

Ferrite for Switching Power Supplies

Planar cores

EL/ELT/PQI/EIR/ER/EI series

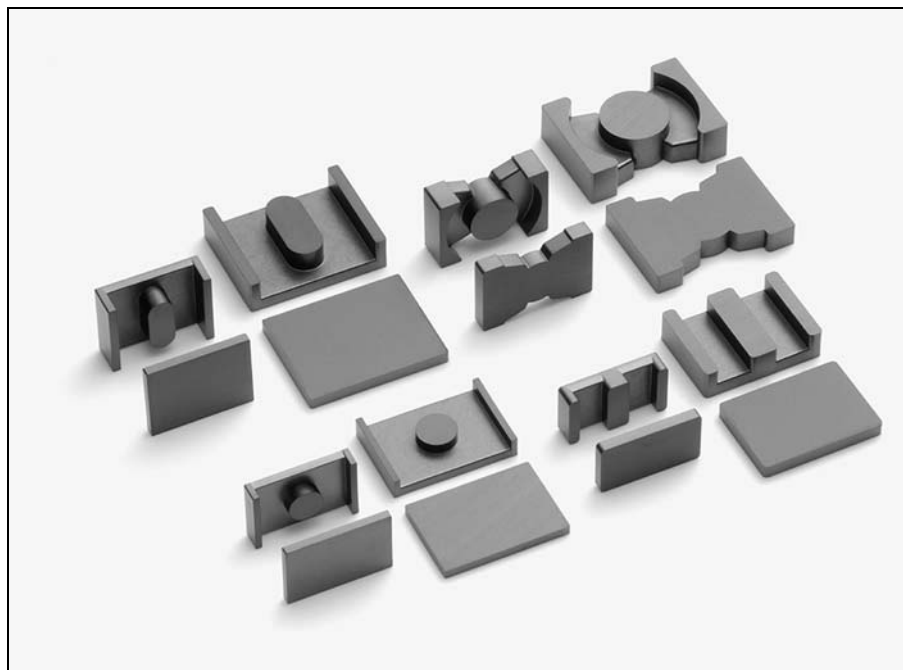
Issue date: April 2011

- 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.
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Ferrite for Switching Power Supplies

Planar Cores

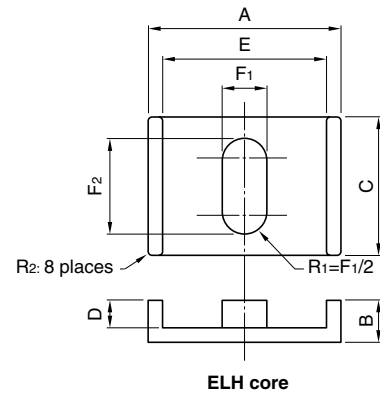
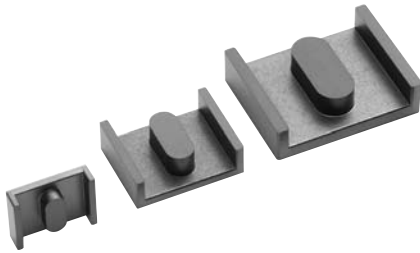
EL11X4 to EL25X8.6
 ELT11X3 to ELT25X8.6
 PQI16/7.8 to PQI26/12
 EIR14/4.5/9 to EIR22/5.5/15
 ER9.5/5 to ER25/5.5/18
 EI14/5/5 to EI22/8/16



Ordering Code System

Material PC95 EL 11X4 – A125
 Size of EL core _____ AL-value(Z: without air gap)

EL CORES

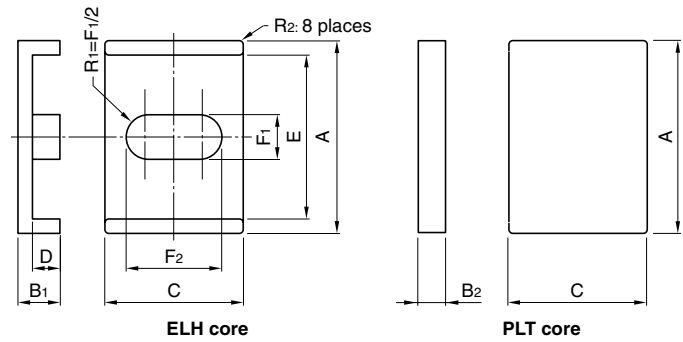
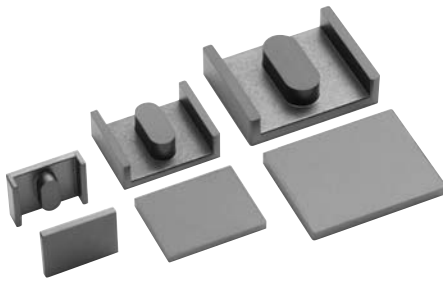


Part No.(ELH+ELH)	Dimensions in mm							
	A	B	C	D	E	F ₁	F ₂	R ₂
PC95EL11X4-Z	11.00±0.20	2.01±0.10	8.80±0.20	1.00±0.10	9.17±0.20	2.78±0.10	6.40±0.15	0.30
PC90EL11X4-Z								
PC95EL13X4.4-Z	13.00±0.25	2.19±0.10	10.40±0.20	1.00±0.10	10.83±0.20	3.29±0.10	7.56±0.15	0.30
PC90EL13X4.4-Z								
PC95EL15.5X5.8-Z	15.50±0.30	2.92±0.10	12.40±0.25	1.50±0.10	12.92±0.25	3.92±0.10	9.01±0.20	0.30
PC90EL15.5X5.8-Z								
PC95EL18X7.3-Z	18.00±0.30	3.65±0.10	14.40±0.25	2.00±0.10	15.00±0.30	4.55±0.10	10.47±0.20	0.30
PC90EL18X7.3-Z								
PC95EL20X7.7-Z	20.00±0.35	3.83±0.10	16.00±0.30	2.00±0.10	16.67±0.30	5.06±0.15	11.63±0.20	0.50
PC90EL20X7.7-Z								
PC95EL22X8-Z	22.00±0.40	4.02±0.10	17.60±0.30	2.00±0.10	18.33±0.35	5.56±0.15	12.79±0.25	0.50
PC90EL22X8-Z								
PC95EL25X8.6-Z	25.00±0.45	4.29±0.10	20.00±0.35	2.00±0.10	20.83±0.35	6.32±0.15	14.54±0.25	0.50
PC90EL25X8.6-Z								

Part No. (ELH+ELH)	Effective parameter							Electrical characteristics	
	C ₁ (mm ⁻¹)	ℓ _e (mm)	A _e (mm ²)	V _e (mm ³)	A _{min.} (mm ²)	A _{cw} (mm ²)	Weight (g)	AL-value (nH/N ²)*	
PC95EL11X4-Z	0.826	13.7	16.5	226	15.9	6.39	1.3	2400±25%	50±3%
PC90EL11X4-Z								1950±25%	80±5%
PC95EL13X4.4-Z	0.667	15.4	23.1	357	22.4	7.54	2.0	3160±25%	125±7%
PC90EL13X4.4-Z								2500±25%	63±3%
PC95EL15.5X5.8-Z	0.597	19.6	32.9	646	31.9	13.5	3.5	3680±25%	100±5%
PC90EL15.5X5.8-Z								3000±25%	160±7%
PC95EL18X7.3-Z	0.538	23.8	44.3	1050	43.0	20.9	6.0	4760±25%	63±3%
PC90EL18X7.3-Z								3600±25%	125±3%
PC95EL20X7.7-Z	0.469	25.6	54.6	1400	52.9	23.2	7.8	5630±25%	200±5%
PC90EL20X7.7-Z								4050±25%	80±3%
PC95EL22X8-Z	0.413	27.3	66.2	1810	64.2	25.5	10	6540±25%	125±3%
PC90EL22X8-Z								5050±25%	160±3%
PC95EL25X8.6-Z	0.350	30.0	85.6	2570	83.0	29.0	15	7540±25%	250±5%
PC90EL25X8.6-Z								5700±25%	100±3%

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

ELT CORES

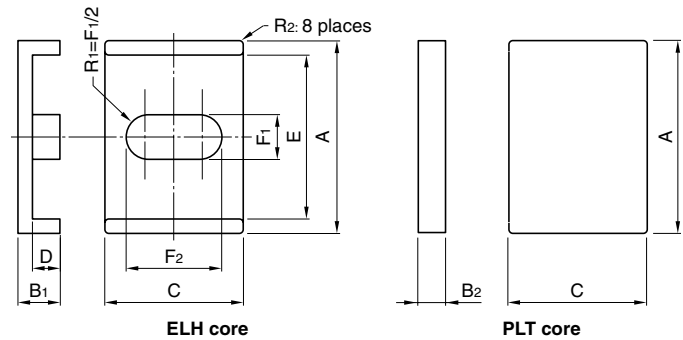
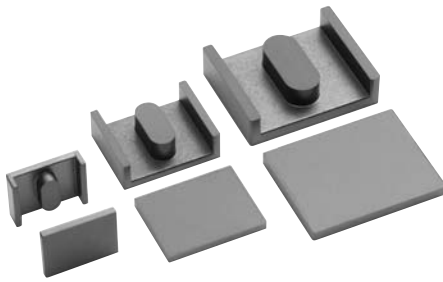


Part No.(ELH+PLT)	Dimensions in mm								
	A	B ₁	B ₂	C	D	E	F ₁	F ₂	R ₂
PC95ELT11X3-Z	11.00±0.20	2.01±0.10	1.01±0.05	8.80±0.20	1.00±0.10	9.17±0.20	2.78±0.10	6.40±0.15	0.30
PC90ELT11X3-Z									
PC95ELT11X4-Z	11.00±0.20	3.01±0.10	1.01±0.05	8.80±0.20	2.00±0.10	9.17±0.20	2.78±0.10	6.40±0.15	0.30
PC90ELT11X4-Z									
PC95ELT13X3.4-Z	13.00±0.25	2.19±0.10	1.19±0.05	10.40±0.20	1.00±0.10	10.83±0.20	3.29±0.10	7.56±0.15	0.30
PC90ELT13X3.4-Z									
PC95ELT13X4.4-Z	13.00±0.25	3.19±0.10	1.19±0.05	10.40±0.20	2.00±0.10	10.83±0.20	3.29±0.10	7.56±0.15	0.30
PC90ELT13X4.4-Z									
PC95ELT15.5X4.3-Z	15.50±0.30	2.92±0.10	1.42±0.10	12.40±0.25	1.50±0.10	12.92±0.25	3.92±0.10	9.01±0.20	0.30
PC90ELT15.5X4.3-Z									
PC95ELT15.5X5.8-Z	15.50±0.30	4.42±0.10	1.42±0.10	12.40±0.25	3.00±0.10	12.92±0.25	3.92±0.10	9.01±0.20	0.30
PC90ELT15.5X5.8-Z									
PC95ELT18X5.3-Z	18.00±0.30	3.65±0.10	1.65±0.10	14.40±0.25	2.00±0.10	15.00±0.30	4.55±0.10	10.47±0.20	0.30
PC90ELT18X5.3-Z									

Part No. (ELH+PLT)	Effective parameter							Electrical characteristics	
	C ₁ (mm ⁻¹)	ℓ _e (mm)	A _e (mm ²)	V _e (mm ³)	A _{min.} (mm ²)	A _{cw} (mm ²)	Weight (g)	AL-value (nH/N ²)*	
								Without air gap	With air gap
PC95ELT11X3-Z	0.702	11.7	16.6	194	15.9	3.20	1.1	2590±25%	50±3%
PC90ELT11X3-Z								1750±25%	80±5%
PC95ELT11X4-Z	0.826	13.7	16.5	226	15.9	6.39	1.3	2400±25%	50±3%
PC90ELT11X4-Z								1700±25%	80±5%
PC95ELT13X3.4-Z	0.578	13.4	23.2	312	22.4	3.77	1.8	3390±25%	63±3%
PC90ELT13X3.4-Z								2400±25%	100±5%
PC95ELT13X4.4-Z	0.667	15.4	23.1	357	22.4	7.54	2.0	3160±25%	63±3%
PC90ELT13X4.4-Z								2300±25%	100±5%
PC95ELT15.5X4.3-Z	0.503	16.6	33.1	550	31.9	6.75	3.0	4340±25%	63±3%
PC90ELT15.5X4.3-Z								2900±25%	100±3%
PC95ELT15.5X5.8-Z	0.597	19.6	32.9	646	31.9	13.5	3.5	3680±25%	63±3%
PC90ELT15.5X5.8-Z								2200±25%	100±3%
PC95ELT18X5.3-Z	0.446	19.8	44.5	882	43.0	10.5	5.0	5330±25%	80±3%
PC90ELT18X5.3-Z								3500±25%	125±3%

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

ELT CORES

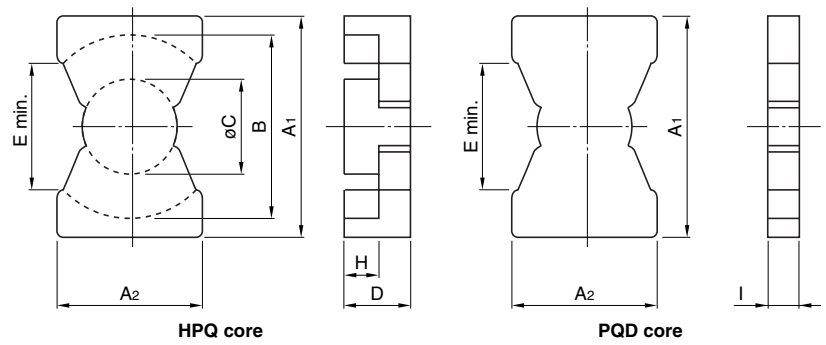
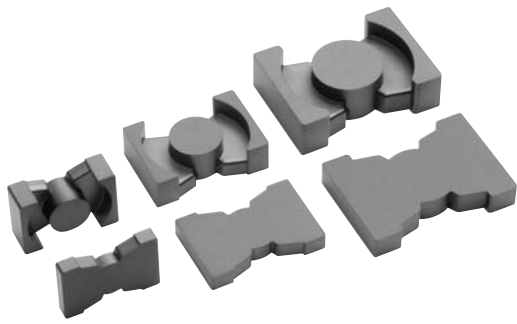


