

Ferrite Cores

Products	Summary
BALUN / CHOKE COILS / ANTENNA	RHH, R4H, RID, R Series
FLYBACK TRANSFORMERS	UR,URS Series
HIGH POWER INDUCTORS	T, UU, EC, EIC, PQ, EE, EI, DT, SP Series
POWER SUPPLY (APPLICATION)	EE, EF Series
	EER Series
	EER Series
	EL Series
	ETD, EC Series
	LP Series
POWER SUPPLY and SIGNAL TRANSFORMERS (APPLICATION)	PQ Series
	EE, ER, EEM Series (Low Profile)
	EP Series
	EPC Series
	Mini. Pot Series
	Pot Series
VARIOUS INDUCTORS	RM Series
	T Series
HIGH B's and HIGH PERMEABILITY MATERIAL	DR, THP, P(CUP), TH Series
HIGH B's and HIGH PERMEABILITY MATERIAL	DN50 Series
HIGH PERMEABILITY MATERIAL	H5C4 Series
HIGH PERFORMANCE MATERIAL	PC45, 46 Series
MATERIAL CHARACTERISTICS	All Material Table

Ferrite Cores

Ferrite Material Characteristics

Material Characteristics Table

MATERIAL CHARACTERISTICS

Material			H5A	H5B2	H5C2	H5C3	H5C4	HP5
Initial permeability	μ		3300+40, -0%	7500±25%	10000±30%	15000±30%	12000±25%(25°C) ≥ 9000(-20°C)	5000±20%
Relative loss factor	$\tan\delta/\mu$	$\times 10^{-6}$	<2.5(10kHz) <10(100kHz)	<6.5(10kHz)	<7(10kHz)	<7(10kHz)	<8(10kHz)	<3.5(10kHz)
Temperature factor of initial permeability	$\alpha_{\mu ir}$	$\times 10^{-6}$						
			-0.5 to 2	-0 to 1.8	-0.5 to 1.5	-0.5 to 1.5	-4 to 1.5	
			-0.5 to 2	-0 to 1.8	-0.5 to 1.5	-0.5 to 1.5	-0.5 to 3	±12.5%
								±12.5%
Curie temperature	T_c	°C	>130	>130	>120	>105	>110	>140
Saturation magnetic flux density*	B_s	mT	410	420	400	360	380	400
H=1194A/m								
Remanent flux density*	B_r	mT	100	40	90	100	100	65
Coercive force*	H_c	A/m	8	5.6	7.2	4.4	4.4	7.2
Hysteresis loss factor [1.5 to 3mT]	η_B	$\frac{10^{-6}}{\text{mT}}$	<0.8	<1	<1.4	<0.5	<1	<0.4
Disaccommodation factor [1 to 10min]	D_F	$\times 10^{-6}$	<3	<3	<2	<2	<3	<3
Electrical resistivity*	ρ_v	$\Omega\text{-m}$	1	0.1	0.15	0.15	0.15	0.15
Density*	d_b	kg/m^3	4.8×10^3	4.9×10^3	4.9×10^3	4.95×10^3	4.9×10^3	4.8×10^3

* Average value

• The values were obtained with toroidal cores at room temperature unless otherwise shown.

FOR TRANSFORMER AND CHOKE

Material					PC40	PC44	PC50
Initial permeability	μ				2300±25%	2400±25%	1400±25%
Amplitude permeability	μ_a				3000min.	3000min.	
Core loss [B=200mT]	P_{cv}	kW/m^3	25kHz sine wave	25°C	120		
				60°C	80		
				100°C	70		
				120°C	85		
			100kHz sine wave	25°C	600	600	130*2
				60°C	450	400	80*2
				100°C	410	300	80*2
				120°C	500	380	
Saturation magnetic flux density*1 [H=1194A/m]	B_s	mT	25°C	510	510	470	
			60°C	450	450	440	
			100°C	390	390	380	
			120°C	350	350		
Remanent flux density*1	B_r	mT	25°C	95	110	140	
			60°C	65	70	110	
			100°C	55	60	98	
			120°C	50	55		
Coercive force*1	H_c	A/m	25°C	14.3	13	36.5	
			60°C	10.3	9	31	
			100°C	8.8	6.5	27.2	
			120°C	8	6		
Curie temperature*1	T_c	°C			>215	>215	>240
Electrical resistivity*1	ρ_v	$\Omega\text{-m}$			6.5	6.5	
Density*1	d_b	kg/m^3			4.8×10^3	4.8×10^3	4.8×10^3

*1 Average value

*2 500kHz, 50mT

• The values were obtained with toroidal cores at room temperature unless otherwise shown.

Ferrite Cores

Material Characteristics Table

Ferrite Material Characteristics

FOR EMC PREVENTION COMMON-MODE CHOKE

Material			HS52	HS72	HS10
Initial permeability	μ_i		5500±25%	7500±25% (2000min. at 500kHz)	10000±25%
Relative loss factor	$\tan\delta/\mu_i \times 10^{-6}$		10 (100kHz)	30 (100kHz)	30 (100kHz)
Saturation magnetic flux density* [H=1194A/m]	B_s	mT	410	410	380
Remanent flux density*	B_r	mT	70	80	120
Coercive force*	H_c	A/m	6	6	5
Curie temperature*	T_c	°C	>130	>130	>120
Electrical resistivity*	ρ_v	$\Omega\cdot m$	1	0.2	0.2
Density*	d_b	kg/m ³	4.9×10 ³	4.9×10 ³	4.9×10 ³

* Average value

• The values were obtained with toroidal cores at room temperature unless otherwise shown.

Ferrite Cores

High Permeability Material

H5C4 Material

ER, EPC, EEM, EE, RM, EP, T Series

As ISDN, PHS, etc. quickly become widespread in the data communication market, communication devices are increasingly being installed outdoors. TDK developed wide temperature range, high permeability H5C4 material by taking full advantage of TDK's ferrite materials experience and precise manufacturing process control technology. An initial permeability $\mu_i \geq 9000$ is maintained at temperatures above -20°C . This material has the optimum characteristics for the design of ISDN pulse transformers, etc. used by outdoor installations of communication equipment requiring the maintenance of characteristics down to low temperatures.

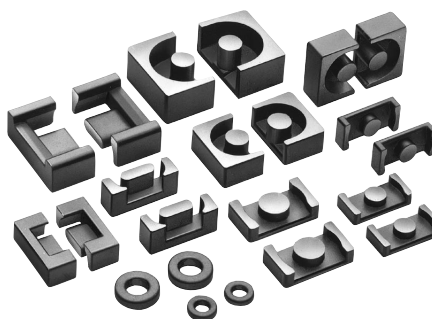
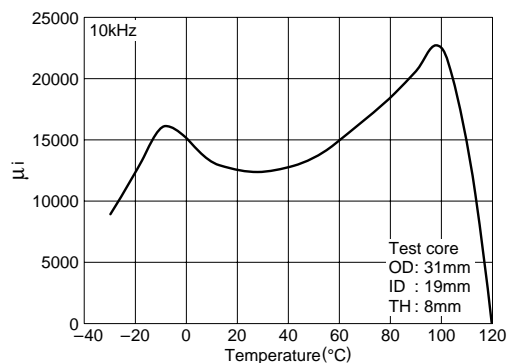
MATERIAL CHARACTERISTICS

Material			H5C4
Initial permeability	μ_i	$[-20^\circ\text{C}]$	≥ 9000
		$[25^\circ\text{C}]$	$12000 \pm 25\%$
Relative loss factor [10kHz]	$\tan\delta/\mu_i \times 10^{-6}$		≤ 8
Saturation magnetic flux density	B_s mT		380
Remanent flux density	B_r mT		100
Coercive force	H_c A/m		4.4
Disaccommodation factor [1 to 10min, 10kHz]	$D_F \times 10^{-6}$		≤ 3
Curie temperature	T_c $^\circ\text{C}$		≤ 110

STANDARD SHAPES

ER CORE:ER9.5/5, ER11/3.9, ER11/5, ER14.5/6
 EPC CORE:EPC10, EPC13
 EEM CORE:EEM8/8, EEM10/10, EEM12.7/13.7, EEM13/13
 EE CORE:EE8.9/8
 RM CORE:RM5, RM6
 EP CORE:EP7, EP10, EP13
 T CORE:T3.05, T3.94, T4, T4.83, T6

INITIAL PERMEABILITY vs. TEMPERATURE CHARACTERISTICS



CHARACTERISTICS

ER CORE

Part No.	AL-value(nH/N ²)		Bobbin	Flange
	-20°C	25°C		
H5C4ER9.5/5-Z	3000min.	3000min.	BER9.5/5-118GA	FER9.5/5-A
H5C4ER11/3.9-Z	4150min.	4150min.	BER11/3.9-1110G	FER11/3.9-A
H5C4ER11/5-Z	4050min.	4050min.	BER11/5-1110GA	FER11/5-A
H5C4ER14.5/6-Z	5000min.	5000min.	BER14.5/6-1110GA	FER14.5/6-A

• Measuring conditions:
 ER9.5/5, ER11/3.9, ER11/5:10kHz, 10mV, $\phi 0.1\text{mm}$, 100ts./ER14.5/6:10kHz, 10mV, $\phi 0.18\text{mm}$, 100ts.

EPC CORE

Part No.	AL-value(nH/N ²)		Bobbin	Flange
	-20°C	25°C		
H5C4EPC10-Z	2150min.	2150min.	BEPC-10-118GA	FEPC-10-A
H5C4EPC13-Z	2000min.	2000min.	BEPC-13-1110GA	FEPC-13-A

• Measuring conditions:
 EPC10:10kHz, 10mV, $\phi 0.1\text{mm}$, 100ts./EPC13:10kHz, 10mV, $\phi 0.2\text{mm}$, 100ts.

Ferrite Cores

High Permeability Material

H5C4 Material

ER, EPC, EEM, EE, RM, EP, T Series

CHARACTERISTICS

EEM CORE

Part No.	AL-value(nH/N ²)		Bobbin	Flange
	-20°C	25°C		
H5C4EEM12.7/13.7-Z	2500min.	2500min.	BEM-12.7/13.7-118G	FEM12.7/13.7-A
H5C4EEM8/8-Z	860min.	860min.	BEM-8/8-018G	—
H5C4EEM10/10-Z	1130min.	1130min.	BEM-10/10-0110G	—
H5C4EEM13/13-Z	1360min.	1360min.	BEM-13/13-0110G	—

• Measuring conditions:10kHz, 10mV, ϕ 0.1mm, 100ts.

EE CORE

Part No.	AL-value(nH/N ²)		Bobbin	Flange
	-20°C	25°C		
H5C4EE5-Z	850min.	850min.	BE-5-916F	FE-5-A
H5C4EE8.9/8-Z	1700min.	1700min.	BE-8.9/8-118G	—

• Measuring conditions:
EE5:10kHz, 10mV, ϕ 0.1mm, 100ts./EE8.9:10kHz, 10mV, ϕ 0.2mm, 100ts.

RM CORE

Part No.	AL-value(nH/N ²)		Bobbin	Flange
	-20°C	25°C		
H5C4RM5Z-12	6200min.	6200min.	BRM-5-716CP	FRM-5-A
H5C4RM6Z-12	7150min.	7150min.	BRM-6-716CP	FRM-6-A

• Measuring conditions:
RM5:10kHz, 10mV, ϕ 0.18mm, 100ts./RM6:10kHz, 10mV, ϕ 0.2mm, 100ts.

EP CORE

Part No.	AL-value(nH/N ²)		Bobbin	Flange
	-20°C	25°C		
H5C4EP7-Z	3500min.	3500min.	BEP-7-316D	FEP-7-C
H5C4EP10-Z	3200min.	3200min.	BEP-10-318D	FEP-10-C
H5C4EP13-Z	4650min.	4650min.	BEP-13-3110D	FEP-13-C

• Measuring conditions:
EP7:10kHz, 10mV, ϕ 0.13mm, 100ts./EP10, EP13:10kHz, 10mV, ϕ 0.2mm, 100ts.

T CORE

Part No.	AL-value(nH/N ²)	
	-20°C	25°C
H5C4T3.05X1.27X1.27	1950min.	2600±25%
H5C4T4X1X2	1200min.	1600±25%
H5C4T3.94X1.27X2.23	1275min.	1700±25%
H5C4T4.83X1.27X2.29	1650min.	2200±25%
H5C4T6X1.5X3	1800min.	2400±25%
H5C4T5.84X1.52X3.05	1725min.	2300±25%

• Measuring conditions:
T3.05, T4, T3.94, T4.83:10kHz, 10mV, ϕ 0.12mm, 100ts.
T6, T5.84:10kHz, 10mV, ϕ 0.2mm, 100ts.

Ferrite Cores

High Permeability Material

H5C4 Material

ER, EPC, EEM, EE, RM, EP, T Series

MOUNTING DIMENSIONS

Part No.	Mounting dimensions			Number of terminals	Mounting type
	Depth	Width	Height		
H5C4ER9.5/5-Z	9.9	11.7	5.9	8	SMD
H5C4ER11/3.9-Z	11	12.6	4.7	10	
H5C4ER11/5-Z	11.5	12.3	6.4	10	
H5C4ER14.5/6-Z	15.1	16.2	7.3	10	SMD
H5C4EPC10-Z	11	11.7	5.2	8	
H5C4EPC13-Z	14.2	20.6	7.8	10	
H5C4EEM12.7/13.7-Z	13.55	16.8	5	8	SMD
H5C4EEM8/8-Z	9.2	11.2	3.5	8	
H5C4EEM10/10-Z	11.7	14	3.5	10	
H5C4EEM13/13-Z	14.2	16.6	3.5	10	SMD
H5C4EE5-Z	5.7	7.8	4.75	6	
H5C4EE8.9/8-Z	9.3	11.3	4.8	8	
H5C4EP7-Z	13.55	16.8	5	8	Lead-through
H5C4EP10-Z	9.2	11.2	3.5	8	
H5C4EP13-Z	11.7	14	3.5	10	
H5C4RM5Z-12	12.5	12.5	10.5	6	Lead-through
H5C4RM6Z-12	15	15	12.5	6	
H5C4T3.05X1.27X1.27					
H5C4T3.94X1.27X2.23					
H5C4T4X1X2					
H5C4T4.83X1.27X2.29					
H5C4T6X1.5X3					

Ferrite Cores

High Flux Density, High Permeability Material DN50 Material

C, EP, P, EPC, EEM, PQ, RM, ER, EE Series

It has become an important issue to support global method of ISDN interfaces associated with the widespread use of ISDN networks worldwide. TDK DN50 ferrite material, a high μ and high B with $\mu_i=5500$ and $B_s \geq 500\text{mT}$, has been developed to provide stable magnetic characteristics to the global method (echo canceler method) of the ultra-small gap specification for superposition direct current. Beside its high μ and high B characteristics, its core loss value at high B level is controlled to provide optimal use for back light transformers driven at high B level of ultra-small gap specifications.



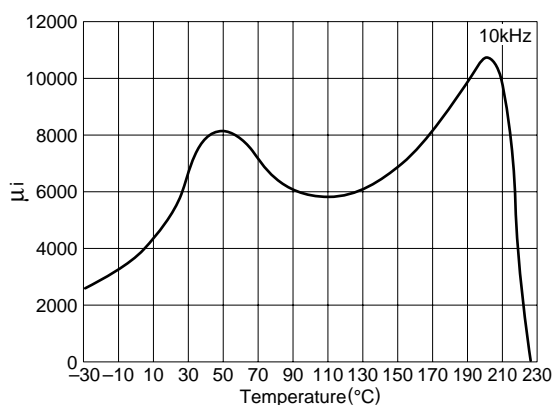
MATERIAL CHARACTERISTICS

Material		DN50	
Initial permeability	μ_i	5500±20%	
Relative loss factor[10kHz]	$\tan\delta/\mu_i \times 10^{-6}$	≤ 15	
Power loss [100kHz, 200mT]	Pcv	kW/m ³	[25°C] 550
			[40°C] 450
			[100°C] 1000
Saturation magnetic flux density	Bs	mT	[25°C] 550
			[100°C] 380
Remanent flux density	Br	mT	[25°C] 95
			[100°C] 55
Coercive force [1194A/m]	Hc	A/m	[25°C] 7
			[100°C] 5.8
Disaccommodation factor [1 to 10min, 10kHz]	DF	$\times 10^{-6}$	≤ 10
Curie temperature	Tc	°C	≥ 210

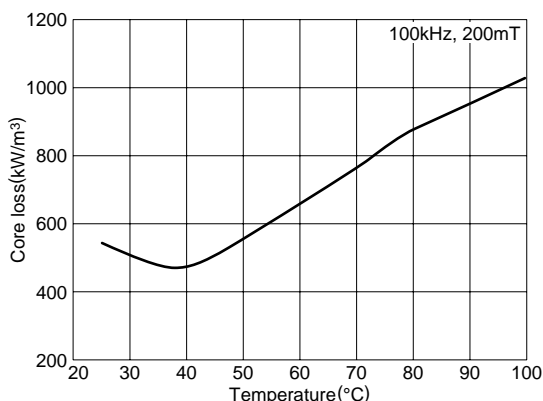
STANDARD SHAPES

- C CORE: C23/11, C23/18
- EP CORE: EP17, EP20
- P CORE: P4.6/3.1, P5.8/3.3, P7/4
- EPC CORE: EPC10, EPC13
- EEM CORE: EEM8/8, EEM10/10, EEM12.7/13.7, EEM13/13
- PQ CORE: PQ26/20, PQ26/25
- RM CORE: RM8, RM10
- ER CORE: ER9.5/5, ER11/3.9, ER11/5, ER14.5/6
- EE CORE: EE5, EE8.9/9

INITIAL PERMEABILITY vs. TEMPERATURE CHARACTERISTICS



CORE LOSS vs. TEMPERATURE CHARACTERISTICS



CHARACTERISTICS

FOR INTERFACE

C CORE

Part No.	AL-value(nH/N ²)	Bobbin	Flange
DN50C23/11Z-52	6830±25%		
DN50C23/11A250-52	250±3%	BC23/11-5110NP	—
DN50C23/11A400-52	400±3%		
DN50C23/18Z-52	5890±25%		
DN50C23/18A250-52	250±3%	BC23/18-5110NP	—
DN50C23/18A400-52	400±3%		

- Measuring conditions: 1kHz, 0.5mT, $\phi 0.35\text{mm}$, 100ts.

Ferrite Cores

High Flux Density, High Permeability Material

DN50 Material

C, EP, P, EPC, EEM, PQ, RM, ER, EE Series

CHARACTERISTICS FOR INTERFACE

PQ CORE

Part No.	AL-value(nH/N ²)	Bobbin	Flange
DN50PQ26/20Z-12	10500±25%		
DN50PQ26/20A315-22	315±5%	BPQ26/20-1112CP	FPQ26/20-A
DN50PQ26/20A630-22	630±10%		
DN50PQ26/25Z-12	9250±25%		
DN50PQ26/25A315-22	315±5%	BPQ26/25-1112CP	FPQ26/25-A
DN50PQ26/25A630-22	630±10%		

- Measuring conditions:1kHz, 0.5mT, ø0.35mm, 100ts.

EP CORE

Part No.	AL-value(nH/N ²)	Bobbin	Flange
DN50EP17-Z	3300min.	BEP-17-318D	FEP-17-C
DN50EP20-Z	5900min.	BEP-20-3110D	FEP-20-C

- Measuring conditions
EP17:1kHz, 0.5mT, ø0.2mm, 100ts./EP20:1kHz, 0.5mT, ø0.35mm, 100ts.

RM CORE

Part No.	AL-value(nH/N ²)	Bobbin	Flange
DN50RM8Z-12	8860±25%		
DN50RM8A400-22	400±3%	BRM-8-718CP	FRM-8-A
DN50RM8A630-22	630±3%		
DN50RM10Z-22	12200±25%		
DN50RM10A400-22	400±3%	BRM-10-7112SD	FRM-10-A
DN50RM10A630-12	630±3%		

- Measuring conditions:1kHz, 0.5mT, ø0.4mm, 100ts.

FOR BACK LIGHT TRANSFORMER

P CORE

Part No.	AL-value(nH/N ²)	Bobbin	Flange
DN50P4.6/3.1Z-12S	670±30%	—	—
DN50P5.8/3.3Z-52S	900±25%	BP5.8/3.3-612	—
DN50P7/4Z-52S	1230±25%	BP7/4-612	—

- Measuring conditions
P4.6/3.1:1kHz, 0.5mT, ø0.05mm, 100ts.
P5.8/3.3:1kHz, 0.5mT, ø0.08mm, 100ts.
P7/4:1kHz, 0.5mT, ø0.1mm, 100ts.

ER CORE

Part No.	AL-value(nH/N ²)	Bobbin	Flange
DN50ER9.5/5-Z	900min.		
DN50ER9.5/5A63	63±5%	BER9.5/5-118GA	FER9.5/5-A
DN50ER9.5/5A100	100±7%		
DN50ER11/3.9-Z	1400min.		
DN50ER11/3.9A63	63±5%	BER11/3.9-1110G	FER11/3.9-A
DN50ER11/3.9A100	100±7%		
DN50ER11/5-Z	1300min.		
DN50ER11/5A63	63±5%	BER11/5-1110GA	FER11/5-A
DN50ER11/5A100	100±7%		
DN50ER14.5/6-Z	1700min.		
DN50ER14.5/6A100	100±5%	BER14.5/6-1110GA	FER14.5/6-A
DN50ER14.5/6A160	160±7%		

- Measuring conditions
ER9.5/5, ER11/3.9, ER11/5:1kHz, 0.5mT, ø0.1mm, 100ts.
ER14.5/6:1kHz, 0.5mT, ø0.18mm, 100ts.

Ferrite Cores

C, EP, P, EPC, EEM, PQ, RM, ER, EE Series

High Flux Density, High Permeability Material
DN50 Material

FOR BACK LIGHT TRANSFORMER

EPC CORE

Part No.	AL-value(nH/N ²)	Bobbin	Flange
DN50EPC10-Z	1450±25%		
DN50EPC10A40	40±7%	BEPC-10-118GA	FEPC-10-A
DN50EPC10A63	63±10%		
DN50EPC13-Z	1400±25%		
DN50EPC13A40	40±4%	BEPC-13-1110GA	FEPC-13-A
DN50EPC13A63	63±5%		

- Measuring conditions
EPC10:1kHz, 0.5mT, ø0.1mm, 100ts./EPC13:1kHz, 0.5mT, ø0.2mm, 100ts.

