components TDK

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
	PQ Series
POWER SUPPLY and SIGNAL TRANSFORMERS (APPLICATION)	EE, ER, EEM Series (Low Profile)
	EP Series
	EPC Series
	Mini. Pot Series
	Pot Series
	RM Series
	T Series
VARIOUS NDUCTORS	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	μi		3300+40, –0%	7500±25%	10000±30%	15000±30%	12000±25%(25°C) ≧ 9000(–20°C)	5000±20%
Relative loss factor	tanδ/μi	×10^{-6}	<2.5(10kHz) <10(100kHz)	<6.5(10kHz)	<7(10kHz)	<7(10kHz)	<8(10kHz)	<3.5(10kHz)
Temperature factor of initial permeability	αμir	×10^{-6}						
–30 to +20°C			–0.5 to 2	–0 to 1.8	–0.5 to 1.5	–0.5 to 1.5	–4 to 1.5	
0 to +20°C								±12.5%
+20 to +70°C			–0.5 to 2	–0 to 1.8	–0.5 to 1.5	–0.5 to 1.5	–0.5 to 3	±12.5%
Curie temperature	T_c	°C	>130	>130	>120	>105	>110	>140
Saturation magnetic flux density* H=1194A/m	B_s	mT	410	420	400	360	380	400
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]	ηB	$\frac{10^{-6}}{mT}$	<0.8	<1	<1.4	<0.5	<1	<0.4
Disaccommodation factor [1 to 10min]	D_F	×10^{-6}	<3	<3	<2	<2	<3	<3
Electrical resistivity*	ρv	Ω-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	μi				2300±25%	2400±25%	1400±25%
Amplitude permeability	μa				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	ρv	Ω-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

Ferrite Material Characteristics

Material Characteristics Table

FOR EMC PREVENTION COMMON-MODE CHOKE

Material			HS52	HS72	HS10
Initial permeability	μi		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	Ω-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

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

High Permeability Material
H5C4 Material

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 μi ≧ 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.

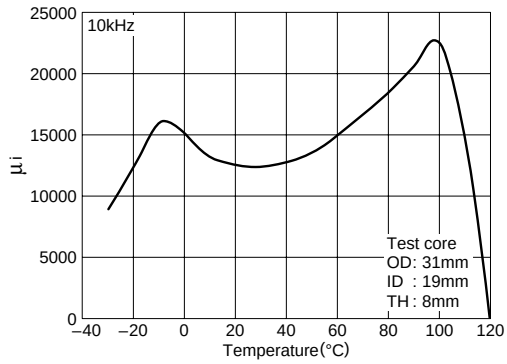
MATERIAL CHARACTERISTICS

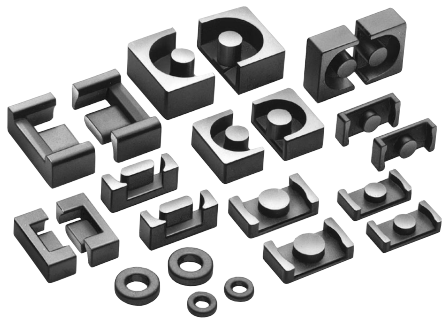
Material				H5C4
Initial permeability	μi		[–20°C] [25°C]	≧ 9000 12000±25%
Relative loss factor [10kHz]	tanδ/μi	×10^{-6}		≦8
Saturation magnetic flux density	Bs	mT		380
Remanent flux density	Br	mT		100
Coercive force	Hc	A/m		4.4
Disaccommodation factor [1 to 10min, 10kHz]	DF	×10^{-6}		≦3
Curie temperature	Tc	°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, ø0.1mm, 100ts./ER14.5/6:10kHz, 10mV, ø0.18mm, 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, ø0.1mm, 100ts./EPC13:10kHz, 10mV, ø0.2mm, 100ts.

Ferrite Cores

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

High Permeability Material

H5C4 Material

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, ø0.1mm, 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, ø0.1mm, 100ts./EE8.9:10kHz, 10mV, ø0.2mm, 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, ø0.18mm, 100ts./RM6:10kHz, 10mV, ø0.2mm, 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, ø0.13mm, 100ts./EP10, EP13:10kHz, 10mV, ø0.2mm, 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, ø0.12mm, 100ts.
T6, T5.84:10kHz, 10mV, ø0.2mm, 100ts.

MOUNTING DIMENSIONS

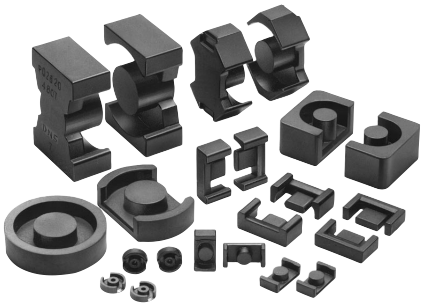
Part No.	Mounting dimensions			Number of terminals	Mounting type
	Depth	Width	Height		
H5C4ER9.5/5-Z	9.9	11.7	5.9	8	SMD
H5C4ER11/3.9-Z	11	12.6	4.7	10	
H5C4ER11/5-Z	11.5	12.3	6.4	10	
H5C4ER14.5/6-Z	15.1	16.2	7.3	10	
H5C4EPC10-Z	11	11.7	5.2	8	SMD
H5C4EPC13-Z	14.2	20.6	7.8	10	
H5C4EEM12.7/13.7-Z	13.55	16.8	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	
H5C4EE5-Z	5.7	7.8	4.75	6	SMD
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

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

High Flux Density, High Permeability Material
DN50 Material

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 μi=5500 and Bs ≧ 500mT, has been developed to provide stable magnetic characteristics to the global method(echo canceller 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.



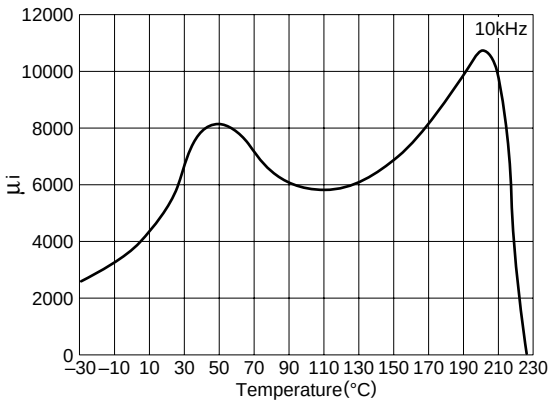
MATERIAL CHARACTERISTICS

Material				DN50
Initial permeability	μi			5500±20%
Relative loss factor[10kHz]	tanδ/μi	×10⁻⁶		≦15
Power loss [100kHz, 200mT]	Pcv	kW/m³	[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]	D_F	×10⁻⁶		≦10
Curie temperature	Tc	°C		≧210

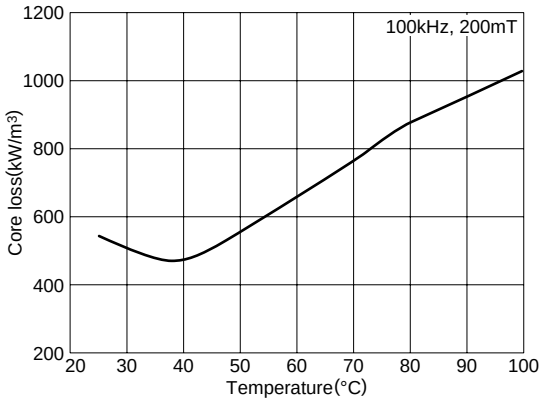
STANDARD SHAPES

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/N²)	Bobbin	Flange
DN50C23/11Z-52	6830±25%	BC23/11-5110NP	—
DN50C23/11A250-52	250±3%		
DN50C23/11A400-52	400±3%		
DN50C23/18Z-52	5890±25%	BC23/18-5110NP	—
DN50C23/18A250-52	250±3%		
DN50C23/18A400-52	400±3%		

