



Mn-Zn Ferrite

# Material Characteristics

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**Ferrite for Switching Power Supplies**

**Ferrite for Telecommunication**

**Large Size Ferrite for High Power**

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

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.

## Contents

### Ferrite for Switching Power Supplies

Material List .....	4
PC47.....	5
PC90.....	6
PC95.....	7
HS72.....	8
HS10.....	9
HS12.....	10

### Ferrite for Telecommunication

Material List .....	11
H5A.....	12
H5B2.....	13
H5C2 .....	14
H5C3 .....	15
HP5.....	16
DNW45 .....	17

### Large Size Ferrite for High Power

Material List .....	18
PE22.....	19
PC40.....	21
PE90.....	23

## Mn-Zn Material List of Ferrite for Switching Power Supplies

## MATERIAL CHARACTERISTICS

Material	Initial permeability $\mu_i$	Core loss volume density (Core loss)* P <sub>cv</sub> (kW/m <sup>3</sup> ) B=200mT 100kHz sine wave				Saturation magnetic flux density*				Remanent flux density*				Coercive force*				Curie temperature T <sub>c</sub> (°C)	Density* d <sub>b</sub> (kg/m <sup>3</sup> ) ×10 <sup>3</sup>	Electrical resistivity* ρ <sub>v</sub> (Ω • m)
		25°C	60°C	100°C	120°C	25°C	60°C	100°C	120°C	25°C	60°C	100°C	120°C	25°C	60°C	100°C	120°C			
PC47	2500±25%	600	400	250	360	530	480	420	390	180	100	60	60	13	9	6	7	>230	4.9	4
PC90	2200±25%	680	470	320	460	540	500	450	420	170	95	60	65	13	9	6.5	7	>250	4.9	4
PC95	3300±25%	350		290	350	530	480	410	380	85	70	60	55	9.5	7.5	6.5	6	>215	4.9	6

\* Typ.

Material	Initial permeability $\mu_i$	Relative loss factor tanδ/μi ×10 <sup>-6</sup>	Saturation magnetic flux density* B <sub>s</sub> (mT) H=1194A/m 25°C	Remanent flux density* B <sub>r</sub> (mT) H=1194A/m 25°C	Coercive force* H <sub>c</sub> (A/m) H=1194A/m 25°C	Curie temperature T <sub>c</sub> (°C)	Density* d <sub>b</sub> (kg/m <sup>3</sup> ) ×10 <sup>3</sup>	Electrical resistivity* ρ <sub>v</sub> (Ω • m)
HS72	7500±25% (2000min. at 500kHz)	30(100kHz)	410	80	6	>130	4.9	0.2
HS10	10000±25%	30(100kHz)	380	120	5	>120	4.9	0.2
HS12	12000±25% (at 150kHz)	20(100kHz)	430	80	6	>130	4.9	0.5

\* Typ.

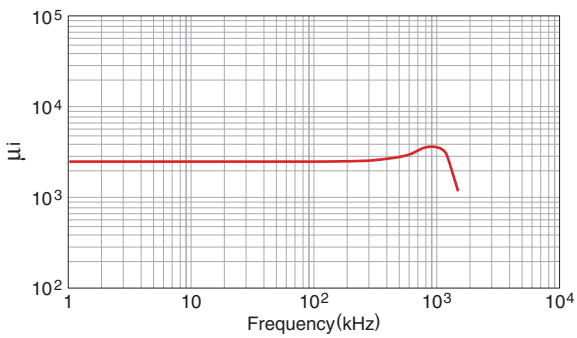
# Mn-Zn Ferrite for Switching Power Supplies Material List of PC47