EEM CORE

Part No.	AL-value(nH/N ²)	Bobbin	Flange
DN50EEM12.7/13.7-Z	1300±25%		
DN50EEM12.7/13.7A40	40±5%	BEM12.7/13.7-118GA	FEM12.7/13.7-A
DN50EEM12.7/13.7A63	63±7%		
DN50EEM8/8-Z	320min.		
DN50EEM8/8A25	25±10%	BEM-8/8-018G	—
DN50EEM8/8A40	40±15%		
DN50EEM10/10-Z	400min.		
DN50EEM10/10A25	25±7%	BEM-10/10-0110G	—
DN50EEM10/10A40	40±10%		
DN50EEM13/13-Z	550min.		
DN50EEM13/13A40	40±8%	BEM-13/13-0110G	—
DN50EEM13/13A63	63±12%		

- Measuring conditions:1kHz, 0.5mT, ø0.1mm, 100ts.

EE CORE

Part No.	AL-value(nH/N ²)	Bobbin	Flange
DN50EE5-Z	300min.		
DN50EE5A25	25±15%	BE-5-916F	FE-5-A
DN50EE8.9/8Z	690±25%		
DN50EE8.9/8A25	25±8%	BE-8.9/8-118G	—
DN50EE8.9/8A40	40±13%		

- Measuring conditions
EE5:1kHz, 0.5mT, ø0.1mm, 100ts.
EE8.9/8:1kHz, 0.5mT, ø0.2mm, 100ts.

Ferrite Cores

C, EP, P, EPC, EEM, PQ, RM, ER, EE Series

High Flux Density, High Permeability Material
DN50 Material

MOUNTING DIMENSIONS FOR ISDN INTERFACE

Part No.	Mounting dimensions(mm)			Number of terminals	Mounting type
	Depth	Width	Height		
DN50C23/11	23.3	26	11.2	10	Lead-through
DN50C23/18	23.3	26	18.2	10	
DN50PQ26/20	26.5	29.3	25	12	
DN50PQ26/25	26.5	29.3	29.6	12	
DN50EP17	13.55	16.8	5	8	
DN50EP20	11.7	14	3.5	10	
DN50RM8	20	20	16.5	8	
DN50RM10	24.7	24.7	18.7	12	

FOR BACK LIGHT TRANSFORMERS

Part No.	Mounting dimensions(mm)			Number of terminals	Mounting type
	Depth	Width	Height		
DN50P4.6/3.5	4.6	4.6	3.1	—	SMD
DN50P5.8/3.3	5.8	5.8	3.3	—	
DN50P7/4	7.35	7.35	4.2	—	
DN50ER9.5/5	9.9	11.7	5.9	8	
DN50ER11/3.9	11	12.6	4.7	10	
DN50ER11/5	11.5	12.3	6.4	10	
DN50ER14.5/6	15.1	16.2	7.3	10	
DN50EPC10	11	11.7	5.2	8	
DN50EPC13	14.2	20.6	7.8	10	
DN50EEM12.7/13.7	13.55	16.8	5	8	
DN50EEM8.8	9.2	11.2	3.5	8	
DN50EEM10/10	11.7	14	3.5	10	
DN50EEM13/13	14.2	16.6	3.5	10	
DN50EE5	5.7	7.8	4.75	6	
DN50EE8.9/8	9.3	11.3	4.8	8	

Ferrite Cores

EE, ER, EEM Series

For Power Supply and Signal Transformer
Thin Ferrite Cores for SMD Transformers

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS

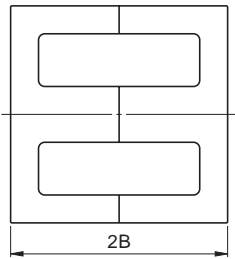


Fig. 1

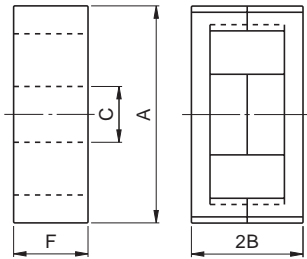


Fig. 2

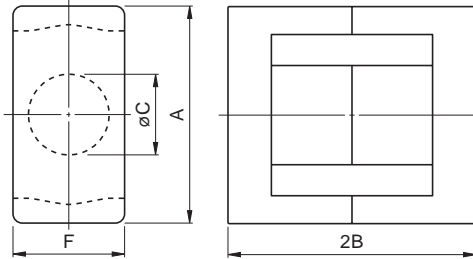


Fig. 3

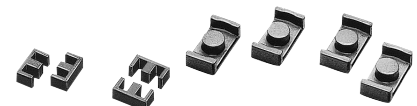
Type	Fig.	Dimensions (mm)				Ae (mm ²)	le (mm)
		A	2B	C	F		
EE5	1	5.25±0.05	5.3±0.1	1.35±0.05	1.95±0.05	2.67	12.6
EE8.9/8	1	8.86±0.2	8±0.3	1.9±0.12	1.9±0.12	4.96	15.6
ER9.5/5	2	9.35±0.15	4.9±0.1	∅3.4±0.1	4.9±0.1	8.47	14.2
ER11/3.9	2	10.83±0.18	3.85±0.1	∅4.13±0.13	5.9±0.1	11.7	12.6
ER11/5	2	10.83±0.18	4.9±0.1	∅4.13±0.13	5.9±0.1	11.9	14.7
ER14.5/6	2	14.5±0.2	5.9±0.1	∅4.7±0.1	6.7±0.1	17.6	19
EEM12.7/13.7	3	12.75±0.25	13.7±0.3	6±0.1	3.3±0.15	12	27.3

ELECTRICAL CHARACTERISTICS WITHOUT AIR GAP

Part No.	AL-value (nH/N ²)	Calculated output power*(W)
H5C3EE5-Z	980min. [10kHz, 10mV, 100Ts]	
PC44EE5-Z	200min. [1kHz, 0.5mA, 100Ts]	1.1[100kHz]
PC44EE8.9/8-Z	480±25% [1kHz, 0.5mA, 100Ts]	1.9[100kHz]
H5C3ER9.5/5-Z	3500min. [10kHz, 10mV, 100Ts]	
PC44ER9.5/5-Z	610min. [1kHz, 0.5mA, 100Ts]	3.9[100kHz]
PC50ER9.5/5-Z	750±25% [1kHz, 0.5mA, 100Ts]	9.6[500kHz]
H5C3ER11/3.9-Z	4900min. [10kHz, 10mV, 100Ts]	
PC44ER11/3.9-Z	1040min. [1kHz, 0.5mA, 100Ts]	3.8[100kHz]
PC50ER11/3.9-Z	1100±25% [1kHz, 0.5mA, 100Ts]	9.2[500kHz]

Part No.	AL-value (nH/N ²)	Calculated output power*(W)
H5C3ER11/5-Z	4760min. [10kHz, 10mV, 100Ts]	
PC44ER11/5-Z	870min. [1kHz, 0.5mA, 100Ts]	5[100kHz]
PC50ER11/5-Z	960±25% [1kHz, 0.5mA, 100Ts]	11[500kHz]
H5C3ER14.5/6Z	5950min. [10kHz, 10mV, 100Ts]	
PC44ER14.5/6Z	1280min. [1kHz, 0.5mA, 100Ts]	9.5[100kHz]
PC50ER14.5/6Z	1150±25% [1kHz, 0.5mA, 100Ts]	19[500kHz]
PC44EEM12.7/13.7-Z	820±25% [10kHz, 10mV, 100Ts]	9.5[100kHz]
PC50EEM12.7/13.7-Z	580±25% [10kHz, 10mV, 100Ts]	20[500kHz]

*The values were obtained with forward converter mode.



Ferrite Cores

EE, ER, EEM Series

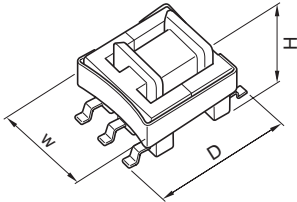
For Power Supply and Signal Transformer
Thin Ferrite Cores for SMD Transformers

WITH AIR GAP

Part No.	AL-value (nH/N ²)[1kHz, 0.5mA, 100Ts]
PC44ER9.5/5AXXX*	63±5%, 100±7%
PC50ER9.5/5AXXX	63±5%, 100±7%
PC44ER11/3.9AXXX	63±5%, 100±7%
PC50ER11/3.9AXXX	63±5%, 100±7%
PC44ER11/5AXXX	63±5%, 100±7%
PC50ER11/5AXXX	63±5%, 100±7%
PC44ER14.5/6AXXX	100±5%, 160±7%
PC50ER14.5/6AXXX	100±5%, 160±7%
PC44ER12.7/13.7AXXX	40±5%, 63±7%
PC50EEM12.7/13.7AXXX	40±5%, 63±7%

* XXX: AL-value

BOBBINS



Part No.	No. of pin terminal	Dimensions (mm)			Clamp*
		W	D	H	
BE-5-916F	6	5.7	7.8	4.8	FE-5-A
BE-5-926F	6	5.7	7.8	4.8	FE-5-A
BE-8.9/8-118G	8	9.3	11.3	4.8	
BER9.5/5-118GA	8	9.9	11.7	5.9	FER9.5/5-A
BER11/3.9-1110G	10	11	12.6	4.7	
BER11/5-1110GA	10	11.5	12.3	6.4	FER11/5-A
BER14.5/6-1110GA	10	15.1	16.2	7.3	FER14.5/6-A
BEM12.7/13.7-118GA	8	13.6	16.8	5	FEM12.7/13.7-A

* Clamp material: Stainless steel

• Bobbin material: FR phenol, UL Grade: 94V-0

• Pin material

BE; Phosphor bronze (Solder plated), BER and BEM; Steel wire (Solder plated)

Ferrite Cores

EPC Series

For Power Supply and Signal Transformer
EPC Cores

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS

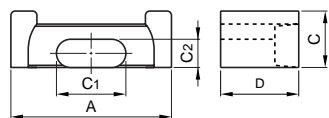


Fig.1

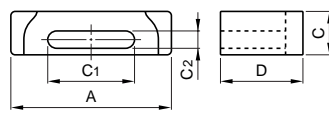


Fig.2

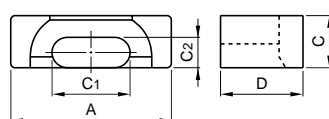


Fig.3

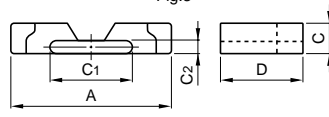
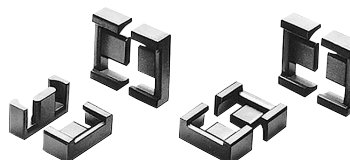


Fig.4



U.S.PAT.4,760,366
EP.PAT.245,083(DE,FR,GB,NL)
KS.UM50.836
TW.UM39,406
JP.PENDING

Type	Fig.	Dimensions (mm)					Ae (mm ²)	le (mm)	Weight (g)
		A	C	C1	C2	D			
EPC10	3	10.2±0.2	3.4±0.1	5±0.1	1.9±0.1	4.05±0.1	9.39	17.8	1.1
EPC13	1	13.25±0.3	4.6±0.15	5.6±0.15	2.05±0.1	6.6±0.2	12.5	30.6	2.1
EPC17	1	17.6±0.4	6±0.15	7.7±0.15	2.8±0.1	8.55±0.2	22.8	40.2	4.5
EPC19	1	19.1±0.4	6±0.15	8.5±0.15	2.5±0.1	9.75±0.2	22.7	46.1	5.3
EPC25	1	25.1±0.5	8±0.2	11.5±0.2	4±0.1	12.5±0.2	46.4	59.2	13
EPC25B	2	25.1±0.5	6.5±0.2	13.8±0.2	2.5±0.15	11.4±0.15	33.3	46.2	11
EPC27	1	27.1±0.5	8±0.2	13±0.3	4±0.1	16±0.2	54.6	73.1	18
EPC27N	4	27±0.4	5.1±0.1	13.85±0.15	2.2±0.1	13±0.1	33	55.9	10
EPC30	1	30.1±0.5	8±0.2	15±0.3	4±0.1	17.5±0.2	61	81.6	23

ELECTRICAL CHARACTERISTICS WITHOUT AIR GAP

Part No.	AL-value (nH/N ²)	Calculated output power*(W)
PC44EPC10-Z	1000±25% [1kHz, 0.5mA, 100Ts]	5.4[100kHz]
PC50EPC10-Z	660±25% [1kHz, 0.5mA, 100Ts]	13[500kHz]
H5C3EPC10-Z	2660min. [10kHz, 10mV, 100Ts]	
PC44EPC13-Z	870±25% [1kHz, 0.5mA, 100Ts]	8.6[100kHz]
PC50EPC13-Z	560±25% [1kHz, 0.5mA, 100Ts]	19[500kHz]
H5C3EPC13-Z	2450min. [10kHz, 10mV, 100Ts]	
PC44EPC17-Z	1150±25% [1kHz, 0.5mA, 100Ts]	20[100kHz]
PC50EPC17-Z	740±25% [1kHz, 0.5mA, 100Ts]	35[500kHz]
PC44EPC19-Z	940±25% [1kHz, 0.5mA, 100Ts]	27[100kHz]
PC50EPC19-Z	680±25% [1kHz, 0.5mA, 100Ts]	55[500kHz]
PC44EPC25-Z	1560±25% [1kHz, 0.5mA, 100Ts]	63[100kHz]
PC50EPC25-Z	1080±25% [1kHz, 0.5mA, 100Ts]	127[500kHz]
PC44EPC25B-Z	1560±25% [1kHz, 0.5mA, 100Ts]	45[100kHz]
PC50EPC25B-Z	1080±25% [1kHz, 0.5mA, 100Ts]	87[500kHz]
PC44EPC27-Z	1540±25% [1kHz, 0.5mA, 100Ts]	80[100kHz]
PC50EPC27-Z	1030±25% [1kHz, 0.5mA, 100Ts]	161[500kHz]
PC44EPC27N-Z	1400±25% [1kHz, 0.5mA, 100Ts]	43[100kHz]

* The values were obtained with forward converter mode.

WITHOUT AIR GAP

Part No.	AL-value (nH/N ²)	Calculated output power *(W)
PC44EPC30-Z	1570±25% [1kHz, 0.5mA, 100Ts]	85[100kHz]
PC50EPC30-Z	1060±25% [1kHz, 0.5mA, 100Ts]	180[500kHz]

* The values were obtained with forward converter mode.

WITH AIR GAP

Part No.	AL-value (nH/N ²)[1kHz, 0.5mA, 100Ts]
PC44EPC10AXXX*	40±7%, 63±10%
PC50EPC10AXXX	40±7%, 63±10%
PC44EPC13AXXX	40±4%, 63±5%
PC50EPC13AXXX	40±4%, 63±5%
PC44EPC17AXXX	80±4%, 125±5%
PC50EPC17AXXX	80±4%, 125±5%
PC44EPC19AXXX	80±4%, 125±5%
PC50EPC19AXXX	80±4%, 125±5%
PC44EPC25AXXX	125±5%, 200±7%
PC50EPC25AXXX	125±5%, 200±7%
PC44EPC25BAXXX	80±5%, 125±7%
PC50EPC25BAXXX	80±5%, 125±7%
PC44EPC27AXXX	125±5%, 200±7%
PC50EPC27AXXX	125±5%, 200±7%
PC44EPC27NAXXX	80±5%, 125±7%
PC44EPC30AXXX	125±5%, 200±7%
PC50EPC30AXXX	125±5%, 200±7%

* XXX: AL-value

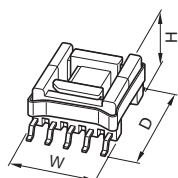
Ferrite Cores

EPC Series

For Power Supply and Signal Transformer
EPC Cores

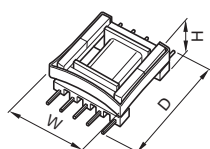
BOBBINS

SURFACE MOUNT TYPE



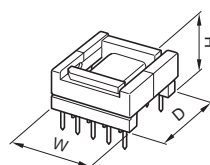
Part No.	No. of lead terminal	Dimensions (mm)			Clamp*
		W	D	H	
BEPC-10-118GA	8	11	11.7	5.2	FEPC-10-A
BEPC-13-1110GA	10	14.2	20.6	7.3	FEPC-13-A
BEPC-17-119GA	9	18.2	23.2	9.9	FEPC-17-A
BEPC-19-1110GA	10	20.2	25.2	9.9	FEPC-19-A
BEPC-25B-1111G	11	26.1	28.9	9.9	FEPC-25B-A

DROP-IN TYPE



Part No.	No. of pin terminal	Dimensions (mm)			Clamp*
		W	D	H	
BEPC-19-1110SA	10	20.2	26.2	9.8	FEPC-19-A
BEPC-25B-1111S	11	26	37.9	9.5	FEPC-25B-A

LEAD-THROUGH TYPE



Part No.	No. of pin terminal	Dimensions (mm)			Clamp*
		W	D	H	
BEPC-13-1110CPH	10	13.9	14.8	7.7	FEPC-13-A
BEPC-17-1110CPH	10	18.2	19.1	12.1	FEPC-17-A
BEPC-19-1111CPH	11	20	21.5	12.1	FEPC-19-A
BEPC-25-1111CPH	11	26.1	27	16.2	FEPC-25-A
BEPC-27-1111CPH	11	28.1	34	16.2	FEPC-27-A
BEPC-27N-1114CPH	14	29	36.5	9	FEPC-27-A
BEPC-30-1112CPH	12	31.1	37	16.2	FEPC-30-A

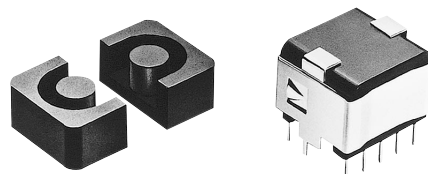
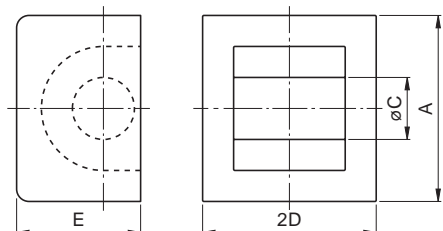
- * Clamp material: Stainless steel
 • Material: FR phenol, UL Grade: 94V-0, Pin material: Steel wire (Solder plated)

Ferrite Cores

EP Series

For Power Supply and Signal Transformer
EP Cores

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS



Type	Dimensions (mm)				Ae (mm ²)	le (mm)	Weight (g)
	A	øC	2D	E			
EP7	9.2±0.2	3.3±0.1	7.4±0.1	6.35±0.15	10.3	15.7	1.4
EP10	11.5±0.3	3.3±0.15	10.2±0.2	7.65±0.2	11.3	19.2	2.8
EP13	12.5±0.3	4.35±0.15	12.85±0.15	8.8±0.2	19.5	24.2	5.1
EP17	18±0.4	5.68±0.18	16.8±0.2	11±0.25	33.9	28.5	12
EP20	24±0.5	8.75±0.25	21.4±0.2	14.95±0.35	78	39.8	28

ELECTRICAL CHARACTERISTICS WITHOUT AIR GAP

Part No.	AL-value (nH/N ²)
H5AEP7-Z	1100min.[1kHz, 0.5mA, 100Ts]
PC40EP7-Z	830min.[1kHz, 0.5mA, 100Ts]
H5C3EP7-Z	4200min.[10kHz, 10mV, 100Ts]
H5AEP10-Z	1080min.[1kHz, 0.5mA, 100Ts]
H5C3EP10-Z	3850min.[10kHz, 10mV, 100Ts]
PC40EP10-Z	800min.[1kHz, 0.5mA, 100Ts]
PC50EP10-Z	800±25%[1kHz, 0.5mA, 100Ts]
H5AEP13-Z	1700min.[1kHz, 0.5mA, 100Ts]
H5C3EP13-Z	5600min.[10kHz, 10mV, 100Ts]
PC40EP13-Z	1170min.[1kHz, 0.5mA, 100Ts]
PC50EP13-Z	1100±25%[1kHz, 0.5mA, 100Ts]
H5AEP17-Z	2500min.[1kHz, 0.5mA, 100Ts]
H5C2EP17-Z	8000min.[1kHz, 0.5mA, 100Ts]
PC40EP17-Z	1840min.[1kHz, 0.5mA, 100Ts]
H5AEP20-Z	4200min.[1kHz, 0.5mA, 100Ts]
H5C2EP20-Z	13500min.[1kHz, 0.5mA, 100Ts]
PC40EP20-Z	3200min.[1kHz, 0.5mA, 100Ts]

WITH AIR GAP

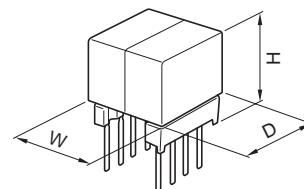
Part No.	AL-value (nH/N ²)[1kHz, 0.5mA, 100Ts]
PC40EP7AXXX*	63±5%, 100±7%
PC40EP10AXXX	63±5%, 100±7%
PC50EP10AXXX	63±5%, 100±7%
PC40EP13AXXX	100±5%, 160±7%
PC50EP13AXXX	100±5%, 160±7%
PC40EP17AXXX	100±5%, 250±7%
PC40EP20AXXX	100±5%, 250±7%

* XXX: AL-value

BOBBINS

Part No.	No. of pin terminal	Dimensions (mm)			Clamp
		W	D	H	
BEP-7-316D	6	9.4	7.5	9.6	FEP-7-C
BEP-10-318D	8	11.8	11.2	11.8	FEP-10-C
BEP-13-3110D	10	13.4	13.7	12.7	FEP-13-C
BEP-17-318D	8	19.25	19.25	15.7	FEP-17-C
BEP-20-8110D	10	25	21.8	19.6	FEP-20-C

• Material: FR phenol, UL Grade: 94V-0, Pin material: Phosphor bronze (Solder plated)