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

Ferrite Cores

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

High Flux Density, High Permeability Material
DN50 Material

CHARACTERISTICS

FOR INTERFACE

PQ CORE

Part No.	AL-value(nH/N^2)	Bobbin	Flange
DN50PQ26/20Z-12	10500±25%	BPQ26/20-1112CP	FPQ26/20-A
DN50PQ26/20A315-22	315±5%		
DN50PQ26/20A630-22	630±10%		
DN50PQ26/25Z-12	9250±25%	BPQ26/25-1112CP	FPQ26/25-A
DN50PQ26/25A315-22	315±5%		
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%	BRM-8-718CP	FRM-8-A
DN50RM8A400-22	400±3%		
DN50RM8A630-22	630±3%		
DN50RM10Z-22	12200±25%	BRM-10-7112SD	FRM-10-A
DN50RM10A400-22	400±3%		
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.
P5.3/3.3:1kHz, 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.	BER9.5/5-118GA	FER9.5/5-A
DN50ER9.5/5A63	63±5%		
DN50ER9.5/5A100	100±7%		
DN50ER11/3.9-Z	1400min.	BER11/3.9-1110G	FER11/3.9-A
DN50ER11/3.9A63	63±5%		
DN50ER11/3.9A100	100±7%		
DN50ER11/5-Z	1300min.	BER11/5-1110GA	FER11/5-A
DN50ER11/5A63	63±5%		
DN50ER11/5A100	100±7%		
DN50ER14.5/6-Z	1700min.	BER14.5/6-1110GA	FER14.5/6-A
DN50ER14.5/6A100	100±5%		
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%	BEPC-10-118GA	FEPC-10-A
DN50EPC10A40	40±7%		
DN50EPC10A63	63±10%		
DN50EPC13-Z	1400±25%	BEPC-13-1110GA	FEPC-13-A
DN50EPC13A40	40±4%		
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%	BEM12.7/13.7-118GA	FEM12.7/13.7-A
DN50EEM12.7/13.7A40	40±5%		
DN50EEM12.7/13.7A63	63±7%		
DN50EEM8/8-Z	320min.	BEM-8/8-018G	—
DN50EEM8/8A25	25±10%		
DN50EEM8/8A40	40±15%		
DN50EEM10/10-Z	400min.	BEM-10/10-0110G	—
DN50EEM10/10A25	25±7%		
DN50EEM10/10A40	40±10%		
DN50EEM13/13-Z	550min.	BEM-13/13-0110G	—
DN50EEM13/13A40	40±8%		
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.	BE-5-916F	FE-5-A
DN50EE5A25	25±15%		
DN50EE8.9/8Z	690±25%	BE-8.9/8-118G	—
DN50EE8.9/8A25	25±8%		
DN50EE8.9/8A40	40±13%		

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

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	—	—
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	SMD
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

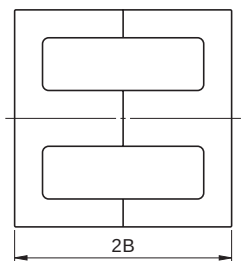


Fig. 1

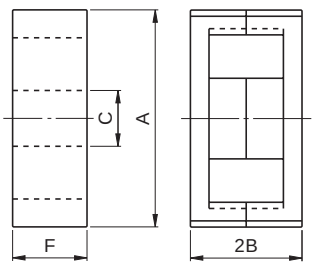


Fig. 2

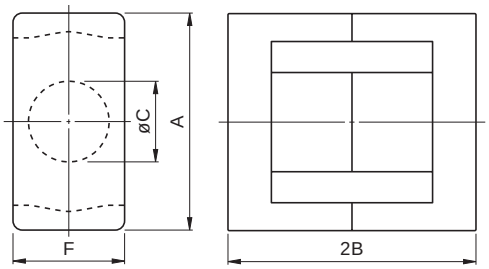


Fig. 3

Type	Fig.	Dimensions (mm)				Ae	le
		A	2B	C	F	(mm^2)	(mm)
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	ø3.4±0.1	4.9±0.1	8.47	14.2
ER11/3.9	2	10.83±0.18	3.85±0.1	ø4.13±0.13	5.9±0.1	11.7	12.6
ER11/5	2	10.83±0.18	4.9±0.1	ø4.13±0.13	5.9±0.1	11.9	14.7
ER14.5/6	2	14.5±0.2	5.9±0.1	ø4.7±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.

TDK

Ferrite Cores

EE, ER, EEM Series

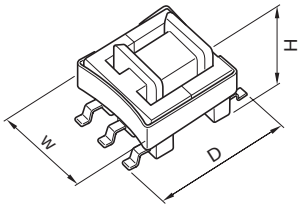
For Power Supply and Signal Transformer
Thin Ferrite Cores for SMD Transformers

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

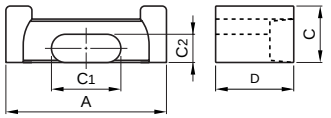


Fig.1

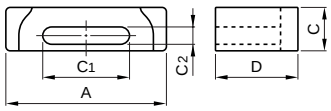


Fig.2

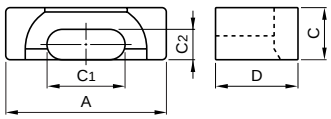


Fig.3

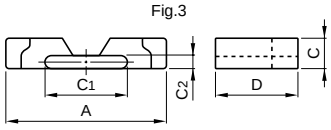
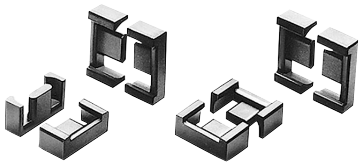


Fig.4



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	C_1	C_2	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

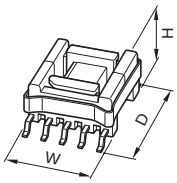
EPC Series

For Power Supply and Signal Transformer

EPC Cores

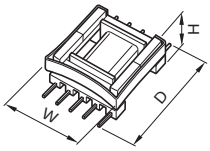
BOBBINS

SURFACE MOUNT TYPE



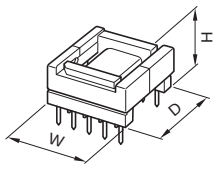
Part No.	No. of lead terminal	Dimensions (mm)			Clamp*
		W	D	H	
BEPC-10-118GA	8	11	11.7	5.2	FEPC-10-A
BEPC-13-1110GA	10	14.2	20.6	7.3	FEPC-13-A
BEPC-17-119GA	9	18.2	23.2	9.9	FEPC-17-A
BEPC-19-1110GA	10	20.2	25.2	9.9	FEPC-19-A
BEPC-25B-1111G	11	26.1	28.9	9.9	FEPC-25B-A

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

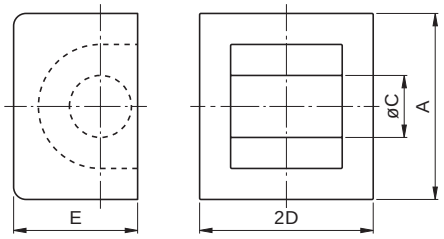
• Material: FR phenol, UL Grade: 94V-0, Pin material: Steel wire (Solder plated)

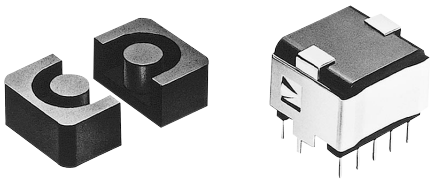
Ferrite Cores

EP Series

For Power Supply and Signal Transformer
EP Cores

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS





Type	Dimensions (mm)				Ae	le	Weight
	A	øC	2D	E	(mm^2)	(mm)	(g)
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]

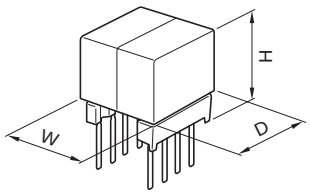
WITH AIR GAP

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



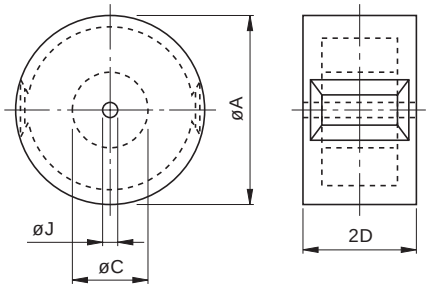
• Material: FR phenol, UL Grade: 94V-0, Pin material: Phosphor bronze (Solder plated)

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)[µe]	Dimensions (mm)				Σle/Ae (mm^{-1})	Ae (mm^2)	le (mm)	Weight (g)
		øA	øC	2D	øJ				
H5AP5.8/3.3Z-52S	870±25%[1163]*1	5.8+0,–0.15	2.5+0,–0.1	3.3+0,–0.1	0.95+0.1,–0	1.68	4.7	7.9	0.2
H5C2P5.8/3.3Z-52S	2660 min.[3556]*2								
H5AP7/4Z-52S	1200±25%[1366]*1	7.35+0,–0.2	3+0,–0.1	4.2+0,–0.1	1.05+0.1,–0	1.43	7	10	0.5
H5C2P7/4Z-52S	4970±30%[5656]*2								

*1 1kHz, 0.5mA, 100Ts

*2 1kHz, 0.5mA, 70Ts

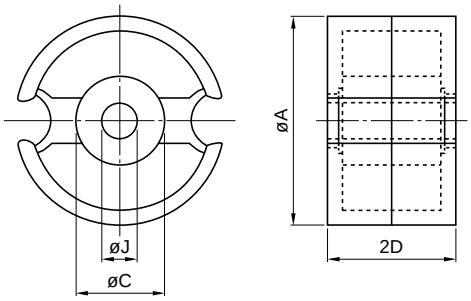
- Bobbin part No. for core
  P5.8/3.3Z: BP5.8/3.3-612
  P7/4Z: BP7/4-612

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	le	Weight	Bobbin*	Clamp
	øA	øC	2D	øJ	(mm^2)	(mm)	(g)		
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

