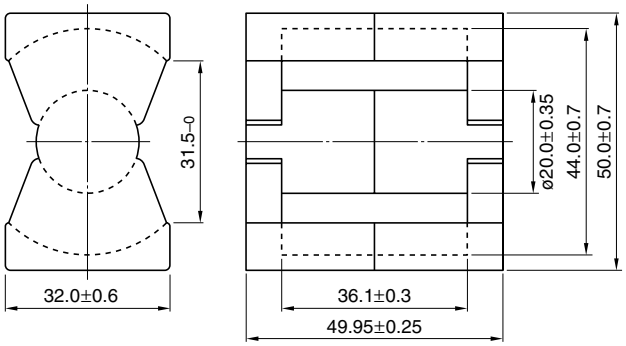

**AL-value vs. Air gap length for PC95PQ40/40 core (Typical)**




Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

Measuring conditions
- Coil: ø0.4 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

# PQ Series PQ50/50 Cores




Dimensions in mm

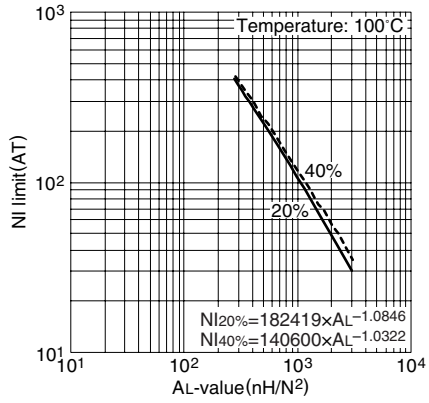
**PARAMETER**

| | | | |
|---|---|---|---|
| **Core factor** | C1 | $mm^{-1}$ | 0.346 |
| **Effective magnetic path length** | ℓe | mm | 113 |
| **Effective cross-sectional area** | Ae | $mm^2$ | 328 |
| **Effective core volume** | Ve | $mm^3$ | 37200 |
| **Cross-sectional center pole area** | Acp | $mm^2$ | 314 |
| **Minimum cross-sectional center pole area** | Acp min. | $mm^2$ | 303 |
| **Cross-sectional winding area of core** | Acw | $mm^2$ | 433 |
| **Weight (approx.)** | | g | 195 |

| Part No. | AL-value ($nH/N^2$)* | Core loss (W) max. 100kHz, 200mT | Calculated output power (forward converter mode) |
|---|---|---|---|
| **PC44PQ50/50Z-12** | 6720±25% (1kHz, 0.5mA) | 6.1(100°C) | 1045W (100kHz) |
| **PC90PQ50/50Z-12** | 6250±25% (1kHz, 0.5mA) | 8.4(100°C) | 1300W |
| **PC95PQ50/50Z-12** | 9700±25% (1kHz, 0.5mA) | 9.00/7.50/9.00(25°C/80°C/120°C) | 1200W |

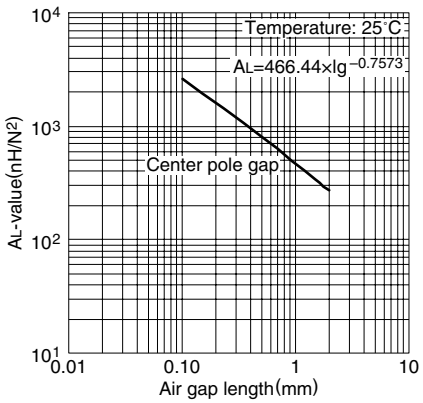
* Coil: ø0.4 2UEW 100Ts

**NI limit vs. AL-value for PC44PQ50/50 gapped core (Typical)**



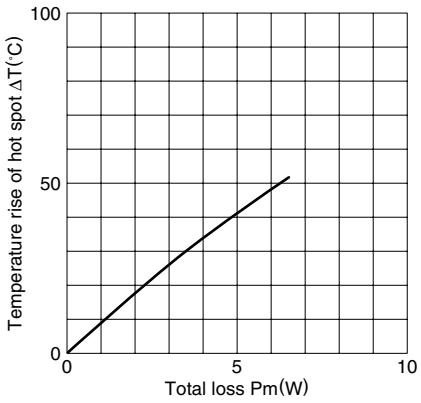

Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

**AL-value vs. Air gap length for PC44PQ50/50 core (Typical)**

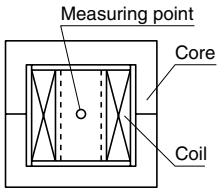



Measuring conditions
- Coil: ø0.4 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

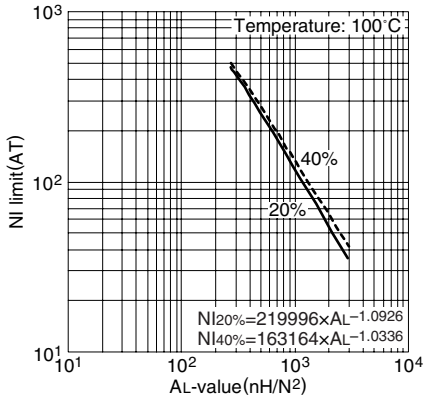
**Temperature rise vs. Total loss for PQ50/50 core (Typical) (Ambient temperature: 25°C)**



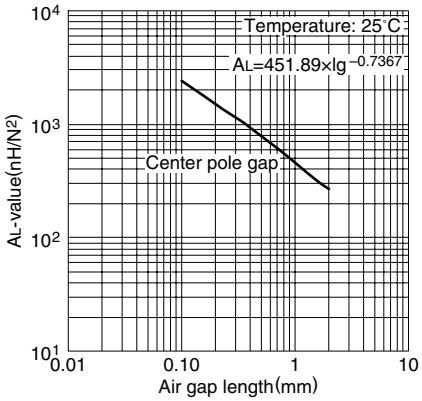

Note: The temperature rise is measured in the room whose temperature and humidity are fixed to 25°C and 45(%)RH. respectively. (approx. 400×300×300cm)



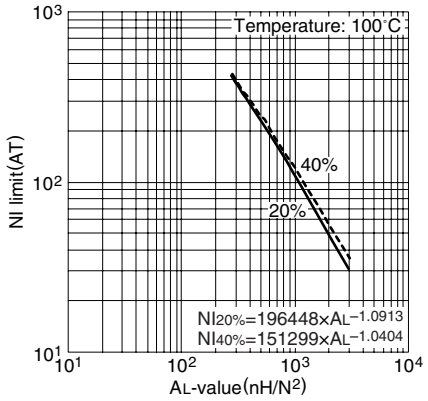
**NI limit vs. AL-value for PC90PQ50/50 gapped core (Typical)**



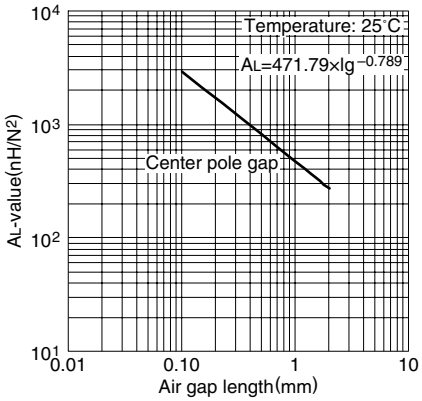

**AL-value vs. Air gap length for PC90PQ50/50 core (Typical)**




**NI limit vs. AL-value for PC95PQ50/50 gapped core (Typical)**



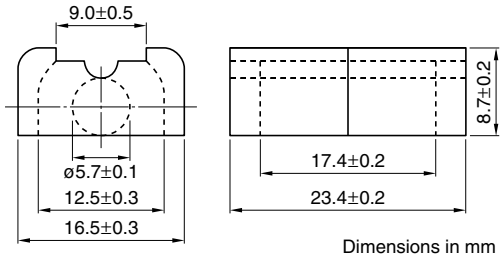

**AL-value vs. Air gap length for PC95PQ50/50 core (Typical)**




Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

Measuring conditions
- Coil: ø0.4 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

# LP Series LP23/8 Cores




Dimensions in mm

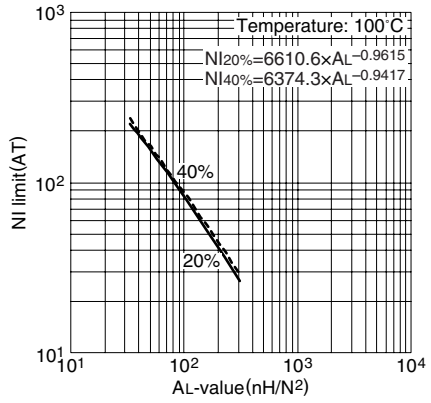
**PARAMETER**

| | | | |
|---|---|---|---|
| **Core factor** | C1 | $mm^{-1}$ | 1.41 |
| **Effective magnetic path length** | ℓe | mm | 44.1 |
| **Effective cross-sectional area** | Ae | $mm^2$ | 31.3 |
| **Effective core volume** | Ve | $mm^3$ | 1380 |
| **Cross-sectional center pole area** | Acp | $mm^2$ | 25.5 |
| **Minimum cross-sectional center pole area** | Acp min. | $mm^2$ | 24.6 |
| **Cross-sectional winding area of core** | Acw | $mm^2$ | 59.2 |
| **Weight (approx.)** | | g | 9.6 |

| Part No. | AL-value (nH/N2) | Core loss (W) at 100°C 100kHz, 200mT | Calculated output power (forward converter mode) |
|---|---|---|---|
| **PC44LP23/8Z-12** | 1600±25% (1kHz, 0.5mA)* 2230 min. (100kHz, 200mT) | 0.42 max. | 50W (100kHz) |