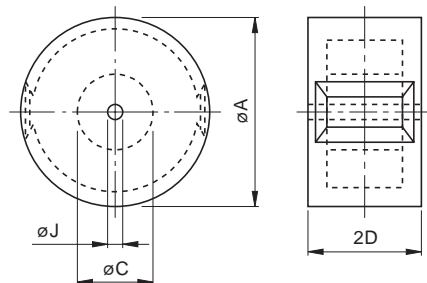


Ferrite Cores

P5.8/3.3 to P7/4P Series

For Power Supply and Signal Transformer
Miniature Pot Cores

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS



Part No.	AL-value (nH/N ²)[μ e]	Dimensions (mm)				$\Sigma l_e/A_e$ (mm ⁻¹)	A _e (mm ²)	l _e (mm)	Weight (g)
		ϕA	ϕC	2D	ϕJ				
H5AP5.8/3.3Z-52S	870 \pm 25%[1163] ^{*1}	5.8 \pm 0,-0.15	2.5 \pm 0,-0.1	3.3 \pm 0,-0.1	0.95 \pm 0.1,-0	1.68	4.7	7.9	0.2
H5C2P5.8/3.3Z-52S	2660 min.[3556] ^{*2}								
H5AP7/4Z-52S	1200 \pm 25%[1366] ^{*1}	7.35 \pm 0,-0.2	3 \pm 0,-0.1	4.2 \pm 0,-0.1	1.05 \pm 0.1,-0	1.43	7	10	0.5
H5C2P7/4Z-52S	4970 \pm 30%[5656] ^{*2}								

^{*1} 1kHz, 0.5mA, 100Ts

^{*2} 1kHz, 0.5mA, 70Ts

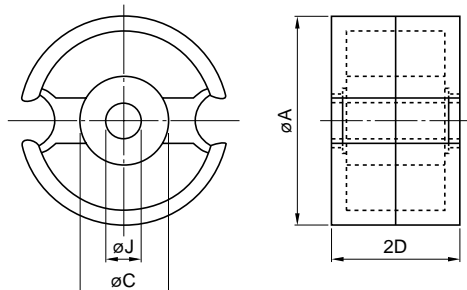
- Bobbin part No. for core
P5.8/3.3Z: BP5.8/3.3-612
P7/4Z: BP7/4-612

Ferrite Cores

P9/5 to P30/19 Series

For Power Supply and Signal Transformer
Pot Cores

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS



• These cores are designed based on IEC Pub.133

Type	Dimensions (mm)				Ae (mm ²)	le (mm)	Weight (g)	Bobbin*	Clamp
	ϕA	ϕC	2D	ϕJ					
P9/5	9.3+0, -0.3	3.9+0, -0.2	5.4+0, -0.2	2+0.1, -0	10	12.4	0.8	BP9/5-612	FP9/5-6B
P11/7	11.3+0, -0.4	4.7+0, -0.2	6.6+0, -0.2	2.1+0.1, -0	16	15.5	1.8	BP11/7-612, 622	FP11/7-6B
P14/8	14.2+0, -0.4	6+0, -0.2	8.5+0, -0.3	3+0.2, -0	25.1	19.8	3.2	BP14/8-612, 622	FP14/8-6C
P18/11	18.2+0, -0.6	7.6+0, -0.3	10.7+0, -0.3	3+0.2, -0	43.3	25.8	6.7	BP18/11-612, 622, 632	FP18/11-6C
P22/13	21.6±0.4	9.4+0, -0.3	13.6+0, -0.4	4.4+0.3, -0	63.4	31.5	12.7	BP22/13-612, 622, 632	FP22/13-6C
P26/16	25.5±0.5	11.5+0, -0.4	16.3+0, -0.4	5.4+0.3, -0	94	37.6	21	BP26/16-612, 622, 632	FP26/16-6C
P30/19	30±0.5	13.5+0, -0.4	19+0, -0.4	5.4+0.3, -0	137	45.2	35	BP30/19-612, 622, 632	FP30/19-6C

* -612: Non-sectional bobbin, -622: 2-sectional bobbin, -632: 3-sectional bobbin

ELECTRICAL CHARACTERISTICS

WITHOUT AIR GAP

Part No.	AL-value (nH/N ²)[1kHz, 0.5mA, 100Ts]
H5AP9/5Z-52H	1570±25%
H5C2P9/5Z-52H	6030±30%
PC40P9/5Z-52H	825min.
H5AP11/7Z-52H	2320±25%
H5C2P11/7Z-52H	8220±30%
PC40P11/7Z-52H	1250min.
H5AP14/8Z-52B	3000±25%
H5C2P14/8Z-52B	11300±30%
PC40P14/8Z-52B	1610min.
H5AP18/11Z-52B	4500±25%
H5C2P18/11Z-52B	16000±30%
PC40P18/11Z-52B	2400min.
H5AP22/13Z-52H	5900±25%
H5C2P22/13Z-52H	19500±30%
PC40P22/13Z-52H	2990min.
H5AP26/16Z-52H	7800±25%
H5C2P26/16Z-52H	24500±30%
PC40P26/16Z-52H	3810min.
H5AP30/19Z-52H	9800±25%
H5C2P30/19Z-52H	32000±30%
PC40P30/19Z-52H	7300±25%

WITH AIR GAP

Part No.	AL-value (nH/N ²)[1kHz, 0.5mA, 100Ts]
PC40P9/5AXXX*-52H	63±3%, 100±3%, 160±5%
PC40P11/7AXXX*-52H	63±3%, 100±3%, 160±3%
PC40P14/8AXXX*-52B	100±3%, 160±3%, 250±3%
PC40P18/11AXXX*-52B	100±3%, 160±3%, 250±3%
PC40P22/13AXXX*-52H	100±3%, 160±3%, 250±3%
PC40P26/16AXXX*-52H	160±3%, 250±3%, 400±3%
PC40P30/19AXXX*-52H	250±3%, 400±3%, 630±3%

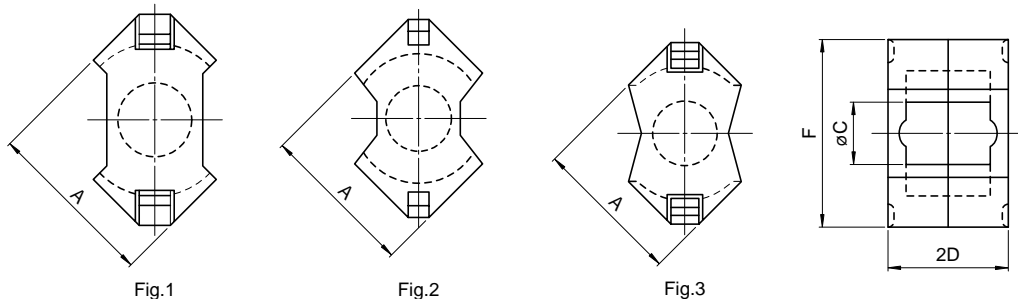
* XXX: AL-value

Ferrite Cores

RM Series

For Power Supply and Signal Transformer
RM Cores

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS



Type	Fig.	Dimensions (mm)				Ae (mm ²)	le (mm)	Weight (g)
		A	øC	2D	F			
RM4	1	9.63±0.18	3.8±0.1	10.4±0.1	10.8±0.2	14	22.7	1.7
RM5	1	12.05±0.25	4.8±0.1	10.4±0.1	14.3±0.3	23.7	22.4	3
RM6	3	14.4±0.3	6.3±0.1	12.4±0.1	17.6±0.3	37	29	5.1
RM8	2	19.35±0.35	8.4±0.15	16.4±0.1	22.75±0.45	64	38	13
RM10	2	24.15±0.55	10.7±0.2	18.6±0.1	27.85±0.65	98	44	23
RM12	2	29.25±0.55	12.6±0.2	23.5±0.1	36.75±0.65	140	56.9	42
RM14	1	34.2±0.5	14.75±0.25	28.8±0.2	41.6±0.6	188	69	70

ELECTRICAL CHARACTERISTICS

WITHOUT AIR GAP

Part No.	AL-value (nH/N ²)	Calculated output power*(W)	Part No.	AL-value (nH/N ²)	Calculated output power*(W)
PC40RM4Z-12	680min. [1kHz, 0.5mA, 100Ts]	6.9[100kHz]	H5ARM6Z-12	3300±25% [1kHz, 0.5mA, 100Ts]	
PC50RM4Z-12	960±25% [1kHz, 0.5mA, 100Ts]	21[500kHz]	H5C3RM6Z-12	9100min. [10kHz, 10mV, 100Ts]	
H5ARM4Z-12	1240±25% [1kHz, 0.5mA, 100Ts]		PC40RM8Z-12	1950min. [1kHz, 0.5mA, 100Ts]	67[100kHz]
H5C2RM4Z-12	4950±30% [1kHz, 0.5mA, 100Ts]		H5ARM8Z-12	4300±25% [1kHz, 0.5mA, 100Ts]	
PC40RM5Z-12	1250min. [1kHz, 0.5mA, 100Ts]	16[100kHz]	H5C2RM8Z-12	15200±30% [1kHz, 0.5mA, 100Ts]	
PC50RM5Z-12	1340±25% [1kHz, 0.5mA, 100Ts]	34[500kHz]	PC40RM10Z-12	3630min. [1kHz, 0.5mA, 100Ts]	130[100kHz]
H5ARM5Z-12	2220±25% [1kHz, 0.5mA, 100Ts]		H5ARM10Z-12	6220±25% [1kHz, 0.5mA, 100Ts]	
H5C3RM5Z-12	7700min. [10kHz, 10mV, 100Ts]		H5C2RM10Z-12	20900±30% [1kHz, 0.5mA, 100Ts]	
PC40RM6Z-12	1600min. [1kHz, 0.5mA, 100Ts]	27[100kHz]	PC40RM12Z-12	4150min. [1kHz, 0.5mA, 100Ts]	344[100kHz]
PC50RM6Z-12	1700±25% [1kHz, 0.5mA, 100Ts]	55[500kHz]	PC40RM14Z-12	4600min. [1kHz, 0.5mA, 100Ts]	376[100kHz]

* The values were obtained with forward converter mode.

Ferrite Cores

RM Series

For Power Supply and Signal Transformer
RM Cores

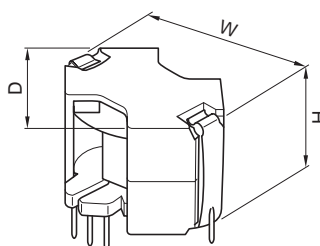
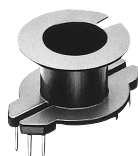
WITH AIR GAP

Part No.	AL-value (nH/N ²)[1kHz, 0.5mA, 100Ts]
PC40RM4AXXX*-22	63±3%, 100±3%, 160±3%
PC50RM4AXXX-22	63±3%, 100±3%, 160±3%
PC40RM5AXXX-22	63±3%, 100±3%, 160±3%
PC50RM5AXXX-22	63±3%, 100±3%, 160±3%
PC40RM6AXXX-22	100±3%, 160±3%, 250±3%
PC50RM6AXXX-22	100±3%, 160±3%, 250±3%
PC40RM8AXXX-22	100±3%, 160±3%, 250±3%
PC40RM10AXXX-22	160±3%, 250±3%, 400±3%
PC40RM12AXXX-22	160±3%, 250±3%, 400±3%
PC40RM14AXXX-22	160±3%, 250±3%, 400±3%

*XXX: AL-value



BOBBINS



Core type	Bobbin		Dimensions (mm)			Clamp
	Part No.	No. of pin terminal	W	D	H	
RM4	BRM-4-716SD* ²	6	10	10	10.5	FRM-4-A
RM5	BRM-5-714CP* ¹	4	12.5	12.5	10.5	FRM-5-A
	BRM-5-716CP* ¹	6				
RM6	BRM-6-714CP* ¹	4	15	15	12.5	FRM-6-A
	BRM-6-716CP* ¹	6				
RM8	BRM-8-718CP* ¹	8	20	20	16.5	FRM-8-A
	BRM-8-7112CP* ¹	12				
RM10	BRM-10-7110SDN* ²	10	24.7	24.7	18.7	FRM-10-A
	BRM-10-7112SD* ²	12				
RM12	BRM-12-7111CP* ¹	11	30	30	23.6	FRM-12-A
	BRM-12-7112CP* ¹	12				
RM14	BRM-14-7110CP* ¹	10	35.6	35.6	29	FRM-14-A
	BRM-14-7112CP* ¹	12				

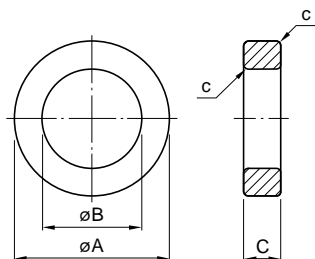
• Material: FR phenol, UL Grade: 94V-0, Pin material: *¹ Steel wire (Solder plated) *² Phosphor bronze(Solder plated)

Ferrite Cores

T Series

For Power Supply and Signal Transformer
Toroidal Cores

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS



Type (øAXCøB)	Dimensions (mm)			C1 (mm ⁻¹)	Ae (mm ²)	le (mm)
	øA	øB	C			
T3.05X1.27X1.27	3.05	1.27	1.27	5.65	1.06	5.99
T3.94X1.27X2.23	3.94	2.23	1.27	8.69	1.06	9.19
T4X1X2	4	2	1	9.06	0.961	8.71
T4.83X1.27X2.29	4.83	2.29	1.27	6.63	1.54	10.2
T5.84X1.52X3.05	5.84	3.05	1.52	6.36	2.05	13
T6X1.5X3	6	3	1.5	6.04	2.16	13.1
T8X2X4	8	4	2	4.53	3.84	17.4
T10X2.5X5	10	5	2.5	3.63	6.01	21.8
T12X3X6	12	6	3	3.02	8.65	26.1
T14X3.5X7	14	7	3.5	2.59	11.8	30.5
T20X5X10	20	10	5	1.81	24	43.6
T20X7.5X14.5	20	14.5	7.5	2.61	20.4	53.3
T28X13X16	28	16	13	0.864	76	65.6
T31X8X19	31	19	8	1.6	47.1	75.5
T38X14X22	38	22	14	0.82	109	89.7
T44.5X13X30	44.5	30	13	1.23	93	114

- Epoxy or paraxylolene insulation coating is possible.

ELECTRICAL CHARACTERISTICS

AL-value(nH/N²)

Type (øAXCøB)	HP5	H5B2	H5C3	PC40	H5A	H5C2
T3.05X1.27X1.27	1100±20%	1700±25%	3340±30%			
T4X1X2	670±20%	1000±25%	2000±30%			
T3.94X1.27X2.23	720±20%	1080±25%	2170±30%			
T4.83X1.27X2.29	950±20%	1400±25%	2840±30%			
T6X1.5X3	1000±20%	1500±25%	3000±30%			
T5.84X1.52X3.05	990±20%	1480±25%	2960±30%			
T8X2X4	1330±20%	2000±25%	4000±30%			
T10X2.5X5	1670±20%	2500±25%	5000±30%			
T12X3X6				1020±25%	1400±25%	3600±30%
T14X3.5X7				1200±25%	1650±25%	4200±30%
T20X5X10				1750±25%	2350±25%	6000±30%
T20X7.5X14.5				1050±25%	1800±25%	4100±30%
T28X13X16						14000±30%
T31X8X19						7700±30%
T38XX14X22						13160±30%
T44.5X13X30						10000±30%

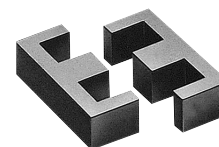
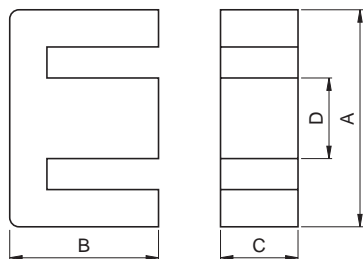
- Measuring conditions: 10Ts, 10mV, 10kHz (H5C3, H5C2, H5B2, HP5)/50kHz (H5A), 100kHz (PC40)

Ferrite Cores

For Power Supply
EE, EF Cores

EE, EF Series

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS



Type	Dimensions (mm)				Ae (mm ²)	le (mm)	Weight (g)
	A	B	C	D			
EE8	8.3±0.2	4±0.1	3.6±0.2	1.85±0.15	7	19.2	0.7
EE10/11	10.2±0.2	5.5±0.1	4.75±0.15	2.45±0.15	12.1	26.1	1.5
EF12.6	12.7±0.4	6.4±0.1	3.6±0.2	3.65±0.15	13	29.6	2
EE13	13±0.2	6±0.15	6.15±0.15	2.75±0.15	17.1	30.2	2.7
EE16	16±0.3	7.2±0.1	4.8±0.2	4±0.2	19.2	35	3.3
SEE16	16±0.3	7.15±0.15	6.8±0.2	3.175±0.175	21.7	36.6	4.1
EF16	16.1±0.6	8.05±0.15	4.5±0.2	4.55±0.15	20.1	37.6	3.9
EE19	19.1±0.3	7.95±0.15	5±0.2	4.55±0.15	23	39.4	4.8
EE19/16	19.29±0.32	8.1±0.18	4.75±0.13	4.75±0.08	22.4	39.1	4.8
EE20/20/5	20.15±0.55	10±0.2	5.1±0.2	5±0.2	31	43	7.5
EF20	20±0.4	9.9±0.2	5.65±0.25	5.7±0.2	33.5	44.9	7.4
EE22	22±0.3	9.35±0.15	5.75±0.25	5.75±0.25	41	39.6	8.8
EE25/19	25.4±0.5	9.46±0.19	6.29±0.19	6.35±0.25	40	48.7	9.1
EF25	25.05±0.75	12.55±0.25	7.2±0.3	7.25±0.25	51.8	57.8	15
EE25.4	25.4±0.76	9.66±0.15	6.35±0.25	6.35±0.25	40.3	48.7	10
EE30	30±0.5	13.15±0.15	10.7±0.3	10.7±0.3	109	57.7	32
EE30/30/7	30.1±0.7	15±0.2	7.05±0.25	6.95±0.25	59.7	66.9	22
EF32	32.1±0.8	16.1±0.3	9.15±0.35	9.2±0.3	83.2	74.3	32
EE35	34.54±1	14.33±0.35	9.53±0.38	9.39±0.27	89.4	69.2	33
EE35/28B	34.6±0.5	14.27±0.3	9.31±0.3	9.4±0.3	84.9	69.6	28
EE40	40±0.5	17±0.3	10.7±0.3	10.7±0.3	127	77	50
EE41/33C	41.07±0.81	16.78±0.13	12.57±0.38	12.64±0.25	156.7	77.6	64
EE42/42/15	42.15±0.85	21±0.2	14.95±0.25	11.95±0.25	182	97	80
EE42/42/20	42.15±0.85	21±0.2	19.7±0.3	11.95±0.25	235	97.4	116
EE47/39	47.12±0.76	19.63±0.2	15.62±0.25	15.62±0.25	242	90.6	108
EE50	50±0.7	21.3±0.3	14.6±0.4	14.6±0.4	226	95.8	116
EE50.3/51/6	50.3±0.8	25.6±0.25	6.1±0.2	19.9±0.35	121	105	68
EE55/55/21	55.15±1.05	27.5±0.3	20.7±0.3	16.95±0.25	354	123	234
EE57/47	56.57±1	23.6±0.23	18.8±0.25	18.8±0.25	344	102	190
EE60	60±0.8	22.3±0.3	15.6±0.4	15.6±0.4	247	110	135
EE62.3/62/6	62.3±1.2	31±0.25	6.1±0.2	25.3±0.5	153	126	102

Ferrite Cores

For Power Supply

EE, EF Cores

EE, EF Series

ELECTRICAL CHARACTERISTICS

WITHOUT AIR GAP

Part No.	AL-value* (nH/N ²) [1kHz, 0.5mA, 100Ts]	Calculated out- put power* (W) [100kHz]
PC40EE8-Z	610±25%	
PC40EE10/11-Z	850±25%	9.4
PC40EF12.6-Z	810±25%	
PC40EE13-Z	1130±25%	17
PC40EE16-Z	1140±25%	
PC40SEE16-Z	1240±25%	32
PC40EF16-Z	1100±25%	
PC40EE19-Z	1250±25%	
H5C2EE19/16-Z	5830±30%	
PC40EE19/16-Z	1350±25%	
PC40EE20/20/5-Z	1460±25%	41
PC40EF20-Z	1570±25%	
PC40EE22-Z	2180±25%	
H5C2EE25/19-Z	8520±30%	
PC40EE25/19-Z	2000±25%	70
PC40EF25-Z	2000±25%	
PC40EE25.4-Z	2000±25%	
PC40EE30-Z	4690±25%	
PC40EE30/30/7-Z	2100±25%	133
PC40EF32-Z	2590±25%	
PC40EF35-Z	3170±25%	
PC40EE35/28B-Z	2950±25%	
PC40EE40-Z	4150±25%	
PC40EE41/33C-Z	5060±25%	
PC40EE42/42/15-Z	4700±25%	419
PC40EE42/42/20-Z	6100±25%	
PC40EE47/39-Z	6660±25%	
PC40EE50-Z	6110±25%	
PC40EE50.3/51/6-Z	2900±25%	213
PC40EE55/55/21-Z	7100±25%	814
PC40EE57/47-Z	8530±25%	
PC40EE60-Z	5670±25%	
PC40EE62.3/62/6-Z	3100±25%	250

*The values were obtained with forward converter mode.