Part No.(ELH+PLT)	Dimensions in mm								
	A	B ₁	B ₂	C	D	E	F ₁	F ₂	R ₂
PC95ELT18X7.3-Z	18.00±0.30	5.65±0.10	1.65±0.10	14.40±0.25	4.00±0.15	15.00±0.30	4.55±0.10	10.47±0.20	0.30
PC90ELT18X7.3-Z									
PC95ELT20X5.7-Z	20.00±0.35	3.83±0.10	1.83±0.10	16.00±0.30	2.00±0.10	16.67±0.30	5.06±0.15	11.63±0.20	0.50
PC90ELT20X5.7-Z									
PC95ELT20X7.7-Z	20.00±0.35	5.83±0.15	1.83±0.10	16.00±0.30	4.00±0.15	16.67±0.30	5.06±0.15	11.63±0.20	0.50
PC90ELT20X7.7-Z									
PC95ELT22X6-Z	22.00±0.40	4.02±0.10	2.02±0.10	17.60±0.30	2.00±0.10	18.33±0.35	5.56±0.15	12.79±0.25	0.50
PC90ELT22X6-Z									
PC95ELT22X8-Z	22.00±0.40	6.02±0.15	2.02±0.10	17.60±0.30	4.00±0.15	18.33±0.35	5.56±0.15	12.79±0.25	0.50
PC90ELT22X8-Z									
PC95ELT25X6.6-Z	25.00±0.45	4.29±0.10	2.29±0.10	20.00±0.35	2.00±0.10	20.83±0.35	6.32±0.15	14.54±0.25	0.50
PC90ELT25X6.6-Z									
PC95ELT25X8.6-Z	25.00±0.45	6.29±0.15	2.29±0.10	20.00±0.35	4.00±0.15	20.83±0.35	6.32±0.15	14.54±0.25	0.50
PC90ELT25X8.6-Z									

Part No. (ELH+PLT)	Effective parameter							Electrical characteristics	
	C ₁ (mm ⁻¹)	ℓ _e (mm)	A _e (mm ²)	V _e (mm ³)	A _{min.} (mm ²)	A _{cw} (mm ²)	Weight (g)	AL-value (nH/N ²)*	
								Without air gap	With air gap
PC95ELT18X7.3-Z	0.538	23.8	44.3	1050	43.0	20.9	6.0	4760±25%	80±3%
PC90ELT18X7.3-Z								3100±25%	125±3%
PC95ELT20X5.7-Z	0.393	21.6	54.9	1180	52.9	11.6	6.7	6270±25%	80±3%
PC90ELT20X5.7-Z								4150±25%	125±3%
PC95ELT20X7.7-Z	0.469	25.6	54.6	1400	52.9	23.2	7.8	5630±25%	80±3%
PC90ELT20X7.7-Z								3900±25%	125±3%
PC95ELT22X6-Z	0.351	23.4	66.6	1560	64.2	12.8	9.0	7250±25%	100±3%
PC90ELT22X6-Z								4800±25%	160±3%
PC95ELT22X8-Z	0.413	27.3	66.2	1810	64.2	25.5	10	6540±25%	100±3%
PC90ELT22X8-Z								4250±25%	160±3%
PC95ELT25X6.6-Z	0.302	26.0	86.0	2230	83.0	14.5	13	8600±25%	100±3%
PC90ELT25X6.6-Z								6100±25%	160±3%
PC95ELT25X8.6-Z	0.350	30.0	85.6	2570	83.0	29.0	15	7540±25%	100±3%
PC90ELT25X8.6-Z								5400±25%	160±3%

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

PQI CORES

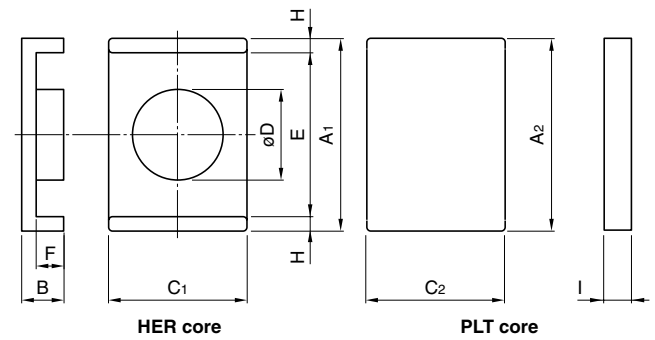
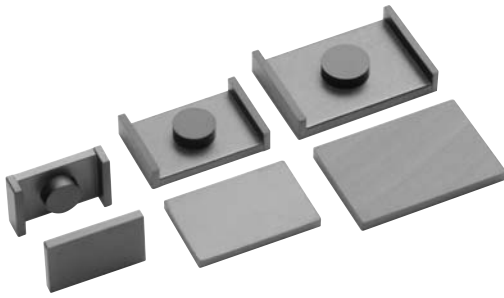


Part No.(HPQ+PQD)	Dimensions in mm							
	A ₁	A ₂	B	øC	D	E min.	H	I
PC95PQI16/7.8Z-12	16.40±0.30	11.20±0.30	14.40±0.30	7.00±0.20	5.40±0.10	9.60	3.05±0.15	2.35±0.10
PC90PQI16/7.8Z-12								
PC95PQI20/9Z-12	20.50±0.40	14.00±0.40	18.00±0.40	8.80±0.20	6.00±0.10	12.00	3.05±0.15	2.95±0.10
PC90PQI20/9Z-12								
PC95PQI26/12Z-12	26.50±0.45	19.00±0.45	22.50±0.45	12.00±0.20	7.30±0.10	15.50	3.10±0.15	4.20±0.10
PC90PQI26/12Z-12								

Part No. (HPQ+PQD)	Effective parameter							Electrical characteristics	
	C ₁ (mm ⁻¹)	ℓ _e (mm)	A _e (mm ²)	V _e (mm ³)	A _{min.} (mm ²)	A _{cw} (mm ²)	Weight (g)	AL-value (nH/N ²)* Without air gap	With air gap
PC95PQI16/7.8Z-12	0.467	19.5	41.8	815	37.6	11.3	5.0	4910±25%	63±3%
PC90PQI16/7.8Z-12								3600±25%	100±5% 160±7%
PC95PQI20/9Z-12	0.346	22.9	66.0	1510	59.3	14.0	9.0	7070±25%	100±3%
PC90PQI20/9Z-12								5200±25%	160±5% 250±7%
PC95PQI26/12Z-12	0.224	27.7	123	3410	109	16.3	21	11950±25%	100±3%
PC90PQI26/12Z-12								8600±25%	160±3% 250±5%

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

EIR CORES

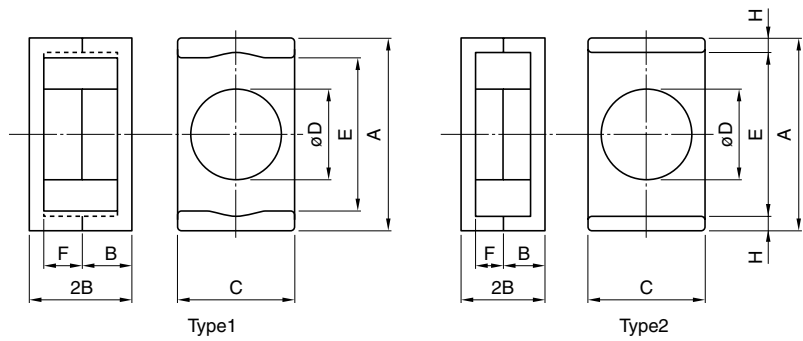
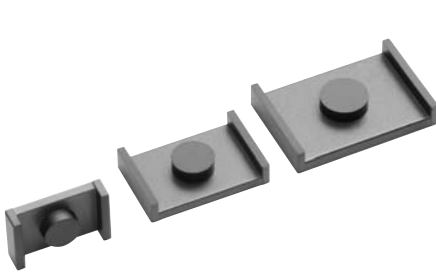


Part No.(HER+PLT)	Dimensions in mm									
	A ₁	B	C ₁	øD	E	F	H	A ₂	C ₂	I
PC95EIR14/4.5/9-Z	13.85±0.25	3.20±0.10	9.00±0.20	5.20±0.10	11.35±0.15	1.90±0.10	1.25	14.00±0.20	9.20±0.20	1.30±0.10
PC90EIR14/4.5/9-Z										
PC95EIR18/5/12-Z	18.15±0.30	3.50±0.10	12.00±0.20	6.00±0.10	15.75±0.25	2.00±0.10	1.20	18.20±0.25	12.20±0.20	1.50±0.10
PC90EIR18/5/12-Z										
PC95EIR22/5.5/15-Z	22.10±0.35	3.75±0.10	15.25±0.25	6.80±0.10	19.70±0.30	2.00±0.10	1.20	22.20±0.30	15.50±0.20	1.75±0.10
PC90EIR22/5.5/15-Z										

Part No. (HER+PLT)	Effective parameter							Electrical characteristics	
	C ₁ (mm ⁻¹)	ℓ _e (mm)	A _e (mm ²)	V _e (mm ³)	A _{min.} (mm ²)	A _{cw} (mm ²)	Weight (g)	AL-value (nH/N ²) Without air gap	With air gap
PC95EIR14/4.5/9-Z	0.679	15.4	22.7	349	21.2	5.84	2.0	2800±25%	63±3%
PC90EIR14/4.5/9-Z								2050±25%	100±5% 160±7%
PC95EIR18/5/12-Z	0.601	19.7	32.8	645	28.3	9.75	3.8	3690±25%	80±3%
PC90EIR18/5/12-Z								2500±25%	125±5% 200±7%
PC95EIR22/5.5/15-Z	0.505	23.2	46.1	1070	36.3	12.9	6.5	4150±25%	80±3%
PC90EIR22/5.5/15-Z								3000±25%	125±5% 200±7%

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

ER CORES

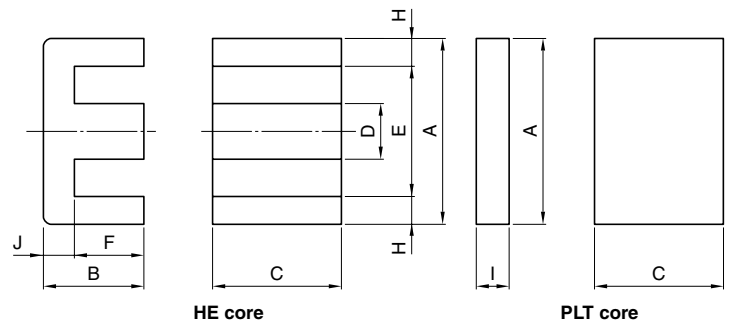
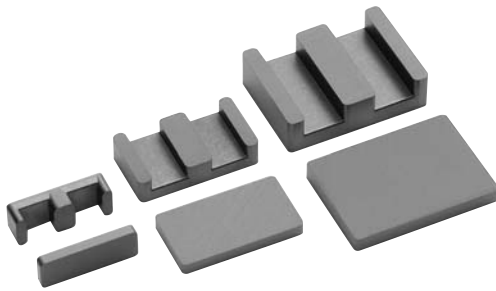


Part No.(HER+HER)	Type	Dimensions in mm						
		A	B	C	øD	E	F	H
PC95ER9.5/5-Z PC90ER9.5/5-Z	1	9.5 ⁺⁰ _{-0.3}	2.5 ⁺⁰ _{-0.1}	5.0 ⁺⁰ _{-0.2}	3.5 ⁺⁰ _{-0.2}	7.0min.	1.6 ^{+0.15} ₋₀	—
PC95ER11/5-Z PC90ER11/5-Z	1	11.0 ⁺⁰ _{-0.35}	2.5 ⁺⁰ _{-0.1}	6.0 ⁺⁰ _{-0.2}	4.25 ⁺⁰ _{-0.25}	7.9min.	1.5 ^{+0.15} ₋₀	—
PC95ER14/4.5/9-Z PC90ER14/4.5/9-Z	2	13.85±0.25	2.25±0.10	9.00±0.20	5.20±0.10	11.35±0.15	0.95±0.10	1.25
PC95ER14.5/6-Z PC90ER14.5/6-Z	2	14.5±0.2	3.0 ⁺⁰ _{-0.1}	6.7±0.1	4.7±0.1	11.8±0.2	1.65±0.1	1.35
PC95ER18/5/12-Z PC90ER18/5/12-Z	2	18.15±0.30	2.50±0.10	12.00±0.20	6.00±0.10	15.75±0.25	1.00±0.10	1.20
PC95ER22/5.5/15-Z PC90ER22/5.5/15-Z	2	22.10±0.35	2.75±0.10	15.25±0.25	6.80±0.10	19.70±0.30	1.00±0.10	1.20
PC95ER25/5.5/18-Z PC90ER25/5.5/18-Z	2	25.30±0.40	2.75±0.10	18.00±0.40	7.00±0.15	22.90±0.40	1.00±0.10	1.20