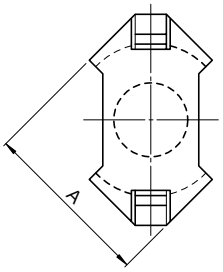


Fig.1

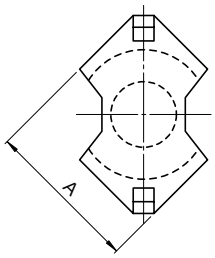


Fig.2

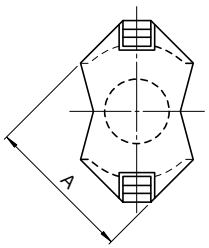
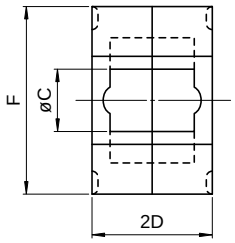


Fig.3



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)
PC40RM4Z-12	680min. [1kHz, 0.5mA, 100Ts]	6.9[100kHz]
PC50RM4Z-12	960±25% [1kHz, 0.5mA, 100Ts]	21[500kHz]
H5ARM4Z-12	1240±25% [1kHz, 0.5mA, 100Ts]	
H5C2RM4Z-12	4950±30% [1kHz, 0.5mA, 100Ts]	
PC40RM5Z-12	1250min. [1kHz, 0.5mA, 100Ts]	16[100kHz]
PC50RM5Z-12	1340±25% [1kHz, 0.5mA, 100Ts]	34[500kHz]
H5ARM5Z-12	2220±25% [1kHz, 0.5mA, 100Ts]	
H5C3RM5Z-12	7700min. [10kHz, 10mV, 100Ts]	
PC40RM6Z-12	1600min. [1kHz, 0.5mA, 100Ts]	27[100kHz]
PC50RM6Z-12	1700±25% [1kHz, 0.5mA, 100Ts]	55[500kHz]

Part No.	AL-value (nH/N^2)	Calculated output power*(W)
H5ARM6Z-12	3300±25% [1kHz, 0.5mA, 100Ts]	
H5C3RM6Z-12	9100min. [10kHz, 10mV, 100Ts]	
PC40RM8Z-12	1950min. [1kHz, 0.5mA, 100Ts]	67[100kHz]
H5ARM8Z-12	4300±25% [1kHz, 0.5mA, 100Ts]	
H5C2RM8Z-12	15200±30% [1kHz, 0.5mA, 100Ts]	
PC40RM10Z-12	3630min. [1kHz, 0.5mA, 100Ts]	130[100kHz]
H5ARM10Z-12	6220±25% [1kHz, 0.5mA, 100Ts]	
H5C2RM10Z-12	20900±30% [1kHz, 0.5mA, 100Ts]	
PC40RM12Z-12	4150min. [1kHz, 0.5mA, 100Ts]	344[100kHz]
PC40RM14Z-12	4600min. [1kHz, 0.5mA, 100Ts]	376[100kHz]

* The values were obtained with forward converter mode.

Ferrite Cores

RM Series

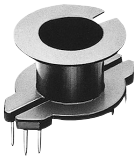
For Power Supply and Signal Transformer
RM Cores

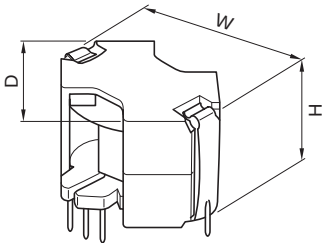
WITH AIR GAP

Part No.	AL-value (nH/N²)[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				

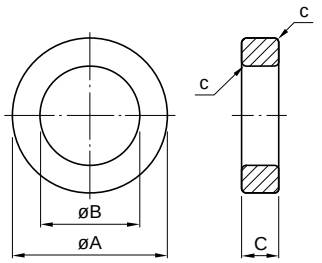
• Material: FR phenol, UL Grade: 94V-0, Pin material: *1 Steel wire (Solder plated) *2 Phosphor bronze(Solder plated)

Ferrite Cores

T Series

For Power Supply and Signal Transformer
Toroidal Cores

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS



Type (øAXCXøB)	Dimensions (mm)			C_1 (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 paraxylylene insulation coating is possible.

ELECTRICAL CHARACTERISTICS

AL-value(nH/N^2)

Type (øAXCXøB)	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)

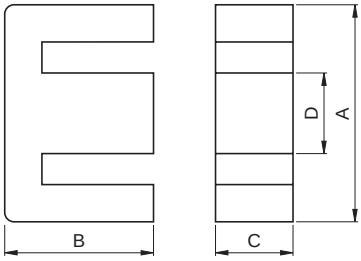
Ferrite Cores

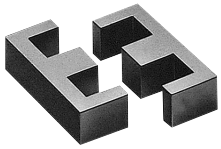
EE, EF Series

For Power Supply

EE, EF Cores

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS





Type	Dimensions (mm)				Ae	le	Weight
	A	B	C	D	(mm^2)	(mm)	(g)
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 output 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

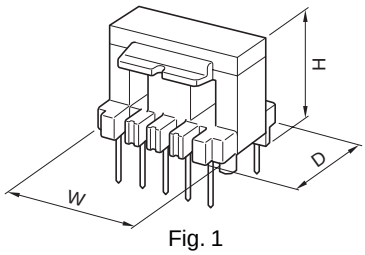


Fig. 1

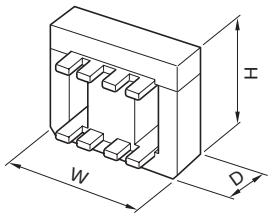


Fig. 2

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

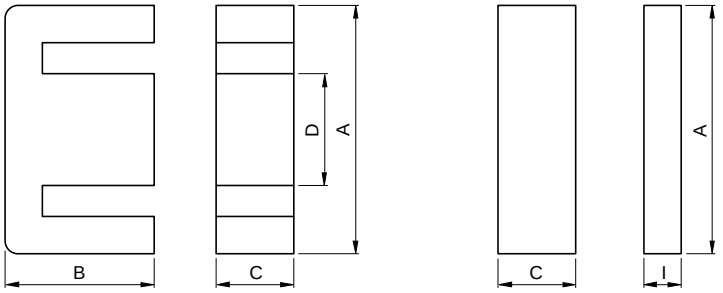
Ferrite Cores

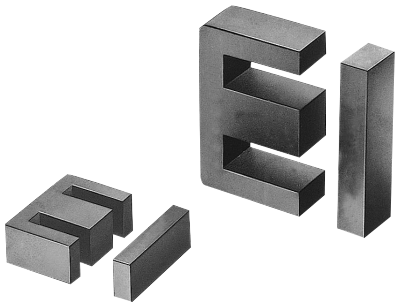
For Power Supply

EI Cores

EI Series

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS





Type	Dimensions (mm)					Ae	le	Weight
	A	B	C	D	I	(mm^2)	(mm)	(g)
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

EI Series

For Power Supply

EI Cores

BOBBINS

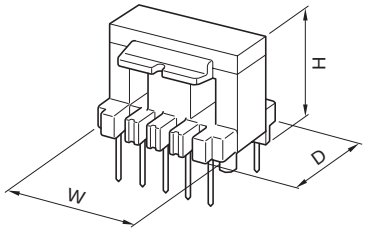


Fig. 1

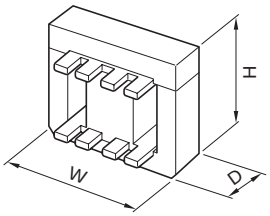


Fig. 2

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

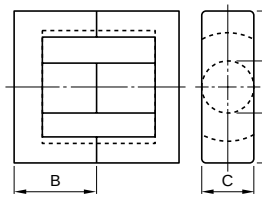


Fig.1

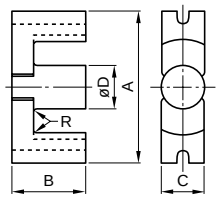
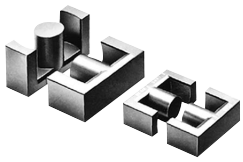


Fig.2



Type	Fig.	Dimensions (mm)				Ae	le	Weight
		A	B	C	øD	(mm^2)	(mm)	(g)
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

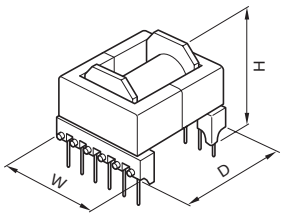


Fig.1

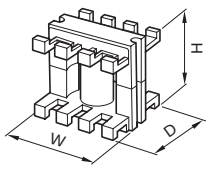


Fig.2

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

EER Series

For Power Supply

EER Cores

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS

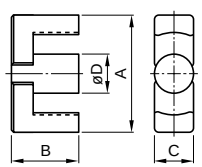


Fig.1

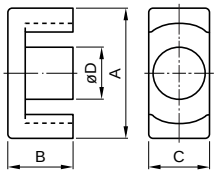


Fig.2

Type	Fig.	Dimensions (mm)				Ae	le	Weight
		A	B	C	øD	(mm^2)	(mm)	(g)
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