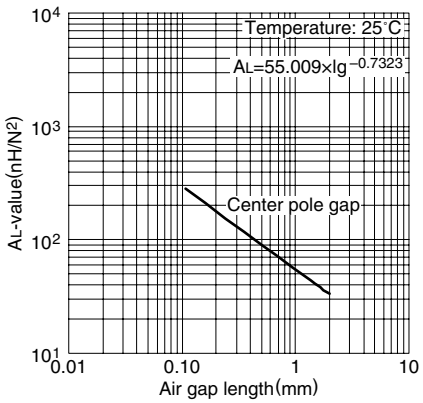
* Coil: ø0.3 2UEW 100Ts

**NI limit vs. AL-value for PC44LP23/8 gapped core (Typical)**



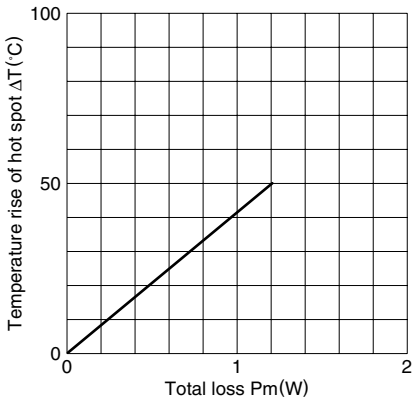

Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

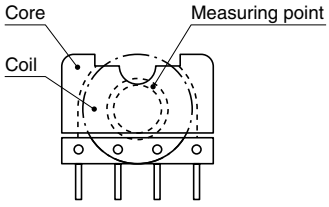
**AL-value vs. Air gap length for PC44LP23/8 core (Typical)**




Measuring conditions
- Coil: ø0.3 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

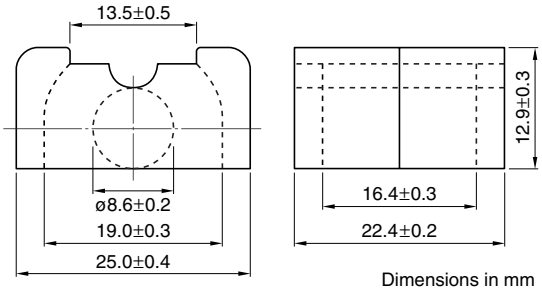
**Temperature rise vs. Total loss for LP23/8 core (Typical) (Ambient temperature: 25°C)**




Note: The temperature rise is measured in the room whose temperature and humidity are fixed to 25°C and 45(%)RH. respectively. (approx. 400×300×300cm)

# LP Series LP22/13 Cores




Dimensions in mm

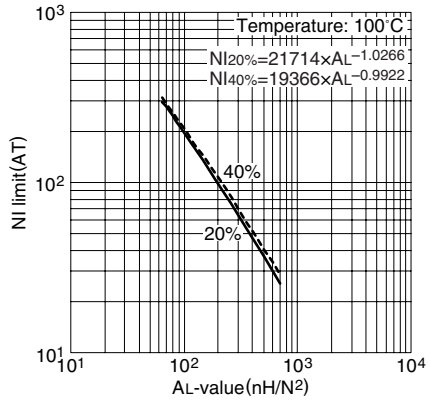
**PARAMETER**

| | | | |
|---|---|---|---|
| **Core factor** | C1 | $mm^{-1}$ | 0.721 |
| **Effective magnetic path length** | ℓe | mm | 49.0 |
| **Effective cross-sectional area** | Ae | $mm^2$ | 67.9 |
| **Effective core volume** | Ve | $mm^3$ | 3330 |
| **Cross-sectional center pole area** | Acp | $mm^2$ | 58.1 |
| **Minimum cross-sectional center pole area** | Acp min. | $mm^2$ | 55.4 |
| **Cross-sectional winding area of core** | Acw | $mm^2$ | 84.2 |
| **Weight (approx.)** | | g | 21 |

| Part No. | AL-value (nH/N2) | Core loss (W) at 100°C<br>100kHz, 200mT | Calculated output power<br>(forward converter mode) |
|---|---|---|---|
| **PC44LP22/13Z-12** | 3310±25% (1kHz, 0.5mA)*<br>4700 min. (100kHz, 200mT) | 1.05 max. | 121W (100kHz) |

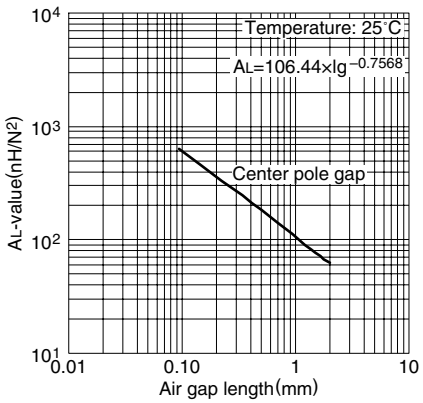
* Coil: ø0.35 2UEW 100Ts

**NI limit vs. AL-value for PC44LP22/13 gapped core (Typical)**



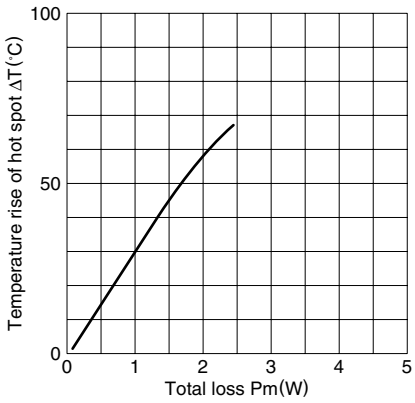

Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

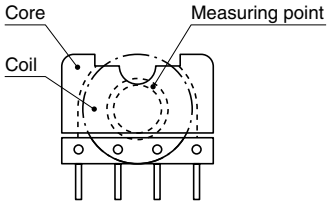
**AL-value vs. Air gap length for PC44LP22/13 core (Typical)**




Measuring conditions
- Coil: ø0.35 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

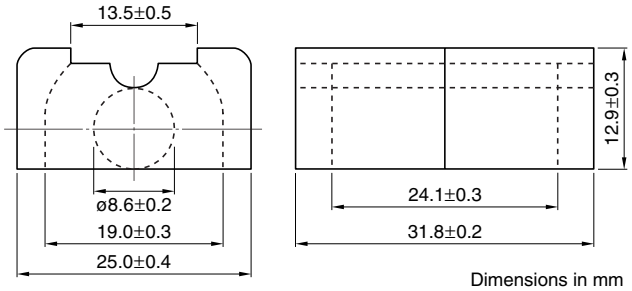
**Temperature rise vs. Total loss for LP22/13 core (Typical) (Ambient temperature: 25°C)**




Note: The temperature rise is measured in the room whose temperature and humidity are fixed to 25°C and 45(%)RH. respectively. (approx. 400×300×300cm)

# LP Series LP32/13 Cores




Dimensions in mm

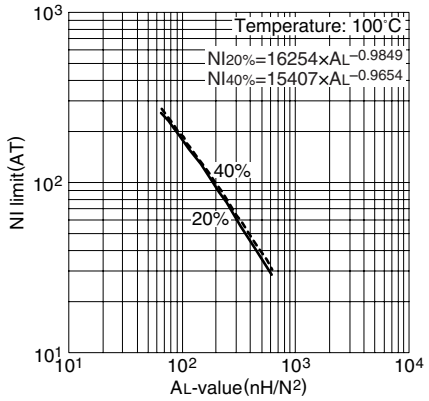
**PARAMETER**

| | | | |
|---|---|---|---|
| **Core factor** | $C_1$ | $mm^{-1}$ | 0.909 |
| **Effective magnetic path length** | $\ell e$ | mm | 64.0 |
| **Effective cross-sectional area** | Ae | $mm^2$ | 70.3 |
| **Effective core volume** | Ve | $mm^3$ | 4500 |
| **Cross-sectional center pole area** | Acp | $mm^2$ | 58.1 |
| **Minimum cross-sectional center pole area** | Acp min. | $mm^2$ | 55.4 |
| **Cross-sectional winding area of core** | Acw | $mm^2$ | 125.3 |
| **Weight (approx.)** | | g | 30 |

| Part No. | $A_L$-value ($nH/N^2$) | Core loss (W) at 100°C<br>100kHz, 200mT | Calculated output power<br>(forward converter mode) |
|---|---|---|---|
| **PC44LP32/13Z-12** | 2630±25% (1kHz, 0.5mA)*<br>3730 min. (100kHz, 200mT) | 1.38 max. | 164W (100kHz) |

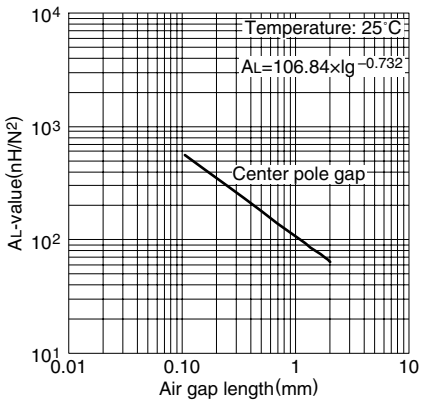
* Coil: ø0.35 2UEW 100Ts

**NI limit vs. $A_L$-value for PC44LP32/13 gapped core (Typical)**



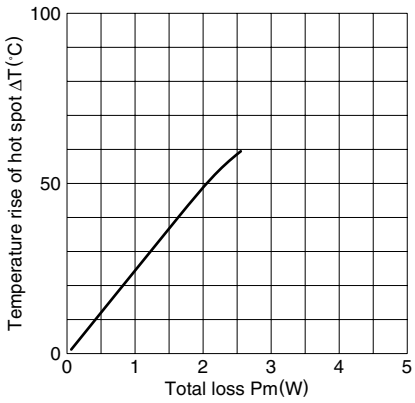

Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

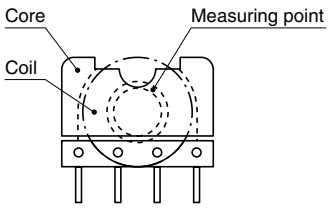
**$A_L$-value vs. Air gap length for PC44LP32/13core (Typical)**