Part No. (HER+HER)	Effective parameter							Electrical characteristics	
	C ₁ (mm ⁻¹)	ℓ _e (mm)	A _e (mm ²)	V _e (mm ³)	A _{min.} (mm ²)	A _{cw} (mm ²)	Weight (g)	AL-value (nH/N ²)*	
PC95ER9.5/5-Z PC90ER9.5/5-Z	1.67	14.2	8.47	120	7.6	7.07	0.7	1190±25% 610min.	63±5% 100±7%
PC95ER11/5-Z PC90ER11/5-Z	1.23	14.7	11.9	174	10.3	7.44	1.1	1680±25% 1300±25%	63±5% 100±7%
PC95ER14/4.5/9-Z PC90ER14/4.5/9-Z	0.679	15.4	22.7	349	21.2	5.84	2.0	2550±25% 2100±25%	63±3% 100±5% 160±7%
PC95ER14.5/6-Z PC90ER14.5/6-Z	1.08	19.0	17.6	333	17.3	8.42	2.0	1880±25% 1300±25%	100±5% 160±7%
PC95ER18/5/12-Z PC90ER18/5/12-Z	0.601	19.7	32.8	645	28.3	9.75	3.8	3500±25% 2900±25%	80±3% 125±5% 200±7%
PC95ER22/5.5/15-Z PC90ER22/5.5/15-Z	0.505	23.2	46.1	1070	36.3	12.9	6.5	4300±25% 3200±25%	80±3% 125±5% 200±7%
PC95ER25/5.5/18-Z PC90ER25/5.5/18-Z	0.486	26.1	53.7	1400	38.5	15.9	8.5	4400±25% 3400±25%	80±3% 125±3% 200±5%

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

EI CORES

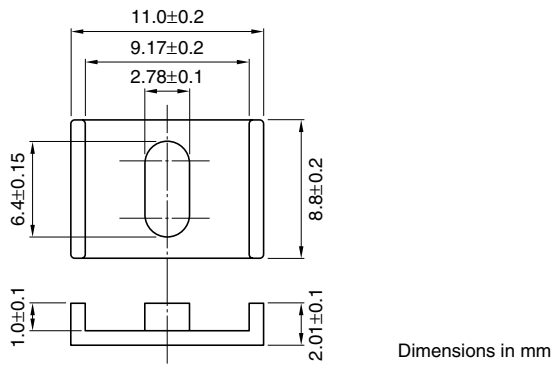


Part No.(HE+PLT)	Dimensions in mm								
	A	B	C	D	E	F	H	I	J
PC95EI14/5/5-Z	14.00±0.30	3.50±0.10	5.00±0.10	3.00±0.10	11.00±0.25	2.00±0.10	1.50	1.50±0.05	1.50
PC90EI14/5/5-Z									
PC95EI18/6/10-Z	18.00±0.35	4.00±0.10	10.00±0.20	4.00±0.10	14.00±0.30	2.00±0.10	2.00	2.00±0.05	2.00
PC90EI18/6/10-Z									
PC95EI22/8/16-Z	21.80±0.40	5.70±0.10	15.80±0.30	5.00±0.10	16.80±0.40	3.20±0.10	2.50	2.50±0.05	2.50
PC90EI22/8/16-Z									

Part No. (HE+PLT)	Effective parameter							Electrical characteristics	
	C ₁ (mm ⁻¹)	ℓ _e (mm)	A _e (mm ²)	V _e (mm ³)	A _{min.} (mm ²)	A _{cw} (mm ²)	Weight (g)	AL-value (nH/N ²)*	
PC95EI14/5/5-Z	1.11	16.7	15.0	251	15.0	8.00	1.3	1550±25%	63±3%
PC90EI14/5/5-Z								1200±25%	100±5% 160±7%
PC95EI18/6/10-Z	0.507	20.3	40.0	811	40.0	10.0	4.4	4720±25%	100±3%
PC90EI18/6/10-Z								3100±25%	160±3% 250±5%
PC95EI22/8/16-Z	0.330	26.1	79.0	2060	79.0	18.9	11	8010±25%	160±3%
PC90EI22/8/16-Z								5300±25%	250±3% 315±3%

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

EL Series EL11X4 Cores



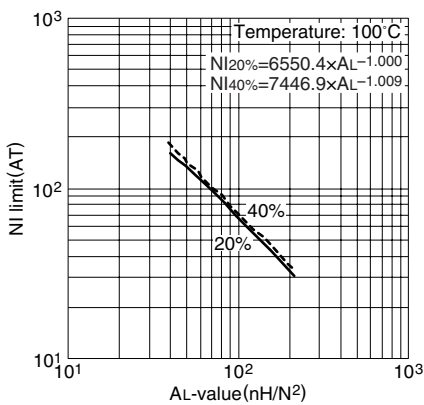
PARAMETER

Core factor	C1	mm ⁻¹	0.826
Effective magnetic path length	ℓ_e	mm	13.7
Effective cross-sectional area	Ae	mm ²	16.5
Effective core volume	Ve	mm ³	226
Cross-sectional winding area of core	Acw	mm ²	6.39
Weight (approx.)		g	1.3

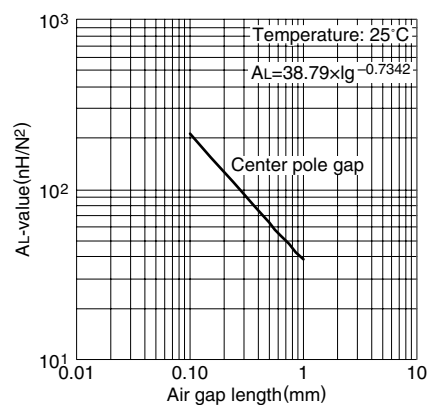
Part No.	AL-value (nH/N ²)*	Core loss (W) 100kHz, 200mT
PC90EL11X4-Z	1950±25%	0.2(100°C)
PC95EL11X4-Z	2400±25%	0.2/0.18/0.2(25°C/80°C/120°C)

* 1kHz, 0.5mA, 100Ts

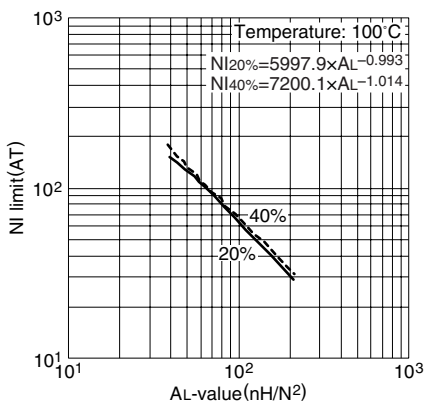
NI limit vs. AL-value for
PC90EL11X4 gapped core (Typical)



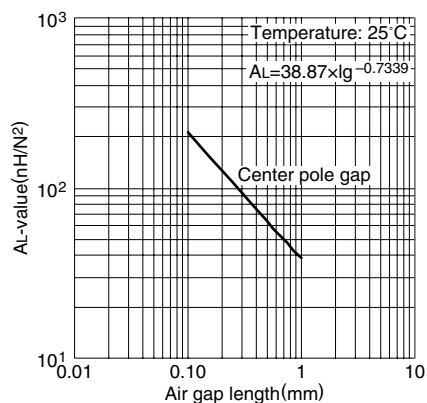
AL-value vs. Air gap length for
PC90EL11X4 core (Typical)



NI limit vs. AL-value for
PC95EL11X4 gapped core (Typical)



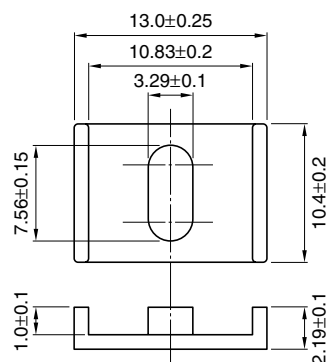
AL-value vs. Air gap length for
PC95EL11X4 core (Typical)



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

Measuring conditions • Coil: ø0.18 2UEW 100Ts
• Frequency: 1kHz
• Level: 0.5mA

EL Series EL13X4.4 Cores



Dimensions in mm

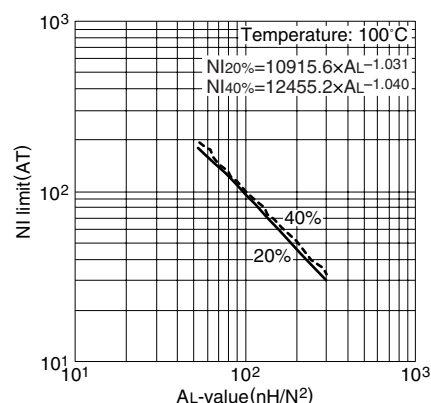
PARAMETER

Core factor	C1	mm ⁻¹	0.667
Effective magnetic path length	ℓ_e	mm	15.4
Effective cross-sectional area	Ae	mm ²	23.1
Effective core volume	Ve	mm ³	357
Cross-sectional winding area of core	Acw	mm ²	7.54
Weight (approx.)		g	2.0

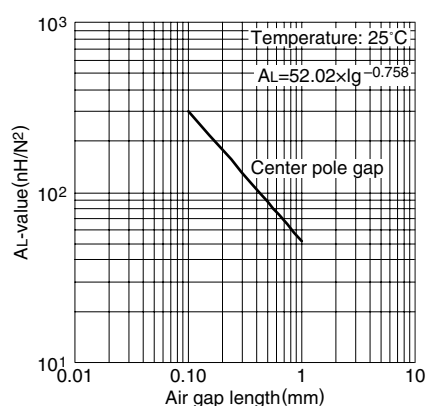
Part No.	AL-value (nH/N ²)*	Core loss (W) 100kHz, 200mT
PC90EL13X4.4-Z	2500±25%	0.25(100°C)
PC95EL13X4.4-Z	3160±25%	0.25/0.2/0.25(25°C/80°C/120°C)

* 1kHz, 0.5mA, 100Ts

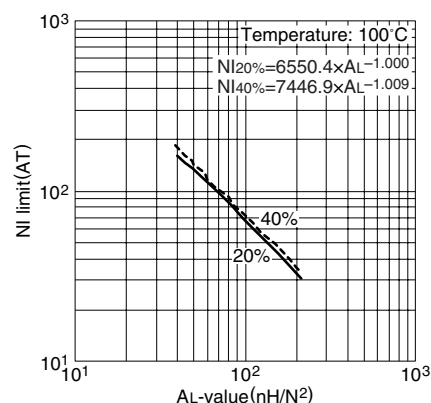
NI limit vs. AL-value for
PC90EL13X4.4 gapped core (Typical)



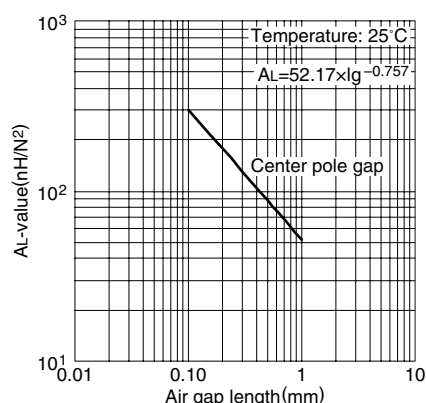
AL-value vs. Air gap length for
PC90EL13X4.4 core (Typical)



NI limit vs. AL-value for
PC95EL13X4.4 gapped core (Typical)



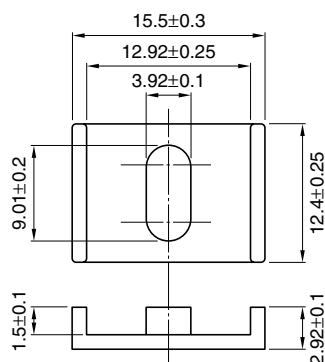
AL-value vs. Air gap length for
PC95EL13X4.4 core (Typical)



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

Measuring conditions • Coil: $\phi 0.18$ 2UEW 100Ts
 • Frequency: 1kHz
 • Level: 0.5mA

EL Series EL15.5X5.8 Cores



Dimensions in mm

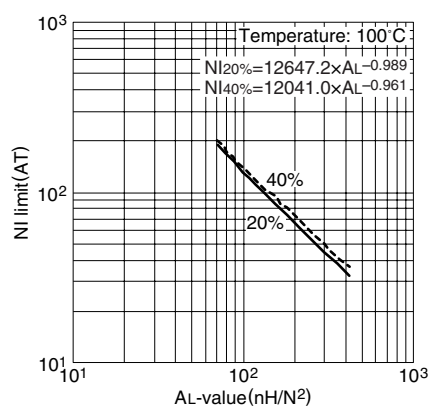
PARAMETER

Core factor	C1	mm ⁻¹	0.597
Effective magnetic path length	ℓ_e	mm	19.6
Effective cross-sectional area	Ae	mm ²	32.9
Effective core volume	Ve	mm ³	646
Cross-sectional winding area of core	Acw	mm ²	13.5
Weight (approx.)		g	3.5

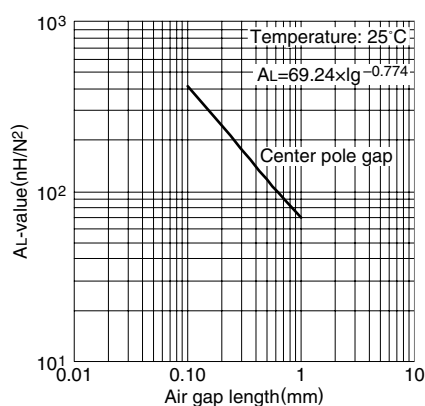
Part No.	AL-value (nH/N ²)*	Core loss (W) 100kHz, 200mT
PC90EL15.5X5.8-Z	3000±25%	0.5(100°C)
PC95EL15.5X5.8-Z	3680±25%	0.5/0.45/0.5(25°C/80°C/120°C)