WITH AIR GAP

Part No.	AL-value (nH/N ²) [1kHz, 0.5mA, 100Ts]
PC40EE8AXXX*	40±7%, 63±10%
PC40EE10/11AXXX	40±7%, 63±10%
PC40EF12.6AXXX	63±7%, 100±10%
PC40EE13AXXX	63±7%, 100±10%
PC40EE16AXXX	80±7%, 160±10%
PC40SEE16AXXX	80±7%, 160±10%
PC40EF16AXXX	63±7%, 100±10%
PC40EE19AXXX	80±7%, 160±10%
PC40EE19/16AXXX	80±7%, 160±10%
PC40EE20/20/5AXXX	100±7%, 160±10%
PC40EF20AXXX	100±7%, 160±10%
PC40EE22AXXX	125±7%, 250±10%
PC40EE25/19AXXX	100±7%, 200±10%
PC40EF25AXXX	100±7%, 160±10%
PC40EE25.4AXXX	125±7%, 250±10%
PC40EE30AXXX	200±5%, 400±7%
PC40EE30/30/7AXXX	160±5%, 250±7%
PC40EF32AXXX	160±5%, 250±7%
PC40EE35AXXX	200±5%, 400±7%
PC40EE35/28BAXXX	200±5%, 400±7%
PC40EE40AXXX	200±5%, 400±7%
PC40EE41/33CAXXX	200±5%, 400±7%
PC40EE42/42/15AXXX	250±5%, 400±7%
PC40EE42/42/20AXXX	250±5%, 400±7%
PC40EE47/39AXXX	250±5%, 400±7%
PC40EE50AXXX	250±5%, 500±7%
PC40EE50.3/51/6AXXX	200±5%, 400±7%
PC40EE55/55/21AXXX	250±5%, 400±7%
PC40EE57/47AXXX	250±5%, 400±7%
PC40EE60AXXX	250±5%, 500±7%
PC40EE62.3/62/6AXXX	200±5%, 400±7%

*XXX: AL-value

Ferrite Cores

For Power Supply

EE, EF Cores

EE, EF Series

EE BOBBINS

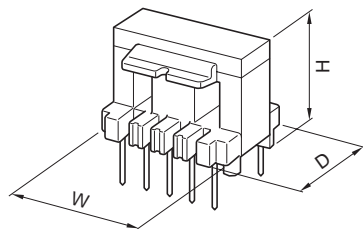


Fig. 1

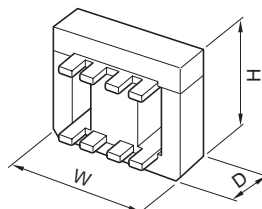


Fig. 2

WITH PIN TERMINAL (Fig. 1)

Part No.	No. of pin terminal	Dimensions (mm)			Clamp
		W	D	H	
BE-8-116CPH	6	8.3	8	8	
BE-10-118CPS	8	10.4	10.2	11.2	
BE-13-1110CPS	10	13.2	12.7	12.3	
BE-16-116CP	6	16.3	13.1	14.6	
BE-16-1110CPN	10	16.3	13.1	15.6	
BE-16-118CPH	8	16.5	14.6	13.6	
BES-16-1110CPS	10	16.3	14.1	16.3	
BE-19-116CP	6	20.3	16.7	16.2	
BE-19-118CPH	8	20.3	16.2	18.8	
BE-22-118CP	8	22.3	17.1	20.1	
BE-30-1110CP	10	30.4	25.1	28.6	FE-30-F
BE-30-1112CP	12	30.4	25.1	28.6	FE-30-G
BE-40-1112CP	12	40.5	30.2	35.8	FE-40-F, FE-40-G
BE-40-1112CPN	12	40.5	30.2	35.7	
BE-50-1112CP	12	50.7	36.2	43.6	FE-50-F, FE-50-G
BE-50.3/51/6-1112CPH	12	52	77	16.2	
BE-60-1112CP	12	60.8	45.2	45.1	FE-60-F, FE-60-G
BE-62.3/62/6-1112CPH	12	64	88	16.2	

• Material: FR phenol, UL Grade: 94V-0, Pin material: Steel wire (Solder plated)

WITHOUT PIN TERMINAL (Fig. 2)

Part No.	Dimensions (mm)			Material [UL Grade]	Clamp
	W	D	H		
BE-19-5116	20.3	14.9	16.2	6-Nylon[94V-0]	
BE-22-5116	22.3	13.1	19.5	6-Nylon[94V-0]	
BE-25-5116	25.8	19.2	18.7	6-Nylon[94V-0]	
BE-30-5112	30.4	21.1	27.2	6-Nylon[94V-0]	FE-30-F, FE-30-G
BE-40-5112	40.5	29.4	35.3	6-Nylon[94V-0]	FE-40-F, FE-40-G
BE-50-5112	50.7	35.8	43	6-Nylon[94V-0]	FE-50-F, FE-50-G
BE-60-5112	60.8	46	45	6-Nylon[94V-0]	FE-60-F, FE-60-G

• Material: 6-Nylon, UL Grade: 94V-0

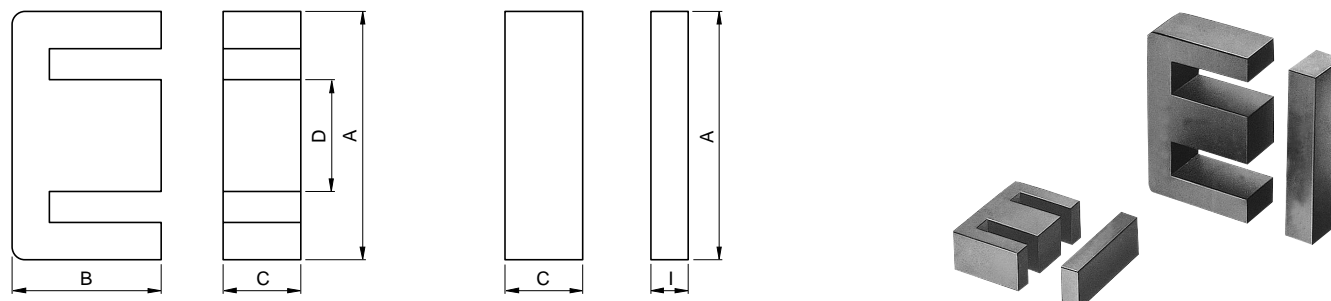
Ferrite Cores

For Power Supply

EI Cores

EI Series

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS



Type	Dimensions (mm)					Ae (mm ²)	le (mm)	Weight (g)
	A	B	C	D	I			
EI12.5	12.4±0.3	7.4±0.1	4.85±0.15	2.4±0.1	1.5±0.1	14.4	21.3	1.9
EI16	16±0.3	12.2±0.2	4.8±0.2	4±0.2	2±0.2	19.8	34.6	3.3
EI19	20±0.3	13.55±0.25	5±0.2	4.55±0.15	2.3±0.1	24	39.6	5.1
EI22	22±0.3	14.55±0.25	5.75±0.25	5.75±0.25	4.5±0.2	42	39.3	9.8
EI22/19/6	22±0.4	14.7±0.2	5.75±0.25	5.75±0.25	4±0.2	37	41.8	8.5
EI25	25.3±0.5	15.55±0.25	6.75±0.25	6.5±0.3	2.7±0.2	41	47	9.8
EI28	28±0.5	16.75±0.25	10.6±0.2	7.2±0.3	3.5±0.3	86	48.2	22
EI30	30±0.4	21.25±0.25	10.7±0.3	10.7±0.3	5.5±0.2	111	58	34
EI33/29/13	33±0.5	23.75±0.25	12.7±0.3	9.7±0.3	5±0.3	118.5	67.5	41
EI35	35±0.5	24.25±0.25	10±0.3	10±0.3	4.6±0.3	101.4	67.1	36
EI40	40±0.5	27.25±0.25	11.65±0.35	11.65±0.35	7.5±0.3	148	77	60
EI50	50±0.7	33.35±0.35	14.6±0.4	14.6±0.4	9±0.3	230	94	115
EI60	60±0.8	35.85±0.35	15.6±0.4	15.6±0.4	8.5±0.3	247	109	139

ELECTRICAL CHARACTERISTICS

WITHOUT AIR GAP

Part No.	AL-value (nH/N ²) [1kHz, 0.5mA, 100Ts]	Calculated output power* (W) [100kHz]
PC40EI12.5-Z	1200±25%	8.8
PC40EI16-Z	1100±25%	29
PC40EI19-Z	1400±25%	40
PC40EI22-Z	2400±25%	33
PC40EI22/19/6-Z	2000±25%	48
PC40EI25-Z	2140±25%	68
PC40EI28-Z	4300±25%	107
PC40EI30-Z	4690±25%	155
PC40EI33/29/13-Z	4400±25%	206
PC40EI135-Z	3800±25%	218
PC40EI140-Z	4860±25%	348
PC40EI150-Z	6110±25%	508
PC40EI160-Z	5670±25%	618

*The values were obtained with forward converter mode.

WITH AIR GAP

Part No.	AL-value (nH/N ²) [1kHz, 0.5mA, 100Ts]
PC40EI12.5AXXX*	63±7%, 100±10%
PC40EI16AXXX	80±7%, 160±10%
PC40EI19AXXX	80±7%, 160±10%
PC40EI22AXXX	125±7%, 250±10%
PC40EI22/19/6AXXX	125±7%, 250±10%
PC40EI25AXXX	125±7%, 250±10%
PC40EI28AXXX	200±5%, 400±7%
PC40EI30AXXX	200±5%, 400±7%
PC40EI33/29/13AXXX	200±5%, 400±7%
PC40EI35AXXX	200±5%, 400±7%
PC40EI40AXXX	200±5%, 400±7%
PC40EI50AXXX	250±5%, 500±7%
PC40EI60AXXX	250±5%, 500±7%

*XXX: AL-value

Ferrite Cores

For Power Supply

EI Cores

EI Series

BOBBINS

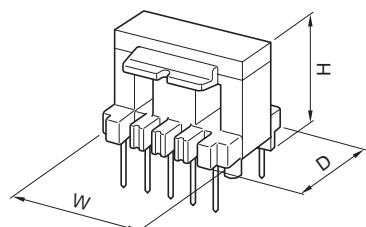


Fig. 1

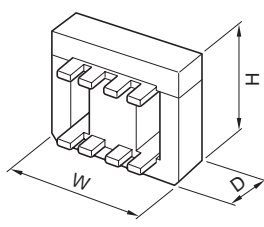


Fig. 2

WITH PIN TERMINAL (Fig. 1)

Part No.	No. of pin terminal	Dimensions (mm)			Clamp
		W	D	H	
BE-12.5-1110CP	10	12.7	12.5	9.1	
BE-16-116CP	6	16.3	13.1	14.6	
BE-16-118CPH	8	16.5	14.6	13.6	
BE-16-1110CPN	10	16.3	13.1	15.6	
BE-19-116CP	6	20.3	16.7	16.2	
BE-19-118CPH	8	20.3	16.2	18.8	
BE-22-118CP	8	22.3	17.1	20.1	
BE-22/19/6-118CP	8	22.4	17.1	19.1	
BE-25-118CP	8	25.8	18.1	20.5	
BE-28-1110CPL	8	28.5	25.1	22.7	
BE-30-1110CP	10	30.4	25.1	28.6	FE-30-F, FE-30-G
BE-30-1112CP	12	30.4	25.1	28.6	FE-30-F, FE-30-G
BE-33/29/13-1112CPL	12	33.5	28.1	31.2	
BE-35-1112CPL	12	35.5	25.1	30.9	
BE-40-1112CP	12	40.5	30.2	35.8	FE-40-F, FE-40-G
BE-40-1112CPN	12	40.5	30.2	35.7	
BE-50-1112CP	12	50.7	36.2	43.6	FE-50-F, FE-50-G
BE-60-1112CP	12	60.8	45.2	45.1	FE-60-F, FE-60-G

• Material: FR phenol, UL Grade: 94V-0, Pin material: Steel wire (Solder plated)

WITHOUT PIN TERMINAL (Fig. 2)

Part No.	Dimensions (mm)			Material [UL Grade]	Clamp
	W	D	H		
BE-19-5116	20.3	14.9	16.2	6-Nylon[94V-0]	
BE-22-5116	22.3	13.1	19.5	6-Nylon[94V-0]	
BE-25-5116	25.8	19.2	18.7	6-Nylon[94V-0]	
BE-30-5112	30.4	21.1	27.2	6-Nylon[94V-0]	FE-30-F, FE-30-G
BE-40-5112	40.5	29.4	35.3	6-Nylon[94V-0]	FE-40-F, FE-40-G
BE-50-5112	50.7	35.8	43	6-Nylon[94V-0]	FE-50-F, FE-50-G
BE-60-5112	60.8	46	45	6-Nylon[94V-0]	FE-60-F, FE-60-G

• Material: 6-Nylon, UL Grade: 94V-0

Ferrite Cores

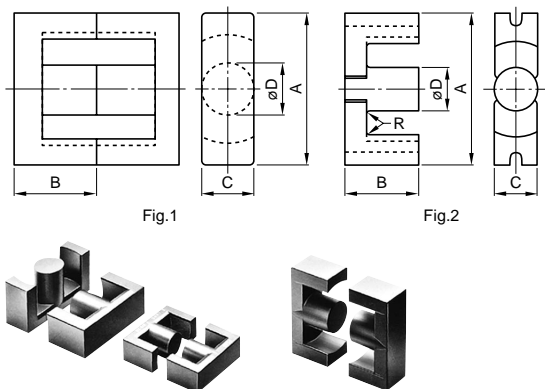
For Power Supply

ETD, EC Cores

ETD, EC Series

ETD, EC SERIES

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS



Type	Fig.	Dimensions (mm)				Ae (mm ²)	le (mm)	Weight (g)
		A	B	C	øD			
ETD19	1	19.6±0.5	13.65±0.15	7.4±0.2	7.4±0.2	41.3	54.6	14
ETD24	1	24.4±0.6	14.45±0.15	8.5±0.4	8.5±0.2	56.3	61.9	20
ETD29	1	29.8±0.8	15.8±0.15	9.5±0.3	9.5±0.3	73.6	70.6	28
ETD34	1	34.2±0.8	17.3±0.2	10.88±0.38	10.8±0.3	97.1	78.6	40
ETD39	1	39.1±0.9	19.8±0.2	12.58±0.38	12.5±0.3	125	92.1	60
ETD44	1	44±1	22.3±0.2	14.9±0.5	14.8±0.4	175	103	94
ETD49	1	48.7±1.1	24.7±0.2	16.4±0.5	16.3±0.4	213	114	124
EC70	2	70±1.7	34.5±0.15	16.4±0.4	16.4±0.4	279	144	256
EC90	2	90±1.8	45±1.3	30±1	30±1	624	216	698
EC120	2	120±2	50.5±1	30±1	30±1	753	250	780

ELECTRICAL CHARACTERISTICS WITHOUT AIR GAP

Part No.	AL-value (nH/N ²) [1kHz, 0.5mA, 100Ts]	Calculated output power* (W) [100kHz]
PC40ETD19-Z	1720±25%	79
PC40ETD24-Z	2125±25%	115
PC40ETD29-Z	2500±25%	170
PC40ETD34-Z	2780±25%	271
PC40ETD39-Z	3150±25%	382
PC40ETD44-Z	4000±25%	523
PC40ETD49-Z	4440±25%	682
PC40EC70-Z	4800±25%	
PC40EC90-Z	6000min.	
PC40EC120-Z	6300min.	

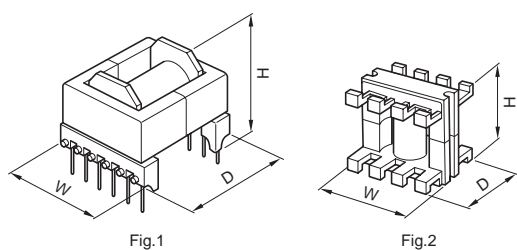
* The values were obtained with forward converter mode.

WITH AIR GAP

Part No.	AL-value (nH/N ²) [1kHz, 0.5mA, 100Ts]
PC40ETD19AXXX*	80±5%, 160±7%
PC40ETD24AXXX	100±5%, 200±7%
PC40ETD29AXXX	200±5%, 400±10%
PC40ETD34AXXX	200±5%, 400±7%
PC40ETD39AXXX	200±5%, 400±7%
PC40ETD44AXXX	250±5%, 400±7%
PC40ETD49AXXX	250±5%, 400±7%
PC40EC70AXXX	100±5%, 200±5%

* XXX: AL-value

BOBBINS



Part No.	Fig.	No. of pin terminal	Dimensions (mm)			Materials
			W	D	H	
BETD-19-1110CPH*	1	10	23.55	31	18.15	FR phenol
BETD-24-1112CPH*	1	12	29	33.6	21.65	FR phenol
BEC-70-5116	2		72	57	70	6-Nylon
BEC-90-0112	2		92	77	93	6-Nylon

* Permissible soldering temperature 350°C max., 2 seconds.

• UL Grade: 94V-0, Pin material: Steel wire (Solder plated)

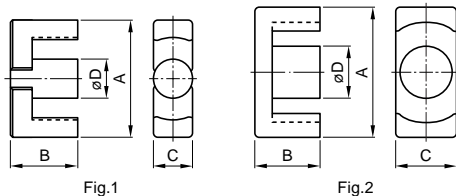
Ferrite Cores

For Power Supply

EER Cores

EER Series

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS



Type	Fig.	Dimensions (mm)				Ae (mm ²)	le (mm)	Weight (g)
		A	B	C	øD			
EER25.5	1	25.5±0.5	9.3±0.2	7.5±0.2	7.5±0.15	44.8	48.2	11
EER28	2	28.55±0.55	14±0.2	11.4±0.25	9.9±0.25	82.1	64	28
EER28L	2	28.55±0.55	16.9±0.25	11.4±0.25	9.9±0.25	81.4	75.5	33
EER35	1	35±0.5	20.7±0.2	11.3±0.2	11.3±0.15	107	90.8	52
EER40	1	40±0.5	22.4±0.2	13.3±0.25	13.3±0.25	149	98	78
EER42	1	42±0.6	22.4±0.2	15.5±0.25	15.5±0.25	194	98.8	102
EER42/42/20	2	42.15±0.65	21.2±0.2	19.6±0.4	17.3±0.25	240	98.6	116
EER49	1	49±0.8	19±0.3	17.2±0.4	17.2±0.25	231	91.3	110

ELECTRICAL CHARACTERISTICS

WITHOUT AIR GAP

Part No.	AL-value (nH/N ²) [1kHz, 0.5mA, 100Ts]	Calculated output power* (W) [100kHz]
PC40EER25.5-Z	1920±25%	87
PC40EER28-Z	2870±25%	203
PC40EER28L-Z	2520±25%	228
PC40EER35-Z	2770±25%	325
PC40EER40-Z	3620±25%	421
PC40EER42-Z	4690±25%	433
PC40EER42/42/20-Z	5340±25%	509
PC40EER49-Z	6250±25%	

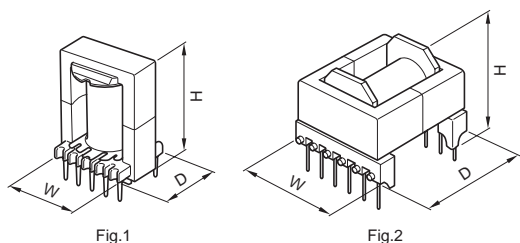
* The values were obtained with forward converter mode.

WITH AIR GAP

Part No.	AL-value (nH/N ²) [1kHz, 0.5mA, 100Ts]
PC40EER25.5AXXX*	100±5%, 200±7%
PC40EER28AXXX	200±5%, 400±7%
PC40EER28LAXXX	160±5%, 315±7%
PC40EER35AXXX	200±5%, 400±7%
PC40EER40AXXX	200±5%, 400±7%
PC40EER42AXXX	250±5%, 500±7%
PC40EER42/42/20AXXX	250±5%, 500±7%
PC40EER49AXXX	250±5%, 500±7%

* XXX: AL-value

BOBBINS



Part No.	Fig.	No. of pin terminal	Dimensions (mm)		
			W	D	H
BEER-25.5-118CP	1	8	26	20	21
BEER-28-1110CP	1	10	29	23	29
BEER-28L-1110CP	1	10	29	23	35
BEER-35-1112CP	1	12	36	29	44
BEER-40-1112CP	1	12	41	30	46
BEER-42-1114CP	1	14	43	30	47
BEER-42/42/20-1112CP	1	12	43	37	46
BEER-49-1118CP	1	18	50	37	43
BEER-28-1112CPH	2	12	31	33	26
BEER-28L-1112CPH	2	12	31	38	26
BEER-35-1116CPH	2	16	41	46	31
BEER-40-1116CPH	2	16	41	45	32
BEER-42-1116CPH	2	16	43	46	35

• Material: FR phenol, UL Grade: 94V-0, Pin material: Steel wire (Solder plated)

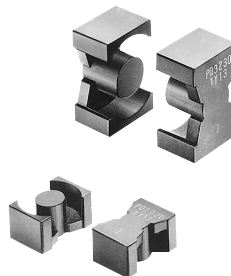
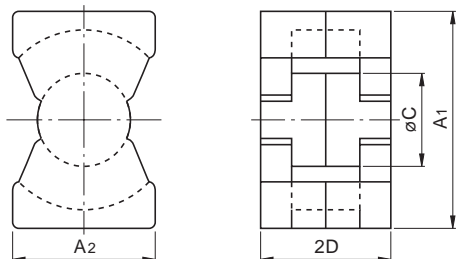
Ferrite Cores

For Power Supply

PQ Cores

PQ Series

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS



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
 J.P.U.M 1,589,580
 J.P.U.M 1,621,895
 J.P.U.M PUB.
 85(60)-3556 1,647,781
 J.P.U.M PUB.
 86(61)-5779 1,655,608
 J.P.DES.580,081
 J.P.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

Type	Dimensions (mm)		øC	2D	Ae (mm ²)	le (mm)	Weight (g)
	A1	A2					
PQ20/16	20.5±0.4	14±0.4	8.8±0.2	16.2±0.2	62	37.4	13
PQ20/20	20.5±0.4	14±0.4	8.8±0.2	20.2±0.2	62	45.4	15
PQ26/20	26.5±0.45	19±0.45	12±0.2	20.15±0.25	119	46.3	31
PQ26/25	26.5±0.45	19±0.45	12±0.2	24.75±0.25	118	55.5	36
PQ32/20	32±0.5	22±0.5	13.45±0.25	20.55±0.25	170	55.5	42
PQ32/30	32±0.5	22±0.5	13.45±0.25	30.35±0.25	161	74.6	55
PQ35/35	35.1±0.6	26±0.5	14.35±0.25	34.75±0.25	196	87.9	73
PQ40/40	40.5±0.9	28±0.6	14.9±0.3	39.75±0.25	201	101.9	95
PQ50/50	50±0.7	32±0.6	20±0.35	49.95±0.25	328	113	195

ELECTRICAL CHARACTERISTICS

WITHOUT AIR GAP

Part No.	AL-value (nH/N ²) [1kHz, 0.5mA, 100Ts]	Calculated output power* (W)
PC44PQ20/16Z-12	3880±25%	70[100kHz]
PC44PQ20/20Z-12	3150±25%	92[100kHz]
PC50PQ20/20Z-12	2000±25%	187[500kHz]
PC44PQ26/20Z-12	6170±25%	170[100kHz]
PC44PQ26/25Z-12	5250±25%	195[100kHz]
PC50PQ26/25Z-12	3200±25%	366[500kHz]
PC44PQ32/20Z-12	7310±25%	232[100kHz]
PC44PQ32/30Z-12	5140±25%	331[100kHz]
PC44PQ35/35Z-12	4860±25%	452[100kHz]
PC44PQ40/40Z-12	4300±25%	596[100kHz]
PC44PQ50/50Z-12	6720±25%	1045[100kHz]

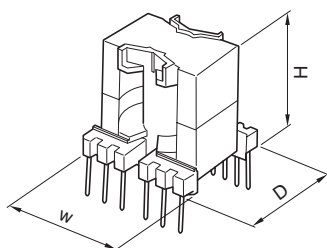
*The values were obtained with forward converter mode.