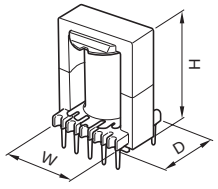


Fig.1

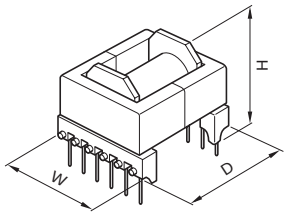


Fig.2

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

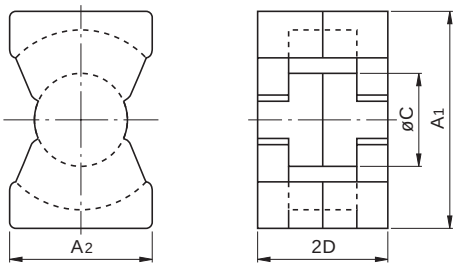
• Material: FR phenol, UL Grade: 94V-0, Pin material: Steel wire (Solder plated)

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
JP.U.M 1,589,580
JP.U.M 1,621,895
JP.U.M PUB.
85(60)-3556 1,647,781
JP.U.M PUB.
86(61)-5779 1,655,608
JP.DES.580,081
JP.DES.649,618
KR.U.M 23,487
NL.PAT.178,826
NL.DES.5,777
US.PAT.4,352,080
US.DES.264,959

Type	Dimensions (mm)				Ae (mm^2)	le (mm)	Weight (g)
	A_1	A_2	øC	2D			
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]

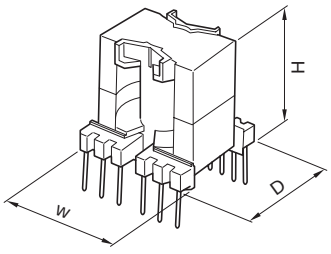
*The values were obtained with forward converter mode.

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)

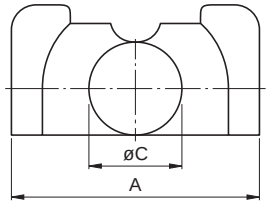
Ferrite Cores

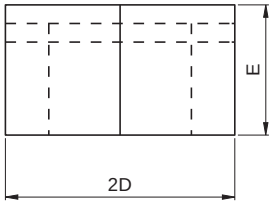
LP Series

For Power Supply

LP Cores

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	le	Weight
	A	øC	2D	E	(mm^2)	(mm)	(g)
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

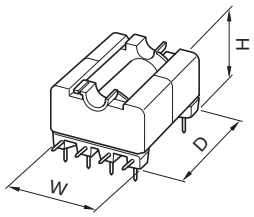
*The values were obtaind with forward converter mode.

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

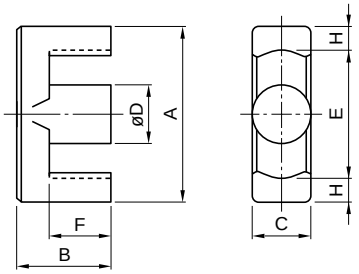
Use of magnetic field analysis and packaging evaluation technology has made clear the relationship between differential heating of core components and the flux density distribution. This knowledge has been used to optimize the design of the EER core. Core volume has been decreased by 13 to 20% without 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%					

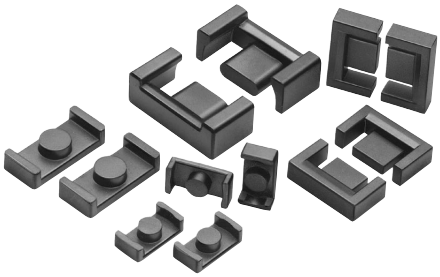
- Measuring conditions:
  AL-value:1kHz, 0.5mA, 100ts.
  Core loss:100kHz, 200mT, 100°C

Ferrite Cores

EPC, ER, EEM, EE Series

Low Loss Materials for Power Supply
PC45, PC46 Materials

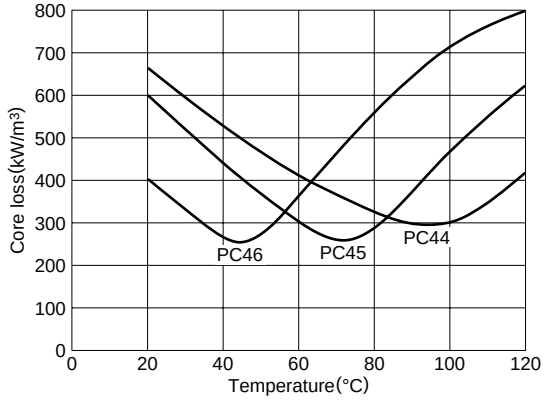
Demand is greatly increasing for portable devices such as notebook PCs, camcorders, digital cameras, PDAs, GPS car navigation systems, etc. There is also growing demand for small, light weight, high efficiency backlighting units for liquid crystal displays using cold cathode tubes. PC45 and PC46 materials 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	μi			2500±25%	3200±25%	2400±25%
Power loss [100kHz, 200mT]	Pcv	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	Bs	mT	[25°C] [100°C]	530 420	530 410	510 390
Remanent flux density	Br	mT	[25°C] [100°C]	120 80	115 80	110 60
Coercive force [1194A/m]	Hc	A/m	[25°C] [100°C]	12 8	11 10	13 6.5
Curie temperature	Tc	°C		≧230	≧230	≧215

CORE LOSS vs. TEMPERATURE CHARACTERISTICS



TDK

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%	BEPC-25B-1111G BEPC-25B-1111S	FEPC-25B-A
PC45EPC25BA80	80±5%		
PC45EPC25BA125	125±7%		
PC45EPC27-Z	1540±25%	BEPC-27-1111CPH	FEPC-27-A
PC45EPC27A125	125±4%		
PC45EPC27A200	200±5%		
PC45EPC27N-Z	1400±25%	BEPC-27N-1114CPH	—
PC45EPC27NA80	80±5%		
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	
EEM12.7/13.7	13.55	16.8	5	8	SMD
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	
EE5	5.7	7.8	4.75	6	SMD
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.

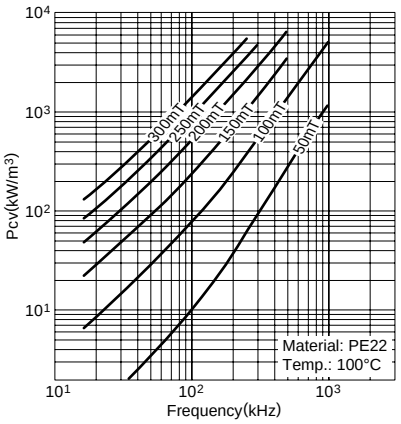
MATERIAL CHARACTERISTICS (Typical)

Material					PE22	PC40
Initial permeability		μi	[23°C]		1800	2300
Curie temperature		Tc		°C	>200	>200
Saturation magnetic flux density H=1194A/m		Bs	[23°C] [100°C]	mT	510 410	500 380
Remanent flux density		Br	[23°C]	mT	170	140
Coercive force		Hc	[23°C]	A/m	16	15
Core loss	25kHz, 200mT 100kHz, 200mT	Pcv	[100°C]	kW/m^3	80 520	70 420
Electrical resistivity		ρ		Ω-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		λs			-0.6×10^{-6}	-0.6×10^{-6}

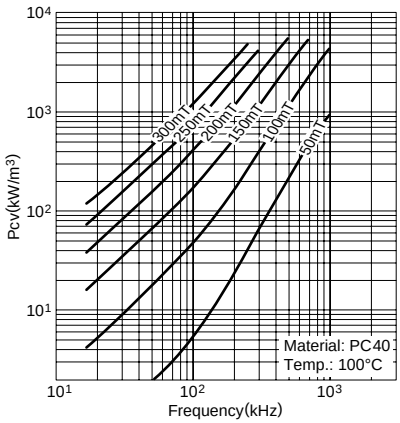
• 1(mT)=10(G),1(A/m)=0.012566(Oe)