* 1kHz, 0.5mA, 100Ts

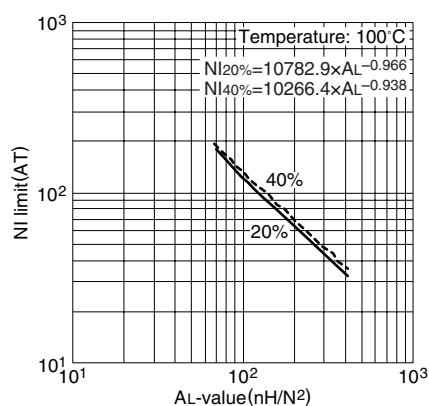
NI limit vs. AL-value for
PC90EL15.5X5.8 gapped core (Typical)



AL-value vs. Air gap length for
PC90EL15.5X5.8 core (Typical)

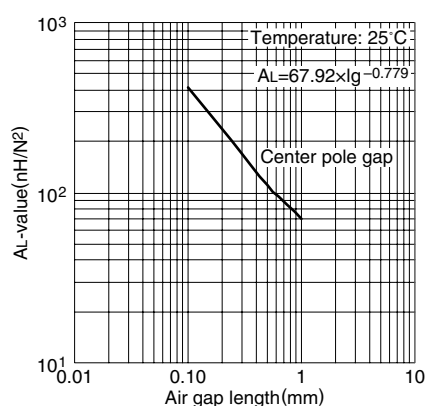


NI limit vs. AL-value for
PC95EL15.5X5.8 gapped core (Typical)



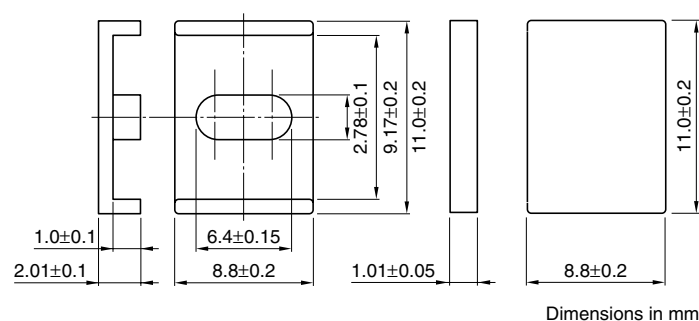
Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

AL-value vs. Air gap length for
PC95EL15.5X5.8 core (Typical)



Measuring conditions • Coil: ø0.18 2UEW 100Ts
• Frequency: 1kHz
• Level: 0.5mA

ELT Series ELT11X3 Cores



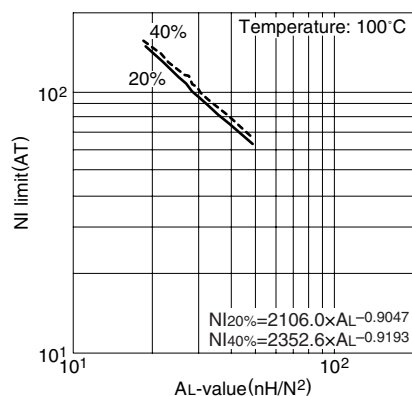
PARAMETER

Core factor	C1	mm ⁻¹	0.702
Effective magnetic path length	ℓ_e	mm	11.7
Effective cross-sectional area	Ae	mm ²	16.6
Effective core volume	Ve	mm ³	194
Cross-sectional winding area of core	Acw	mm ²	3.20
Weight (approx.)		g	1.1

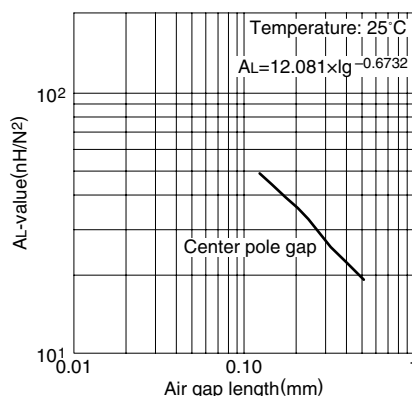
Part No.	AL-value (nH/N ²)*	Core loss (W) 100kHz, 200mT
PC90ELT11X3-Z	1750±25%	0.15(100°C)
PC95ELT11X3-Z	2590±25%	0.14/0.12/0.14(25°C/80°C/120°C)

* 1kHz, 0.5mA, 100Ts

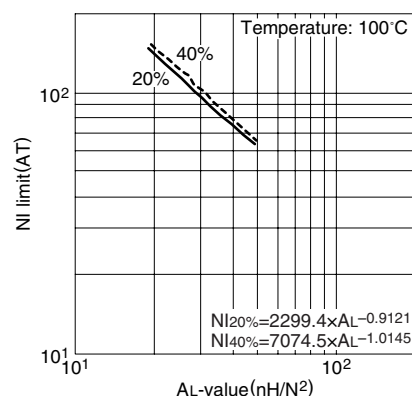
NI limit vs. AL-value for
PC90ELT11X3 gapped core (Typical)



AL-value vs. Air gap length for
PC90ELT11X3 core (Typical)

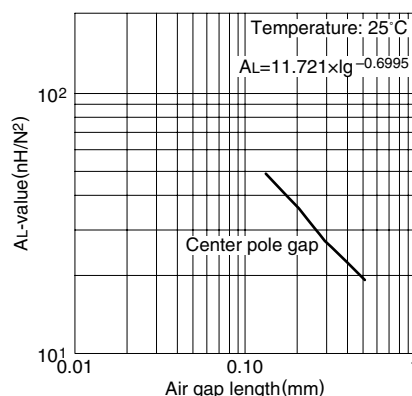


NI limit vs. AL-value for
PC95ELT11X3 gapped core (Typical)



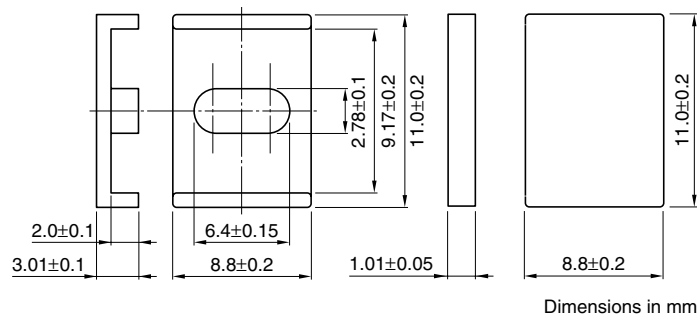
Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

AL-value vs. Air gap length for
PC95ELT11X3 core (Typical)



Measuring conditions • Coil: ø0.18 2UEW 100Ts
• Frequency: 1kHz
• Level: 0.5mA

ELT Series ELT11X4 Cores



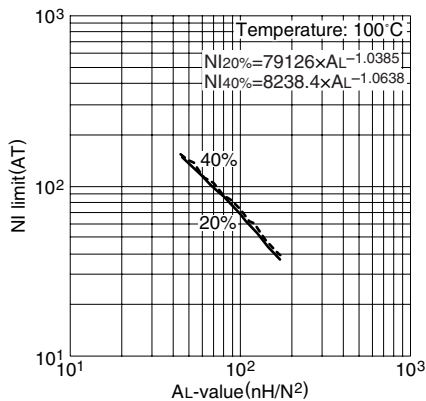
PARAMETER

Core factor	C1	mm ⁻¹	0.826
Effective magnetic path length	ℓ_e	mm	13.7
Effective cross-sectional area	Ae	mm ²	16.5
Effective core volume	Ve	mm ³	226
Cross-sectional winding area of core	Acw	mm ²	6.39
Weight (approx.)	g		1.3

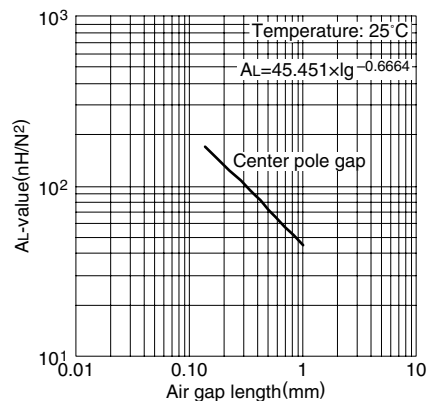
Part No.	AL-value (nH/N ²)*	Core loss (W) 100kHz, 200mT
PC90ELT11X4-Z	1700±25%	0.18(100°C)
PC95ELT11X4-Z	2400±25%	0.16/0.15/0.16(25°C/80°C/120°C)

* 1kHz, 0.5mA, 100Ts

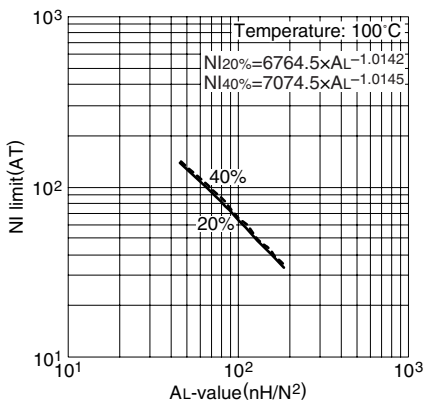
NI limit vs. AL-value for
PC90ELT11X4 gapped core (Typical)



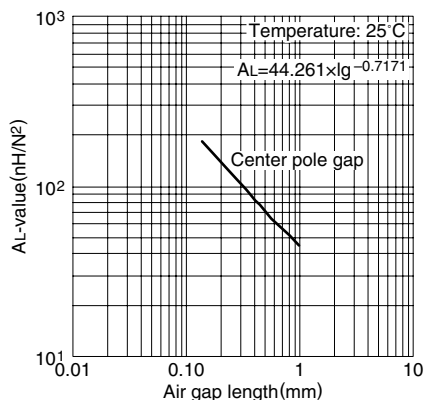
AL-value vs. Air gap length for
PC90ELT11X4 core (Typical)



NI limit vs. AL-value for
PC95ELT11X4 gapped core (Typical)



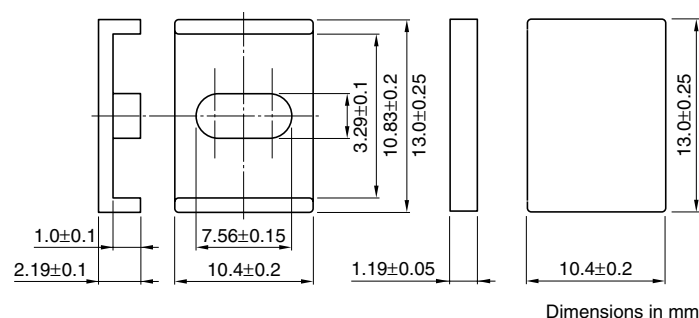
AL-value vs. Air gap length for
PC95ELT11X4 core (Typical)



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

Measuring conditions • Coil: ϕ 0.18 2UEW 100Ts
• Frequency: 1kHz
• Level: 0.5mA

ELT Series ELT13X3.4 Cores



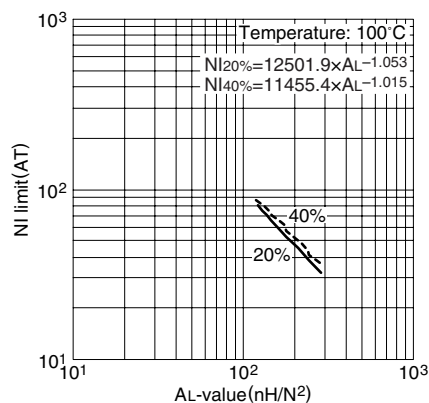
PARAMETER

Core factor	C1	mm ⁻¹	0.578
Effective magnetic path length	ℓ_e	mm	13.4
Effective cross-sectional area	Ae	mm ²	23.2
Effective core volume	Ve	mm ³	312
Cross-sectional winding area of core	Acw	mm ²	3.77
Weight (approx.)	g		1.8

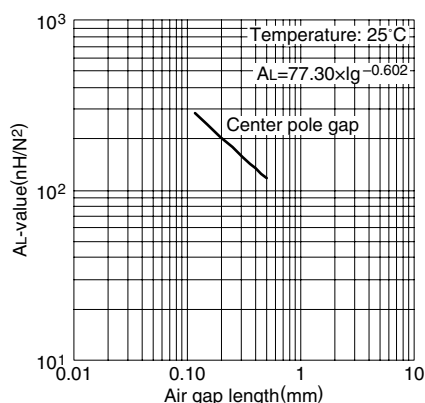
Part No.	AL-value (nH/N ²)*	Core loss (W) 100kHz, 200mT
PC90ELT13X3.4-Z	2400±25%	0.3(100°C)
PC95ELT13X3.4-Z	3390±25%	0.3/0.28/0.3(25°C/80°C/120°C)

* 1kHz, 0.5mA, 100Ts

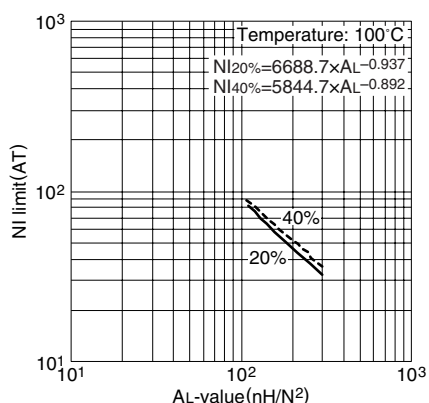
NI limit vs. AL-value for
PC90ELT13X3.4 gapped core (Typical)