WITH AIR GAP

Part No.	AL-value (nH/N ²) [1kHz, 0.5mA, 100Ts]
PC44PQ20/16AXXX*-22	100±5%, 250±7%, 400±10%
PC44PQ20/20AXXX-22	100±5%, 250±7%, 400±10%
PC50PQ20/20AXXX-22	100±5%, 160±5%, 250±7%
PC44PQ26/20AXXX-22	160±5%, 315±5%, 630±10%
PC44PQ26/25AXXX-22	160±5%, 315±5%, 630±10%
PC50PQ26/25AXXX-22	100±5%, 250±5%, 400±7%
PC44PQ32/20AXXX-22	160±5%, 315±5%, 630±7%
PC44PQ32/30AXXX-22	160±5%, 315±5%, 630±7%
PC44PQ35/35AXXX-22	160±5%, 315±5%, 630±7%
PC44PQ40/40AXXX-22	160±5%, 315±5%, 630±7%
PC44PQ50/50AXXX-22	250±5%, 400±5%, 630±5%

*XXX: AL-value

BOBBINS



Part No.	No. of pin terminal	Dimensions (mm)			Clamp
		W	D	H	
BPQ20/16-1114CP	14	23	23	18.3	FPQ20/16-A
BPQ20/20-1114CP	14	23	23	22.3	FPQ20/20-A
BPQ26/20-1112CP	12	26.5	29.3	21.5	FPQ26/20-A
BPQ26/25-1112CP	12	26.5	29.3	29.1	FPQ26/25-A
BPQ32/20-1112CP	12	32	34	22.5	FPQ32/20-A
BPQ32/30-1112CP	12	32	34	32.1	FPQ32/30-A
BPQ35/35-1112CP	12	35	39	37.4	FPQ35/35-A
BPQ40/40-1112CP	12	40	42	42.3	FPQ40/40-A
BPQ50/50-1112DS	12	51	51	52	FPQ50/50-B

• Material: FR phenol, UL Grade: 94V-0, Pin material: Steel wire (Solder plated)

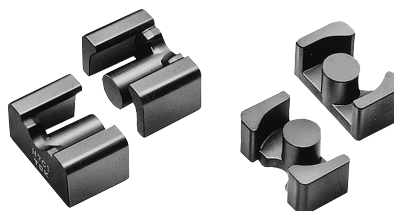
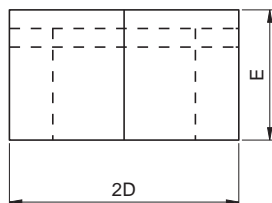
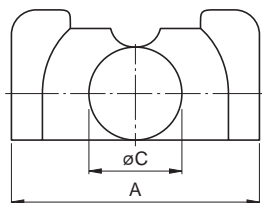
Ferrite Cores

For Power Supply

LP Cores

LP Series

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS



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

Type	Dimensions (mm)				Ae (mm ²)	le (mm)	Weight (g)
	A	øC	2D	E			
LP23/8	16.5±0.3	5.7±0.1	23.4±0.2	8.7±0.2	31.3	44.1	9.6
LP22/13	25±0.4	8.6±0.2	22.4±0.2	12.9±0.3	67.9	49	21
LP32/13	25±0.4	8.6±0.2	31.8±0.2	12.9±0.3	70.3	64	30

ELECTRICAL CHARACTERISTICS

WITHOUT AIR GAP

Part No.	AL-value (nH/N ²) [1kHz, 0.5mA, 100Ts]	Calculated output power* (W) [100kHz]
PC44LP23/8Z-12	1600±25%	50
PC44LP22/13Z-12	3310±25%	121
PC44LP32/13Z-12	2630±25%	164

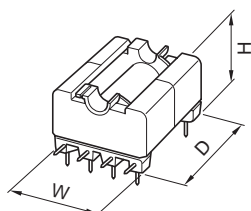
*The values were obtained with forward converter mode.

WITH AIR GAP

Part No.	AL-value (nH/N ²) [1kHz, 0.5mA, 100Ts]
PC44LP23/8AXXX*-22	63±5%, 100±7%, 250±13%
PC44LP22/13AXXX-22	100±5%, 200±7%, 400±10%
PC44LP32/13AXXX-22	100±5%, 200±7%, 400±10%

*XXX: AL-value

BOBBINS



Part No.	No. of pin terminal	Dimensions (mm)			Clamp
		W	D	H	
BLP23/8-018P*1	8	17.2	34.2	12.7	FLP23/8-A
BLP22/13-1110CPL*2	10	25.9	32.3	19.2	FLP22/13-A
BLP32/13-1110CPL*2	10	25.9	40.6	19.2	FLP32/13-A

•Material: FR phenol, UL Grade: 94V-0

Pin material: *1Phosphor bronze (Solder plated) *2Steel wire (Solder plated)



Ferrite Cores

For Power Supply

EER Cores

EER Series

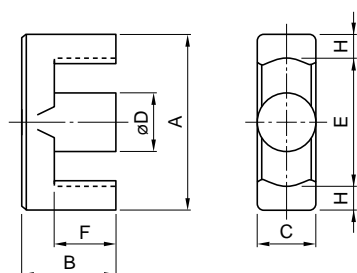
Use of magnetic field analysis and packaging evaluation technology has made clear the relationship between differential heating of core components and the flux density distribution. This knowledge has been used to optimize the design of the EER core. Core volume has been decreased by 13 to 20% without loss of the efficiency of the existing EER40, EER42, and EER49LS core shapes. This has resulted in an EER core series with a good cost-benefit ratio.

FEATURES

- These ferrite cores attain the same transformer output as previous products while reducing effective volume by 13 to 20%.
- TDK has optimized volume of the core design while supporting continued use of existing bobbins.

Newly designed core	Earlier designed core	Bobbin
EER38S	EER40	BEER-40-1112CP BEER-40-1116CPH
EER40S	EER42	BEER-42-1114CP BEER-42-1116CPH
EER47S	EER49LS	—

SHAPES AND DIMENSIONS



Dimensions in mm

Part No.	A	B	C	øD	E	F	H
PC40EER38S-Z	37.44±0.5	20.7±0.2	13.3±0.25	13.3±0.25	29min.	15.4±0.3	4
PC40EER40S-Z	40.2±0.5	21.4±0.2	15.5±0.25	15.5±0.25	29.4min.	15.4±0.3	5
PC40EER47S-Z	47.3±0.8	22.4±0.2	17.2±0.4	17.2±0.4	36.3min.	15.4±0.3	5

CHARACTERISTICS

Part No.	AL-value (nH/N ²)	Core loss (kW/m ³)	le (mm)	Ae (mm ²)	Ve (mm ³)	A min. (mm ²)
PC40EER38S-Z	3310±25%					
PC40EER38SA200	200±5%	5.2	93.9	124	11600	119
PC40EER38SA400	400±7%					
PC40EER40S-Z	4300±25%					
PC40EER40SA250	250±5%	7.6	95.9	173	16600	172
PC40EER40SA500	500±7%					
PC40EER47S-Z	5090±25%					
PC40EER47SA250	250±5%	9.1	102	206	21100	194
PC40EER47SA500	500±7%					

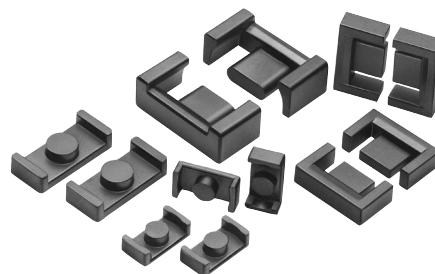
- Measuring conditions:
AL-value: 1kHz, 0.5mA, 100ts.
Core loss: 100kHz, 200mT, 100°C

Ferrite Cores

EPC, ER, EEM, EE Series

Low Loss Materials for Power Supply PC45, PC46 Materials

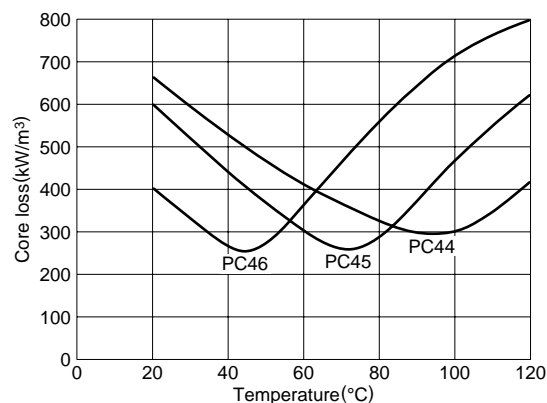
Demand is greatly increasing for portable devices such as notebook PCs, camcorders, digital cameras, PDAs, GPS car navigation systems, etc. There is also growing demand for small, light weight, high efficiency backlighting units for liquid crystal displays using cold cathode tubes. PC45 and PC46 materials were developed for production of cores with high efficiencies within the temperature range in which such transformers actually operate. PC45 material was developed with a minimum core loss temperature in the +60 to +80°C range, and PC46 material has a minimum core loss temperature in the +40 to +50°C range. Each of these ferrite materials also has a greatly reduced core loss. These ferrite materials are also optimum for non-backlight applications such as DC to DC converters, notebook PC adapter transformers, etc.



MATERIAL CHARACTERISTICS

Material		PC45	PC46	PC44 (Conventional material)
Initial permeability	μ_i	2500±25%	3200±25%	2400±25%
Power loss [100kHz, 200mT]	P _{cv} kW/m ³	570[25°C] 250[75°C] 460[100°C]	350[25°C] 250[45°C] 660[100°C]	600[25°C] 400[60°C] 300[100°C]
Saturation magnetic flux density	B _s mT	[25°C] 530 [100°C] 420	530 410	510 390
Remanent flux density	B _r mT	[25°C] 120 [100°C] 80	115 80	110 60
Coercive force [1194A/m]	H _c A/m	[25°C] 12 [100°C] 8	11 10	13 6.5
Curie temperature	T _c °C	≥ 230	≥ 230	≥ 215

CORE LOSS vs. TEMPERATURE CHARACTERISTICS



Ferrite Cores

EPC, ER, EEM, EE Series

Low Loss Materials for Power Supply

PC45, PC46 Materials

CHARACTERISTICS

EPC CORE

Part No.	AL-value(nH/N ²)	Bobbin	Flange
PC45EPC10-Z	1000±25%	BEPC-10-118GA	FEPC-10-A
PC45EPC10A40	40±7%		
PC45EPC10A63	63±10%		
PC46EPC10-Z	1060±25%		
PC46EPC10A40	40±7%		
PC46EPC10A63	63±10%		
PC45EPC13-Z	870±25%	BEPC-13-1110GA BEPC-13-1110CPH	FEPC-13-A
PC45EPC13A40	40±4%		
PC45EPC13A63	63±5%		
PC46EPC13-Z	1050±25%		
PC46EPC13A40	40±4%		
PC46EPC13A63	63±5%		
PC45EPC17-Z	1150±25%	BEPC-17-1119GA BEPC-17-1110CPH	FEPC-17-A
PC45EPC17A80	80±4%		
PC45EPC17A125	125±5%		
PC46EPC17-Z	1580±25%		
PC46EPC17A80	80±4%		
PC46EPC17A125	125±5%		
PC45EPC19-Z	940±25%	BEPC-19-1110GA BEPC-19-1110SA BEPC-19-1111CPH	FEPC-19-A
PC45EPC19A80	80±4%		
PC45EPC19A125	125±5%		
PC46EPC19-Z	1430±25%		
PC46EPC19A80	80±4%		
PC46EPC19A125	125±5%		
PC45EPC25-Z	1560±25%	BEPC-25-1111CPH	FEPC-25-A
PC45EPC25A125	125±5%		
PC45EPC25A200	200±7%		
PC45EPC25B-Z	1560±25%		
PC45EPC25BA80	80±5%	BEPC-25B-1111G BEPC-25B-1111S	FEPC-25B-A
PC45EPC25BA125	125±7%		
PC45EPC27-Z	1540±25%	BEPC-27-1111CPH	FEPC-27-A
PC45EPC27A125	125±4%		
PC45EPC27A200	200±5%		
PC45EPC27N-Z	1400±25%		
PC45EPC27NA80	80±5%	BEPC-27N-1114CPH	—
PC45EPC27NA125	125±7%		
PC45EPC30-Z	1570±25%	BEPC-30-1112CPH	FEPC-30-A
PC45EPC30A125	125±4%		
PC45EPC30A200	200±5%		

• Measuring conditions:

EPC10:1kHz, 0.5mT, ø0.1mm, 100ts./EPC13, 17, 19, 25:1kHz, 0.5mT, ø0.2mm, 100ts.

EPC25B:1kHz, 0.5mT, ø0.23mm, 100ts./EPC27, 27N, 30:1kHz, 0.5mT, ø0.3mm, 100ts.

Ferrite Cores

EPC, ER, EEM, EE Series

Low Loss Materials for Power Supply

PC45, PC46 Materials

CHARACTERISTICS

ER CORE

Part No.	AL-value(nH/N ²)	Bobbin	Flange
PC45ER9.5/5-Z	950±25%	BER9.5/5-118GA	FER9.5/5-A
PC45ER9.5/5A63	63±5%		
PC45ER9.5/5A100	100±7%		
PC46ER9.5/5-Z	1120±25%		
PC46ER9.5/5A63	63±5%		
PC46ER9.5/5A100	100±7%		
PC45ER11/3.9-Z	1490±25%	BER11/3.9-1110G	FER11/3.9-A
PC45ER11/3.9A63	63±5%		
PC45ER11/3.9A100	100±7%		
PC46ER11/3.9-Z	1740±25%		
PC46ER11/3.9A63	63±5%		
PC46ER11/3.9A100	100±7%		
PC45ER11/5-Z	1390±25%	BER11/5-1110GA	FER11/5-A
PC45ER11/5A63	63±5%		
PC45ER11/5A100	100±7%		
PC46ER11/5-Z	1650±25%		
PC46ER11/5A63	63±5%		
PC46ER11/5A100	100±7%		
PC45ER14.5/6-Z	1590±25%	BER14.5/6-1110GA	FER14.5/6-A
PC45ER14.5/6A100	100±5%		
PC45ER14.5/6A160	160±7%		
PC46ER14.5/6-Z	1920±25%		
PC46ER14.5/6A100	100±5%		
PC46ER14.5/6A160	160±7%		

• Measuring conditions:

ER9.5/5, ER11/3.9, ER11/5:1kHz, 0.5mT, ø0.1mm, 100ts. ER14.5/6:1kHz, 0.5mT, ø0.18mm, 100ts.

EEM CORE

Part No.	AL-value(nH/N ²)	Bobbin	Flange
PC45EEM12.7/13.7-Z	820±25%	BEM12.7/13.7-118GA	FEM12.7/13.7-A
PC45EEM12.7/13.7A40	40±5%		
PC45EEM12.7/13.7A63	63±7%		
PC46EEM12.7/13.7-Z	1050±25%		
PC46EEM12.7/13.7A40	40±5%		
PC46EEM12.7/13.7A63	63±7%		
PC45EEM8/8-Z	390±25%	BEM-8/8-018G	—
PC45EEM8/8A25	25±10%		
PC45EEM8/8A40	40±15%		
PC46EEM8/8-Z	410±25%		
PC46EEM8/8A25	25±10%		
PC46EEM8/8A40	40±15%		
PC45EEM10/10-Z	470±25%	BEM-10/10-0110G	—
PC45EEM10/10A25	25±7%		
PC45EEM10/10A40	40±10%		
PC46EEM10/10-Z	540±25%		
PC46EEM10/10A25	25±7%		
PC46EEM10/10A40	40±10%		
PC45EEM13/13-Z	550±25%	BEM-13/13-0110G	—
PC45EEM13/13A40	40±8%		
PC45EEM13/13A63	63±12%		
PC46EEM13/13-Z	640±25%		
PC46EEM13/13A40	40±8%		
PC46EEM13/13A163	63±12%		

• Measuring conditions:1kHz, 0.5mT, ø0.1mm, 100ts.

Ferrite Cores

EPC, ER, EEM, EE Series

Low Loss Materials for Power Supply
PC45, PC46 Materials

CHARACTERISTICS

EE CORE

Part No.	AL-value(nH/N ²)	Bobbin	Flange
PC45EE5-Z	330±25%	BE-5-916F	FE-5-A
PC45EE5A25	25±15%		
PC46EE5-Z	350±25%		
PC46EE5A25	25±15%		
PC45EE8.9/8-Z	480±25%	BE-8.9/8-118G	—
PC45EE8.9/8A25	25±8%		
PC45EE8.9/8A40	40±13%		
PC46EE8.9/8-Z	580±25%		
PC46EE8.9/8A25	25±8%		
PC46EE8.9/8A40	40±13%		

- Measuring conditions:
EE5:1kHz, 0.5mT, ø0.1mm, 100ts.
ER8.9/8:1kHz, 0.5mT, ø0.2mm, 100ts.

MOUNTING DIMENSIONS

Part No.	Mounting dimensions			Number of terminals	Mounting type
	Depth	Width	Height		
ER9.5/5	9.9	11.7	5.9	8	SMD
ER11/3.9	11	12.6	4.7	10	
ER11/5	11.5	12.3	6.4	10	
ER14.5/6	15.1	16.2	7.3	10	
EPC10	11	11.7	5.2	8	SMD
EPC13	14.2	20.6	7.8	10	
EPC17	18.2	23.2	9.9	9	
EPC19	20.2	25.2	9.9	10	
EPC25B	26.1	28.9	9.9	11	
EPC13	13.9	14.8	7.7	10	Lead-through
EPC17	18.2	19.1	12.1	10	
EPC19	20	21.5	12.1	11	
EPC25	26.1	27	16.2	11	
EPC27	28.1	34	16.2	11	
EPC27N	29	36.5	9	14	
EPC30	31.1	37	16.2	12	SMD
EEM12.7/13.7	13.55	16.8	5	8	
EEM8/8	9.2	11.2	3.5	8	
EEM10/10	11.7	14	3.5	10	
EEM13/13	14.2	16.6	3.5	10	SMD
EE5	5.7	7.8	4.75	6	
EE8.9/8	9.3	11.3	4.8	8	

Ferrite Cores

For High Power

High Power Cores

T, UU, EC, EIC, PQ, EE, EI, DT, SP Series

FEATURES

- Large size ferrite cores developed for reactors and transformers used in high power units.
- Please contact us for machinability of non-standard special forms.