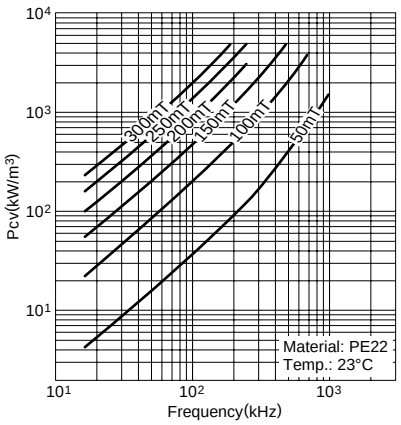
CORE LOSS vs. FREQUENCY CHARACTERISTICS

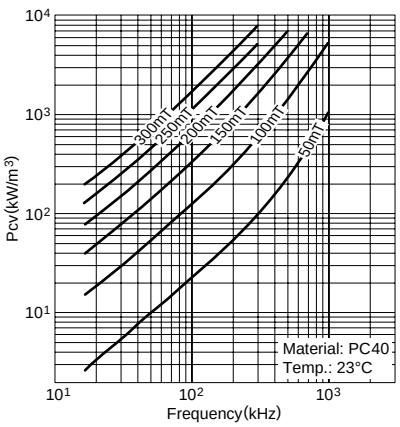
MATERIAL:PE22



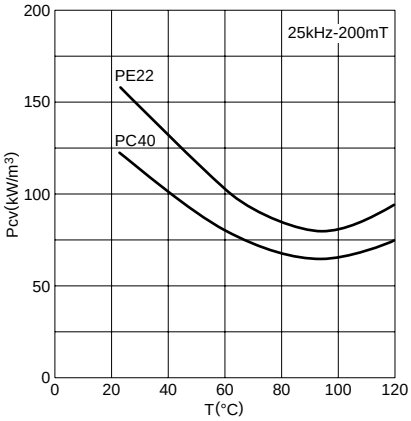
MATERIAL:PC40

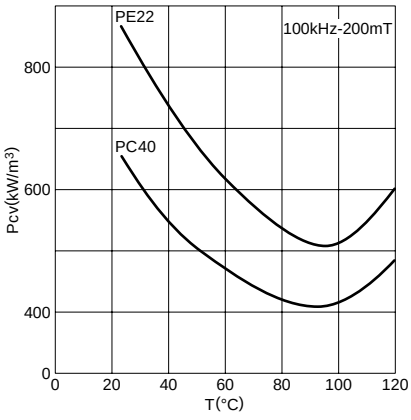






CORE LOSS vs. TEMPERATURE CHARACTERISTICS



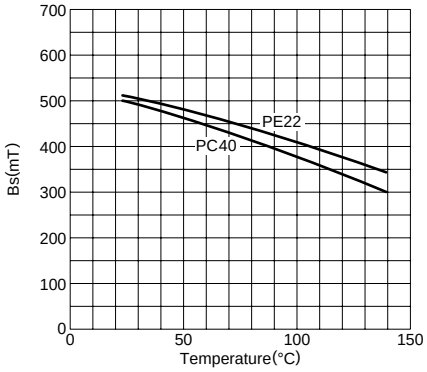


Ferrite Cores

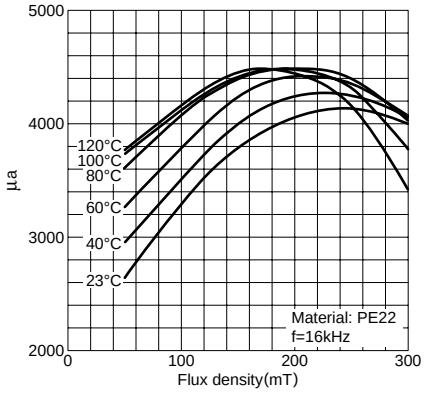
For High Power
High Power Cores

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

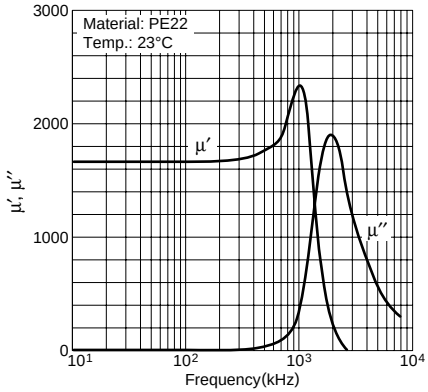
SATURATION MAGNETIC FLUX DENSITY vs. TEMPERATURE CHARACTERISTICS



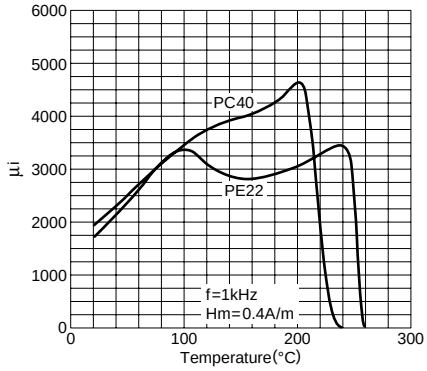
AMPLITUDE PERMEABILITY vs. SATURATION MAGNETIC FLUX DENSITY CHARACTERISTICS

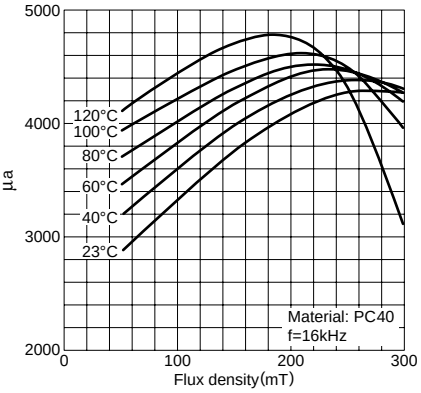


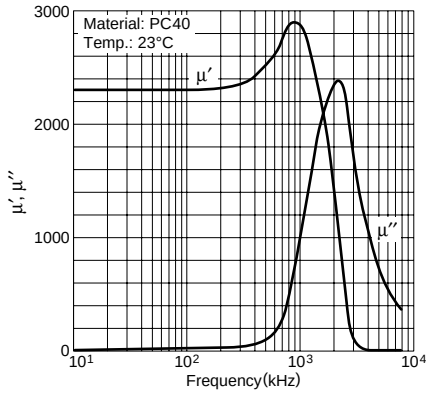
MAGNETIC PERMEABILITY vs. FREQUENCY CHARACTERISTICS



INITIAL MAGNETIC PERMEABILITY vs. TEMPERATURE CHARACTERISTICS







DIMENSIONALRESONANCE

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 cross section of the core perpendicular to the magnetic field is the integral multiple of about half of the electromagnetic wavelength λ.

$$\lambda = \frac{C}{f \times \sqrt{\mu r \times \varepsilon r}}$$

C: Electromagnetic wave speed in a vacuum(3.0×10^8m/s)

μr: Relative magnetic permeability

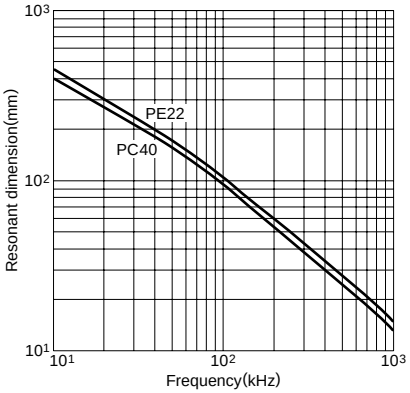
εr: Relative permissivity

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

As μe 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



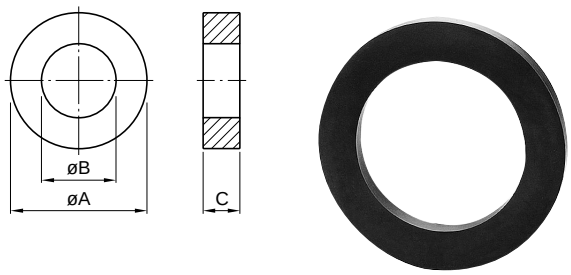
Ferrite Cores

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 (g)
		A	B	C	C_1(mm^{-1})	$C_2 \times 10^{-2}$(mm^{-3})	Ae(mm^2)	Le(mm)	Ve(mm^3)	
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

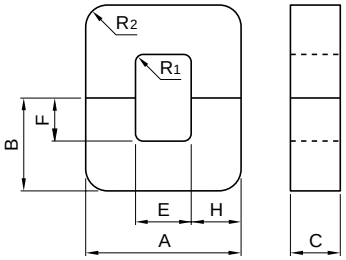
Ferrite Cores

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

For High Power
High Power Cores

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/N²) ±25%	Dimensions (mm) A	B×2	C	E	F×2	H	R1	R2	E×2F(mm²)
PE22 UU79X129X31.5 PC40 UU79X129X31.5	4790 6030	79±2.5	129±2.5	31.5±1	34min.	85±1.5	22±1	5	22	2980
PE22 UU100X151X30 PC40 UU100X151X30	5540 6990	100±3	151±2.5	30±1	39min.	90±1.5	30±1.5	5	30	3600
PE22 UU100X160X20 PC40 UU100X160X20	3460 4360	100±3	160±2.5	20±1	39min.	100±1.5	30±1.5	5	35	4000
PE22 UU101X115X25.4 PC40 UU101X115X25.4	4480 5640	101±3	115±2.5	25.4±1	50min.	64±1.5	25±1	5	25	3260
PE22 UU120X160X20 PC40 UU120X160X20	3140 3960	120±3	160±2.5	20±1	59min.	100±1.5	30±1.5	5	35	6000
PE22 UU120X310X20*2 PC40 UU120X310X20*2	— —	120±3	310±2.5	20±1	59min.	250±1.5	30±1.5	5	35	15000

*1 Measuring condition: T=23°C, f=1kHz, Hm=0.4A/m
*2 Stacked 2U cores.