## ■ MATERIAL CHARACTERISTICS

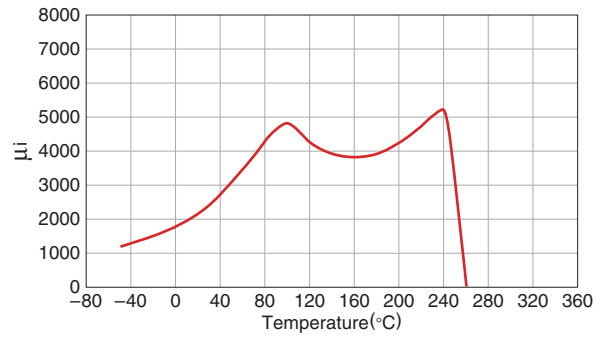
Initial permeability $\mu_i$	Core loss volume density (Core loss)* Pcv (kW/m <sup>3</sup> ) B=200mT 100kHz sine wave				Saturation magnetic flux density* Bs (mT) H=1194A/m				Remanent flux density* Br (mT) H=1194A/m				Coercive force* Hc (A/m) H=1194A/m				Curie temperature Tc (°C)	Density* db (kg/m <sup>3</sup> ) ×10 <sup>3</sup>	Electrical resistivity* $\rho_v$ ( $\Omega \cdot m$ )
	25°C	60°C	100°C	120°C	25°C	60°C	100°C	120°C	25°C	60°C	100°C	120°C	25°C	60°C	100°C	120°C			
2500±25%	600	400	250	360	530	480	420	390	180	100	60	60	13	9	6	7	>230	4.9	4

\* Typ.

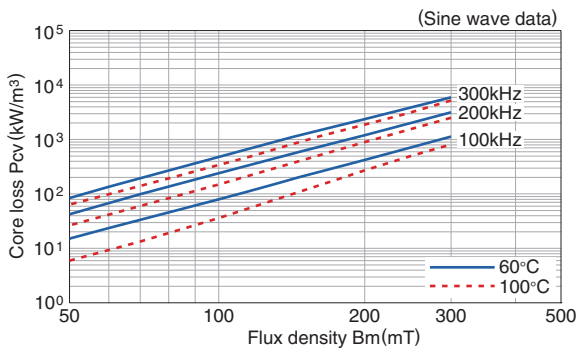
□  $\mu_i$  frequency characteristics(Typ.)



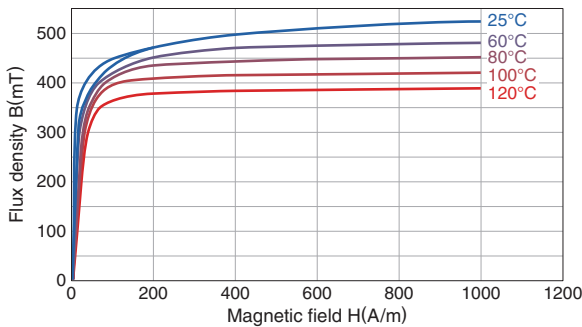
□  $\mu_i$  temperature characteristics(Typ.)



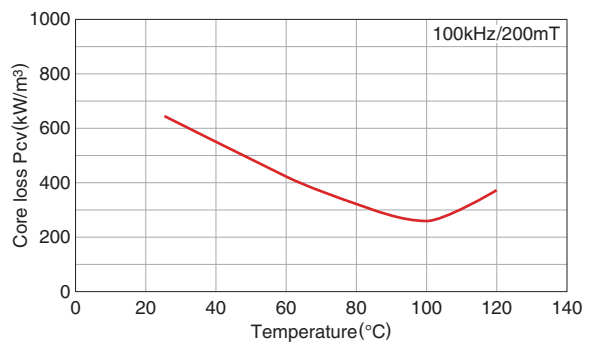
□ Core Loss(Typ.)



□ B-H temperature characteristics(Typ.)



□ Temperature Dependence of Core Loss(Typ.)



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use.  
Please note that the contents may change without any prior notice due to reasons such as upgrading.