Measuring conditions
- Coil: ø0.35 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

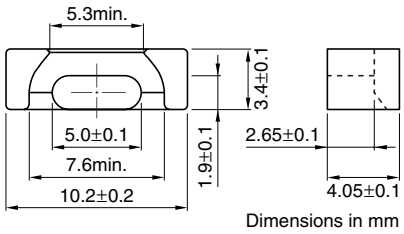
**Temperature rise vs. Total loss for LP32/13 core (Typical) (Ambient temperature: 25°C)**




Note: The temperature rise is measured in the room whose temperature and humidity are fixed to 25°C and 45(%)RH. respectively. (approx. 400×300×300cm)

# EPC Series EPC10 Cores




Dimensions in mm

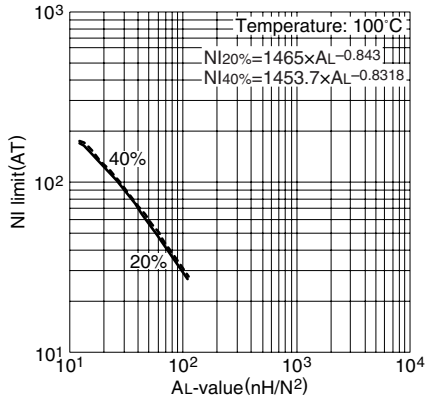
**PARAMETER**

| | | | |
|---|---|---|---|
| **Core factor** | C1 | $mm^{-1}$ | 1.89 |
| **Effective magnetic path length** | ℓe | mm | 17.8 |
| **Effective cross-sectional area** | Ae | $mm^2$ | 9.39 |
| **Effective core volume** | Ve | $mm^3$ | 167 |
| **Cross-sectional center pole area** | Acp | $mm^2$ | 8.73 |
| **Minimum cross-sectional area** | Acp min. | $mm^2$ | 8.13 |
| **Cross-sectional winding area of core** | Acw | $mm^2$ | 7.69 |
| **Weight (approx.)** | | g | 1.1 |

| Part No. | AL-value (nH/N2)* | Core loss (W) max. 100kHz, 200mT | Calculated output power (forward converter mode) |
|---|---|---|---|
| **PC44EPC10-Z** | 1000±25% (1kHz, 0.5mA) | 0.072(100°C) | 5.4W (100kHz) |
| **PC90EPC10-Z** | 900±25% (1kHz, 0.5mA) | 0.090(100°C) | 5.4W |
| **PC95EPC10-Z** | 1040±25% (1kHz, 0.5mA) | 0.100/0.080/0.100(25°C/80°C/120°C) | 5.6W |

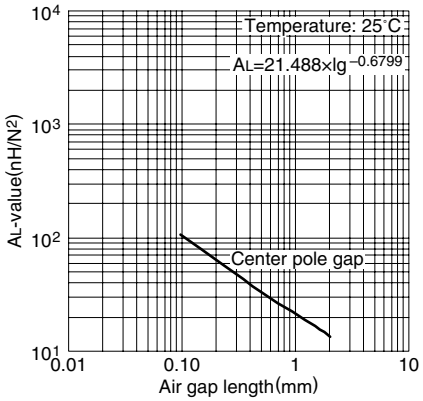
* Coil: ø0.1 2UEW 100Ts

**NI limit vs. AL-value for PC44EPC10 gapped core (Typical)**



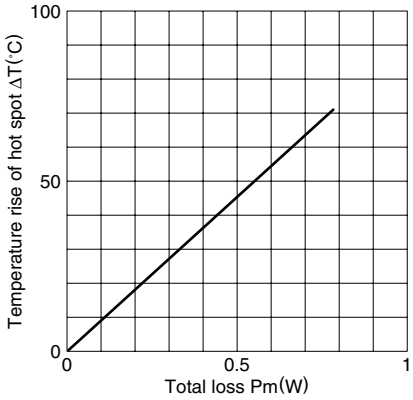

Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

**AL-value vs. Air gap length for PC44EPC10 core (Typical)**

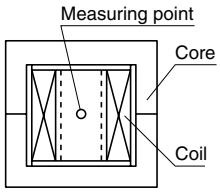



Measuring conditions
- Coil: ø0.1 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

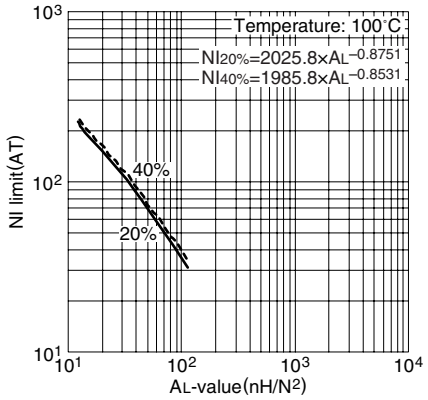
**Temperature rise vs. Total loss for EPC10 core (Typical) (Ambient temperature: 25°C)**



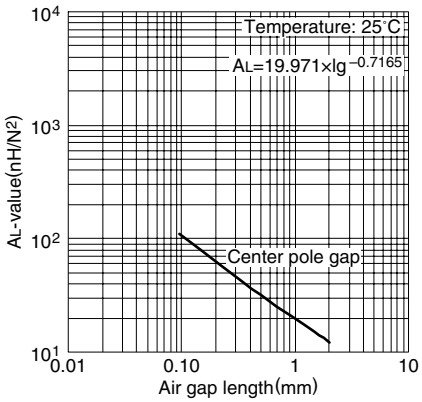

Note: The temperature rise is measured in the room whose temperature and humidity are fixed to 25°C and 45(%)RH. respectively. (approx. 400×300×300cm)



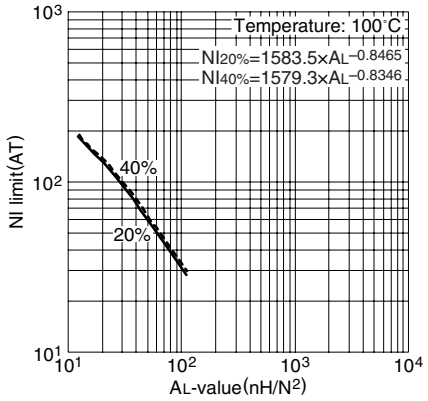
**NI limit vs. AL-value for PC90EPC10 gapped core (Typical)**



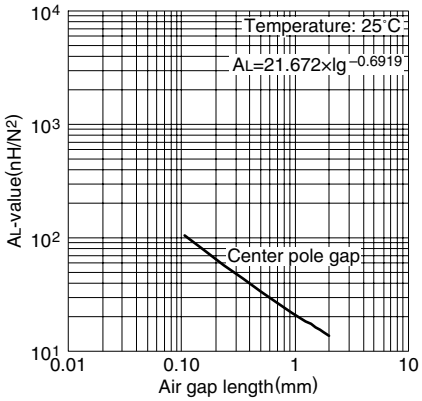

**AL-value vs. Air gap length for PC90EPC10 core (Typical)**




**NI limit vs. AL-value for PC95EPC10 gapped core (Typical)**



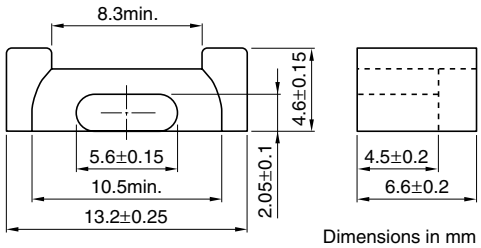

**AL-value vs. Air gap length for PC95EPC10 core (Typical)**




Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

Measuring conditions
- Coil: ø0.1 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

# EPC Series EPC13 Cores




Dimensions in mm

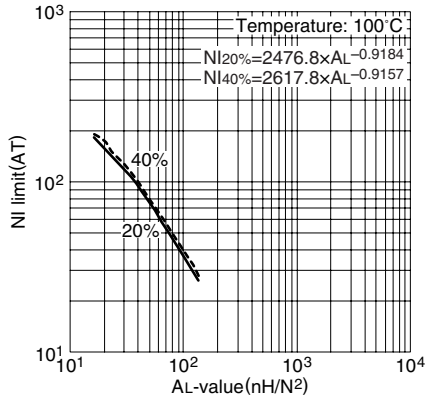
**PARAMETER**

| | | | |
|---|---|---|---|
| **Core factor** | C1 | $mm^{-1}$ | 2.45 |
| **Effective magnetic path length** | ℓe | mm | 30.6 |
| **Effective cross-sectional area** | Ae | $mm^2$ | 12.5 |
| **Effective core volume** | Ve | $mm^3$ | 382 |
| **Cross-sectional center pole area** | Acp | $mm^2$ | 10.6 |
| **Minimum cross-sectional area** | Acp min. | $mm^2$ | 9.71 |
| **Cross-sectional winding area of core** | Acw | $mm^2$ | 23.0 |
| **Weight (approx.)** | | g | 2.1 |

| Part No. | AL-value ($nH/N^2$)* | Core loss (W) max. 100kHz, 200mT | Calculated output power (forward converter mode) |
|---|---|---|---|
| **PC44EPC13-Z** | 870±25% (1kHz, 0.5mA) | 0.14(100°C) | 8W (100kHz) |
| **PC90EPC13-Z** | 800±25% (1kHz, 0.5mA) | 0.17(100°C) | 8.6W |
| **PC95EPC13-Z** | 1060±25% (1kHz, 0.5mA) | 0.17/0.15/0.17(25°C/80°C/120°C) | 8.8W |