Part No.	Core factor C1(mm⁻¹)	C2×10⁻²(mm⁻³)	Ae(mm²)	Le(mm)	Ve(mm³)	Weight(g)
PE22 UU79X129X31.5 PC40 UU79X129X31.5	0.44605	0.06437	693	309	214220	1080
PE22 UU100X151X30 PC40 UU100X151X30	0.38801	0.04241	915	355	324860	1630
PE22 UU100X160X20 PC40 UU100X160X20	0.62375	0.10396	600	374	224550	1130
PE22 UU101X115X25.4 PC40 UU101X115X25.4	0.47757	0.07373	648	309	200350	1000
PE22 UU120X160X20 PC40 UU120X160X20	0.69041	0.11507	600	414	248550	1240
PE22 UU120X310X20 PC40 UU120X310X20	1.19041	0.19840	600	714	428550	2110

Ferrite Cores

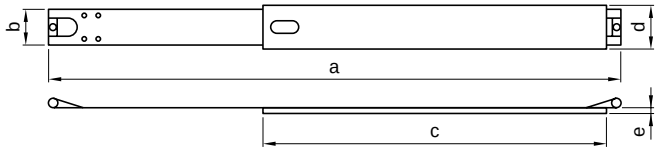
T, UU, EC, EIC, PQ, EE, EI, DT, SP Series

For High Power
High Power Cores

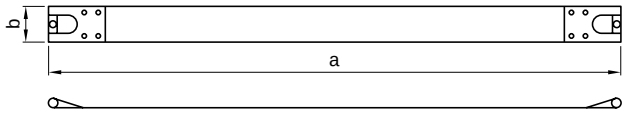
UU CORE BAND

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS

A-type band



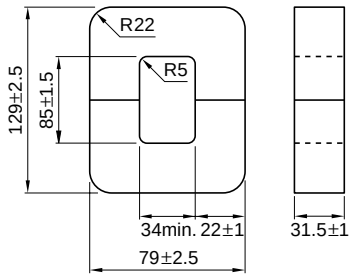
B-type band



•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

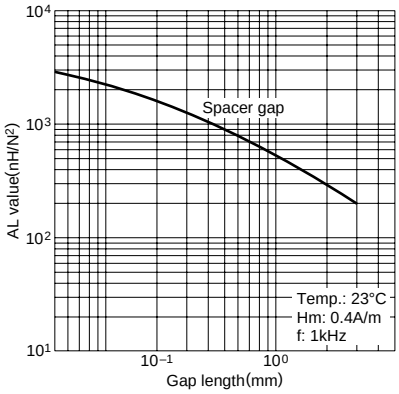


Dimensions in mm

Parameter		Unit	
Core constant	C_1	mm^{-1}	0.44605
	$C_2 \times 10^{-2}$	mm^{-3}	0.06437
Effective magnetic pass length	le	mm	309
Effective cross-sectional area	Ae	mm^2	693
Effective core volume	Ve	mm^3	214220
Cross-sectional center leg area	Ac	mm^2	693
Minimum cross-sectional center leg area*	Amin.	mm^2	693LB
Cross-sectional winding area of core	Acw	mm^2	2980
Weight	W	g	1080

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

PE22UU79X129X31.5



TDK

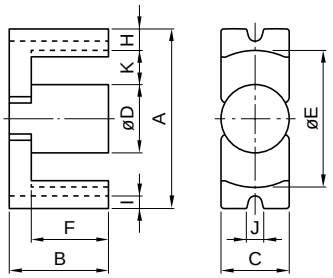
Ferrite Cores

For High Power
High Power Cores

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

EC CORE

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS

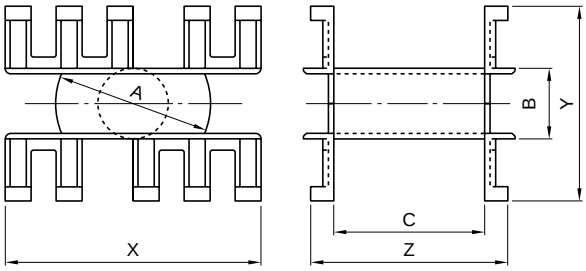


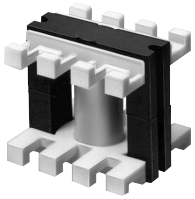
PRODUCT IDENTIFICATION

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/N²) ±25%	Dimensions (mm) A	B×2	C	D	E	F×2	H	I	J	K	K×2F(mm²)
PE22 EC70-Z PC40 EC70-Z	3950 4890	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
PE22 EC90-Z PC40 EC90-Z	6340 7940	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
PE22 EC120-Z PC40 EC120-Z	6450 8090	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

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

Part No.	Core factor C1(mm⁻¹)	C2×10⁻²(mm⁻³)	Ae(mm²)	Le(mm)	Ve(mm³)	Weight (g)
PE22 EC70-Z PC40 EC70-Z	0.5260563	0.18635	282	149	41920	250
PE22 EC90-Z PC40 EC90-Z	0.3561571	0.05690	626	223	139560	635
PE22 EC120-Z PC40 EC120-Z	0.3448813	0.04464	773	266	205810	986

EC CORE BOBBIN

Part No.	Dimensions (mm) øA	øB	C	X	Y	Z	t*	Cross-sectional winding area Aw(mm²)	Average winding length lw(mm)	Weight (g)	Material
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

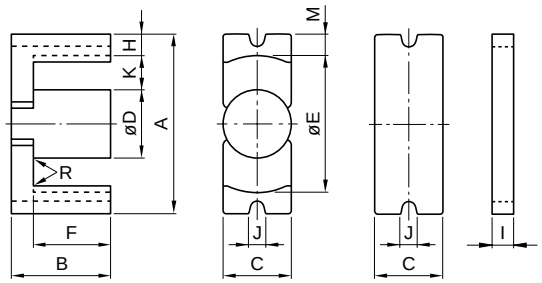
Ferrite Cores

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)

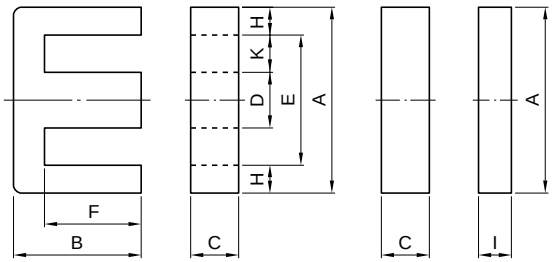
Part No.	AL*(nH/N²) ±25%	Dimensions (mm)											
		A	B+I	C	D	E	F	H	I	M	J	R	K
PE22 EIC90-Z PC40 EIC90-Z	8680 10770	90±1.8	55.05±1.3	30±1	30±1	68.5min.	35.5±0.5	10±0.6	10±0.3	5.5±0.2	5.5±0.3	1max.	20
PE22 EIC120-Z PC40 EIC120-Z	9040 11270	120±2	65.5±1.3	30±1	30±1	93.3min.	35.5±0.5	12.5±0.7	15±0.6	5.5±0.3	6±0.3	1.5max.	32.5

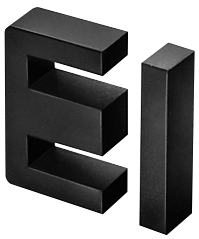
* Measuring condition: T=23°C, f=1kHz, Hm=0.4A/m

Part No.	Core factor					Weight (g)
	C_1(mm^{-1})	$C_2\times10^{-2}$(mm^{-3})	Ae(mm²)	Le(mm)	Ve(mm³)	
PE22 EIC90-Z PC40 EIC90-Z	0.2255	0.0336	671	151	101599	469
PE22 EIC120-Z PC40 EIC120-Z	0.2321	0.0258	792	208	187081	747

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/N²) ±25%	Dimensions (mm)									
		A	B+I	C	D	E	F	H	I	K	K×F(mm²)
PE22 EI70-Z PC40 EI70-Z	5820 7200	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

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

Part No.	Core factor					Weight (g)
	C_1(mm^{-1})	$C_2\times10^{-2}$(mm^{-3})	Ae(mm²)	Le(mm)	Ve(mm³)	
PE22 EI70-Z PC40 EI70-Z	0.35211	0.09032	390	137	53520	266

Ferrite Cores

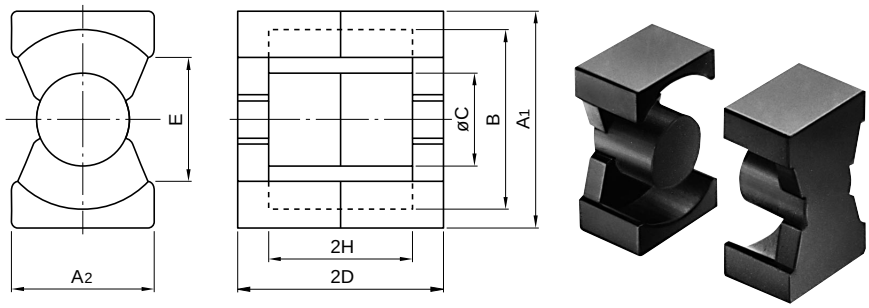
T, UU, EC, EIC, PQ, EE, EI, DT, SP Series

For High Power

High Power Cores

PQ CORE

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS



PRODUCT IDENTIFICATION

PE22 PQ 59 - Z

(1) (2) (3) (4)

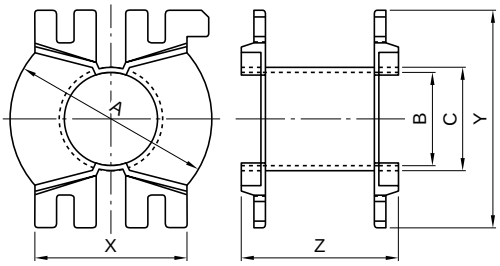
(1) Material name

(2) Shape

(3) Dimension A_1

(4) Gap dimension(Z=0)