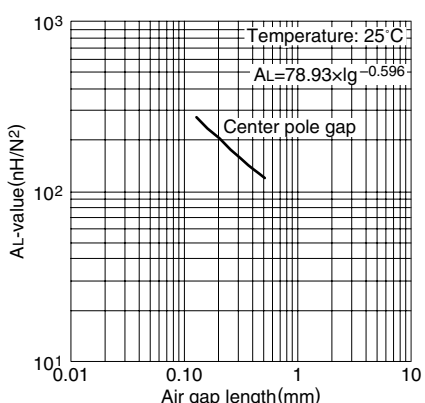
AL-value vs. Air gap length for
PC90ELT13X3.4 core (Typical)



NI limit vs. AL-value for
PC95ELT13X3.4 gapped core (Typical)



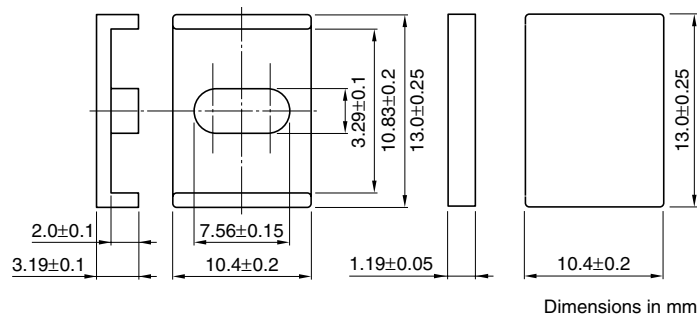
AL-value vs. Air gap length for
PC95ELT13X3.4 core (Typical)



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

Measuring conditions • Coil: $\phi 0.18$ 2UEW 100Ts
 • Frequency: 1kHz
 • Level: 0.5mA

ELT Series ELT13X4.4 Cores



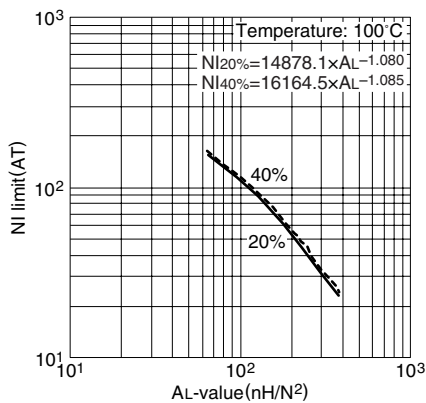
PARAMETER

Core factor	C1	mm ⁻¹	0.667
Effective magnetic path length	ℓ_e	mm	15.4
Effective cross-sectional area	Ae	mm ²	23.1
Effective core volume	Ve	mm ³	357
Cross-sectional winding area of core	Acw	mm ²	7.54
Weight (approx.)		g	2.0

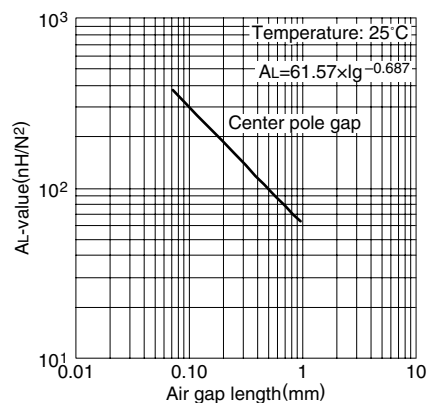
Part No.	AL-value (nH/N ²)*	Core loss (W) 100kHz, 200mT
PC90ELT13X4.4-Z	2300±25%	0.3(100°C)
PC95ELT13X4.4-Z	3160±25%	0.3/0.28/0.3(25°C/80°C/120°C)

* 1kHz, 0.5mA, 100Ts

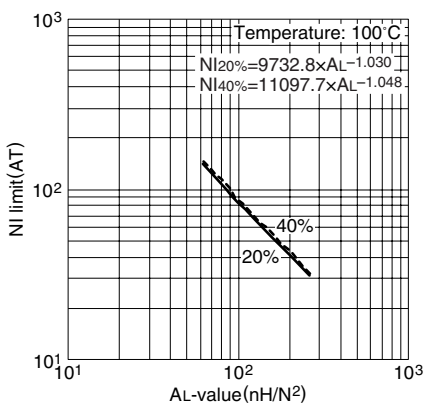
NI limit vs. AL-value for
PC90ELT13X4.4 gapped core (Typical)



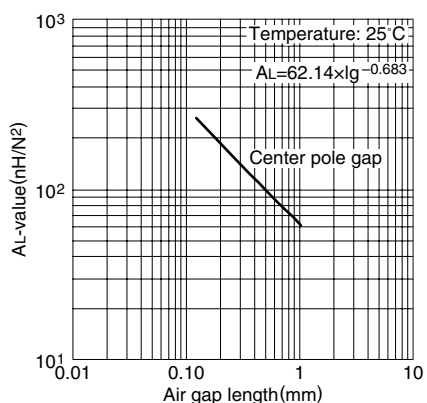
AL-value vs. Air gap length for
PC90ELT13X4.4 core (Typical)



NI limit vs. AL-value for
PC95ELT13X4.4 gapped core (Typical)



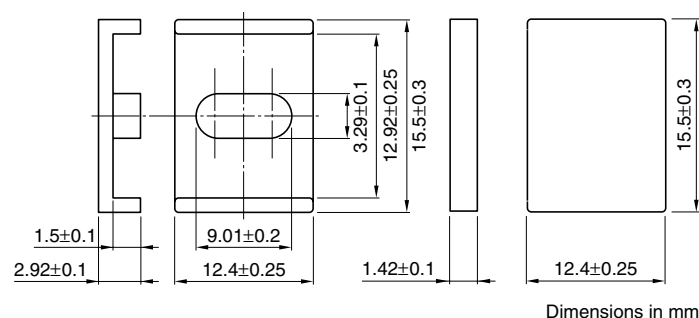
AL-value vs. Air gap length for
PC95ELT13X4.4 core (Typical)



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

Measuring conditions • Coil: $\phi 0.18$ 2UEW 100Ts
 • Frequency: 1kHz
 • Level: 0.5mA

ELT Series ELT15.5X4.3 Cores



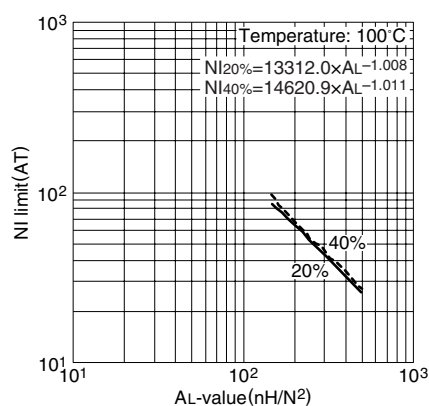
PARAMETER

Core factor	C1	mm ⁻¹	0.503
Effective magnetic path length	ℓ_e	mm	16.6
Effective cross-sectional area	Ae	mm ²	33.1
Effective core volume	Ve	mm ³	550
Cross-sectional winding area of core	Acw	mm ²	6.75
Weight (approx.)		g	3.0

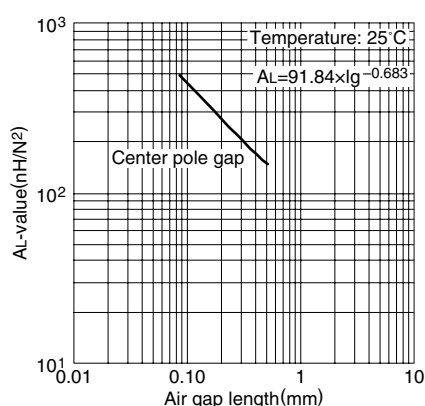
Part No.	AL-value (nH/N ²)*	Core loss (W) 100kHz, 200mT
PC90ELT15.5X4.3-Z	2900±25%	0.5(100°C)
PC95ELT15.5X4.3-Z	4340±25%	0.5/0.45/0.5(25°C/80°C/120°C)

* 1kHz, 0.5mA, 100Ts

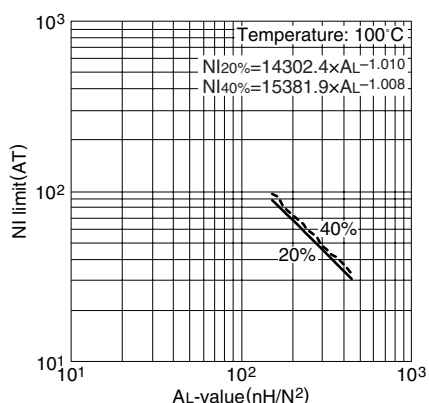
NI limit vs. AL-value for
PC90ELT15.5X4.3 gapped core (Typical)



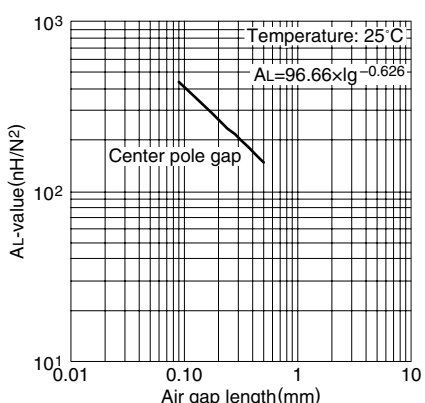
AL-value vs. Air gap length for
PC90ELT15.5X4.3 core (Typical)



NI limit vs. AL-value for
PC95ELT15.5X4.3 gapped core (Typical)



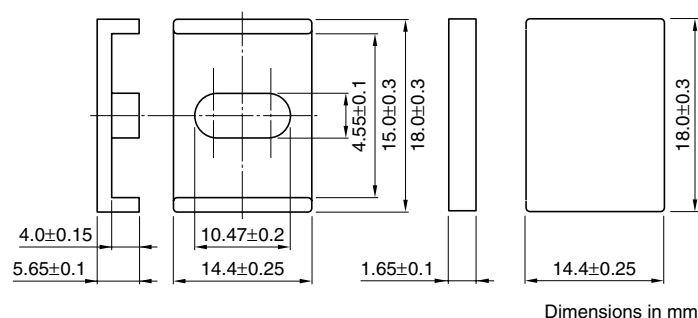
AL-value vs. Air gap length for
PC95ELT15.5X4.3 core (Typical)



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

Measuring conditions • Coil: ϕ 0.18 2UEW 100Ts
• Frequency: 1kHz
• Level: 0.5mA

ELT Series ELT18X7.3 Cores



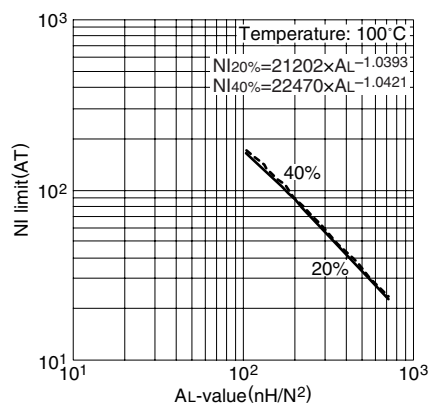
PARAMETER

Core factor	C1	mm ⁻¹	0.538
Effective magnetic path length	ℓ_e	mm	23.8
Effective cross-sectional area	Ae	mm ²	44.3
Effective core volume	Ve	mm ³	1050
Cross-sectional winding area of core	Acw	mm ²	20.9
Weight (approx.)	g		6.0

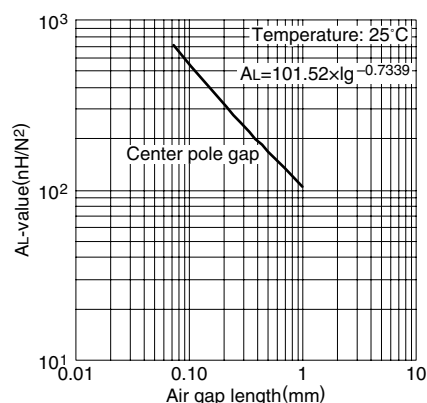
Part No.	AL-value (nH/N ²)*	Core loss (W)
PC90ELT18X7.3-Z	3100±25%	100kHz, 200mT
PC95ELT18X7.3-Z	4760±25%	0.7(100°C)
		0.6/0.55/0.6(25°C/80°C/120°C)

* 1kHz, 0.5mA, 100Ts

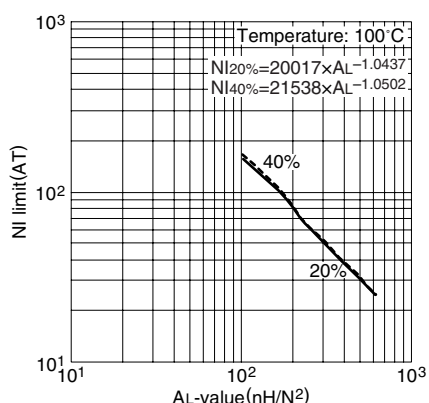
NI limit vs. AL-value for PC90ELT18X7.3 gapped core (Typical)



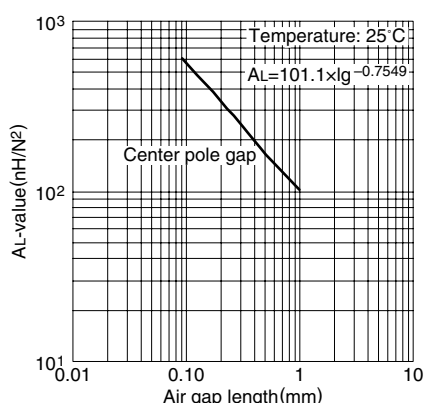
AL-value vs. Air gap length for PC90ELT18X7.3 core (Typical)



NI limit vs. AL-value for PC95ELT18X7.3 gapped core (Typical)