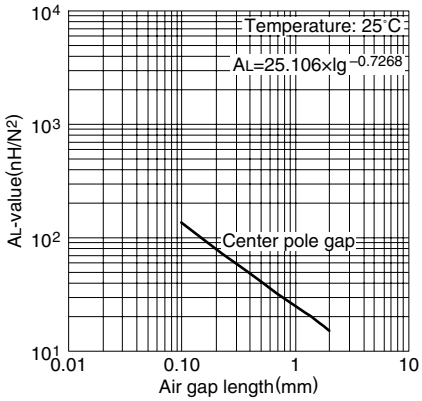
* Coil: ø0.2 2UEW 100Ts

**NI limit vs. AL-value for PC44EPC13 gapped core (Typical)**



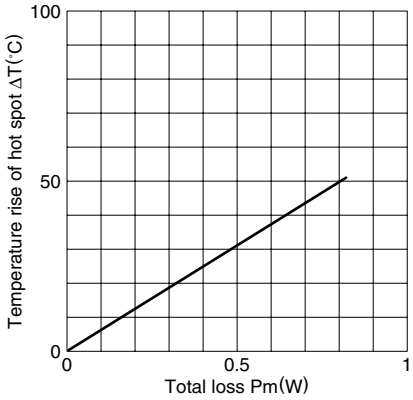

Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

**AL-value vs. Air gap length for PC44EPC13 core (Typical)**

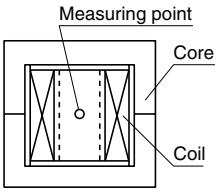



Measuring conditions
- Coil: ø0.2 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

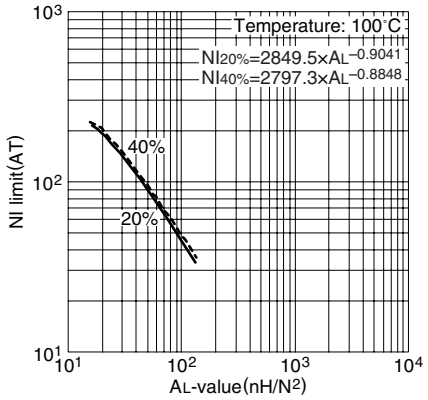
**Temperature rise vs. Total loss for EPC13 core (Typical) (Ambient temperature: 25°C)**



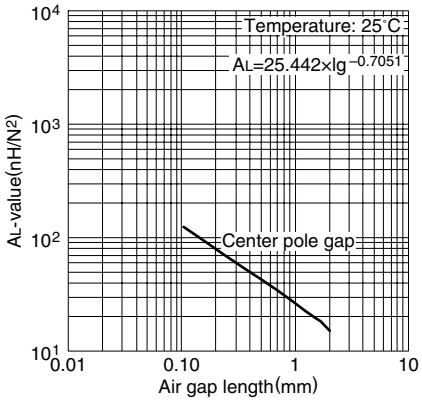

Note: The temperature rise is measured in the room whose temperature and humidity are fixed to 25°C and 45(%)RH. respectively. (approx. 400×300×300cm)



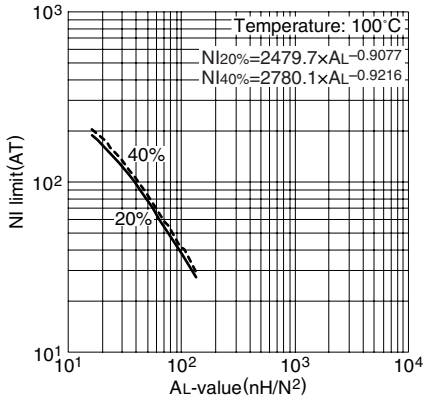
**NI limit vs. AL-value for PC90EPC13 gapped core (Typical)**



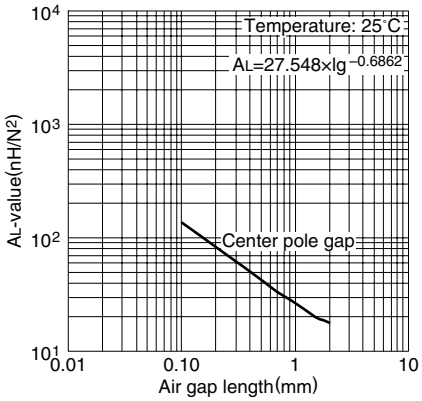

**AL-value vs. Air gap length for PC90EPC13 core (Typical)**




**NI limit vs. AL-value for PC95EPC13 gapped core (Typical)**



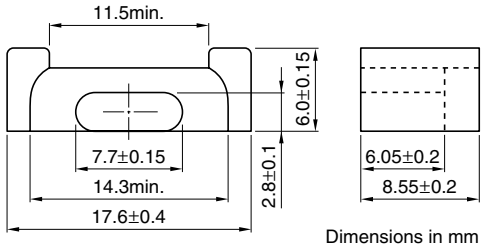

**AL-value vs. Air gap length for PC95EPC13 core (Typical)**




Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

Measuring conditions
- Coil: ø0.2 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

# EPC Series EPC17 Cores




Dimensions in mm

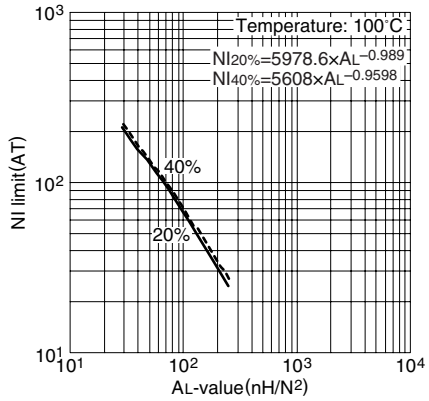
**PARAMETER**

| | | | |
|---|---|---|---|
| **Core factor** | C1 | $mm^{-1}$ | 1.76 |
| **Effective magnetic path length** | ℓe | mm | 40.2 |
| **Effective cross-sectional area** | Ae | $mm^2$ | 22.8 |
| **Effective core volume** | Ve | $mm^3$ | 917 |
| **Cross-sectional center pole area** | Acp | $mm^2$ | 19.9 |
| **Minimum cross-sectional area** | Acp min. | $mm^2$ | 18.7 |
| **Cross-sectional winding area of core** | Acw | $mm^2$ | 41.1 |
| **Weight (approx.)** | | g | 4.5 |

| Part No. | AL-value ($nH/N^2$)* | Core loss (W) max. 100kHz, 200mT | Calculated output power (forward converter mode) |
|---|---|---|---|
| **PC44EPC17-Z** | 1150±25% (1kHz, 0.5mA) | 0.35(100°C) | 20W (100kHz) |
| **PC90EPC17-Z** | 1100±25% (1kHz, 0.5mA) | 0.45(100°C) | 20.5W |
| **PC95EPC17-Z** | 1500±25% (1kHz, 0.5mA) | 0.45/0.35/0.45(25°C/80°C/120°C) | 21.1W |

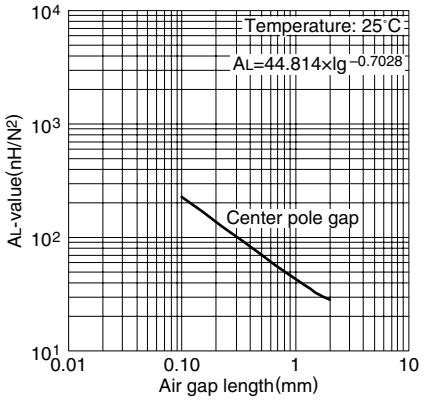
* Coil: ø0.2 2UEW 100Ts

**NI limit vs. AL-value for PC44EPC17 gapped core (Typical)**



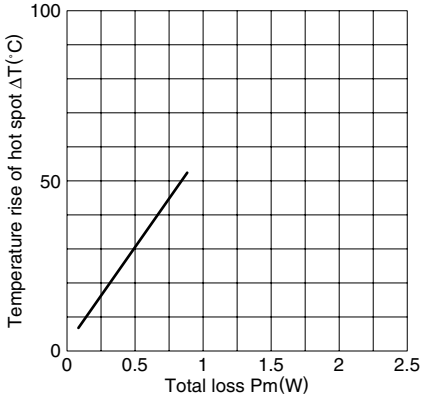

Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

**AL-value vs. Air gap length for PC44EPC17 core (Typical)**

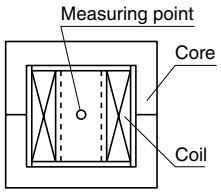



Measuring conditions
- Coil: ø0.2 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

