TDK

March 2014

Mn-Zn

Ferrite Cores for Telecommunication

EP series

⚠ REMINDERS FOR USING THESE PRODUCTS

Please be sure to read this manual thoroughly before using the products.

The products listed on this catalog are intended for use in general electronic equipment (AV equipment, telecommunications equipment, home appliances, amusement equipment, computer equipment, personal equipment, office equipment, measurement equipment, industrial robots) under a normal operation and use condition.
The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require a more stringent level of safety or reliability, or whose failure, malfunction or trouble could cause serious damage to society, person or property.
When using the products for specific purposes, please first make confirmations in areas such as safety, reliability, and quality.
Please understand that we are not in a position to be held responsible for any damage or the like caused by any use exceeding the range or conditions of this specification sheet or by any use in the specific applications.

(1) Aerospace/Aviation equipment
(2) Transportation equipment (electric trains, ships, etc.)
(3) Medical equipment
(4) Power-generation control equipment
(5) Atomic energy-related equipment
(6) Seabed equipment
(7) Transportation control equipment
(8) Public information-processing equipment
(9) Military equipment
(10) Electric heating apparatus, burning equipment
(11) Disaster prevention/crime prevention equipment
(12) Safety equipment
(13) Other applications that are not considered general-purpose applications

When using this product in general-purpose standard applications, you are kindly requested to take into consideration securing protection circuit/equipment or providing backup circuits, etc to ensure higher safety.

Ferrite Cores for Telecommunication

Product compatible with RoHS directive
Halogen-free

Overview of the EP Series

FEATURES

In the EP Cores, there is a single cubic space where a transformer should be mounted, enabling an optimum dimensional ratio to be calculated. Apart from the attaching terminal side, the cores entirely cover the coils.

Further, the coil cross-sections are made round, to improved the low-frequency characteristics of the core, and increase the effective volume.

APPLICATION

Transformers and coils for communication devices

PART NUMBER CONSTRUCTION

H5A EP10 - Z

Material	Size of EP core	AL-value (Z: without air gap)
H5A	EP7	
H5C3	EP10	
	EP13	
	EP17	
	EP20	

RANGE OF USE AND STORAGE TEMPERATURE

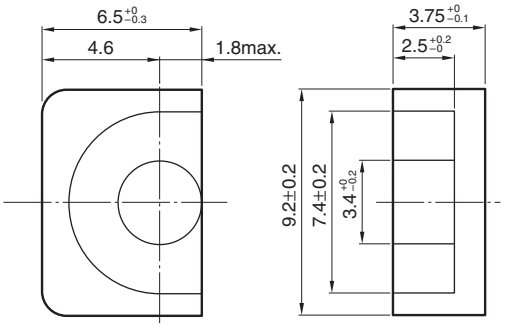
Temperature range	
Operating temperature (°C)	Storage temperature (°C)
–30 to +105	–30 to +85

○RoHS Directive Compliant Product: See the following for more details related to RoHS Directive compliant products. http://www.tdk.co.jp/rohs/

○Halogen-free: Indicates that Cl content is less than 900ppm, Br content is less than 900ppm, and that the total Cl and Br content is less than 1500ppm.

Mn-Zn EP series Part No.: H5AEP7-Z

SHAPES AND DIMENSIONS



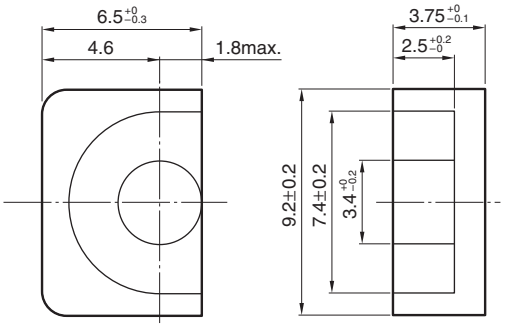
Dimensions in mm

Effective parameter								Electrical characteristics	
Core factor	Effective magnetic path length	Effective cross-sectional area	Effective core volume	Cross-sectional center pole area	Minimum cross-sectional area	Cross-sectional winding area of core	Weigh	AL-value	Effective permeability
C1	ℓe	Ae	Ve	Acp	Acp min.	Acw			
(mm−1)	(mm)	(mm2)	(mm3)	(mm2)	(mm2)	(mm2)	(g/set)	(nH/N2)min.	(μe)
1.52	15.7	10.3	162	8.55	8.04	10.7	1.4	1100	1331