MATERIAL CHARACTERISTICS (Typical)

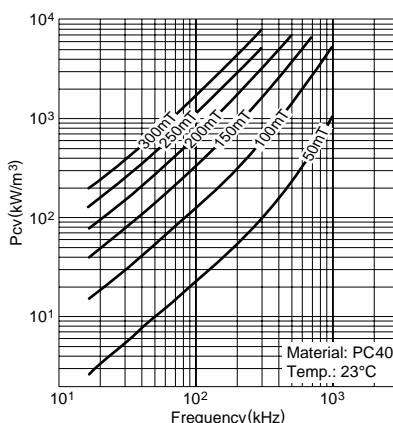
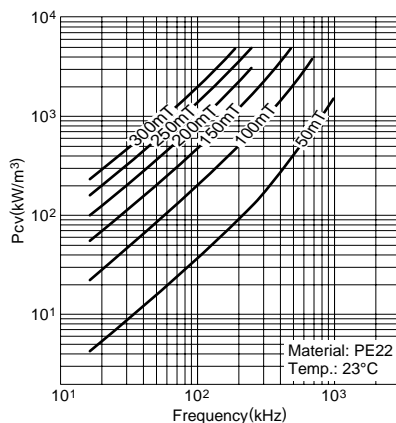
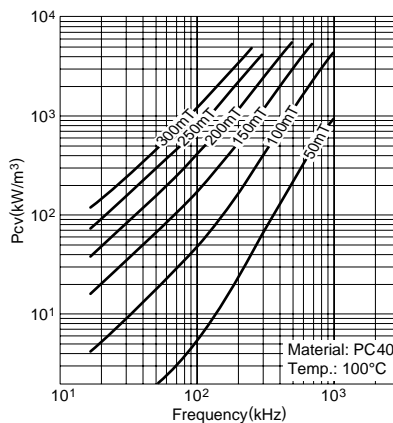
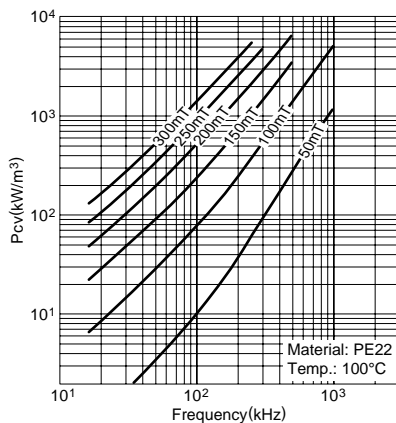
Material			PE22	PC40
Initial permeability	μ_i [23°C]		1800	2300
Curie temperature	T_c	°C	>200	>200
Saturation magnetic flux density H=1194A/m	B_s [23°C] [100°C]	mT	510 410	500 380
Remanent flux density	B_r [23°C]	mT	170	140
Coercive force	H_c [23°C]	A/m	16	15
Core loss	25kHz, 200mT	P_{cv} [100°C]	kW/m ³	80
	100kHz, 200mT			70
Electrical resistivity	ρ	$\Omega\cdot m$	3	6.5
Approximate density	d_{app}	kg/m ³	4.8×10^3	4.8×10^3
Thermal expansion coefficient	α	1/K	12×10^{-6}	12×10^{-6}
Thermal conductivity	κ	W/mK	5	5
Specific heat	C_p	J/kg • K	600	600
Bending strength	δb_3	N/m ²	9×10^7	9×10^7
Young's modulus	E	N/m ²	1.2×10^{11}	1.2×10^{11}
Magnetostriction	λ_s		-0.6×10^{-6}	-0.6×10^{-6}

• 1(mT)=10(G), 1(A/m)=0.012566(Oe)

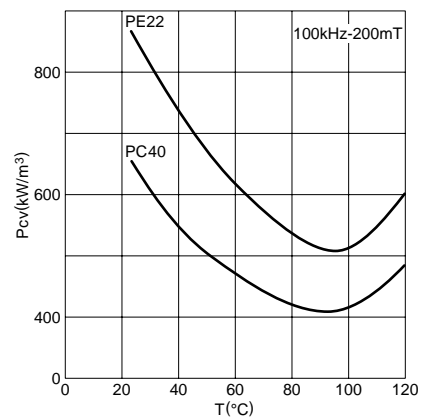
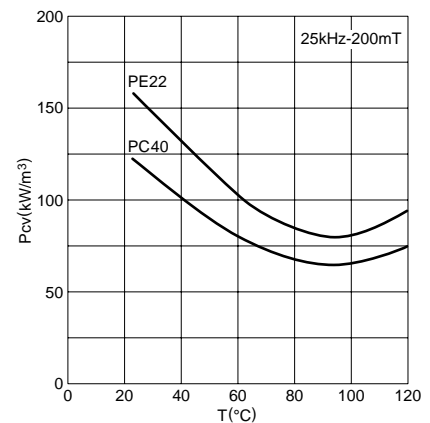
CORE LOSS vs. FREQUENCY CHARACTERISTICS

MATERIAL: PE22

MATERIAL: PC40



CORE LOSS vs. TEMPERATURE CHARACTERISTICS

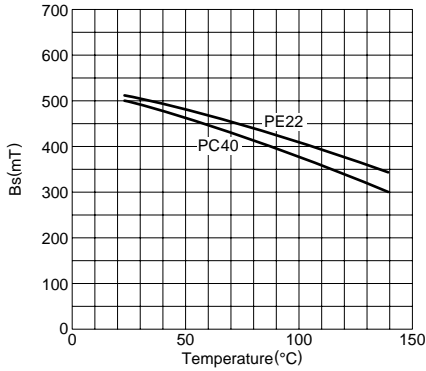


Ferrite Cores

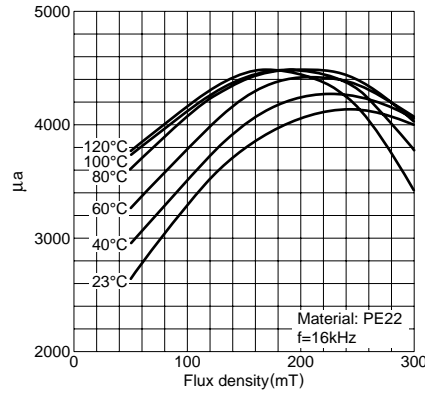
For High Power High Power Cores

T, UU, EC, EIC, PQ, EE, EI, DT, SP Series

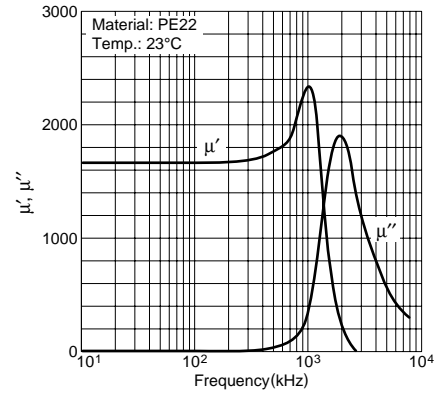
SATURATION MAGNETIC FLUX DENSITY vs. TEMPERATURE CHARACTERISTICS



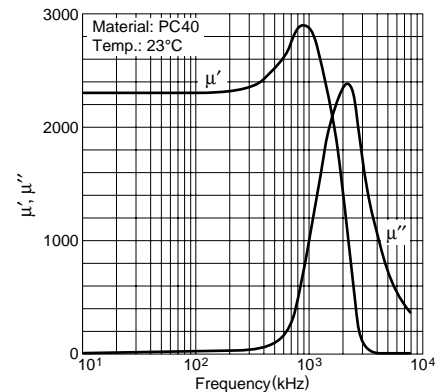
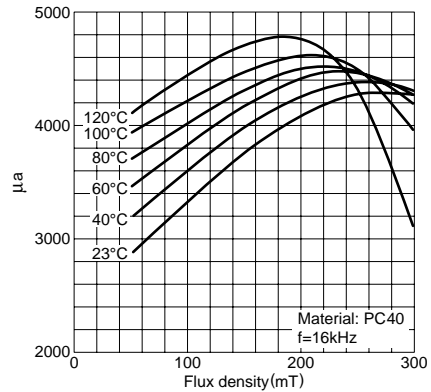
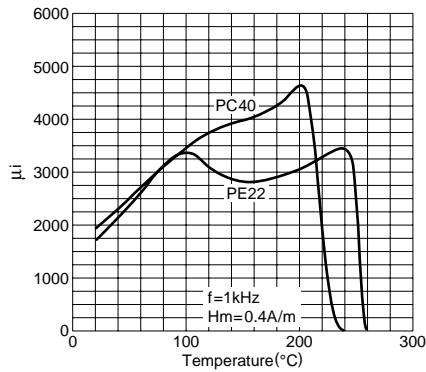
AMPLITUDE PERMEABILITY vs. SATURATION MAGNETIC FLUX DENSITY CHARACTERISTICS



MAGNETIC PERMEABILITY vs. FREQUENCY CHARACTERISTICS



INITIAL MAGNETIC PERMEABILITY vs. TEMPERATURE CHARACTERISTICS



DIMENSIONAL RESONANCE

Dimensional resonance is a phenomenon which increases loss and decreases magnetic permeability by electromagnetic standing waves when the magnetic field of the core frequency is applied.

The phenomenon appears when the maximum dimension of the core perpendicular to the magnetic field is the integral multiple of about half of the electromagnetic wavelength λ .

$$\lambda = \frac{C}{f \times \sqrt{\mu_r \times \epsilon_r}}$$

C: Electromagnetic wave speed in a vacuum (3.0 × 10⁸ m/s)

μ_r: Relative magnetic permeability

ε_r: Relative permittivity

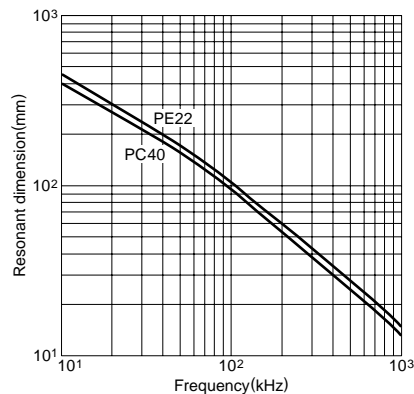
f: Frequency of the applied magnetic field (electromagnetic wave)

As μ_e decreases by inserting into the gap, using the same core enables high frequency wave usage as indicated by the formula above.

As dimensional resonance quickly decreases magnetic permeability, design the actual frequency to avoid dimensional resonance. In the case of possible dimensional resonance, it can be protected

against by dividing the core in the magnetic circuit direction and bonding them.

RESONANCE DIMENSION vs. TEMPERATURE CHARACTERISTICS



Ferrite Cores

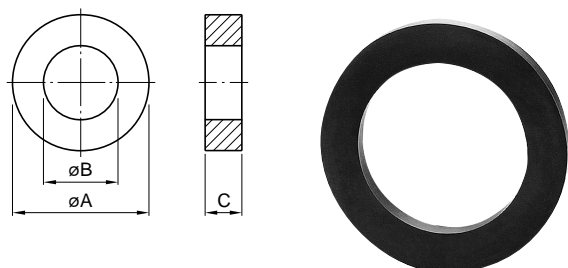
For High Power

High Power Cores

T, UU, EC, EIC, PQ, EE, EI, DT, SP Series

T CORE

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS



PRODUCT IDENTIFICATION

PE22 T 51 × 13 × 31
 (1) (2) (3) (4) (5)

- (1) Material name
- (2) Shape
- (3) Dimension A
- (4) Thickness
- (5) Dimension B

Part No.	AL*(nH/N ²) ±25%	Dimensions (mm)			Core factor			Weight		
		A	B	C	C ₁ (mm ⁻¹)	C ₂ ×10 ⁻² (mm ⁻³)	Ae(mm ²)	Le(mm)	Ve(mm ³)	(g)
PE22 T51X13X31	2330	51±1	31±0.6	13±0.5	0.97084	0.76235	127	124	15740	80
PC40 T51X13X31	2980									
PE22 T62.5X13.5X39	2290	62.5±1.2	39±0.8	13.5±0.5	0.98689	0.63377	156	154	23930	121
PC40 T62.5X13.5X39	2930									
PE22 T73X20X45	3480	73±1.5	45±0.9	20±0.5	0.64936	0.23647	275	178	48970	249
PC40 T73X20X45	4450									
PE22 T75X20X15	11590	75±1.5	15±0.3	20±0.5	0.19520	0.04019	486	95	46040	407
PC40 T75X20X15	14810									
PE22 T80X20X50	3380	80±1.6	50±1	20±0.5	0.66842	0.22694	295	197	57990	294
PC40 T80X20X50	4320									
PE22 T96X20X70	2270	96±1.9	70±1.4	20±0.5	0.99464	0.38574	258	256	66130	325
PC40 T96X20X70	2910									
PE22 T124X20X100	1550	124±2.5	100±2	20±0.5	1.46045	0.61087	239	349	83480	405
PC40 T124X20X100	1980									
PE22 T137X20X112	1450	137±3	112±2.2	20±0.5	1.55924	0.62581	249	388	96800	469
PC40 T137X20X112	1850									
PE22 T150X20X70	5490	150±3	70±1.4	20±0.5	0.41221	0.05407	762	314	239580	1330
PC40 T150X20X70	7010									
PE22 T202X20X70	7630	202±4	70±1.5	20±0.5	0.29644	0.02464	1203	357	429080	2710
PC40 T202X20X70	9750									
PE22 T310X30X210	4210	310±6.2	210±4.2	30±0.5	0.53776	0.03631	1481	797	1179800	5880
PC40 T310X30X210	5370									

* Measuring condition: T=23°C, f=1kHz, Hm=0.4A/m

Ferrite Cores

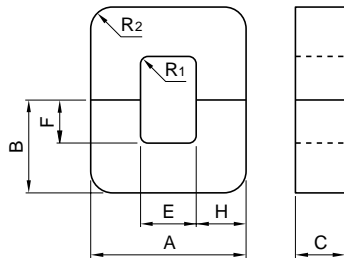
For High Power

High Power Cores

T, UU, EC, EIC, PQ, EE, EI, DT, SP Series

UU CORE

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS



PRODUCT IDENTIFICATION

PE22 UU 79 × 129 × 31.5
(1) (2) (3) (4) (5)

- (1) Material name
- (2) Shape
- (3) Dimension A
- (4) Dimension B×2
- (5) Thickness

Part No.	Al*1(nH/N ²) ±25%	Dimensions (mm)								
		A	B×2	C	E	F×2	H	R1	R2	E×2F(mm ²)
PE22 UU79X129X31.5	4790	79±2.5	129±2.5	31.5±1	34min.	85±1.5	22±1	5	22	2980
PC40 UU79X129X31.5	6030									
PE22 UU100X151X30	5540	100±3	151±2.5	30±1	39min.	90±1.5	30±1.5	5	30	3600
PC40 UU100X151X30	6990									
PE22 UU100X160X20	3460	100±3	160±2.5	20±1	39min.	100±1.5	30±1.5	5	35	4000
PC40 UU100X160X20	4360									
PE22 UU101X115X25.4	4480	101±3	115±2.5	25.4±1	50min.	64±1.5	25±1	5	25	3260
PC40 UU101X115X25.4	5640									
PE22 UU120X160X20	3140	120±3	160±2.5	20±1	59min.	100±1.5	30±1.5	5	35	6000
PC40 UU120X160X20	3960									
PE22 UU120X310X20 ^{*2}	—	120±3	310±2.5	20±1	59min.	250±1.5	30±1.5	5	35	15000
PC40 UU120X310X20 ^{*2}	—									

*1 Measuring condition: T=23°C, f=1kHz, Hm=0.4A/m

*2 Stacked 2U cores.

Part No.	Core factor					Weight(g)
	C ₁ (mm ⁻¹)	C ₂ ×10 ⁻² (mm ⁻³)	Ae(mm ²)	Le(mm)	Ve(mm ³)	
PE22 UU79X129X31.5	0.44605	0.06437	693	309	214220	1080
PC40 UU79X129X31.5						
PE22 UU100X151X30	0.38801	0.04241	915	355	324860	1630
PC40 UU100X151X30						
PE22 UU100X160X20	0.62375	0.10396	600	374	224550	1130
PC40 UU100X160X20						
PE22 UU101X115X25.4	0.47757	0.07373	648	309	200350	1000
PC40 UU101X115X25.4						
PE22 UU120X160X20	0.69041	0.11507	600	414	248550	1240
PC40 UU120X160X20						
PE22 UU120X310X20	1.19041	0.19840	600	714	428550	2110
PC40 UU120X310X20						

Ferrite Cores

For High Power

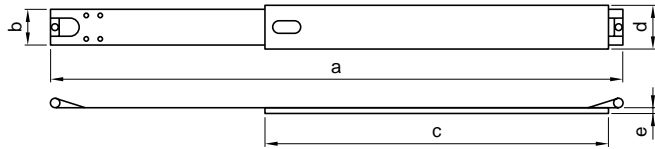
High Power Cores

T, UU, EC, EIC, PQ, EE, EI, DT, SP Series

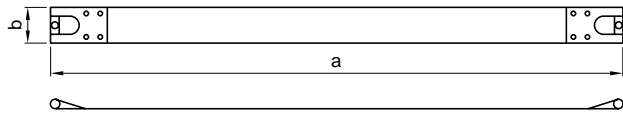
UU CORE BAND

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS

A-type band



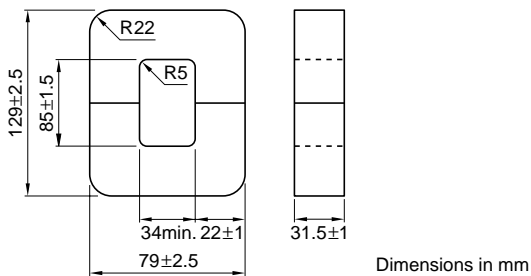
B-type band



•A-type is the band with a board and B-type is the band without a board.

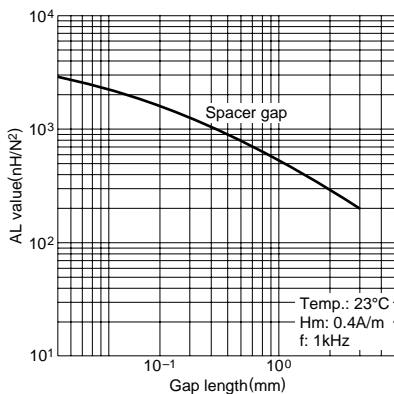
Part No.	Dimensions (mm)				
	a	b	c	d	e
FHH 79X129A	370	27	180	31.5	3
FHH 79X129B	370	27	—	—	—
FHH 100X151A	435	27	190	28	3
FHH 100X151B	435	30	—	—	—
FHH 100X160A	482	18	206	20	3
FHH 100X160B	482	18	—	—	—
FHH 101X115A	378	23.4	140	25.4	3
FHH 101X115B	378	23.4	—	—	—
FHH 120X160A	482	18	206	20	3
FHH 120X160B	482	18	—	—	—
FHH 120X310A	782	18	356	20	3
FHH 120X310B	782	18	—	—	—

CORE CHARACTERISTIC EXAMPLE



Parameter	Unit		
Core constant	C ₁	mm ⁻¹	0.44605
	C ₂ ×10 ⁻²	mm ⁻³	0.06437
Effective magnetic pass length	l _e	mm	309
Effective cross-sectional area	A _e	mm ²	693
Effective core volume	V _e	mm ³	214220
Cross-sectional center leg area	A _c	mm ²	693
Minimum cross-sectional center leg area*	A _{min.}	mm ²	693LB
Cross-sectional winding area of core	A _{cw}	mm ²	2980
Weight	W	g	1080

PE22UU79X129X31.5



* The symbol after A_{min.}Value shows the position of the minimum cross section. C is for mid-leg, L for external leg and B for back.

Ferrite Cores

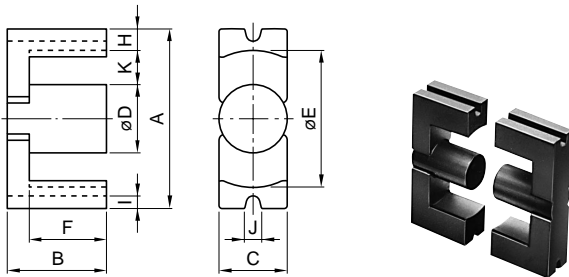
For High Power

High Power Cores

T, UU, EC, EIC, PQ, EE, EI, DT, SP Series

EC CORE

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS

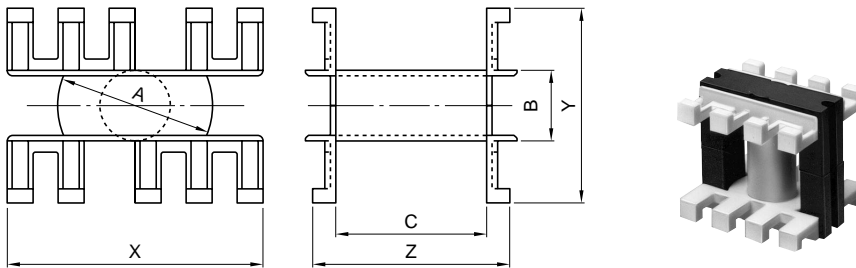


PRODUCT IDENTIFICATION

PE22 EU 90 - Z
(1) (2) (3) (4)

- (1) Material name
- (2) Shape
- (3) Dimension A
- (4) Gap dimension(Z=0)

EC CORE BOBBIN



Part No.	AL*(nH/N ²) ±25%	Dimensions (mm)										
		A	B×2	C	D	E	F×2	H	I	J	K	K×2F(mm ²)
PE22 EC70-Z	3950	70±1.7	69±1	16.4±0.5	16.4±0.5	43.3min.	45.5±1	12.75±0.4	5.2±0.2	4.75±0.3	14.1	639
PC40 EC70-Z	4890											
PE22 EC90-Z	6340	90±1.8	90±1.3	30±1	30±1	68.5min.	71±1	10±0.6	5.5±0.2	6±0.3	20	1420
PC40 EC90-Z	7940											
PE22 EC120-Z	6450	120±2	101±1.3	30±1	30±1	93.3min.	71±1	12.5±0.7	5.5±0.2	6±0.3	32.5	2307
PC40 EC120-Z	8090											

* Measuring condition: T=23°C, f=1kHz, Hm=0.4A/m

Part No.	Core factor					Weight (g)
	C ₁ (mm ⁻¹)	C ₂ ×10 ⁻² (mm ⁻³)	Ae(mm ²)	Le(mm)	Ve(mm ³)	
PE22 EC70-Z	0.5260563	0.18635	282	149	41920	250
PC40 EC70-Z						
PE22 EC90-Z	0.3561571	0.05690	626	223	139560	635
PC40 EC90-Z						
PE22 EC120-Z	0.3448813	0.04464	773	266	205810	986
PC40 EC120-Z						

EC CORE BOBBIN

Part No.	Dimensions (mm)							Cross-sectional winding area Aw(mm ²)	Average winding length lw(mm)	Weight (g)	Material
	øA	øB	C	X	Y	Z	t*				
BEC-70-5116	42.7	19.5	41.45	70	56.3	57.8	1.13	471.4	98	19	PBT
BEC-90-0112	67.6	35.4	65.3	80	77	89.8	1.9	1047	162	8.2	PBT

* Bobbin minimum thickness

• Soldering condition: 350°C max./2s

Ferrite Cores

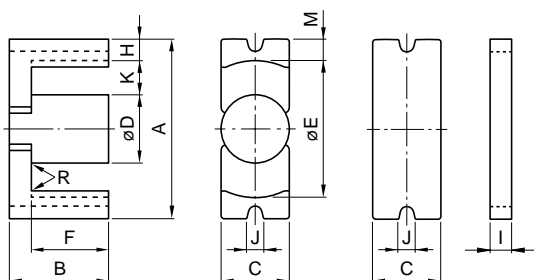
For High Power

High Power Cores

T, UU, EC, EIC, PQ, EE, EI, DT, SP Series

EIC CORE

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS



PRODUCT IDENTIFICATION

PE22 EIC 90 Z
(1) (2) (3) (4)

- (1) Material name
- (2) Shape
- (3) Dimension A
- (4) Gap dimension(Z=0)