PQ CORE BOBBIN



Part No.	AL*(nH/N²) ±25%	Dimensions (mm)						
		A_1	A_2	B	øC	2D	Emin.	2H
PE22 PQ59 PC40 PQ59	10540 12810	59±0.8	42±0.8	51.5min.	24±0.5	26.8±0.4	42min.	14.2±0.4
PE22 PQ79 PC40 PQ79	7940 9790	78.5±1.5	42±0.8	69min.	25.5±0.5	39.4±0.6	60min.	25.8±1
PE22 PQ100 PC40 PQ100	14570 18210	107±2	70±1.5	93.7min.	41±1	87±1.5	72.5min.	56±1.5

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

Part No.	Core factor					Weight(g)
	$C_1(mm^{-1})$	$C_2 \times 10^{-2}(mm^{-3})$	$Ae(mm^2)$	Le(mm)	$Ve(mm^3)$	
PE22 PQ59 PC40 PQ59	0.17520	0.038292	458	80	36700	185
PE22 PQ79 PC40 PQ79	0.24730	0.051530	480	119	56900	304
PE22 PQ100 PC40 PQ100	0.14260	0.009989	1428	204	290600	1560

PQ CORE BOBBIN

Part No.	Dimensions (mm)					Cross-sectional winding area $Aw(mm^2)$	Average winding length lw(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

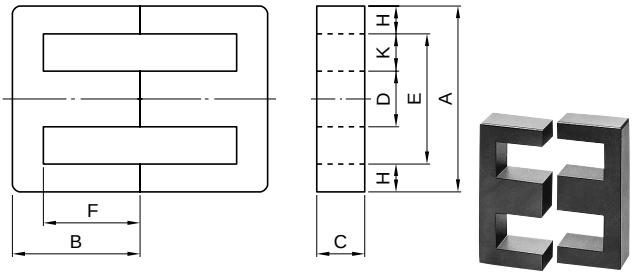
Ferrite Cores

For High Power
High Power Cores

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

EE CORE

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS

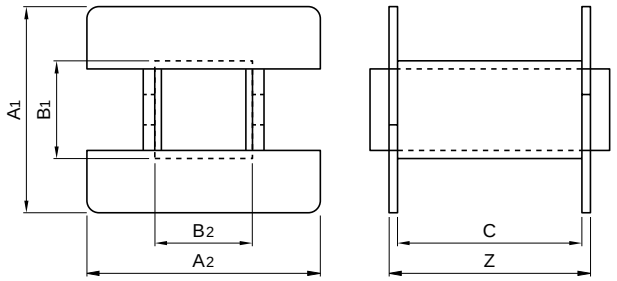


PRODUCT IDENTIFICATION

$$\frac{\text{PE22}}{(1)}\ \frac{\text{EE}}{(2)}\ \frac{320\times250\times20\text{ - Z}}{(3)\ (4)\ (5)\ (6)}$$

(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/N²) ±25%	Dimensions (mm) A	B×2	C	D	E	F×2	H	K	K×2F(mm²)
PE22 EE70-Z PC40 EE70-Z	3390 4910	70±1.5	91±1	19.5±0.5	19.5±0.5	48.5min.	71±1	10±0.5	15.3	1086
PE22 EE80X76-Z PC40 EE80X76-Z	4590 5720	80±1.5	76±1	20±0.5	20±0.5	58.5min.	55±0.8	10±0.5	20	1100
PE22 EE90-Z PC40 EE90-Z	5960 7380	90±2	56.4±1	16.5±0.5	25±1	63min.	30.4±1	12.5±0.5	20	608
PE22 EE320X250X20-Z*2 PC40 EE320X250X20-Z*2	— —	320±5	250±1	20±1	100±2.4	217min.	150±3	50±1	60	7950

*1 Measuring condition: T=23°C, f=1kHz, Hm=0.4A/m
*2 EE320x250x20-Z is a bonded product.

Part No.	Core factor C1(mm⁻¹)	C2×10⁻²(mm⁻³)	Ae(mm²)	Le(mm)	Ve(mm³)	Weight (g)
PE22 EE70-Z PC40 EE70-Z	0.52779	0.13669	386	204	78690	394
PE22 EE80X76-Z PC40 EE80X76-Z	0.44878	0.11058	406	182	73910	372
PE22 EE90-Z PC40 EE90-Z	0.33583	0.08009	419	141	59050	306
PE22 EE320X250X20-Z PC40 EE320X250X20-Z	0.28854	0.01443	2000	577	1154160	6150

EE CORE BOBBIN

Part No.	Dimensions (mm) A1	A2	B1	B2	C	Z	Cross-sectional winding area Aw(mm²)	Average winding length lw(mm)	Weight (g)	Material
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

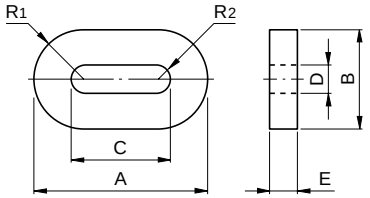
Ferrite Cores

For High Power
High Power Cores

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

DT CORE

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS



R_1=1/2B
R_2=1/2D

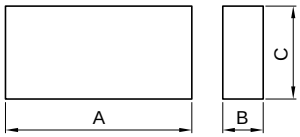
Part No.	AL*(nH/N²) ±25%	Dimensions (mm)				
		A	B	C	D	E
PE22 DT138X20X58 PC40 DT138X20X58	6680 8540	138±2.8	104±2.1	58±1.5	24.7±0.5	20±0.4
PE22 DT200X20X100 PC40 DT200X20X100	5630 7200	200±5	130±3	102±2.5	31.5±1	20±0.4

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

Part No.	Core factor					Weight (g)
	C_1(mm^{-1})	$C_2\times10^{-2}$(mm^{-3})	Ae(mm²)	Le(mm)	Ve(mm³)	
PE22 DT138X20X58 PC40 DT138X20X58	0.33806	0.04235	798	270	215000	1020
PE22 DT200X20X100 PC40 DT200X20X100	0.40121	0.04087	982	394	387000	1870

SP CORE

CORE SHAPES AND DIMENSIONS/CHARACTERISTICS



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

PRODUCT IDENTIFICATION

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

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

Ferrite Cores

DR, THP P, TH Series

For Audio-Visual, TV, & Radio Equipment

MATERIAL CHARACTERISTICS

Material	Practical frequency	Initial permeability μi	Relative loss factor tanδ/μi	Temperature factor of initial permeability αμir	Curie temperature Tc	Saturation magnetic flux density Bs	Remanent flux density Br	Coercive force Hc	Electrical resistivity ρv	Density d_b
	(MHz)		$\times10^{-6}$	$\times10^{-6}$/°C [20 to 60°C]	(°C)	(mT)	(mT)	(A/m)	(Ω-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