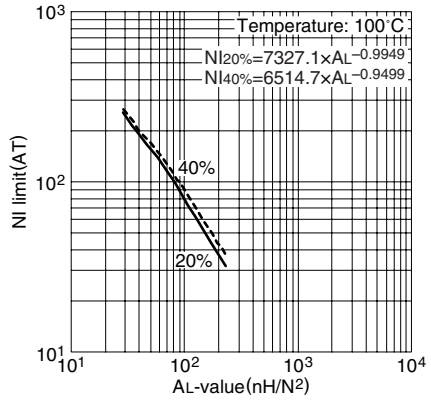
**Temperature rise vs. Total loss for EPC17 core (Typical) (Ambient temperature: 25°C)**



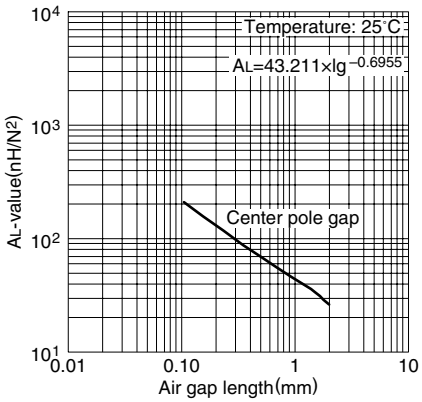

Note: The temperature rise is measured in the room whose temperature and humidity are fixed to 25°C and 45(%)RH. respectively. (approx. 400×300×300cm)



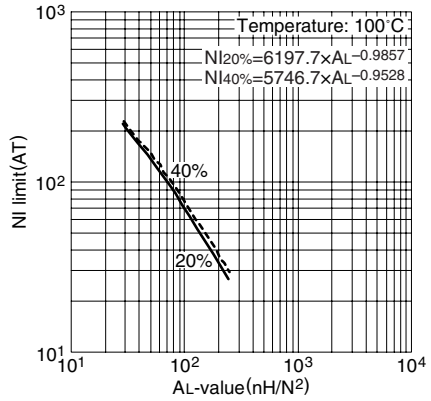
**NI limit vs. AL-value for PC90EPC17 gapped core (Typical)**



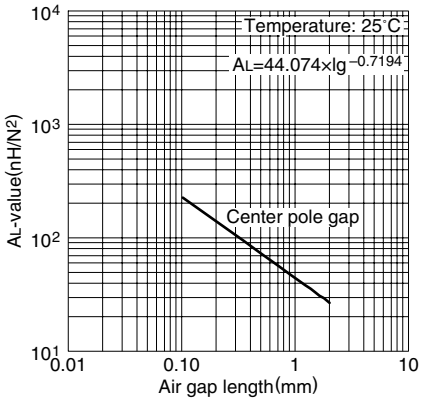

**AL-value vs. Air gap length for PC90EPC17 core (Typical)**




**NI limit vs. AL-value for PC95EPC17 gapped core (Typical)**



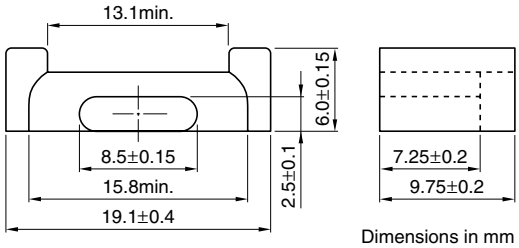

**AL-value vs. Air gap length for PC95EPC17 core (Typical)**




Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

Measuring conditions
- Coil: ø0.2 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

# EPC Series EPC19 Cores




Dimensions in mm

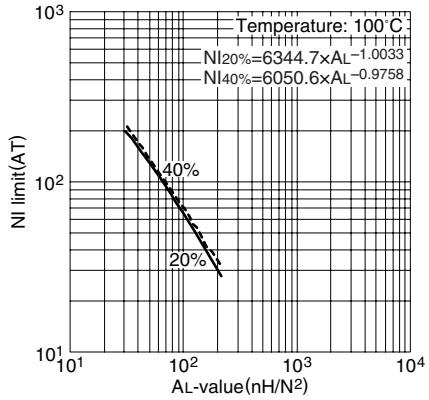
**PARAMETER**

| | | | |
|---|---|---|---|
| **Core factor** | C1 | $mm^{-1}$ | 2.03 |
| **Effective magnetic path length** | ℓe | mm | 46.1 |
| **Effective cross-sectional area** | Ae | $mm^2$ | 22.7 |
| **Effective core volume** | Ve | $mm^3$ | 1050 |
| **Cross-sectional center pole area** | Acp | $mm^2$ | 19.9 |
| **Minimum cross-sectional area** | Acp min. | $mm^2$ | 18.7 |
| **Cross-sectional winding area of core** | Acw | $mm^2$ | 54.4 |
| **Weight (approx.)** | | g | 5.3 |

| Part No. | AL-value ($nH/N^2$)* | Core loss (W) max. 100kHz, 200mT | Calculated output power (forward converter mode) |
|---|---|---|---|
| **PC44EPC19-Z** | 940±25% (1kHz, 0.5mA) | 0.4(100°C) | 27W (100kHz) |
| **PC90EPC19-Z** | 940±25% (1kHz, 0.5mA) | 0.5(100°C) | 28W |
| **PC95EPC19-Z** | 1400±25% (1kHz, 0.5mA) | 0.5/0.4/0.5(25°C/80°C/120°C) | 28.7W |

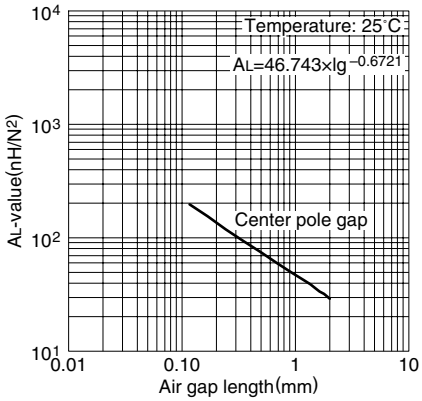
* Coil: ø0.2 2UEW 100Ts

**NI limit vs. AL-value for PC44EPC19 gapped core (Typical)**



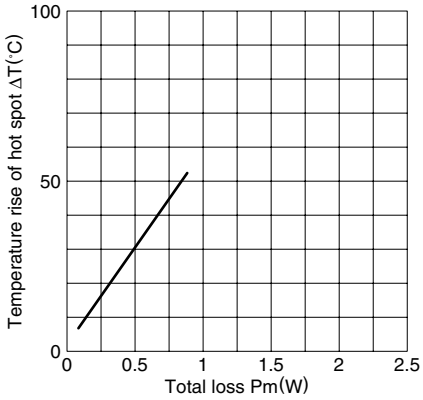

Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

**AL-value vs. Air gap length for PC44EPC19 core (Typical)**

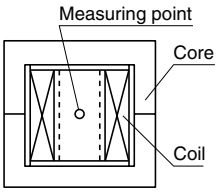



Measuring conditions
- Coil: ø0.2 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

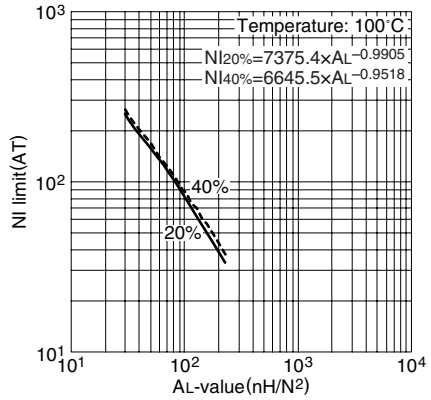
**Temperature rise vs. Total loss for EPC19 core (Typical) (Ambient temperature: 25°C)**



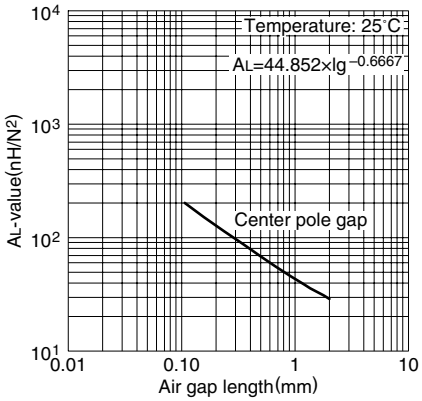

Note: The temperature rise is measured in the room whose temperature and humidity are fixed to 25°C and 45(%)RH. respectively. (approx. 400×300×300cm)



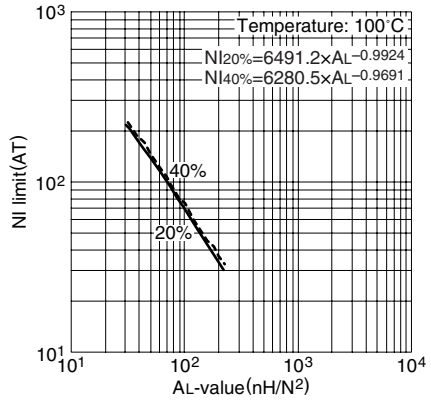
**NI limit vs. AL-value for PC90EPC19 gapped core (Typical)**



