

# Ferrite Cores

## High Flux Density, High Permeability Material Material DN50

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

It has become an important issue to support global method of ISDN interfaces associated with the widespread use of ISDN networks worldwide. TDK's ferrite material DN50, a high  $\mu$  and high B with  $\mu_i=5500$  and  $B_s \geq 500\text{mT}$ , has been developed to provide stable magnetic characteristics to the global method (echo canceler method) of the ultra-small gap specification for superposition direct current. Beside its high  $\mu$  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.



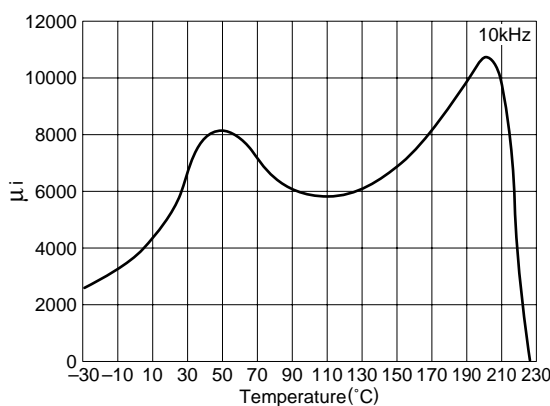
### MATERIAL CHARACTERISTICS

Material		DN50	
Initial permeability	$\mu_i$		5500±20%
Relative loss factor[10kHz]	$\tan\delta/\mu_i$	$\times 10^{-6}$	$\leq 15$
Power loss [100kHz, 200mT]	P <sub>cv</sub>	kW/m <sup>3</sup>	[25°C] 550
			[40°C] 450
			[100°C] 1000
Saturation magnetic flux density	B <sub>s</sub>	mT	[25°C] 550
			[100°C] 380
Remanent flux density	B <sub>r</sub>	mT	[25°C] 95
			[100°C] 55
Coercive force [1194A/m]	H <sub>c</sub>	A/m	[25°C] 7
			[100°C] 5.8
Disaccommodation factor [1 to 10min, 10kHz]	D <sub>F</sub>	$\times 10^{-6}$	$\leq 10$
Curie temperature	T <sub>c</sub>	°C	$\geq 210$

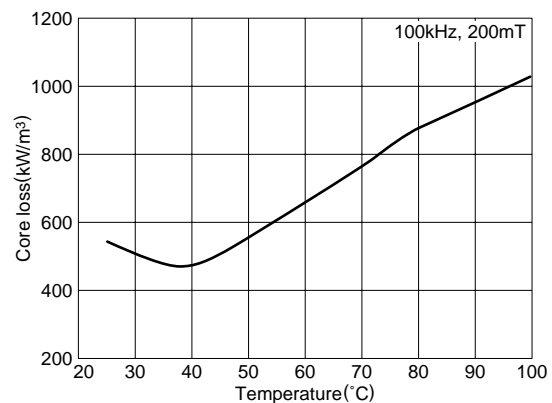
### STANDARD SHAPES

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

### INITIAL PERMEABILITY vs. TEMPERATURE CHARACTERISTICS



### CORE LOSS vs. TEMPERATURE CHARACTERISTICS



### CHARACTERISTICS

#### FOR INTERFACE

#### C CORE

Part No.	AL-value(nH/N <sup>2</sup> )	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,  $\phi 0.35\text{mm}$ , 100ts.

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### CHARACTERISTICS

#### FOR INTERFACE

##### PQ CORE

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

• Measuring conditions: 1kHz, 0.5mT,  $\phi$ 0.35mm, 100ts.

##### EP CORE

Part No.	AL-value(nH/N <sup>2</sup> )	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,  $\phi$ 0.2mm, 100ts./EP20: 1kHz, 0.5mT,  $\phi$ 0.35mm, 100ts.

##### RM CORE

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

• Measuring conditions: 1kHz, 0.5mT,  $\phi$ 0.4mm, 100ts.

#### FOR BACK LIGHT TRANSFORMER

##### P CORE

Part No.	AL-value(nH/N <sup>2</sup> )	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,  $\phi$ 0.05mm, 100ts.  
P5.8/3.3: 1kHz, 0.5mT,  $\phi$ 0.08mm, 100ts.  
P7/4: 1kHz, 0.5mT,  $\phi$ 0.1mm, 100ts.

##### ER CORE

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

• Measuring conditions  
ER9.5/5, ER11/3.9, ER11/5: 1kHz, 0.5mT,  $\phi$ 0.1mm, 100ts.  
ER14.5/6: 1kHz, 0.5mT,  $\phi$ 0.18mm, 100ts.

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### FOR BACK LIGHT TRANSFORMER

#### EPC CORE

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

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

#### EEM CORE

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

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

#### EE CORE

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

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

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### 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	