Measuring conditions
Coil：ø0.13mm, 2UEW, 100Ts
Frequency：1kHz
Current level：0.5mA

Mn-Zn EP series Part No.: H5C3EP7-Z

SHAPES AND DIMENSIONS



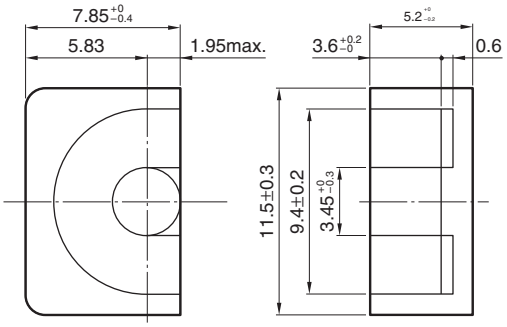
Dimensions in mm

Effective parameter								Electrical characteristics	
Core factor C1 (mm⁻¹)	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm²)	Effective core volume Ve (mm³)	Cross-sectional center pole area Acp (mm²)	Minimum cross-sectional area Acp min. (mm²)	Cross-sectional winding area of core Acw (mm²)	Weigh (g/set)	AL-value (nH/N²)min.	Effective permeability (μe)
1.52	15.7	10.3	162	8.55	8.04	10.7	1.4	4200*	5080*

Measuring conditions
Coil：ø0.13mm, 2UEW, 100Ts
Frequency：10kHz
Current level：0.5mA
Voltage: 10mV

Mn-Zn EP series Part No.: H5AEP10-Z

SHAPES AND DIMENSIONS



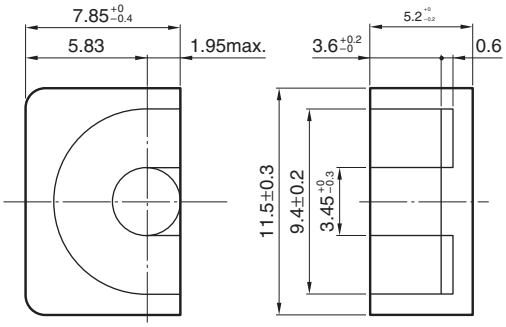
Dimensions in mm

Effective parameter								Electrical characteristics	
Core factor C_1 (mm^{-1})	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm^2)	Effective core volume Ve (mm^3)	Cross-sectional center pole area Acp (mm^2)	Minimum cross-sectional area Acp min. (mm^2)	Cross-sectional winding area of core Acw (mm^2)	Weigh (g/set)	A_L-value (nH/N^2)min.	Effective permeability (μe)
1.7	19.2	11.3	217	8.55	7.79	22.6	2.8	1080	1461

Measuring conditions
Coil：ø0.20mm, 2UEW, 100Ts
Frequency：1kHz
Current level：0.5mA

Mn-Zn EP series Part No.: H5C3EP10-Z

SHAPES AND DIMENSIONS



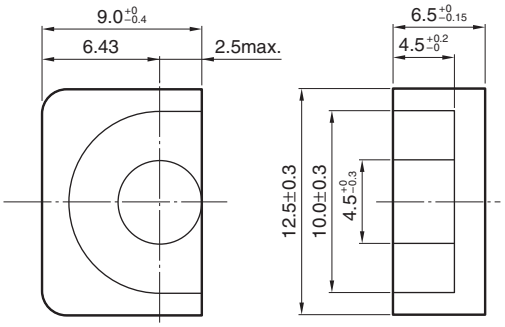
Dimensions in mm

Effective parameter								Electrical characteristics	
Core factor C_1 (mm^{-1})	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm^2)	Effective core volume Ve (mm^3)	Cross-sectional center pole area Acp (mm^2)	Minimum cross-sectional area Acp min. (mm^2)	Cross-sectional winding area of core Acw (mm^2)	Weigh (g/set)	A_L-value (nH/N^2)min.	Effective permeability (μe)
1.7	19.2	11.3	217	8.55	7.79	22.6	2.8	3850*	5208*