AL-value vs. Air gap length for PC95ELT18X7.3 core (Typical)

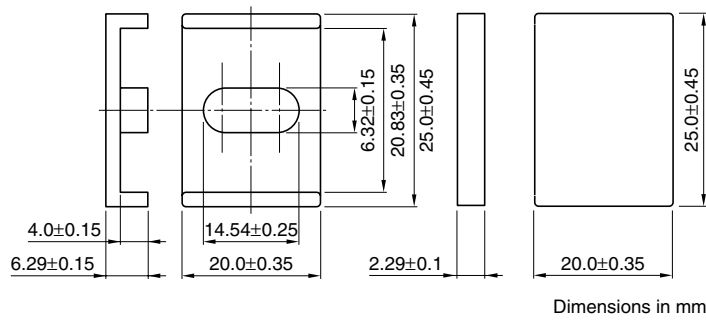


Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

Measuring conditions • Coil: $\phi 0.18$ 2UEW 100Ts

- Frequency: 1kHz
- Level: 0.5mA

ELT Series ELT25X8.6 Cores



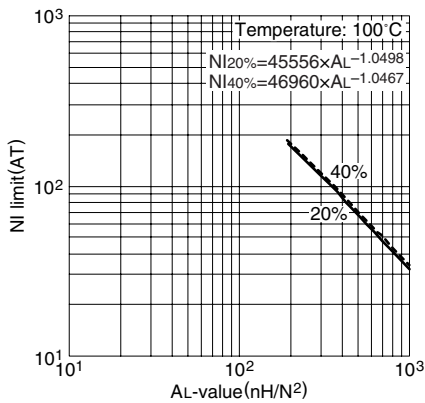
PARAMETER

Core factor	C1	mm ⁻¹	0.350
Effective magnetic path length	ℓ_e	mm	30.0
Effective cross-sectional area	Ae	mm ²	85.6
Effective core volume	Ve	mm ³	2570
Cross-sectional winding area of core	Acw	mm ²	29.0
Weight (approx.)	g		15

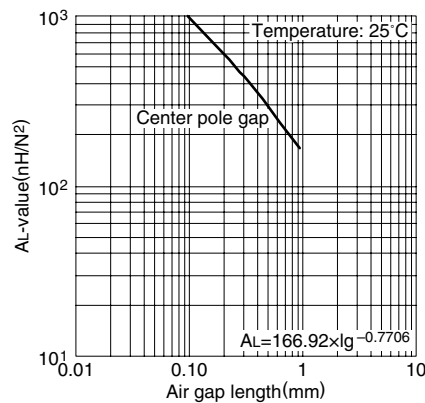
Part No.	AL-value (nH/N ²)*	Core loss (W) 100kHz, 200mT
PC90ELT25X8.6-Z	5400±25%	1.8(100°C)
PC95ELT25X8.6-Z	7540±25%	1.6/1.5/1.6(25°C/80°C/120°C)

* 1kHz, 0.5mA, 100Ts

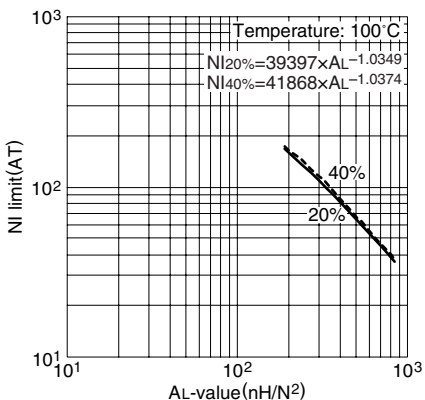
NI limit vs. AL-value for
PC90ELT25X8.6 gapped core (Typical)



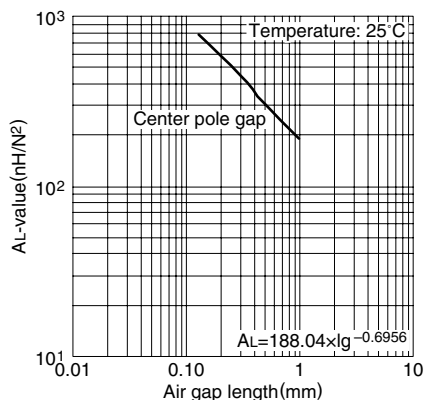
AL-value vs. Air gap length for
PC90ELT25X8.6 core (Typical)



NI limit vs. AL-value for
PC95ELT25X8.6 gapped core (Typical)



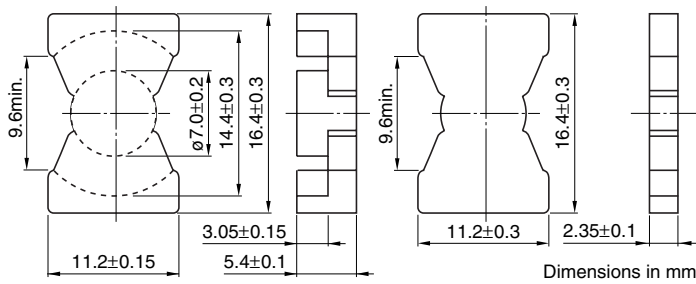
AL-value vs. Air gap length for
PC95ELT25X8.6 core (Typical)



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

Measuring conditions • Coil: $\phi 0.18$ 2UEW 100Ts
 • Frequency: 1kHz
 • Level: 0.5mA

PQI Series PQI16/7.8 Cores



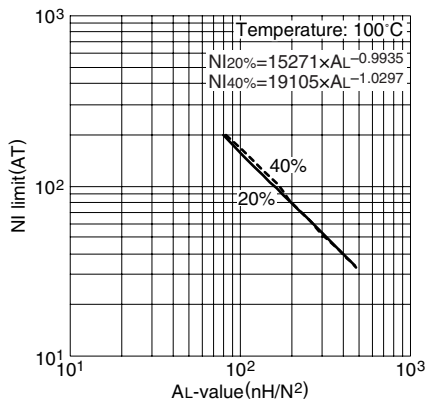
PARAMETER

Core factor	C1	mm ⁻¹	0.467
Effective magnetic path length	ℓ_e	mm	19.5
Effective cross-sectional area	Ae	mm ²	41.8
Effective core volume	Ve	mm ³	815
Cross-sectional center pole area	Acp	mm ²	11.3
Weight (approx.)		g	5.0

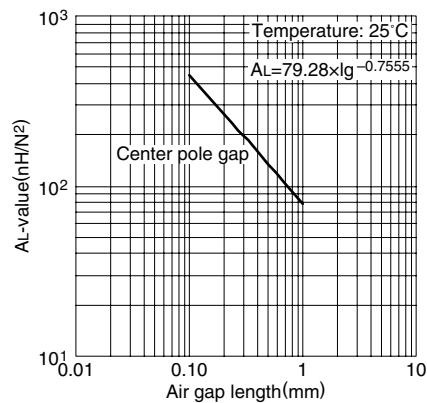
Part No.	AL-value (nH/N ²)*	Core loss (W) 100kHz, 200mT
PC90PQI16/7.8Z-12	3600±25%	0.5(100°C)
PC95PQI16/7.8Z-12	4910±25%	0.45/0.35/0.45(25°C/80°C/120°C)

* 1kHz, 0.5mA, 100Ts

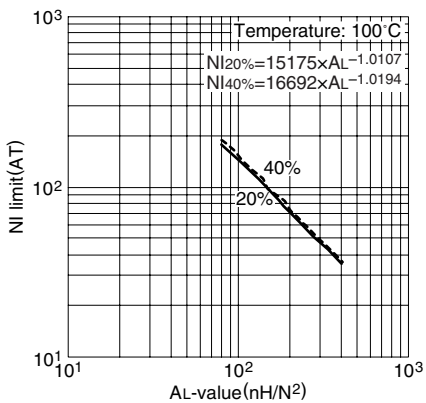
NI limit vs. AL-value for
PC90PQI16/7.8 gapped core (Typical)



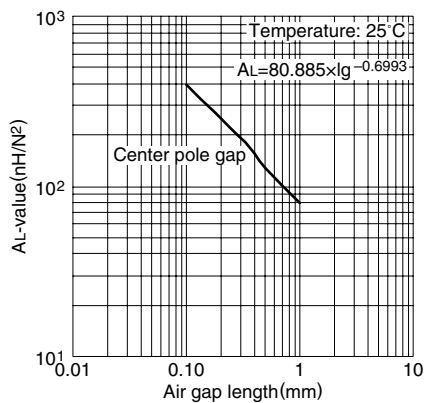
AL-value vs. Air gap length for
PC90PQI16/7.8 core (Typical)



NI limit vs. AL-value for
PC95PQI16/7.8 gapped core (Typical)



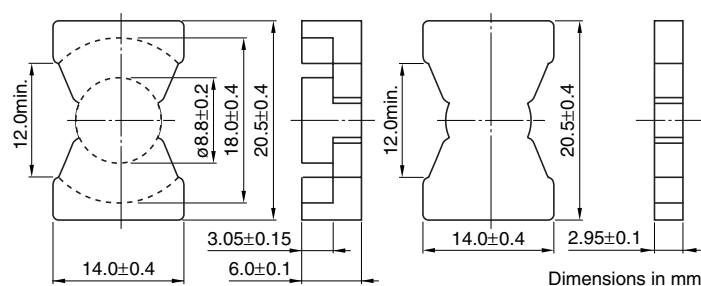
AL-value vs. Air gap length for
PC95PQI16/7.8 core (Typical)



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

Measuring conditions • Coil: $\phi 0.18$ 2UEW 100Ts
• Frequency: 1kHz
• Level: 0.5mA

PQI Series PQI20/9 Cores



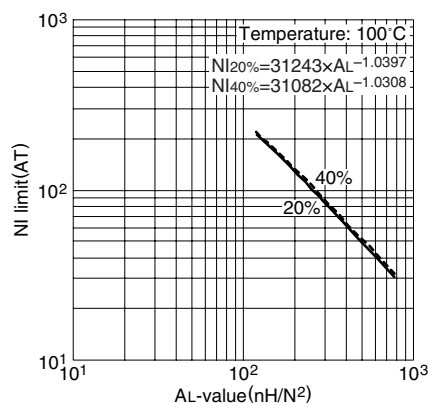
PARAMETER

Core factor	C1	mm ⁻¹	0.346
Effective magnetic path length	ℓ_e	mm	22.9
Effective cross-sectional area	Ae	mm ²	66.0
Effective core volume	Ve	mm ³	1510
Cross-sectional winding area of core	Acw	mm ²	14.0
Weight (approx.)	g		9.0

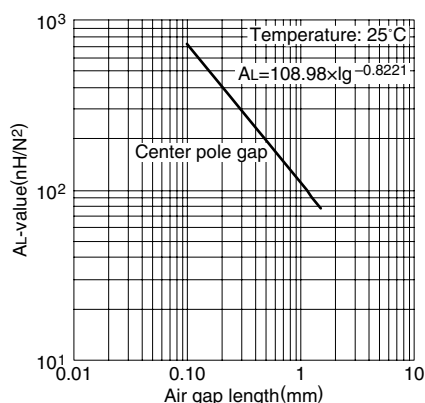
Part No.	AL-value (nH/N ²)*	Core loss (W) 100kHz, 200mT
PC90PQI20/9Z-12	5200±25%	0.8(100°C)
PC95PQI20/9Z-12	7070±25%	0.75/0.65/0.75(25°C/80°C/120°C)

* 1kHz, 0.5mA, 100Ts

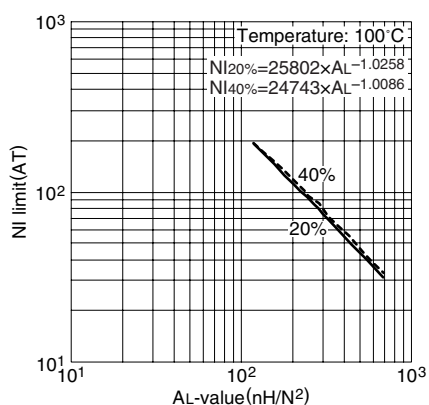
NI limit vs. AL-value for
PC90PQI20/9 gapped core (Typical)



AL-value vs. Air gap length for
PC90PQI20/9 core (Typical)

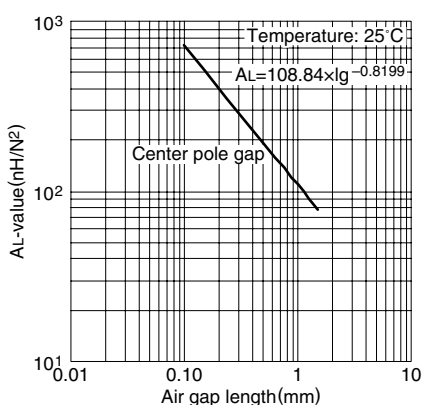


NI limit vs. AL-value for
PC95PQI20/9 gapped core (Typical)



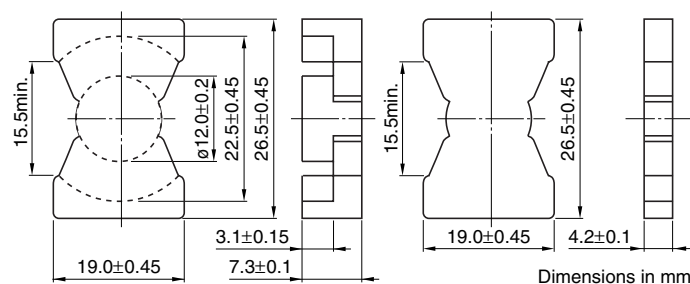
Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

AL-value vs. Air gap length for
PC95PQI20/9 core (Typical)