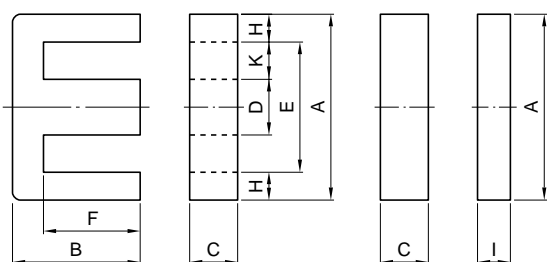
Part No.	AL*(nH/N ²) ±25%	Dimensions (mm)											
		A	B+l	C	D	E	F	H	I	M	J	R	K
PE22 EIC90-Z	8680	90±1.8	55.05±1.3	30±1	30±1	68.5min.	35.5±0.5	10±0.6	10±0.3	5.5±0.2	5.5±0.3	1max.	20
PC40 EIC90-Z	10770												
PE22 EIC120-Z	9040	120±2	65.5±1.3	30±1	30±1	93.3min.	35.5±0.5	12.5±0.7	15±0.6	5.5±0.3	6±0.3	1.5max.	32.5
PC40 EIC120-Z	11270												

* Measuring condition: T=23°C, f=1kHz, Hm=0.4A/m

Part No.	Core factor					Weight (g)
	C ₁ (mm ⁻¹)	C ₂ ×10 ⁻² (mm ⁻³)	A _e (mm ²)	L _e (mm)	V _e (mm ³)	
PE22 EIC90-Z	0.2255	0.0336	671	151	101599	469
PC40 EIC90-Z						
PE22 EIC120-Z	0.2321	0.0258	792	208	187081	747
PC40 EIC120-Z						

EI CORE

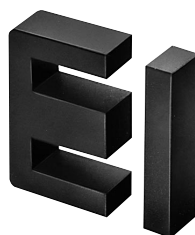
CORE SHAPES AND DIMENSIONS/CHARACTERISTICS



PRODUCT IDENTIFICATION

PE22 EI 70 Z
(1) (2) (3) (4)

- (1) Material name
- (2) Shape
- (3) Dimension A
- (4) Gap dimension(Z=0)



Part No.	AL*(nH/N ²) ±25%	Dimensions (mm)									
		A	B+l	C	D	E	F	H	I	K	K×F(mm ²)
PE22 EI70-Z 5820		70±1.5	56±1	19.5±0.5	19.5±0.5	48.5min.	35.5±0.5	10±0.5	10.5±0.5	15.3	543
PC40 EI70-Z 7200											

* Measuring condition: T=23°C, f=1kHz, Hm=0.4A/m

Part No.	Core factor					Weight (g)
	C ₁ (mm ⁻¹)	C ₂ ×10 ⁻² (mm ⁻³)	A _e (mm ²)	L _e (mm)	V _e (mm ³)	
PE22 EI70-Z	0.35211	0.09032	390	137	53520	266
PC40 EI70-Z						

Ferrite Cores

For High Power

High Power Cores

T, UU, EC, EIC, PQ, EE, EI, DT, SP Series

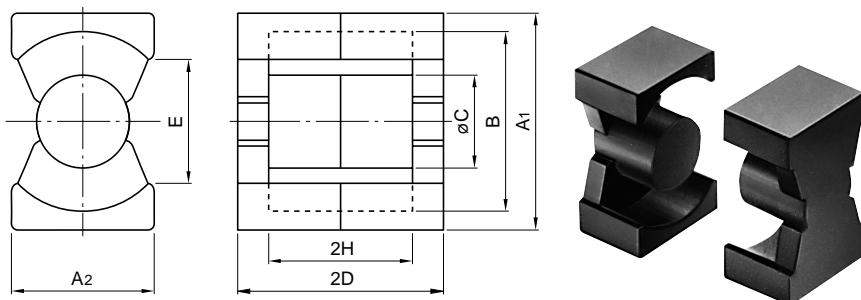
PQ CORE

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS

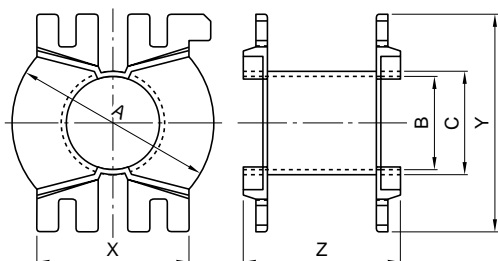
PRODUCT IDENTIFICATION

PE22 PQ 59 - Z
 (1) (2) (3) (4)

- (1) Material name
- (2) Shape
- (3) Dimension A₁
- (4) Gap dimension(Z=0)



PQ CORE BOBBIN



Part No.	AL*(nH/N ²) ±25%	Dimensions (mm)						
		A ₁	A ₂	B	øC	2D	E _{min.}	2H
PE22 PQ59	10540	59±0.8	42±0.8	51.5min.	24±0.5	26.8±0.4	42min.	14.2±0.4
PC40 PQ59	12810							
PE22 PQ79	7940	78.5±1.5	42±0.8	69min.	25.5±0.5	39.4±0.6	60min.	25.8±1
PC40 PQ79	9790							
PE22 PQ100	14570	107±2	70±1.5	93.7min.	41±1	87±1.5	72.5min.	56±1.5
PC40 PQ100	18210							

* Measuring condition: T=23°C, f=1kHz, H_m=0.4A/m

Part No.	Core factor					Weight(g)
	C ₁ (mm ⁻¹)	C ₂ ×10 ⁻² (mm ⁻³)	A _e (mm ²)	L _e (mm)	V _e (mm ³)	
PE22 PQ59	0.17520	0.038292	458	80	36700	185
PC40 PQ59						
PE22 PQ79	0.24730	0.051530	480	119	56900	304
PC40 PQ79						
PE22 PQ100	0.14260	0.009989	1428	204	290600	1560
PC40 PQ100						

PQ CORE BOBBIN

Part No.	Dimensions (mm)					Cross-sectional winding area A _w (mm ²)	Average winding length l _w (mm)	Material
	øA	øB	X	Y	Z			
BPQ59-0112	50.6	25.1	40	58	20.2	115	124	PBT
BPQ79-0112	68	26.7	57.5	78	32	377	154	PBT
BPQ100-0112	92.5	42.7	69.5	100	71.8	1140	218	PBT

• Soldering condition: 350°C max./2s

Ferrite Cores

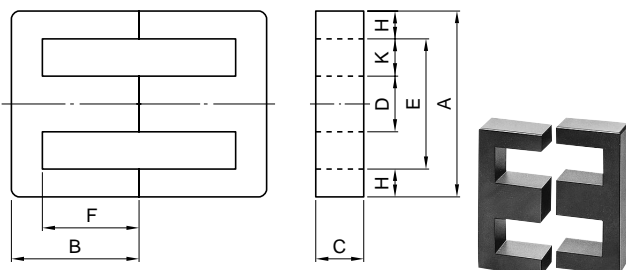
For High Power

High Power Cores

T, UU, EC, EIC, PQ, EE, EI, DT, SP Series

EE CORE

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS

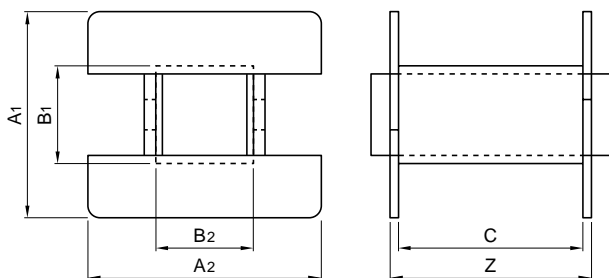


PRODUCT IDENTIFICATION

PE22 EE 320 × 250 × 20 - Z
 (1) (2) (3) (4) (5) (6)

- (1) Material name
- (2) Shape
- (3) Dimension A
- (4) Dimension Bx2
- (5) Thickness
- (6) Gap dimension(Z=0)

EE CORE BOBBIN



Part No.	AL ^{*1} (nH/N ²) ±25%	Dimensions (mm)								
		A	B×2	C	D	E	F×2	H	K	K×2F(mm ²)
PE22 EE70-Z	3390	70±1.5	91±1	19.5±0.5	19.5±0.5	48.5min.	71±1	10±0.5	15.3	1086
PC40 EE70-Z	4910									
PE22 EE80X76-Z	4590	80±1.5	76±1	20±0.5	20±0.5	58.5min.	55±0.8	10±0.5	20	1100
PC40 EE80X76-Z	5720									
PE22 EE90-Z	5960	90±2	56.4±1	16.5±0.5	25±1	63min.	30.4±1	12.5±0.5	20	608
PC40 EE90-Z	7380									
PE22 EE320X250X20-Z ^{*2}	—	320±5	250±1	20±1	100±2.4	217min.	150±3	50±1	60	7950
PC40 EE320X250X20-Z ^{*2}	—									

*1 Measuring condition: T=23°C, f=1kHz, Hm=0.4A/m

*2 EE320x250x20-Z is a bonded product.

Part No.	Core factor						Weight (g)
	C ₁ (mm ⁻¹)	C ₂ ×10 ⁻² (mm ⁻³)	A _e (mm ²)	L _e (mm)	V _e (mm ³)		
PE22 EE70-Z	0.52779	0.13669	386	204	78690	394	
PC40 EE70-Z							
PE22 EE80X76-Z	0.44878	0.11058	406	182	73910	372	
PC40 EE80X76-Z							
PE22 EE90-Z	0.33583	0.08009	419	141	59050	306	
PC40 EE90-Z							
PE22 EE320X250X20-Z	0.28854	0.01443	2000	577	1154160	6150	
PC40 EE320X250X20-Z							

EE CORE BOBBIN

Part No.	Dimensions (mm)						Cross-sectional winding area A _w (mm ²)	Average winding length l _w (mm)	Weight (g)	Material
	A ₁	A ₂	B ₁	B ₂	C	Z				
BE-80-S	56.56	60.92	25.52	25.52	48.16	52.3	747	168	32	PBT
BE-80-W	56.56	81.42	25.52	46.02	48.16	52.3	747	209	41	PBT

Ferrite Cores

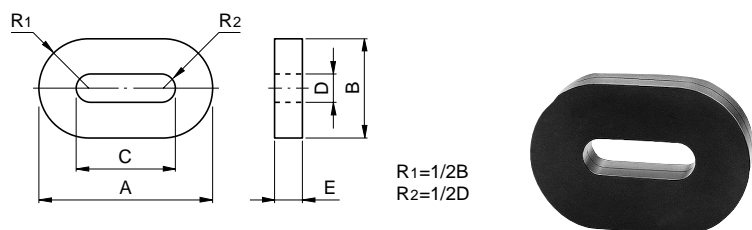
For High Power

High Power Cores

T, UU, EC, EIC, PQ, EE, EI, DT, SP Series

DT CORE

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS



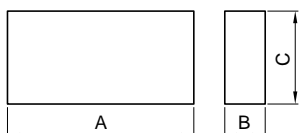
Part No.	AL*(nH/N ²) ±25%	Dimensions (mm)				
		A	B	C	D	E
PE22 DT138X20X58	6680	138±2.8	104±2.1	58±1.5	24.7±0.5	20±0.4
PC40 DT138X20X58	8540					
PE22 DT200X20X100	5630	200±5	130±3	102±2.5	31.5±1	20±0.4
PC40 DT200X20X100	7200					

* Measuring condition: T=23°C, f=1kHz, Hm=0.4A/m

Part No.	Core factor					Weight (g)
	C ₁ (mm ⁻¹)	C ₂ ×10 ⁻² (mm ⁻³)	Ae(mm ²)	Le(mm)	Ve(mm ³)	
PE22 DT138X20X58	0.33806	0.04235	798	270	215000	1020
PC40 DT138X20X58						
PE22 DT200X20X100	0.40121	0.04087	982	394	387000	1870
PC40 DT200X20X100						

SP CORE

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS



PRODUCT IDENTIFICATION

PE22 SP 135 × 65 × 20
(1) (2) (3) (4) (5)

- (1) Material name
- (2) Shape
- (3) Dimension A
- (4) Dimension B
- (5) Dimension C

Part No.	Dimensions (mm)		
	A	B	C
PE22 SP135X65X20	135±2.5	20±0.5	65±1.5
PC40 SP135X65X20			
PE22 SP185X110X20	185±4.5	20±0.5	110±2
PC40 SP185X110X20			
PE22 SP250X155X20	250±5	20±0.5	155±3
PC40 SP250X155X20			

Ferrite Cores

For Audio-Visual, TV, & Radio Equipment

DR, THP P, TH Series

MATERIAL CHARACTERISTICS

Material	Practical frequency (MHz)	Initial permeability μ_i	Relative loss factor $\tan\delta/\mu_i$	Temperature factor of initial permeability $\alpha_{\mu ir}$	Curie temperature T_c	Saturation magnetic flux density B_s	Remanent flux density B_r	Coercive force H_c	Electrical resistivity ρ_v	Density ρ_b
			$\times 10^{-6}$	$\times 10^{-6}/^{\circ}\text{C}$ [20 to 60°C]	(°C)	(mT)	(mT)	(A/m)	($\Omega\cdot\text{m}$)	(kg/m^3)
L6	0.01 to 0.5	1500±25%	<10[0.01MHz] <60[0.5MHz]	1 to 3	>100	280[1.6kA/m]	105	16	10 ⁵	5×10 ³
L6E	0.01 to 0.5	1200±25%	<10[0.01MHz] <60[0.5MHz]	6 to 10	>100	290[1.6kA/m]	140	16	10 ⁵	5×10 ³
L5	0.1 to 1.5	750±25%	<15[0.1MHz] <280[1.5MHz]	1 to 3	>120	310[1.6kA/m]	105	40	10 ⁵	5×10 ³
L9	0.1 to 1.5	210±25%	<40[0.1MHz] <140[1.5MHz]	0 to 2	>150	250[1.6kA/m]	140	278	10 ⁵	4.9×10 ³
L7H	0.05 to 1	800±25%	<12[0.05MHz] <80[1MHz]	7 to 15	>180	390[4kA/m]	220	16	10 ⁵	5.1×10 ³
M8N	0.5 to 20	70±25%	<130[0.5MHz] <350[20MHz]	-3 to 3	>300	360[4kA/m]	275	716	10 ⁵	5×10 ³
M10N	0.5 to 15	50±25%	<100[0.5MHz] <300[15MHz]	-8 to -2	>300	310[4kA/m]	160	720	10 ⁵	5×10 ³
M9N	0.5 to 30	45±25%	<200[0.5MHz] <350[30MHz]	-5 to 5	>300	320[4kA/m]	245	955	10 ⁵	5×10 ³
M2N	10 to 120	12±25%	<1500[100MHz]	-10 to 10	>330	220[8kA/m]	150	1320	10 ⁵	5×10 ³
Q1C	0.1 to 2	250±25%	<35[0.1MHz] <110[2MHz]	9 to 15	>125	290[1.6kA/m]	140	119	10 ⁵	5×10 ³
Q2	0.1 to 5	200±25%	<25[0.1MHz] <100[5MHz]	25 to 65	>150	360[1.6kA/m]	240	48	10 ⁵	5×10 ³
D3B	0.1 to 2	300±25%	<20[0.1MHz] <65[2MHz]	10 to 30	>150	330[1.6kA/m]	95	56	10 ⁵	5×10 ³
D8	0.3 to 7	200±25%	<160[0.3MHz] <350[7MHz]	20 to 50	>250	370[1.6kA/m]	165	48	10 ⁵	5×10 ³
M8C	0.5 to 15	70±25%	<90[0.5MHz] <250[15MHz]	5 to 15	>300	360[4kA/m]	225	557	10 ⁵	5×10 ³
M8B	0.5 to 20	50±25%	<140[0.5MHz] <400[20MHz]	4 to 12	>300	300[4kA/m]	200	875	10 ⁵	5.1×10 ³
M9	0.5 to 30	50±25%	<90[0.5MHz] <280[30MHz]	25 to 65	>300	350[4kA/m]	215	597	10 ⁵	5×10 ³
M9M	0.5 to 30	45±25%	<130[0.5MHz] <420[30MHz]	5 to 15	>300	320[4kA/m]	220	800	10 ⁵	4.9×10 ³
M9E	0.5 to 60	40±25%	<150[0.5MHz] <450[60MHz]	35 to 100	>300	350[4kA/m]	230	597	10 ⁵	5×10 ³
M11	3 to 80	25±25%	<220[3MHz] <470[80MHz]	30 to 70	>300	290[4kA/m]	190	1195	10 ⁵	5×10 ³
M11M	3 to 80	25±25%	<200[3MHz] <1000[80MHz]	10 to 30	>300	280[4kA/m]	180	1430	10 ⁵	5×10 ³
M5E	10 to 120	17±25%	<450[10MHz] <1000[120MHz]	40 to 120	>300	300[8kA/m]	185	1670	10 ⁵	5.1×10 ³
M5M	10 to 120	12±25%	<500[10MHz] <1200[120MHz]	30 to 90	>300	240[8kA/m]	165	2230	10 ⁵	5×10 ³
M5N	10 to 120	12±25%	<550[10MHz] <1500[120MHz]	-10 to 10	>300	230[8kA/m]	160	2625	10 ⁵	5×10 ³
V3F	10 to 80	10±25%	<500[10MHz] <1000[80MHz]	-40 to -10	>300	210[16kA/m]	135	2945	10 ⁵	4.8×10 ³
V5F	10 to 250	9±25%	<550[10MHz] <1500[250MHz]	25 to 65	>300	180[16kA/m]	110	2865	10 ⁵	4.9×10 ³
T5F	0.1 to 20	55±25%	<150[0.1MHz] <300[20MHz]	-5 to 0	>250	280[4kA/m]	150	860	10 ⁵	5×10 ³

• 1 (mT): 10 (gauss), 1(A/m): 0.012566 (Oersted)

Ferrite Cores

DR, THP P, TH Series

For Audio-Visual, TV, & Radio Equipment

DR SERIES

CORE SHAPES AND DIMENSIONS

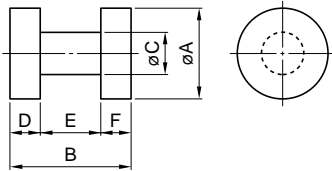


Fig.1

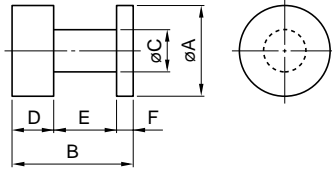


Fig.2

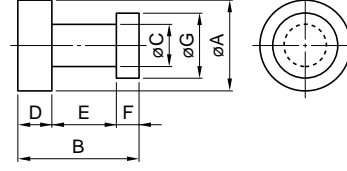


Fig.3

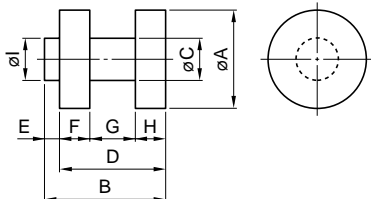


Fig.4

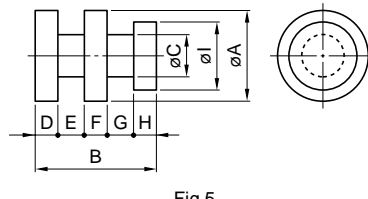


Fig.5



Dimensions in mm

Part No.	Fig.	øA	B	øC	D	E	F	G	H	øI
T5FDR1.6X1.7D29	1	1.6±0.06	1.7±0.1	0.8±0.06	0.45±0.07	0.8±0.07	0.45±0.07			
M10NDR1.8X2D29	1	1.8±0.08	2±0.1	1±0.07	0.6±0.07	0.8±0.07	0.6±0.07			
M9MDR2X1.7	1	2+0, -0.15	1.7±0.15	0.9±0.1	0.5	0.7±0.1	0.5±0.1			
M8BDR3X1.9D3	3	3+0, -0.15	1.9±0.15	1.5±0.1	0.5	0.9±0.1	0.5±0.1	2.6±0.1		
Q2DR3X2.1	1	3+0, -0.15	2.1±0.15	1±0.1	0.5	1.1±0.1	0.5±0.1			
D3BDR3X3.8D1	2	3+0.05, -0.15	3.85±0.2	1.25±0.1	1.1	2±0.15	0.75±0.1			
M8BDR3X3.8D3	3	3+0.05, -0.15	3.85±0.2	1.4±0.1	1.3	2+0.2, -0.1	0.5±0.1	2.2±0.1		
M8BDR3X3.8MD13	5	3+0.05, -0.15	3.85±0.2	1.4±0.1	1.2	0.3±0.05	0.35±0.05	1.45+0.2, -0.1	0.5±0.1	2.2±0.1
D3BDR3X4	1	3+0.05, -0.15	4±0.2	1.5±0.1	0.9	2.2±0.15	0.9±0.15			
M8BDR3X4	1	3+0.05, -0.15	4±0.2	1.5±0.1	0.9	2.2±0.15	0.9±0.15			
L9DR4X2.2	1	4+0, -0.15	2.2±0.15	1.8+0, -0.15	0.6	1±0.1	0.6±0.1			
M8BDR4X2.2	1	4+0, -0.2	2.2±0.15	2.2±0.15	0.6	1±0.1	0.6±0.1			
Q2DR3.6X1.7	1	3.6+0, -0.15	1.7±0.15	1.4±0.1	0.45	0.8±0.1	0.45±0.1			
D8DR4X4D1	2	4+0, -0.2	4±0.2	2±0.15	1.3	2±0.15	0.7±0.1			
M8BDR4X4D3	3	4+0, -0.2	4±0.2	2.2±0.15	1.3	2±0.1	0.7±0.1	3±0.15		
M8BDR4X4.5	1	4+0, -0.2	4.5±0.2	2±0.15	1.1	2.3±0.15	1.1±0.15			
D3BDR4X4.5D1	2	4+0.05, -0.15	4.5±0.2	1.8±0.15	1.5	2.3+0.2, -0.1	0.7±0.15			
M8BDR4X4.5D3	3	4+0.05, -0.15	4.5±0.2	2±0.15	1.5	2.3+0.2, -0.1	0.7±0.15	3.4±0.15		
L6EDR4.5X5.8	1	4.5+0.05, -0.15	5.8±0.2	1.6±0.1	0.9	4±0.2	0.9±0.1			
L6DR4.6X6.4D23	4	4.6+0.05, -0.15	6.4±0.25	2±0.15	5.8	0.6	1±0.1	3.8±0.15	1±0.1	2±0.15
L6DR5.8X7D1	2	5.8+0.15	7±0.3	2.2±0.15	1.3	4.8±0.2	0.9±0.15			
L5DR9X3.4H	1	9+0, -0.2	3.35±0.15	3.5±0.2	0.9	1.6±0.1	0.9±0.1			
L7HDRK14X15	1	14±0.2	15±0.4	6.5±0.2	2.5±0.2	10±0.2	2.5±0.2			
L7HDRK16X18	1	16±0.3	18±0.4	7.5±0.2	3±0.2	12±0.2	3±0.2			