Measuring conditions
Coil：ø0.20mm, 2UEW, 100Ts
Frequency：10kHz
Current level：0.5mA
Voltage: 10mV

Mn-Zn EP series Part No.: H5AEP13-Z

SHAPES AND DIMENSIONS



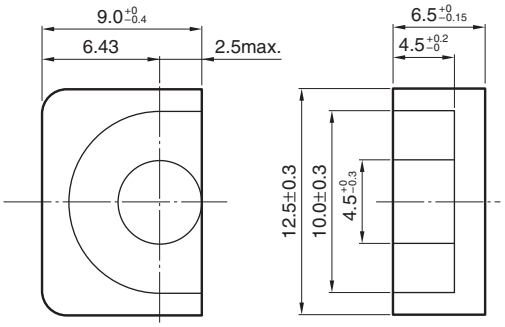
Dimensions in mm

Effective parameter								Electrical characteristics	
Core factor C1 (mm⁻¹)	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm²)	Effective core volume Ve (mm³)	Cross-sectional center pole area Acp (mm²)	Minimum cross-sectional area Acp min. (mm²)	Cross-sectional winding area of core Acw (mm²)	Weigh (g/set)	AL-value (nH/N²)min.	Effective permeability (μe)
1.24	24.2	19.5	472	14.9	13.9	26	5.1	1700	1677

Measuring conditions
Coil：ø0.20mm, 2UEW, 100Ts
Frequency：1kHz
Current level：0.5mA

Mn-Zn EP series Part No.: H5C3EP13-Z

SHAPES AND DIMENSIONS



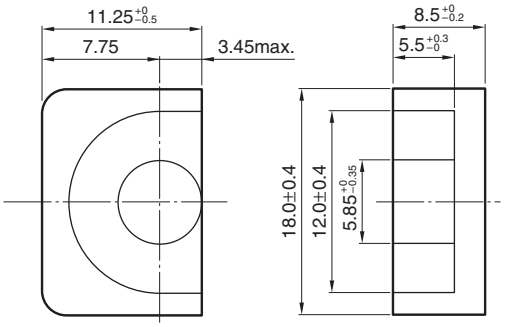
Dimensions in mm

Effective parameter								Electrical characteristics	
Core factor C1 (mm⁻¹)	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm²)	Effective core volume Ve (mm³)	Cross-sectional center pole area Acp (mm²)	Minimum cross-sectional area Acp min. (mm²)	Cross-sectional winding area of core Acw (mm²)	Weigh (g/set)	AL-value (nH/N²)min.	Effective permeability (μe)
1.24	24.2	19.5	472	14.9	13.9	26	5.1	5600*	5526*

Measuring conditions
Coil：ø0.20mm, 2UEW, 100Ts
Frequency：10kHz
Current level：0.5mA
Voltage: 10mV

Mn-Zn EP series Part No.: H5AEP17-Z

SHAPES AND DIMENSIONS



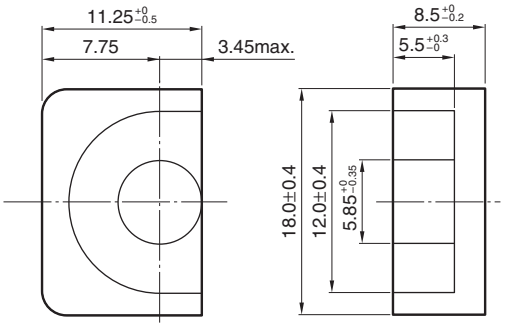
Dimensions in mm

Effective parameter								Electrical characteristics	
Core factor C1 (mm⁻¹)	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm²)	Effective core volume Ve (mm³)	Cross-sectional center pole area Acp (mm²)	Minimum cross-sectional area Acp min. (mm²)	Cross-sectional winding area of core Acw (mm²)	Weigh (g/set)	AL-value (nH/N²)min.	Effective permeability (μe)
0.84	28.5	33.9	966	25.3	23.8	33.8	11.8	2500	1672