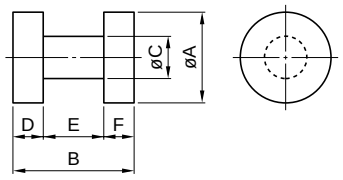


Fig.1

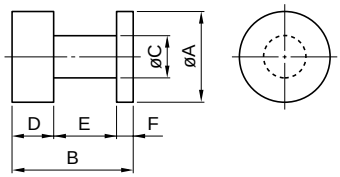


Fig.2

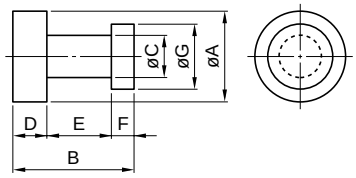


Fig.3

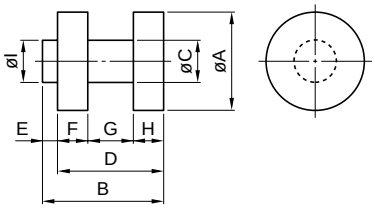


Fig.4

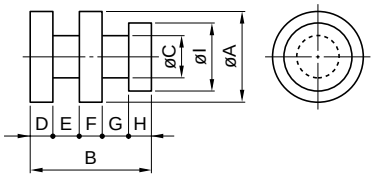


Fig.5

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

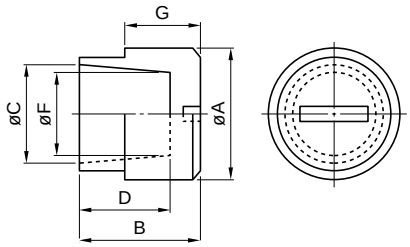


Fig.1

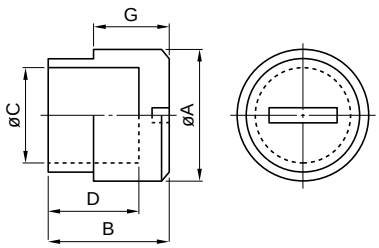


Fig.2

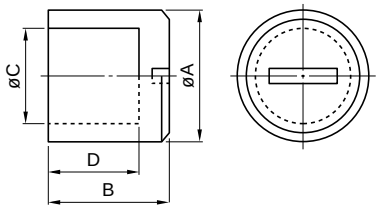


Fig.3

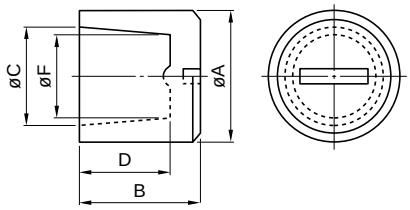


Fig.4

Dimensions in mm

Part No.	Fig.	øA	B	øC	D	øF	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

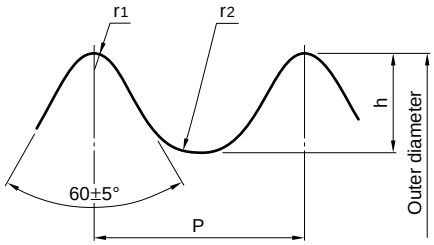
DR, THP P, TH Series

For Audio-Visual, TV, & Radio Equipment

THP CORE

THREADED DIAGRAMS

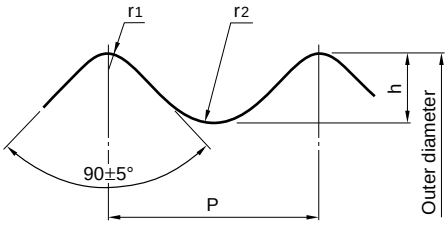
OC3 TYPE



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

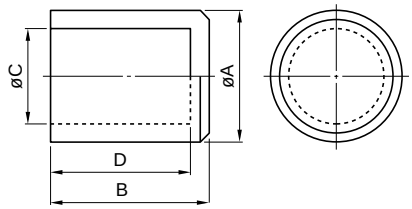


Fig.1

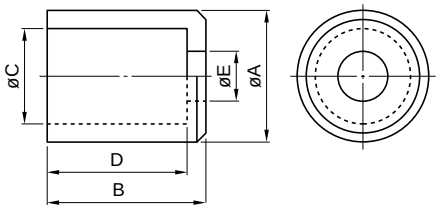


Fig.2

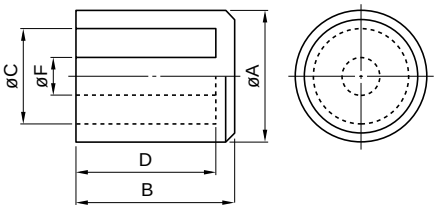


Fig.3

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

For Audio-Visual, TV, & Radio Equipment

DR, THP P, TH Series

TH SERIES

STANDARD TYPE

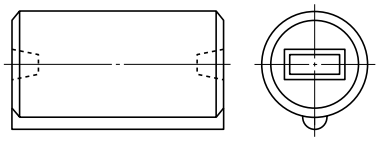


Fig.1

S4 TYPE

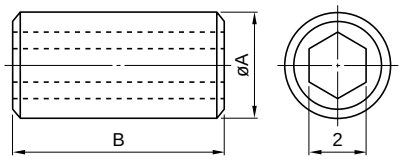


Fig.2

S8 TYPE

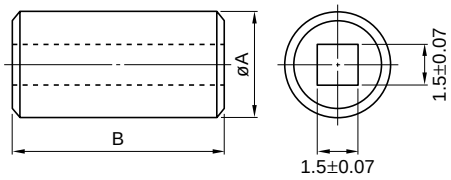


Fig.3

S14 TYPE

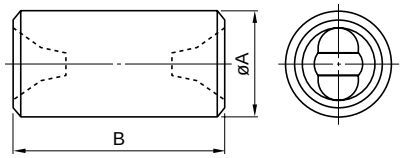


Fig.4

S17 TYPE

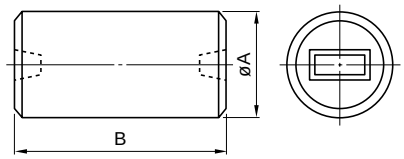


Fig.5

- 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)

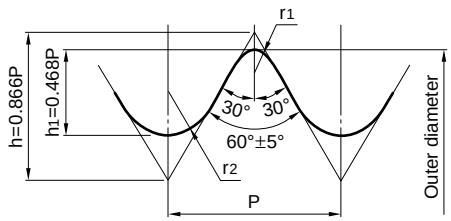
Dimensions in mm

Outer diameter øA	Length B±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

TH SERIES

THREADED DIAGRAM

OC3 TYPE



Dimensions in mm

P±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

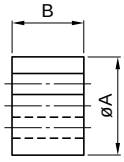
For Audio-Visual, TV, & Radio Equipment
For Balun Transformer/Choke Coil

MATERIAL CHARACTERISTICS

Material	Practical frquency (MHz)	Initial permeability μi	Relative loss factor tanδ/μi ×10^{-6}	Temperature factor of initial permeability αμir ×10^{-6}/°C [+20 to +60°C]	Curie temperature Tc (°C)	Saturation magnetic flux density Bs (mT)	Remanant flux density Br (mT)	Coercive force Hc (A/m)	Electrical resistivity ρv (Ω-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



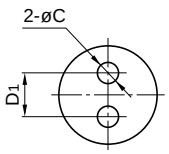


Fig.1

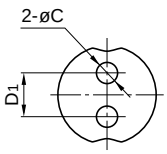


Fig.2

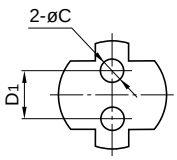


Fig.3

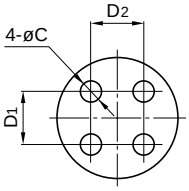
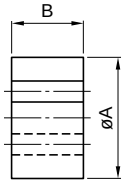


Fig.4



Dimensions in mm

Part No.	øA	B	øC	D_1	D_2	Fig.
Q5BRHH6X5H1.2 L6RHH6X5H1.2	6±0.2	5±0.3	1.2+0.2,–0	2.5		1
Q5BRHH7X5.5H1.5M L6RHH7X5.5H1.5M	7±0.2	5.5±0.3	1.5±0.1	3		2
Q5BRHH7.5X4H1.3M	7.5±0.3	4±0.3	1.3±0.1	2.3		3
Q5BR4H8X5H1.2 L6R4H8X5H1.2	8±0.3	5±0.3	1.2+0.3,–0	3	3	4

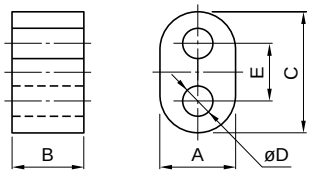
Ferrite Cores

RHH, R4H, RID, R Series

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

RID SERIES

CORE SHAPES AND DIMENSIONS

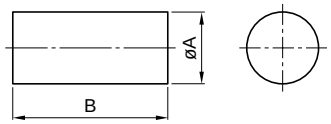


Dimensions in mm

Part No.	A	B	C	øD	E
Q5BRID3X2X5H1.2 L6RID3X2X5H1.2	3±0.2	2±0.2	5.2±0.3	1.2±0.1	2.6
Q5BRID3X3X5H1.2 L6RID3X3X5H1.2	3±0.2	3±0.2	5.2±0.3	1.2±0.1	2.6
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.	øA	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*	μi			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*	ρv	Ω-m		3	3
Density*	d_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]

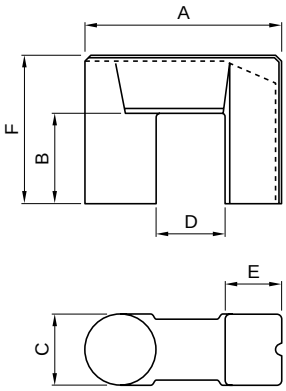


Fig.1

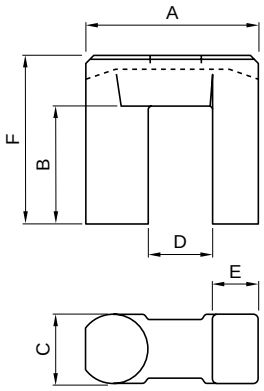


Fig.2

Type	Fig.	Dimensions (mm)						Ae	le
		A	B	C	D min.	E	F	(mm^2)	(mm)
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

Ferrite Cores

UR, URS Series

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

URS SERIES

SHAPES AND DIMENSIONS [Typical]

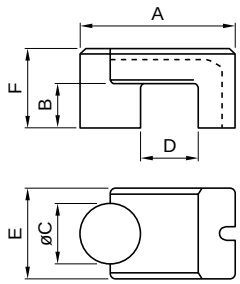


Fig.1

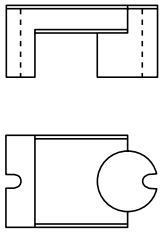


Fig.2

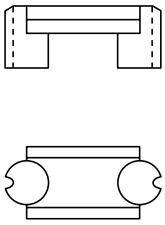
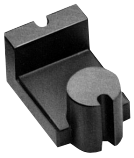


Fig.3



Type	Fig.	Dimensions (mm)						Ae	le
		A	B	C	D min.	E	F	(mm^2)	(mm)
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