Measuring conditions • Coil: ϕ 0.18 2UEW 100Ts
• Frequency: 1kHz
• Level: 0.5mA

PQI Series PQI26/12 Cores



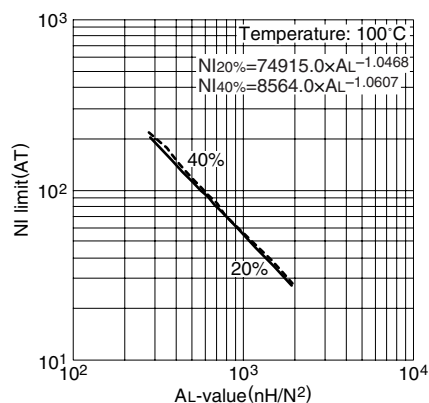
PARAMETER

Core factor	C1	mm ⁻¹	0.224
Effective magnetic path length	ℓ_e	mm	27.7
Effective cross-sectional area	Ae	mm ²	123
Effective core volume	Ve	mm ³	3410
Cross-sectional winding area of core	Acw	mm ²	16.3
Weight (approx.)		g	21

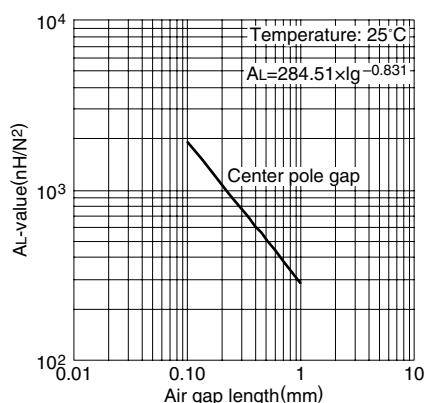
Part No.	AL-value (nH/N ²)*	Core loss (W) 100kHz, 200mT
PC90PQI26/12Z-12	8600±25%	1.6(100°C)
PC95PQI26/12Z-12	11950±25%	1.5/1.4/1.5(25°C/80°C/120°C)

* 1kHz, 0.5mA, 100Ts

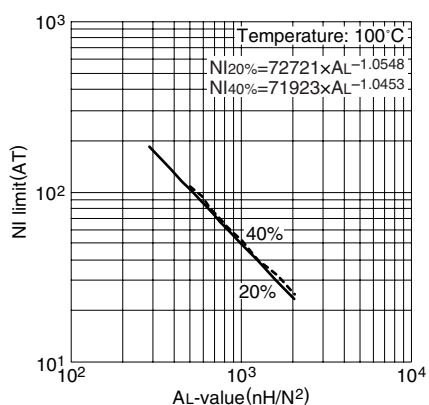
NI limit vs. AL-value for
PC90PQI26/12 gapped core (Typical)



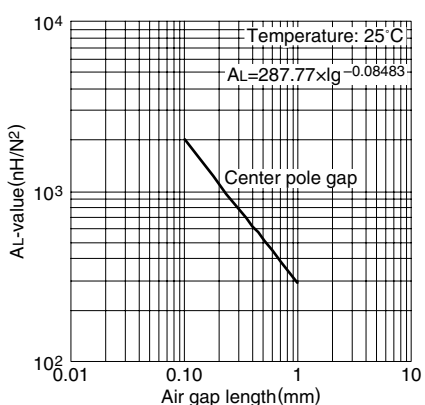
AL-value vs. Air gap length for
PC90PQI26/12 core (Typical)



NI limit vs. AL-value for
PC95PQI26/12 gapped core (Typical)



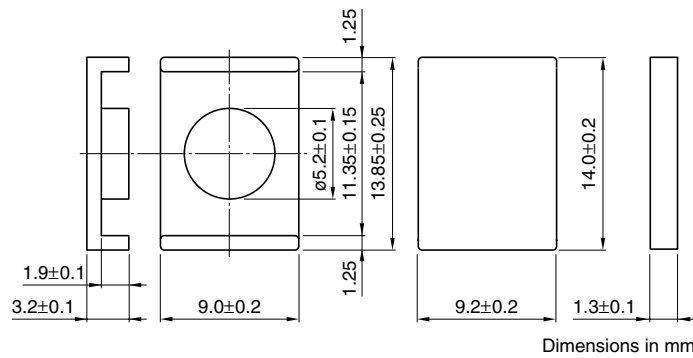
AL-value vs. Air gap length for
PC95PQI26/12 core (Typical)



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

Measuring conditions • Coil: ϕ 0.18 2UEW 100Ts
• Frequency: 1kHz
• Level: 0.5mA

EIR Series EIR14/4.5/9 Cores



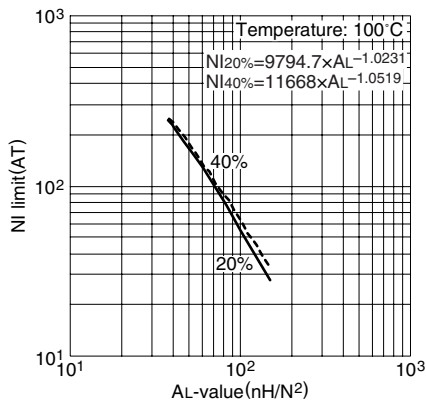
PARAMETER

Core factor	C1	mm ⁻¹	0.679
Effective magnetic path length	ℓ_e	mm	15.4
Effective cross-sectional area	Ae	mm ²	22.7
Effective core volume	Ve	mm ³	349
Cross-sectional winding area of core	Acw	mm ²	5.84
Weight (approx.)		g	2.0

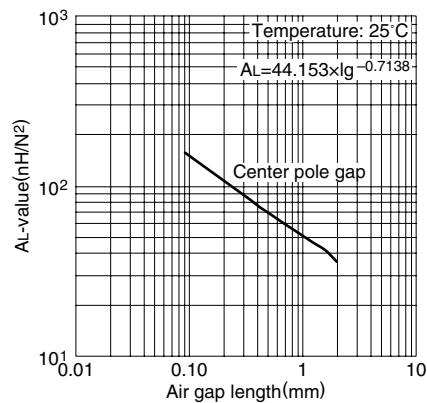
Part No.	AL-value (nH/N ²)*	Core loss (W) 100kHz, 200mT
PC90EIR14/4.5/9-Z	2050±25%	0.3(100°C)
PC95EIR14/4.5/9-Z	2800±25%	0.25/0.2/0.25(25°C/80°C/120°C)

* 1kHz, 0.5mA, 100Ts

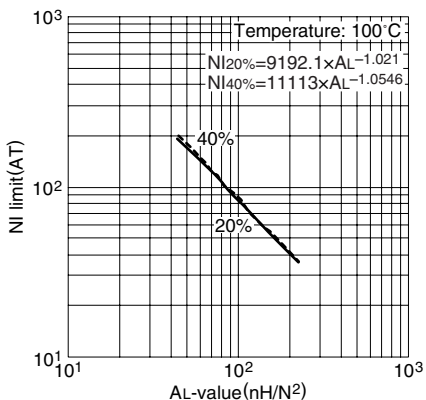
NI limit vs. AL-value for
PC90EIR14/4.5/9 gapped core (Typical)



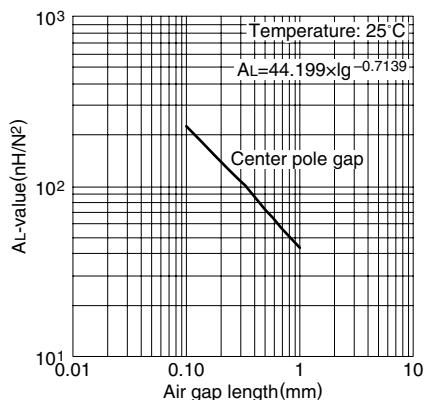
AL-value vs. Air gap length for
PC90EIR14/4.5/9 core (Typical)



NI limit vs. AL-value for
PC95EIR14/4.5/9 gapped core (Typical)



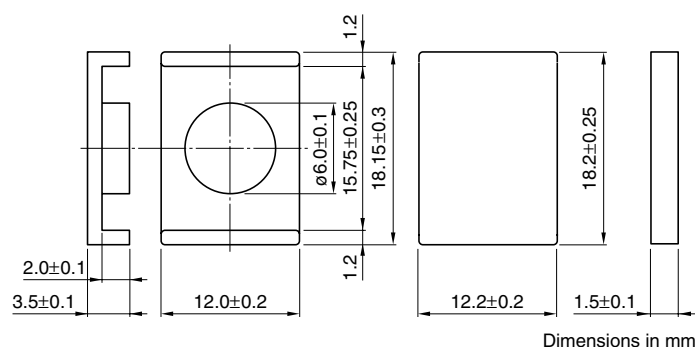
AL-value vs. Air gap length for
PC95EIR14/4.5/9 core (Typical)



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

Measuring conditions • Coil: $\phi 0.18$ 2UEW 100Ts
• Frequency: 1kHz
• Level: 0.5mA

EIR Series EIR18/5/12 Cores



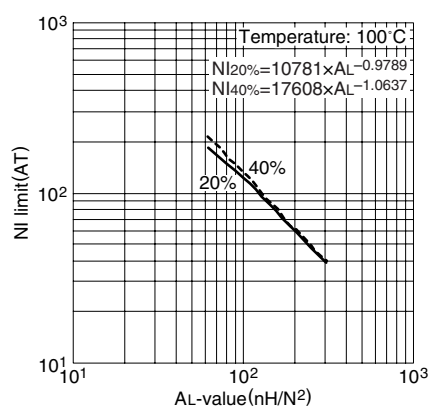
PARAMETER

Core factor	C1	mm ⁻¹	0.601
Effective magnetic path length	ℓ_e	mm	19.7
Effective cross-sectional area	Ae	mm ²	32.8
Effective core volume	Ve	mm ³	645
Cross-sectional winding area of core	Acw	mm ²	9.75
Weight (approx.)	g		3.8

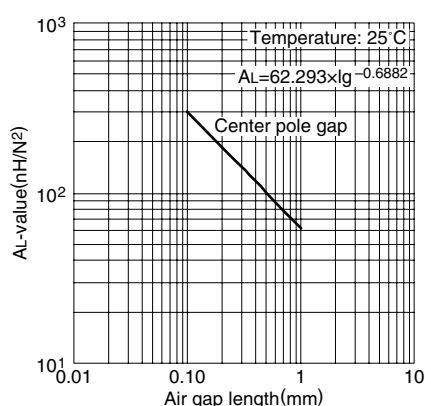
Part No.	AL-value (nH/N ²)*	Core loss (W) 100kHz, 200mT
PC90EIR18/5/12-Z	2500±25%	0.45(100°C)
PC95EIR18/5/12-Z	3690±25%	0.4/0.35/0.4(25°C/80°C/120°C)

* 1kHz, 0.5mA, 100Ts

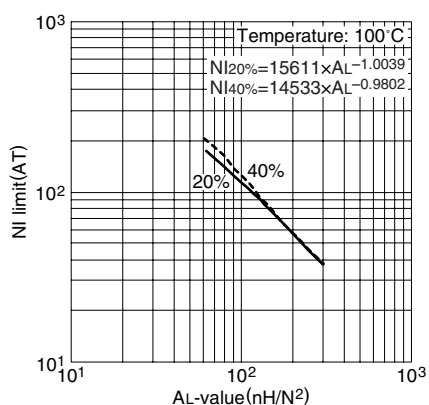
NI limit vs. AL-value for
PC90EIR18/5/12 gapped core (Typical)



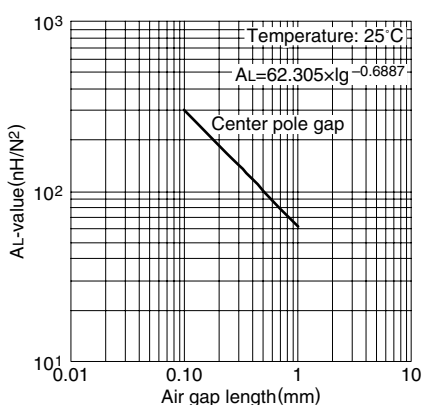
AL-value vs. Air gap length for
PC90EIR18/5/12 core (Typical)



NI limit vs. AL-value for
PC95EIR18/5/12 gapped core (Typical)



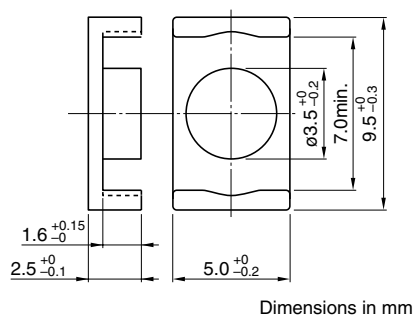
AL-value vs. Air gap length for
PC95EIR18/5/12 core (Typical)



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

Measuring conditions • Coil: 0.18 2UEW 100Ts
• Frequency: 1kHz
• Level: 0.5mA

ER Series ER9.5/5 Cores



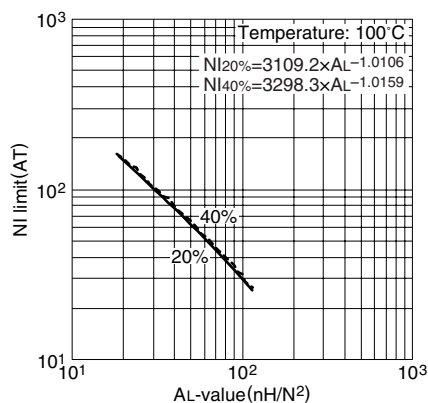
PARAMETER

Core factor	C1	mm ⁻¹	1.67
Effective magnetic path length	ℓ_e	mm	14.2
Effective cross-sectional area	Ae	mm ²	8.47
Effective core volume	Ve	mm ³	120
Cross-sectional winding area of core	Acw	mm ²	7.07
Weight (approx.)	g		0.7