Measuring conditions
Coil：ø0.20mm, 2UEW, 100Ts
Frequency：1kHz
Current level：0.5mA

Mn-Zn EP series Part No.: H5C2EP17-Z

SHAPES AND DIMENSIONS



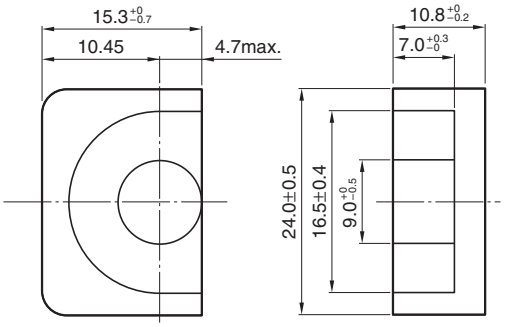
Dimensions in mm

Effective parameter								Electrical characteristics	
Core factor C_1 (mm^{-1})	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm^2)	Effective core volume Ve (mm^3)	Cross-sectional center pole area Acp (mm^2)	Minimum cross-sectional area Acp min. (mm^2)	Cross-sectional winding area of core Acw (mm^2)	Weigh (g/set)	A_L-value (nH/N^2)min.	Effective permeability (μe)
0.84	28.5	33.9	966	25.3	23.8	33.8	11.8	8000	5350

Measuring conditions
Coil：ø0.20mm, 2UEW, 100Ts
Frequency：1kHz
Current level：0.5mA

Mn-Zn EP series Part No.: H5AEP20-Z

SHAPES AND DIMENSIONS



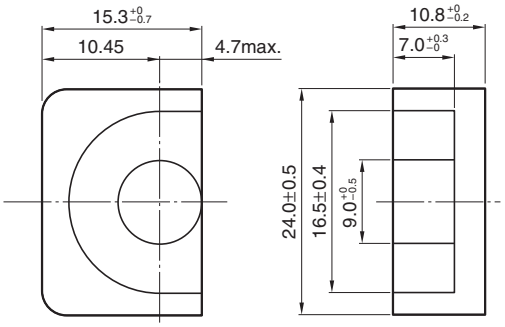
Dimensions in mm

Effective parameter								Electrical characteristics	
Core factor C_1 (mm^{-1})	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm^2)	Effective core volume Ve (mm^3)	Cross-sectional center pole area Acp (mm^2)	Minimum cross-sectional area Acp min. (mm^2)	Cross-sectional winding area of core Acw (mm^2)	Weigh (g/set)	A_L-value (nH/N^2)min.	Effective permeability (μe)
0.508	39.8	78	312	60.1	56.7	55.4	27.6	4200	1698

Measuring conditions
Coil：ø0.35mm, 2UEW, 100Ts
Frequency：1kHz
Current level：0.5mA

Mn-Zn EP series Part No.: H5C2EP20-Z

SHAPES AND DIMENSIONS



Dimensions in mm

Effective parameter								Electrical characteristics	
Core factor C_1 (mm^{-1})	Effective magnetic path length ℓe (mm)	Effective cross-sectional area Ae (mm^2)	Effective core volume Ve (mm^3)	Cross-sectional center pole area Acp (mm^2)	Minimum cross-sectional area Acp min. (mm^2)	Cross-sectional winding area of core Acw (mm^2)	Weigh (g/set)	A_L-value (nH/N^2)min.	Effective permeability (μe)
0.508	39.8	78	312	60.1	56.7	55.4	27.6	13500	5457

Measuring conditions
Coil：ø0.35mm, 2UEW, 100Ts
Frequency：1kHz
Current level：0.5mA