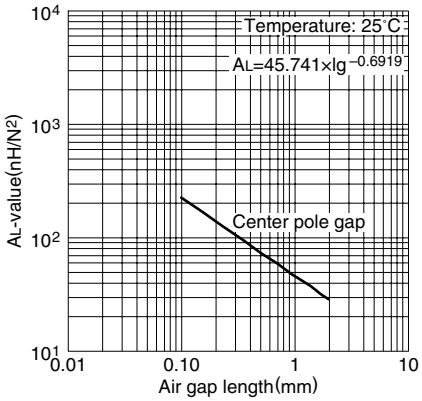

**AL-value vs. Air gap length for PC90EPC19 core (Typical)**




**NI limit vs. AL-value for PC95EPC19 gapped core (Typical)**



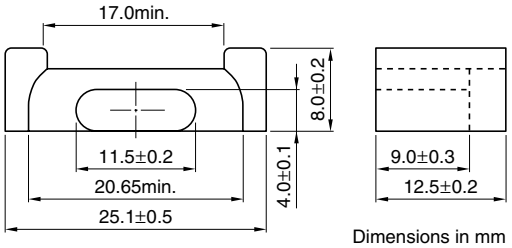

**AL-value vs. Air gap length for PC95EPC19 core (Typical)**




Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

Measuring conditions
- Coil: ø0.2 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

# EPC Series EPC25 Cores




Dimensions in mm

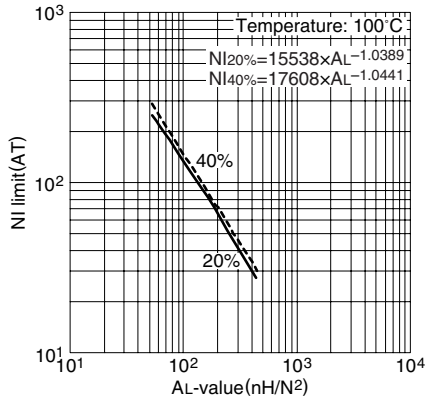
**PARAMETER**

| | | | |
|---|---|---|---|
| **Core factor** | C1 | $mm^{-1}$ | 1.40 |
| **Effective magnetic path length** | ℓe | mm | 56.3 |
| **Effective cross-sectional area** | Ae | $mm^2$ | 40.4 |
| **Effective core volume** | Ve | $mm^3$ | 2280 |
| **Cross-sectional center pole area** | Acp | $mm^2$ | 42.6 |
| **Minimum cross-sectional area** | Acp min. | $mm^2$ | 40.6 |
| **Cross-sectional winding area of core** | Acw | $mm^2$ | 85.5 |
| **Weight (approx.)** | | g | 13 |

| Part No. | AL-value ($nH/N^2$)* | Core loss (W) max. 100kHz, 200mT | Calculated output power (forward converter mode) |
|---|---|---|---|
| **PC44EPC25-Z** | 1560±25% (1kHz, 0.5mA) | 1.11(100°C) | 63W (100kHz) |
| **PC90EPC25-Z** | 1400±25% (1kHz, 0.5mA) | 1.4(100°C) | 64W |
| **PC95EPC25-Z** | 2200±25% (1kHz, 0.5mA) | 1.4/1.2/1.4(25°C/80°C/120°C) | 66.9W |

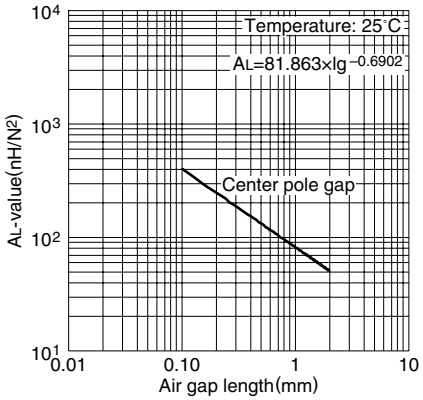
* Coil: ø0.2 2UEW 100Ts

**NI limit vs. AL-value for PC44EPC25 gapped core (Typical)**



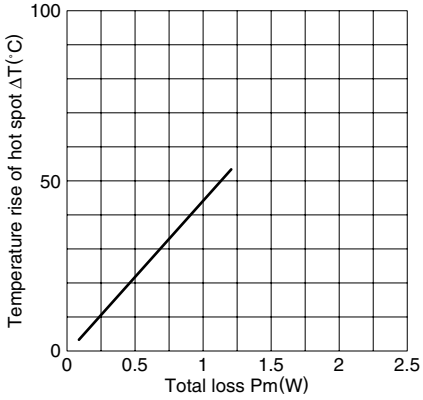

Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

**AL-value vs. Air gap length for PC44EPC25 core (Typical)**

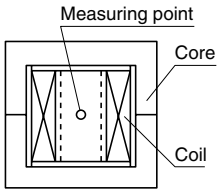



Measuring conditions
- Coil: ø0.2 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

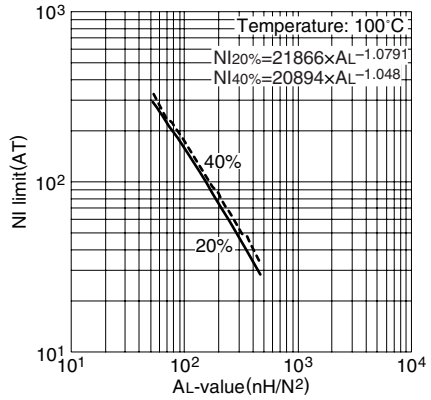
**Temperature rise vs. Total loss for EPC25 core (Typical) (Ambient temperature: 25°C)**



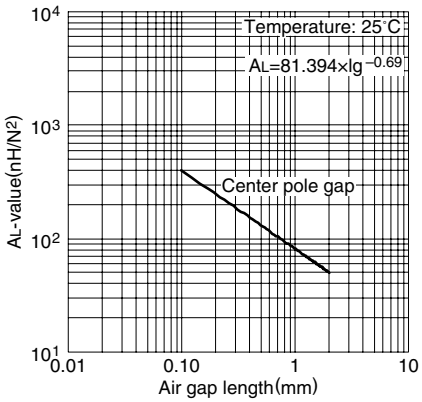

Note: The temperature rise is measured in the room whose temperature and humidity are fixed to 25°C and 45(%)RH. respectively. (approx. 400×300×300cm)



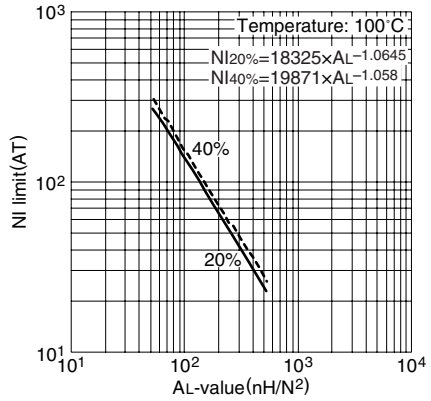
### NI limit vs. AL-value for PC90EPC25 gapped core (Typical)



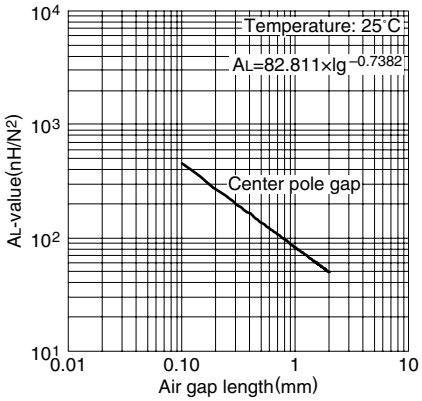

### AL-value vs. Air gap length for PC90EPC25 core (Typical)




### NI limit vs. AL-value for PC95EPC25 gapped core (Typical)



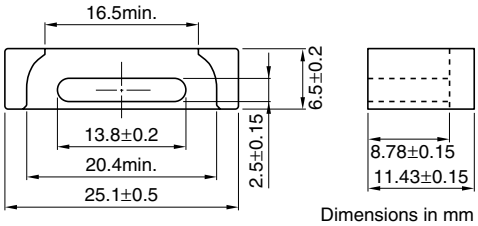

### AL-value vs. Air gap length for PC95EPC25 core (Typical)




Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

Measuring conditions
- Coil: ø0.2 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

# EPC Series EPC25B Cores




Dimensions in mm

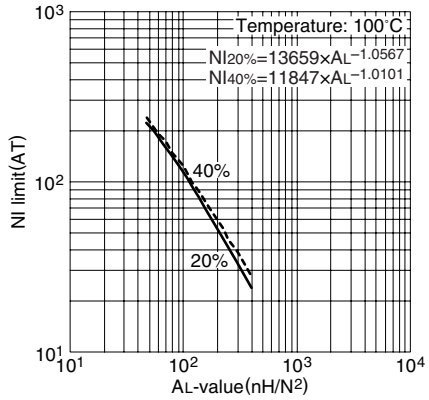
**PARAMETER**

| | | | |
|---|---|---|---|
| **Core factor** | $C_1$ | $mm^{-1}$ | 1.39 |
| **Effective magnetic path length** | $\ell e$ | mm | 46.2 |
| **Effective cross-sectional area** | Ae | $mm^2$ | 33.3 |
| **Effective core volume** | Ve | $mm^3$ | 1540 |
| **Cross-sectional center pole area** | Acp | $mm^2$ | 32.4 |
| **Minimum cross-sectional area** | Acp min. | $mm^2$ | 30.3 |
| **Cross-sectional winding area of core** | Acw | $mm^2$ | 62.1 |
| **Weight (approx.)** | | g | 11 |

| Part No. | $A_L$-value ($nH/N^2$)* | Core loss (W) max. 100kHz, 200mT | Calculated output power (forward converter mode) |
|---|---|---|---|
| **PC44EPC25B-Z** | 1560±25% (1kHz, 0.5mA) | 0.65(100°C) | 45W (100kHz) |
| **PC90EPC25B-Z** | 1400±25% (1kHz, 0.5mA) | 0.8(100°C) | 46W |
| **PC95EPC25B-Z** | 2200±25% (1kHz, 0.5mA) | 0.8/0.65/0.8(25°C/80°C/120°C) | 47.6W |