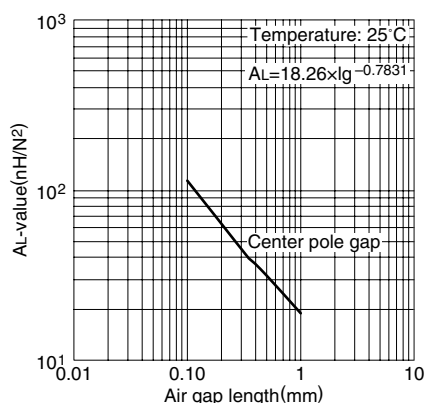
Part No.	AL-value (nH/N ²)*	Core loss (W) 100kHz, 200mT
PC90ER9.5/5-Z	610min.	0.1(100°C)
PC95ER9.5/5-Z	1190±25%	0.1/0.09/0.1(25°C/80°C/120°C)

* 1kHz, 0.5mA, 100Ts

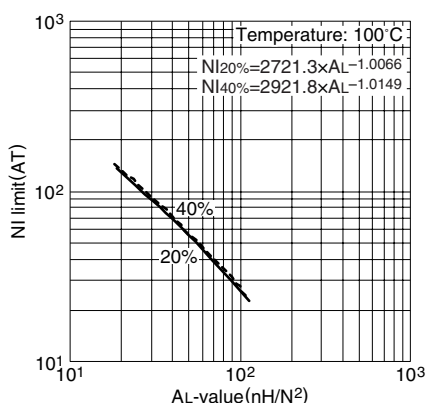
NI limit vs. AL-value for PC90ER9.5/5 gapped core (Typical)



AL-value vs. Air gap length for PC90ER9.5/5 core (Typical)

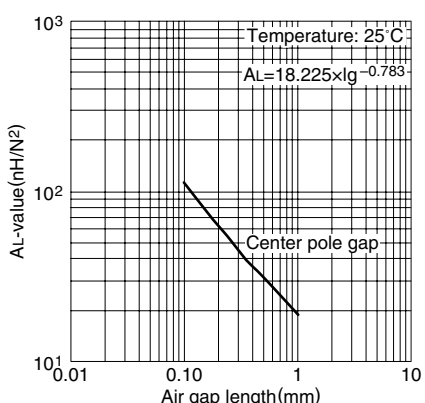


NI limit vs. AL-value for PC95ER9.5/5 gapped core (Typical)



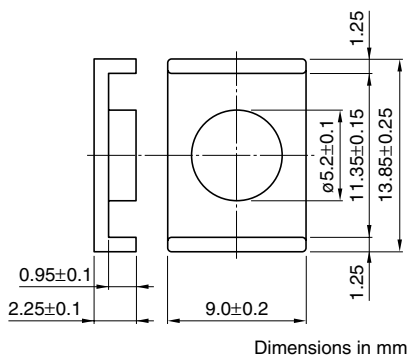
Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

AL-value vs. Air gap length for PC95ER9.5/5 core (Typical)



Measuring conditions • Coil: ø0.18 2UEW 100Ts
• Frequency: 1kHz
• Level: 0.5mA

ER Series ER14/4.5/9 Cores



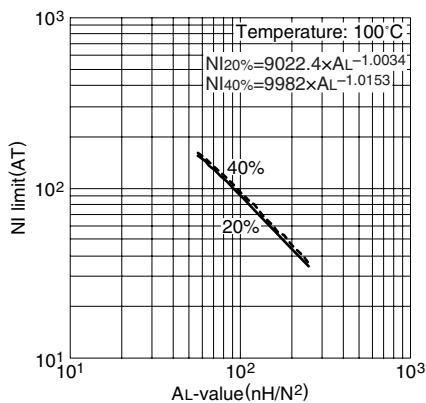
PARAMETER

Core factor	C1	mm ⁻¹	0.679
Effective magnetic path length	ℓ_e	mm	15.4
Effective cross-sectional area	Ae	mm ²	22.7
Effective core volume	Ve	mm ³	349
Cross-sectional winding area of core	Acw	mm ²	5.84
Weight (approx.)		g	2.0

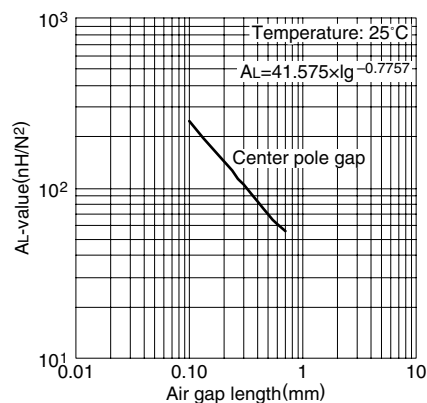
Part No.	AL-value (nH/N ²)*	Core loss (W) 100kHz, 200mT
PC90ER14/4.5/9-Z	2100±25%	0.3(100°C)
PC95ER14/4.5/9-Z	2550±25%	0.25/0.2/0.25(25°C/80°C/120°C)

* 1kHz, 0.5mA, 100Ts

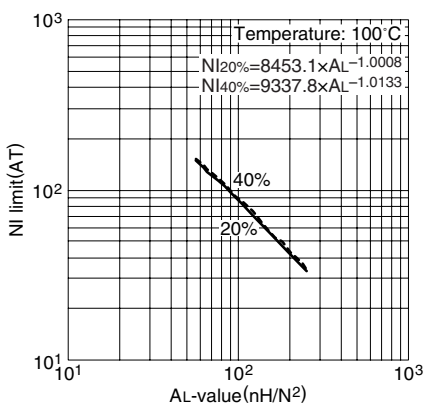
NI limit vs. AL-value for
PC90ER14/4.5/9 gapped core (Typical)



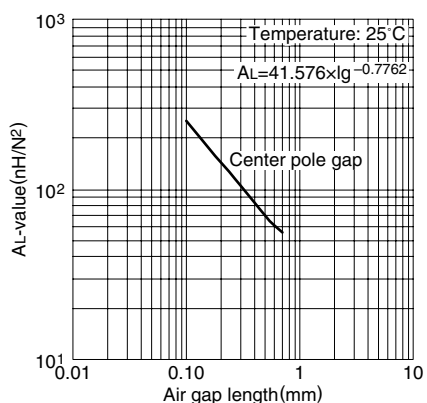
AL-value vs. Air gap length for
PC90ER14/4.5/9 core (Typical)



NI limit vs. AL-value for
PC95ER14/4.5/9 gapped core (Typical)



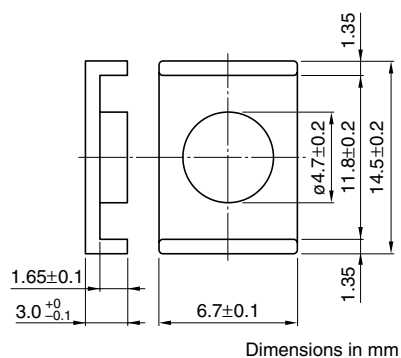
AL-value vs. Air gap length for
PC95ER14/4.5/9 core (Typical)



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

Measuring conditions • Coil: ϕ 0.18 2UEW 100Ts
• Frequency: 1kHz
• Level: 0.5mA

ER Series ER14.5/6 Cores



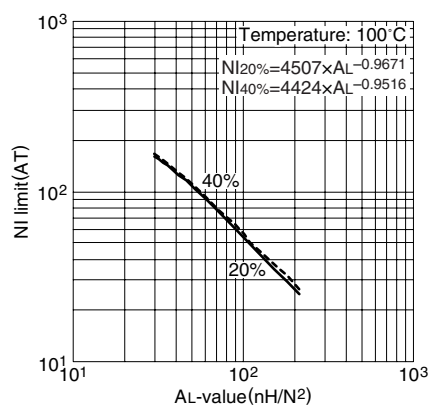
PARAMETER

Core factor	C1	mm ⁻¹	1.08
Effective magnetic path length	ℓ_e	mm	19.0
Effective cross-sectional area	Ae	mm ²	17.6
Effective core volume	Ve	mm ³	333
Cross-sectional winding area of core	Acw	mm ²	8.42
Weight (approx.)		g	2.0

Part No.	AL-value (nH/N ²)*	Core loss (W) at 25/80/120°C 100kHz, 200mT
PC95ER14.5/6-Z	3500±25%	0.3/0.28/0.3

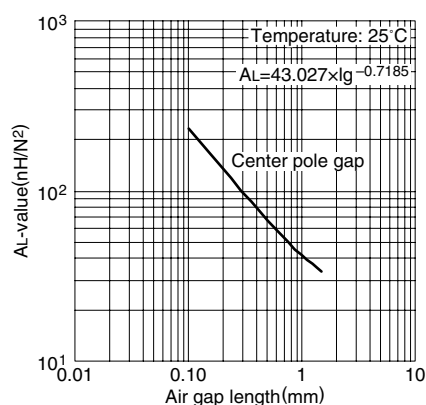
* 1kHz, 0.5mA, 100Ts

NI limit vs. AL-value for PC95ER14.5/6 gapped core (Typical)



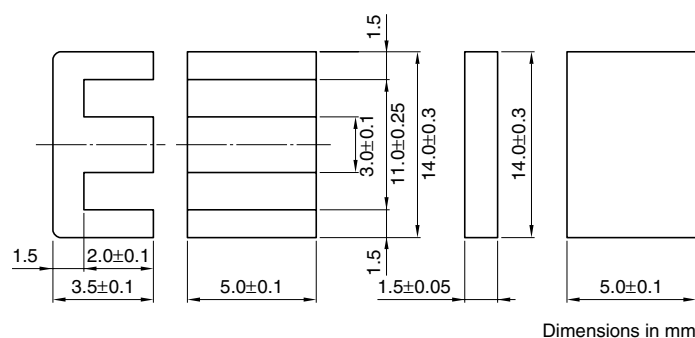
Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

AL-value vs. Air gap length for PC95ER14.5/6 core (Typical)



Measuring conditions • Coil: ϕ 0.18 2UEW 100Ts
• Frequency: 1kHz
• Level: 0.5mA

EI Series EI14/5/5 Cores



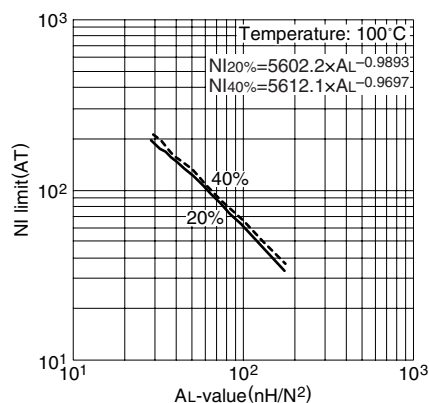
PARAMETER

Core factor	C1	mm ⁻¹	1.11
Effective magnetic path length	ℓ_e	mm	16.7
Effective cross-sectional area	Ae	mm ²	15.0
Effective core volume	Ve	mm ³	251
Cross-sectional winding area of core	Acw	mm ²	8.0
Weight (approx.)	g		1.3

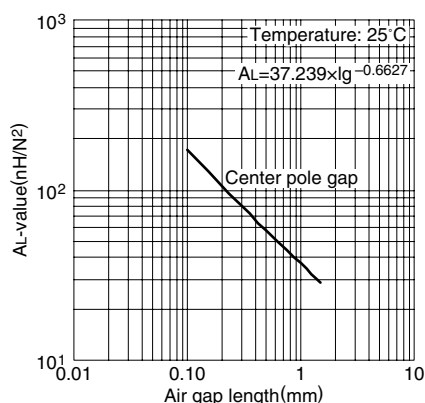
Part No.	AL-value (nH/N ²)*	Core loss (W) 100kHz, 200mT
PC90EI14/5/5-Z	1200±25%	0.3(100°C)
PC95EI14/5/5-Z	1550±25%	0.3/0.25/0.3(25°C/80°C/120°C)

* 1kHz, 0.5mA, 100Ts

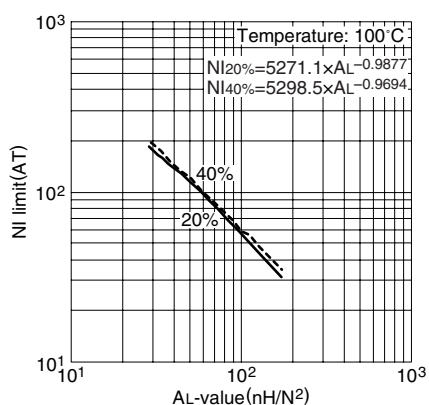
NI limit vs. AL-value for
PC90EI14/5/5 gapped core (Typical)



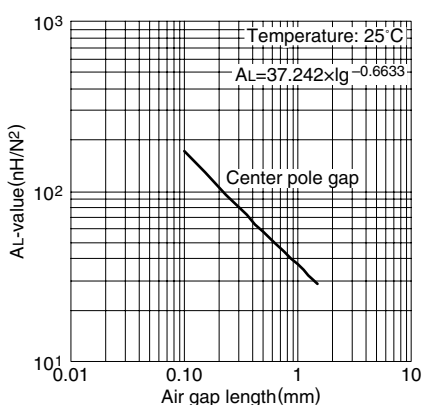
AL-value vs. Air gap length for
PC90EI14/5/5 core (Typical)



NI limit vs. AL-value for
PC95EI14/5/5 gapped core (Typical)



AL-value vs. Air gap length for
PC95EI14/5/5 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: ø0.18 2UEW 100Ts
• Frequency: 1kHz
• Level: 0.5mA