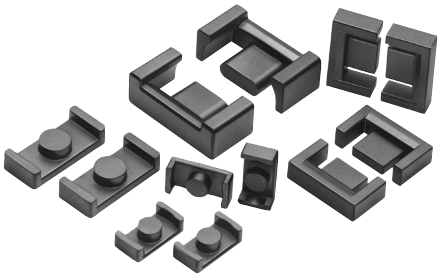
Ferrite Cores

EPC, ER, EEM, EE Series

Low Loss Materials for Power Supply
PC45, PC46 Materials

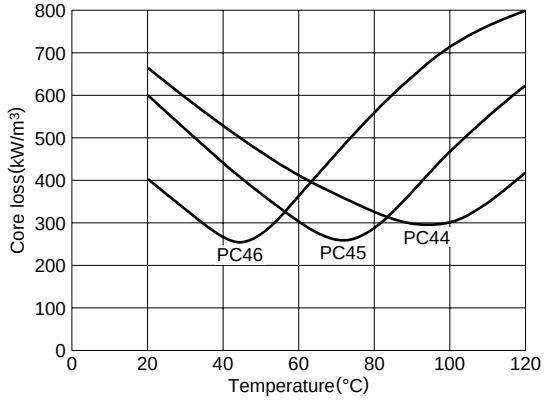
Demand is greatly increasing for portable devices such as notebook PCs, camcorders, digital cameras, PDAs, GPS car navigation systems, etc. There is also growing demand for small, light weight, high efficiency backlighting units for liquid crystal displays using cold cathode tubes. PC45 and PC46 materials 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

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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.

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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.

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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	