Ferrite Cores

DR, THP P, TH Series

For Audio-Visual, TV, & Radio Equipment

THP SERIES

SHAPES AND DIMENSIONS

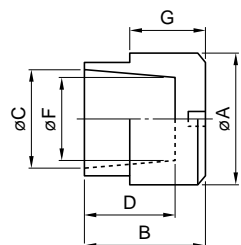


Fig.1

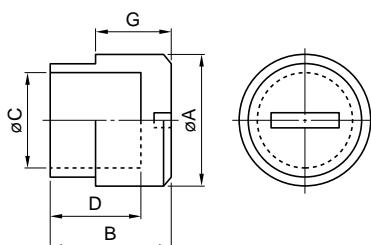


Fig.2

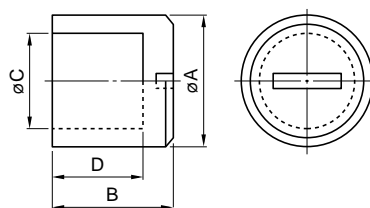


Fig.3

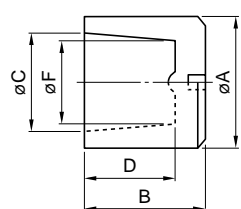


Fig.4



Dimensions in mm

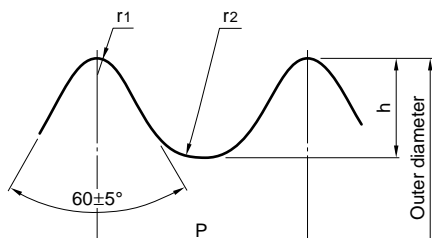
Part No.	Fig.	$\varnothing A$	B	$\varnothing C$	D	$\varnothing F$	G	Threaded diagram type
M8NTHP3.89X1.37C8	3	3.89±0.03	1.37±0.1	2.9±0.1	0.97±0.1			OC3 P=0.35
M10NTHP4.3X2.2C1	3	4.3±0.03	2.2±0.1	3.2±0.1	1.4±0.1			OC4 P=0.5
M8CTHP4.8X2.8C4	4	4.8±0.03	2.8±0.15	3.8+0.2, -0.1	1.8±0.1	3.7+0.1, -0.2		OC4 P=0.5
Q1CTHP4.8X3C4	4	4.8±0.03	3±0.15	3.8+0.2, -0.1	2±0.1	3.7+0.1, -0.2		OC4 P=0.5
Q2THP5.7X5.3	1	5.7±0.03	5.3±0.2	4.2+0.2, -0.1	4±0.15	4.15+0.2, -0.1	3+0.5, -0	OC4 P=0.5
M8CTHP5.7X5.3	1	5.7±0.03	5.3±0.2	4.2+0.2, -0.1	4±0.15	4.15+0.2, -0.1	3+0.5, -0	OC4 P=0.5
Q2THP5.95X2.7C4	3	5.95±0.03	2.7±0.15	4.6+0.15	1.7±0.1			OC4 P=0.5
M8CTHP5.95X2.7C4	3	5.95±0.03	2.7±0.15	4.6+0.15	1.7±0.1			OC4 P=0.5
M8CTHP6.74X6.2C4	4	6.74±0.03	6.2±0.2	5±0.15	4.7±0.2	5±0.15		OC4 P=0.6
M8CTHP6.85X3.7C4	3	6.85±0.03	3.7±0.15	5.4±0.15	2.6±0.15			OC3 P=0.6
Q1CTHP7.5X6.5C2	2	7.45+0, -0.08	6.5±0.2	5.35+0.25, -0.05	4.5±0.2		4.3±0.3	OC4 P=0.8
Q2THP7.5X6.5C2	2	7.45+0, -0.08	6.5±0.2	5.35+0.25, -0.05	4.5±0.2		4.3±0.3	OC4 P=0.8
M8CTHP7.5X6.5C2	2	7.45+0, -0.08	6.5±0.2	5.35+0.25, -0.05	4.5±0.2		4.3±0.3	OC4 P=0.8
L6THP8.95X8C2	2	8.95±0.03	8±0.2	7.2+0.1, -0.2	6±0.2		5±0.3	OC3 P=0.6
L6THP9.25X9.5C4	3	9.25±0.03	9.5+0.3, -0.1	7.2+0.15	7.7+0.3, -0.1			OC4 P=0.6

Ferrite Cores

DR, THP P, TH Series

For Audio-Visual, TV, & Radio Equipment

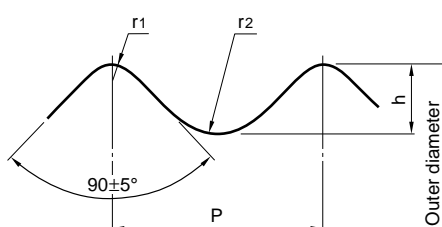
THP CORE THREADED DIAGRAMS OC3 TYPE



Dimensions in mm

P	h	r1	r2 max.
0.35±0.03	0.16+0.1, -0.05	0.06±0.03	0.12
0.5±0.03	0.23+0.1, -0.03	0.06±0.03	0.15
0.6±0.03	0.28+0.1, -0.03	0.07±0.03	0.17
0.75±0.03	0.35+0.14, -0.03	0.08±0.03	0.22

OC4 TYPE



Dimensions in mm

P	h	r1	r2 max.
0.5±0.03	0.17+0.06, -0.03	0.06±0.03	0.15
0.6±0.03	0.2+0.08, -0.03	0.07±0.03	0.18
0.75±0.03	0.25+0.1, -0.03	0.07±0.03	0.22
0.8±0.03	0.28+0.1, -0.03	0.07±0.03	0.22

P CORE(CUP CORE) SHAPES AND DIMENSIONS

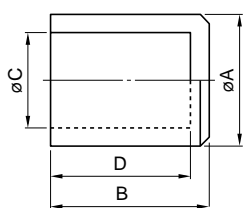


Fig.1

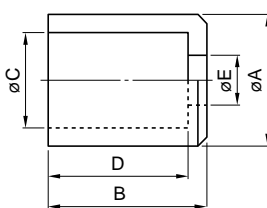


Fig.2

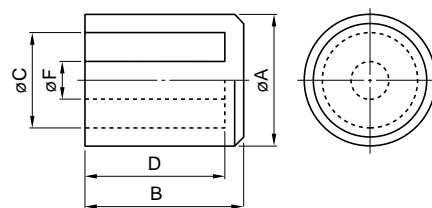


Fig.3

Dimensions in mm

Part No.	Fig.	øA	B	øC	D	øE	øF
M5MP5.2X3P2	2	5.2+0.05, -0.2	3±0.15	4.1+0.2, -0.05	2.3±0.15	3.2±0.15	
L6P6X6	1	6±0.15	6±0.15	4.8+0.15	4.8±0.15		
M11P6.9X6P2	2	6.9+0.15, -0.2	6±0.2	5.6±0.15	4.7+0.1, -0.15	4.1±0.15	
M5MP6.9X6P2	2	6.9+0.15, -0.2	6±0.2	5.6±0.15	4.7+0.1, -0.15	4.1±0.15	
M9P6.9X3P2	2	6.9+0.1, -0.15	3±0.15	5.7+0.2, -0.1	2.5±0.15	4.05+0.25, -0.05	
M11P6.9X3P2	2	6.9+0.1, -0.15	3±0.15	5.7+0.2, -0.1	2.5±0.15	4.05+0.25, -0.05	
M5MP6.9X3P2	2	6.9+0.1, -0.15	3±0.15	5.7+0.2, -0.1	2.5±0.15	4.05+0.25, -0.05	
L6P9.2X9.4P16	3	9.2+0.15, -0.3	9.4±0.25	7.2±0.2	7.6±0.25		3.4+0.1, -0.15
L5P12.4X12P2	2	12.4+0.1, -0.4	12+0.1, -0.4	10+0.2, -0.1	10.5+0, -0.4	5+0.25, -0.05	



Ferrite Cores

DR, THP P, TH Series

For Audio-Visual, TV, & Radio Equipment

TH SERIES STANDARD TYPE

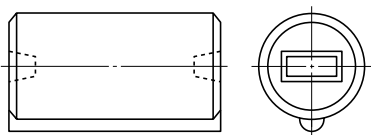


Fig.1

S14 TYPE

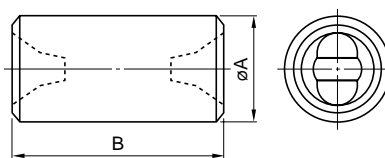


Fig.4

S4 TYPE

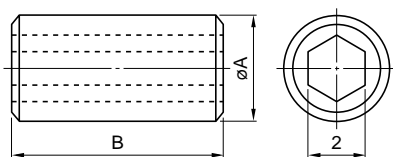


Fig.2

S17 TYPE

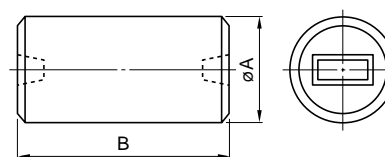


Fig.5

S8 TYPE

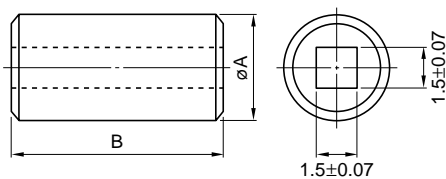


Fig.3

•Silicon resin is provided with this type.
All other core dimensions are identical to those of the standard type.



COMBINATIONS BETWEEN OUTER DIAMETER, LENGTH AND MATERIAL(Typical)

Dimensions in mm

Outer diameter ϕA	Length $B \pm 0.2$										Fig.
	2.5	3	4	5	6	6.5	8	10	15		
2.18±0.025	M2N, M9N, V5F	2									1, 4, 5
2.6±0.025	M2N, M5N, M9E		M5M								1, 4, 5
3.16±0.025		M9, M11M, M5E		M9, M11M, M5E							1, 3, 4
3.2±0.025				V3F		M11M					1, 4
3.25±0.025		M9, M11M, M5E		M9, M11M, M5E							1, 4
3.8±0.025			M5M		M5M						1, 3
4±0.025					M5M		M11, M5E, M9M				1, 3
4.2±0.025				M9M		M9					1, 2
4.54±0.025						M5E					2
4.6±0.025					M9, M9E, V3F		Q1C, M11M				2
5.9±0.03								Q1C	Q1C		2
6±0.03								Q1C	Q1C		2

Ferrite Cores

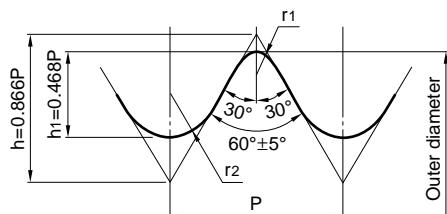
DR, THP P, TH Series

For Audio-Visual, TV, & Radio Equipment

TH SERIES

THREADED DIAGRAM

OC3 TYPE



Dimensions in mm

$P \pm 0.03$	h	h_1	r_1	r_2 max.
0.35	0.303	$0.16 + 0.1, -0.05$	0.06 ± 0.03	0.12
0.5	0.433	$0.23 + 0.1, -0.03$	0.06 ± 0.03	0.15
0.6	0.52	$0.28 + 0.1, -0.03$	0.07 ± 0.03	0.17
0.75	0.65	$0.35 + 0.14, -0.03$	0.08 ± 0.03	0.2
1	0.866	$0.47 + 0.14, -0.03$	0.11 ± 0.03	0.29

Ferrite Cores

RHH, R4H, RID, R Series

For Audio-Visual, TV, & Radio Equipment
For Balun Transformer/Choke Coil

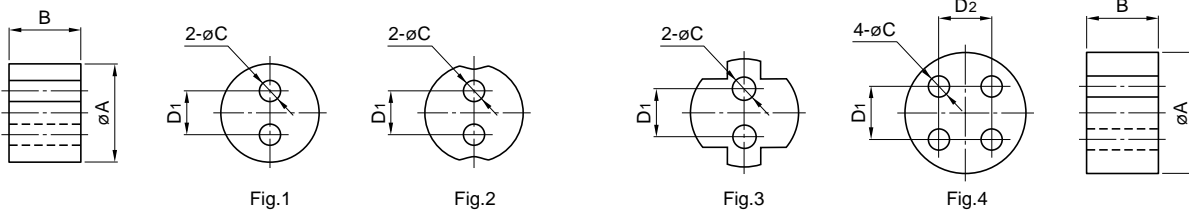
MATERIAL CHARACTERISTICS

Material	Practical frequency (MHz)	Initial permeability μ_i	Relative loss factor $\tan\delta/\mu_i \times 10^{-6}$	Temperature factor of initial permeability $\alpha_{\mu ir} \times 10^{-6}/^{\circ}\text{C}$ [+20 to +60°C]	Curie temperature T_c (°C)	Saturation magnetic flux density B_s (mT)	Remanant flux density B_r (mT)	Coercive force H_c (A/m)	Electrical resistivity ρ_v ($\Omega\cdot\text{m}$)	Density d_b (kg/m^3)
L6	0.01 to 0.5	1500±25%	<10[0.01MHz] <60[0.5MHz]	1 to 3	>100	280 [1.6kA/m]	105	16	10 ⁵	5×10 ³
L5	0.1 to 1.5	750±25%	<15[0.1MHz] <280[1.5MHz]	1 to 3	>120	310 [1.6kA/m]	105	40	10 ⁵	5×10 ³
L4	0.1 to 1.5	400±25%	<30[0.1MHz] <150[1.5MHz]	3 to 9	>150	330 [1.6kA/m]	110	72	10 ⁵	5×10 ³
Q1C	0.1 to 2	250±25%	<35[0.1MHz] <110[2MHz]	9 to 15	>125	290 [1.6kA/m]	140	119	10 ⁵	5×10 ³
Q5B	0.4 to 20	100±25%	<25[0.4MHz] <180[20MHz]	5 to 12	>300	340 [4kA/m]	190	286	10 ²	4.7×10 ³
M9	0.5 to 30	50±25%	<90[0.5MHz] <280[30MHz]	25 to 65	>300	350 [4kA/m]	215	597	10 ⁵	5×10 ³
M11	3 to 80	25±25%	<220[3MHz] <470[80MHz]	30 to 70	>300	290 [4kA/m]	190	1195	10 ⁵	5×10 ³
M5E	10 to 120	17±25%	<450[10MHz] <1000[120MHz]	40 to 120	>300	300 [8kA/m]	185	1670	10 ⁵	5.1×10 ³

• 1(mT): 10(gauss), 1(A/m): 0.012566(Oersrted)

RHH AND R4H SERIES

CORE SHAPES AND DIMENSIONS



Part No.	Dimensions in mm					
	øA	B	øC	D1	D2	Fig.
Q5BRHH6X5H1.2	6±0.2	5±0.3	1.2+0.2,-0	2.5		1
L6RHH6X5H1.2						
Q5BRHH7X5.5H1.5M	7±0.2	5.5±0.3	1.5±0.1	3		2
L6RHH7X5.5H1.5M						
Q5BRHH7.5X4H1.3M	7.5±0.3	4±0.3	1.3±0.1	2.3		3
Q5BR4H8X5H1.2	8±0.3	5±0.3	1.2+0.3,-0	3	3	4
L6R4H8X5H1.2						



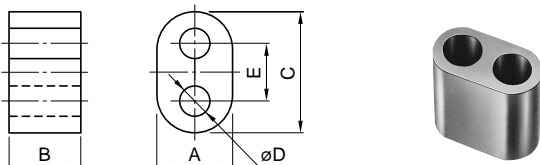
Ferrite Cores

RHH, R4H, RID, R Series

For Audio-Visual, TV, & Radio Equipment
For Balun Transformer/Choke Coil

RID SERIES

CORE SHAPES AND DIMENSIONS



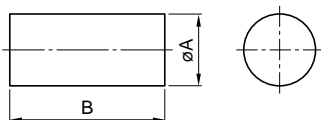
Dimensions in mm

Part No.	A	B	C	∅D	E
Q5BRID3X2X5H1.2	3±0.2	2±0.2	5.2±0.3	1.2±0.1	2.6
L6RID3X2X5H1.2					
Q5BRID3X3X5H1.2	3±0.2	3±0.2	5.2±0.3	1.2±0.1	2.6
L6RID3X3X5H1.2					
Q5BRID3X5X5H1.2	3±0.2	5±0.3	5.2±0.3	1.2±0.1	2.6
L6RID3X4X6H1.5	3±0.2	4±0.3	6±0.3	1.5±0.1	3
L6RID3X10X6.5H1	3±0.2	10±0.4	6.5±0.3	1±0.1	3.5
Q5BRID6.5X4X12H3.8	6.5±0.3	4±0.3	12±0.5	3.8±0.25	5.5
Q5BRID7.5X5X13H3.8(R)	7.5±0.3	5±0.3	13.3±0.5	3.8±0.25	5.8
Q5BRID7.5X7X13H3.8(R)	7.5±0.3	7±0.3	13.3±0.5	3.8±0.25	5.8
Q5BRID8X7X15H5	8±0.3	7±0.3	15±0.5	5±0.25	7
Q5BRID8X14X15H5	8±0.3	14±0.5	15±0.5	5±0.25	7

R SERIES

CORE SHAPES AND DIMENSIONS

Dimensions in mm



Part No.	∅A	B
M11R3X7.5	3+0.1,-0.2	7.5±0.3
M5ER3X8	3+0.1,-0.2	8±0.3
L4R3X10	3+0.1,-0.2	10±0.3
M9R4X10	4+0.15,-0.2	10±0.5
L5R6X15	6+0.1,-0.2	15±0.5
Q1CR6X30	6+0.1,-0.3	30±1
L4R10X20	10+0.1,-0.25	20±0.7



Ferrite Cores

UR, URS Series

For Audio-Visual, TV, & Radio Equipment
For Flyback Transformer

MATERIAL CHARACTERISTICS

Material				HV22	HV45
Initial permeability*	μ_i			1800	2300
Core loss*	P_{cm}	W/kg	[16kHz, 150mT, 100°C]	3.8	3
			[60kHz, 200mT, 100°C]	55	40
			[100kHz, 200mT, 100°C]	105	90
Saturation magnetic flux density* [H = 1194A/m]	B_s	mT	[23°C]	510	500
			[100°C]	410	380
Remanent flux density*	B_r	mT		170	130
Coercive force*	H_c	A/m		16	14
Curie temperature	T_c	°C min.		200	200
Electrical resistivity*	ρ_v	$\Omega\cdot m$		3	3
Density*	δ_b	kg/m ³		4.8×10 ³	4.8×10 ³
Thermal expansion coefficient*	α	ppm/°C		12	12

*Average value

- The values were obtained with toroidal cores at room temperature unless otherwise shown.
- 1 (mT): 10(gauss), 1(A/m): 0.012566(Oersted)

UR SERIES

SHAPES AND DIMENSIONS [Typical]

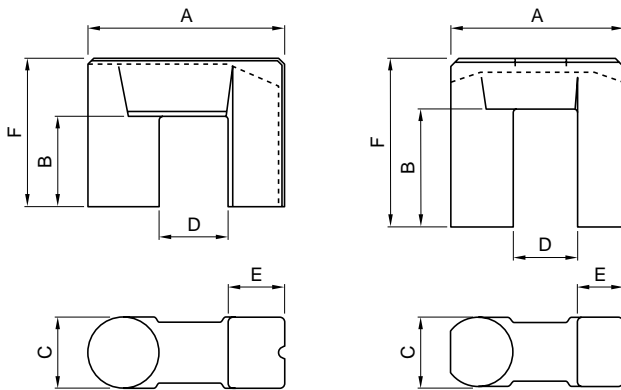
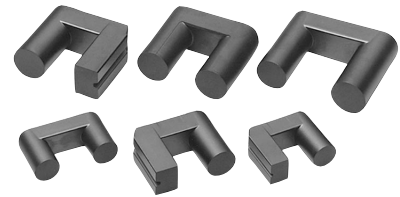


Fig.1

Fig.2



Type	Fig.	Dimensions (mm)						Ae (mm ²)	le (mm)
		A	B	C	D min.	E	F		
UR30.4DM	1	30.4	21.6	10	11.7	8.15	30	77.7	138.3
UR34DA	1	34.7	17.5	12.5	12.1	9.6	27.1	118.3	127.6
UR36HK	2	35.05	24	12.7	13.05	9.3	34.3	118.5	155.5
UR37DA	1	37.2	20.1	13	13.2	10.5	30.6	130.9	142.7
UR39DA	1	38.9	25	14	12.95	11.3	36	150	164.3
UR40SL	1	40	18.4	14	14	11.5	30.2	153.4	141.1
UR40DA	1	40.05	20.1	14.5	13.45	11.5	31.1	158.5	146.2
UR41DA	1	41.6	25	15	14.2	11.8	37	171.6	169.5
UR43DA	1	43.4	25	16.5	13.5	12.8	38	205.2	171.6
UR46DB	1	45.75	25	17.5	14.65	13	38	223.3	174.9

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URS SERIES

SHAPES AND DIMENSIONS [Typical]

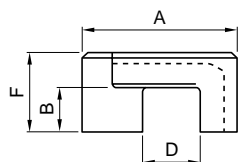


Fig.1



Fig.2

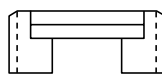
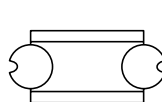
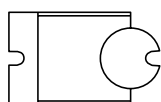
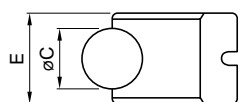


Fig.3



Type	Fig.	Dimensions (mm)						Ae (mm ²)	le (mm)
		A	B	C	D min.	E	F		
URS18.5	1	18.5	5.5	7	7	10	9.5	37.8	51.9
URS36	3	35.5	8	10	15.5	17	14	80.4	101.9
URS27	2	26.85	8.2	10.5	10.35	16.5	13	77.9	75.8