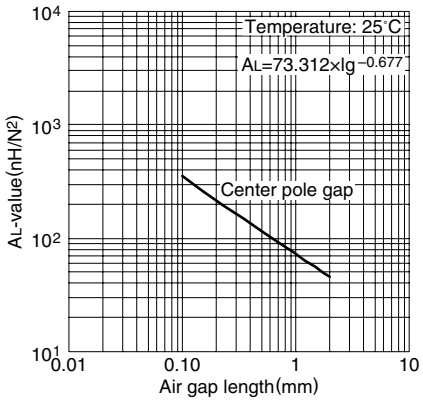
* Coil: ø0.23 2UEW 100Ts

**NI limit vs. $A_L$-value for PC44EPC25B gapped core (Typical)**



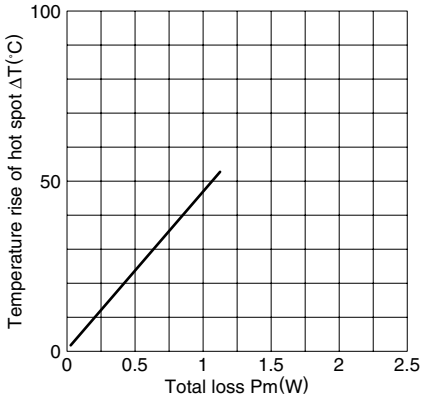

Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

**$A_L$-value vs. Air gap length for PC44EPC25B core (Typical)**

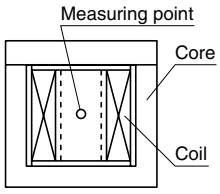



Measuring conditions
- Coil: ø0.23 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

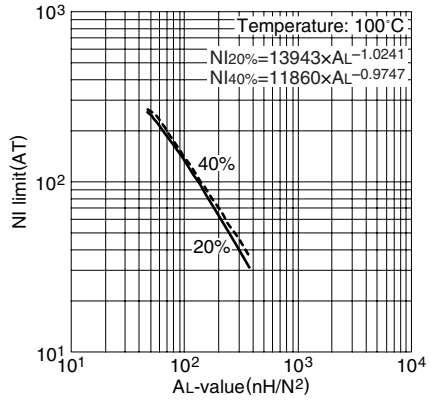
**Temperature rise vs. Total loss for EPC25B core (Typical) (Ambient temperature: 25°C)**



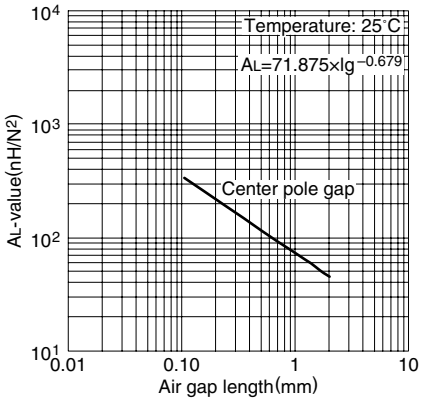

Note: The temperature rise is measured in the room whose temperature and humidity are fixed to 25°C and 45(%)RH. respectively. (approx. 400×300×300cm)



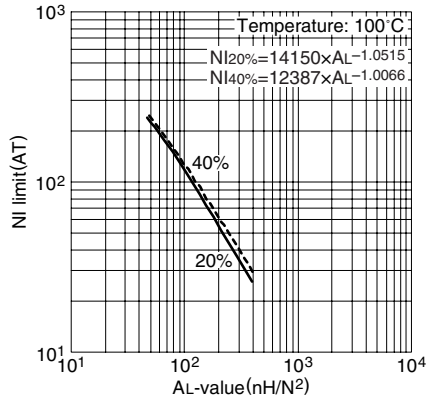
### NI limit vs. AL-value for PC90EPC25 gapped core (Typical)



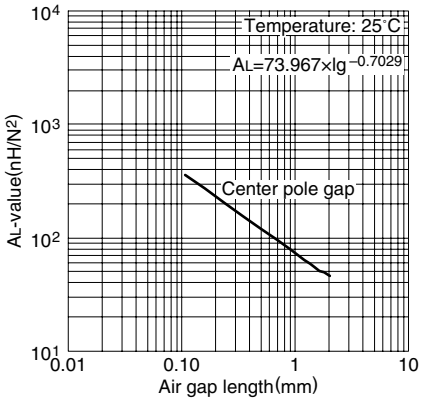

### AL-value vs. Air gap length for PC90EPC25 core (Typical)




### NI limit vs. AL-value for PC95EPC25 gapped core (Typical)



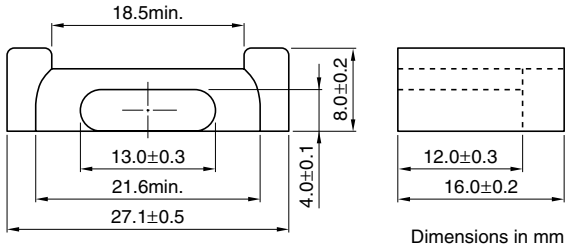

### AL-value vs. Air gap length for PC95EPC25 core (Typical)




Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

Measuring conditions
- Coil: ø0.23 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

# EPC Series EPC27 Cores




Dimensions in mm

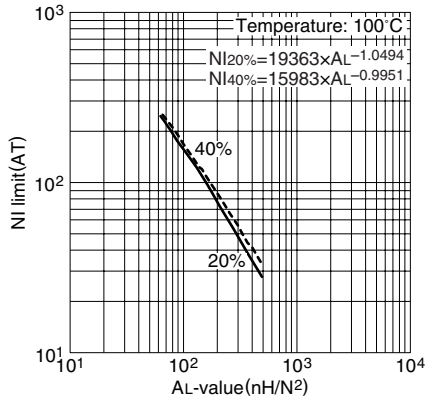
**PARAMETER**

| | | | |
|---|---|---|---|
| **Core factor** | C1 | $mm^{-1}$ | 1.43 |
| **Effective magnetic path length** | ℓe | mm | 69.4 |
| **Effective cross-sectional area** | Ae | $mm^2$ | 48.6 |
| **Effective core volume** | Ve | $mm^3$ | 3370 |
| **Cross-sectional center pole area** | Acp | $mm^2$ | 48.6 |
| **Minimum cross-sectional area** | Acp min. | $mm^2$ | 46.5 |
| **Cross-sectional winding area of core** | Acw | $mm^2$ | 108 |
| **Weight (approx.)** | | g | 18 |

| Part No. | AL-value (nH/N2)* | Core loss (W) max. 100kHz, 200mT | Calculated output power (forward converter mode) |
|---|---|---|---|
| **PC44EPC27-Z** | 1540±25% (1kHz, 0.5mA) | 1.56(100°C) | 80W (100kHz) |
| **PC90EPC27-Z** | 1400±25% (1kHz, 0.5mA) | 2.0(100°C) | 80.5W |
| **PC95EPC27-Z** | 2200±25% (1kHz, 0.5mA) | 2.0/1.7/2.0(25°C/80°C/120°C) | 84.8W |

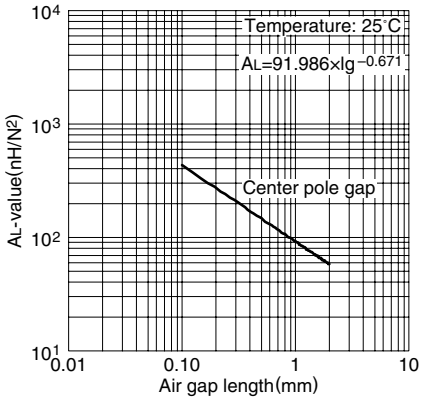
* Coil: ø0.3 2UEW 100Ts

**NI limit vs. AL-value for PC44EPC27 gapped core (Typical)**



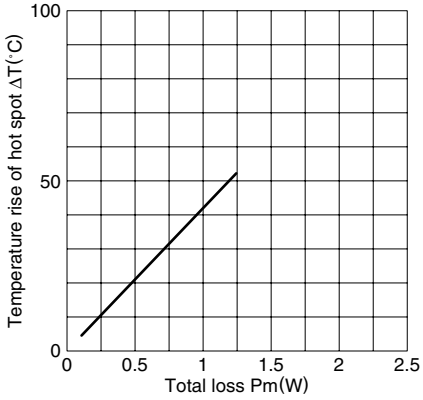

Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

**AL-value vs. Air gap length for PC44EPC27 core (Typical)**

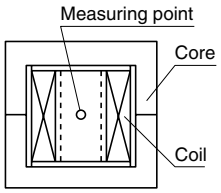



Measuring conditions
- Coil: ø0.3 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

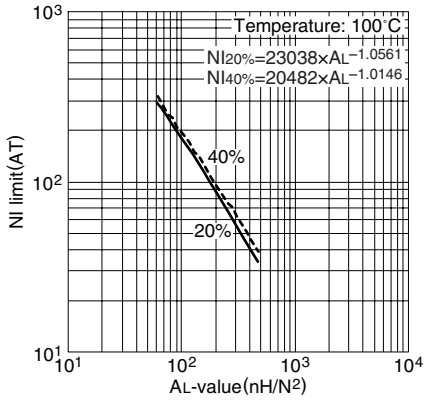
**Temperature rise vs. Total loss for EPC27 core (Typical) (Ambient temperature: 25°C)**



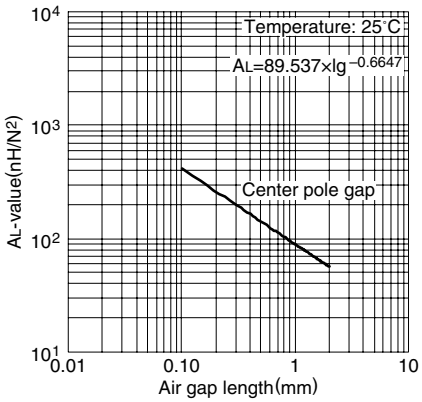

Note: The temperature rise is measured in the room whose temperature and humidity are fixed to 25°C and 45(%)RH. respectively. (approx. 400×300×300cm)



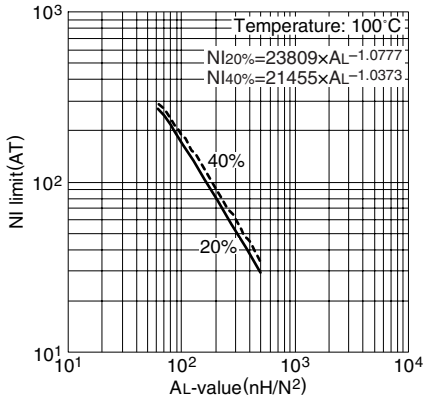
**NI limit vs. AL-value for PC90EPC27 gapped core (Typical)**



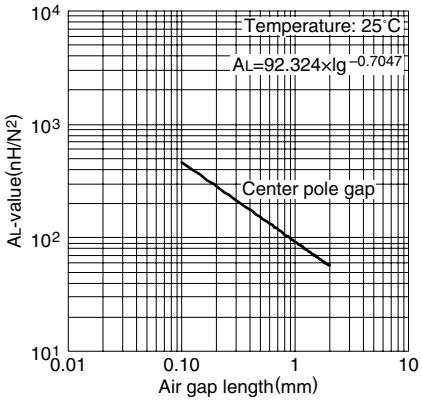

**AL-value vs. Air gap length for PC90EPC27 core (Typical)**




**NI limit vs. AL-value for PC95EPC27 gapped core (Typical)**



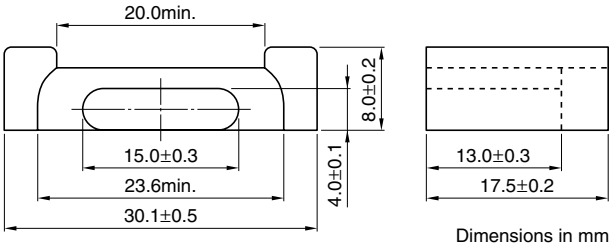

**AL-value vs. Air gap length for PC95EPC27 core (Typical)**




Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

Measuring conditions
- Coil: ø0.3 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

# EPC Series EPC30 Cores




Dimensions in mm

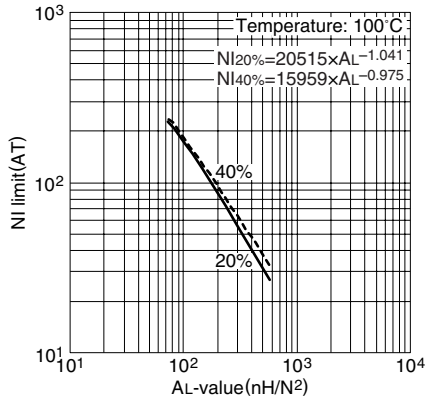
**PARAMETER**

| | | | |
|---|---|---|---|
| **Core factor** | C1 | $mm^{-1}$ | 1.35 |
| **Effective magnetic path length** | ℓe | mm | 75.3 |
| **Effective cross-sectional area** | Ae | $mm^2$ | 55.6 |
| **Effective core volume** | Ve | $mm^3$ | 4190 |
| **Cross-sectional center pole area** | Acp | $mm^2$ | 56.6 |
| **Minimum cross-sectional area** | Acp min. | $mm^2$ | 54.3 |
| **Cross-sectional winding area of core** | Acw | $mm^2$ | 117 |
| **Weight (approx.)** | | g | 23 |

| Part No. | AL-value ($nH/N^2$)* | Core loss (W) max. 100kHz, 200mT | Calculated output power (forward converter mode) |
|---|---|---|---|
| **PC44EPC30-Z** | 1570±25% (1kHz, 0.5mA) | 2.03(100°C) | 85W (100kHz) |
| **PC90EPC30-Z** | 1700±25% (1kHz, 0.5mA) | 2.5(100°C) | 85.5W |
| **PC95EPC30-Z** | 2300±25% (1kHz, 0.5mA) | 2.3/2.0/2.3(25°C/80°C/120°C) | 90.1W |

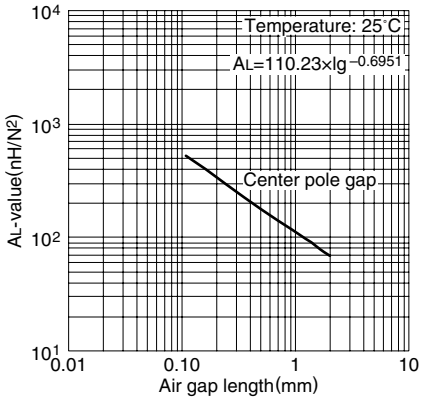
* Coil: ø0.3 2UEW 100Ts

**NI limit vs. AL-value for PC44EPC30 gapped core (Typical)**



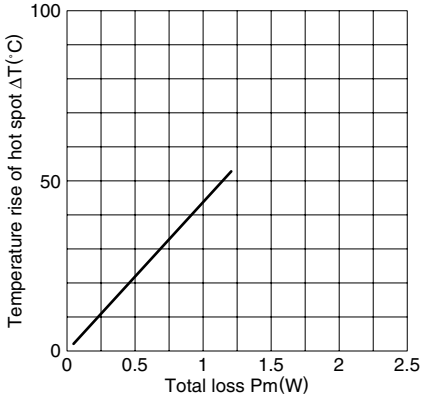

Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

**AL-value vs. Air gap length for PC44EPC30 core (Typical)**

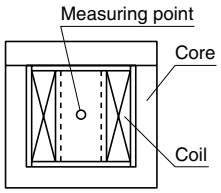



Measuring conditions
- Coil: ø0.3 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA

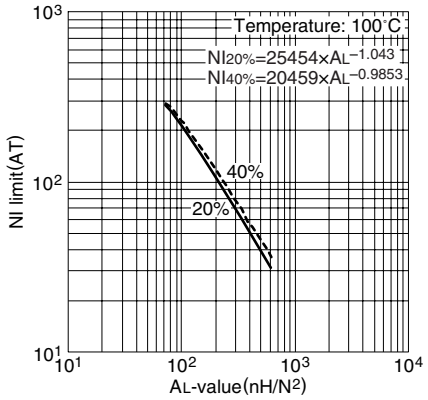
**Temperature rise vs. Total loss for EPC30 core (Typical) (Ambient temperature: 25°C)**



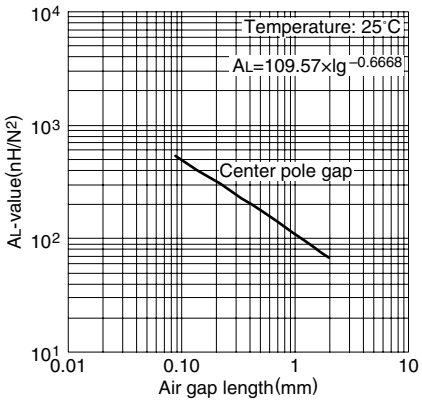

Note: The temperature rise is measured in the room whose temperature and humidity are fixed to 25°C and 45(%)RH. respectively. (approx. 400×300×300cm)



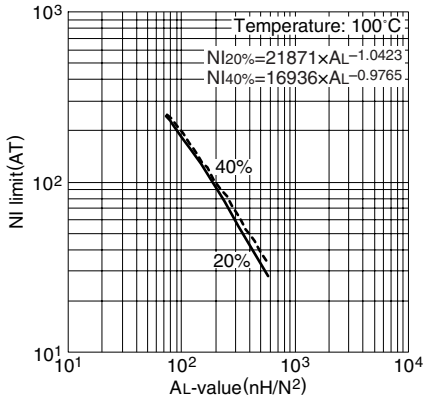
**NI limit vs. AL-value for PC90EPC30 gapped core (Typical)**



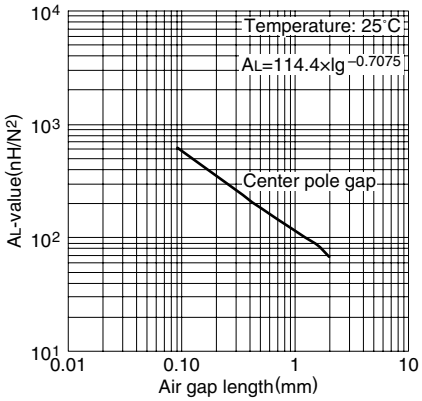

**AL-value vs. Air gap length for PC90EPC30 core (Typical)**




**NI limit vs. AL-value for PC95EPC30 gapped core (Typical)**




**AL-value vs. Air gap length for PC95EPC30 core (Typical)**




Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

Measuring conditions
- Coil: ø0.3 2UEW 100Ts
- Frequency: 1kHz
- Level: 0.5mA