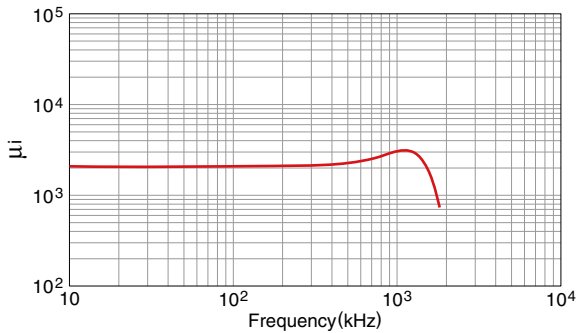
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**MATERIAL CHARACTERISTICS**

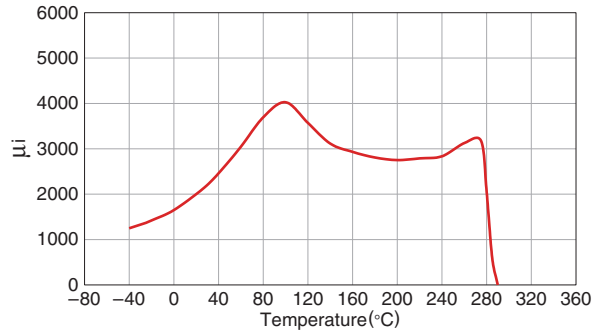
Initial permeability $\mu_i$	Core loss volume density (Core loss)* Pcv (kW/m <sup>3</sup> ) B=200mT 100kHz sine wave				Saturation magnetic flux density* Bs (mT) H=1194A/m				Remanent flux density* Br (mT) H=1194A/m				Coercive force* Hc (A/m) H=1194A/m				Curie temperature Tc (°C)	Density* db (kg/m <sup>3</sup> ) ×10 <sup>3</sup>	Electrical resistivity* $\rho_v$ (Ω · m)
	25°C	60°C	100°C	120°C	25°C	60°C	100°C	120°C	25°C	60°C	100°C	120°C	25°C	60°C	100°C	120°C			
2200±25%	680	470	320	460	540	500	450	420	170	95	60	65	13	9	6.5	7	>250	4.9	4

\* Typ.

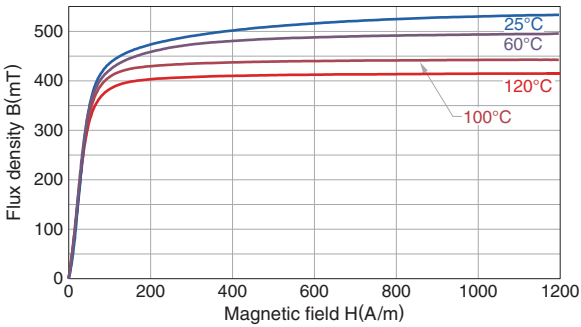
□  $\mu_i$  frequency characteristics(Typ.)



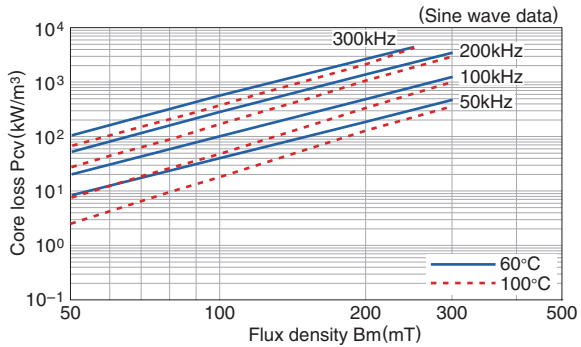
□  $\mu_i$  temperature characteristics(Typ.)



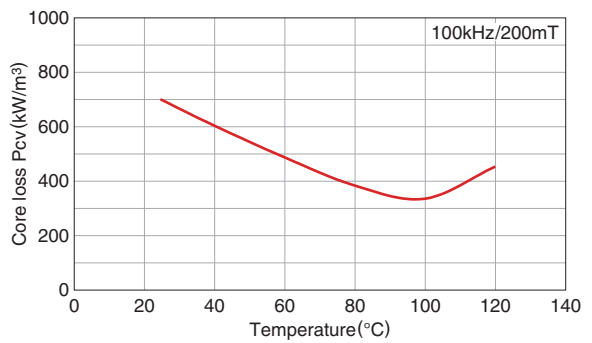
□ B-H temperature characteristics(Typ.)



□ Core Loss(Typ.)



□ Temperature Dependence of Core Loss(Typ.)



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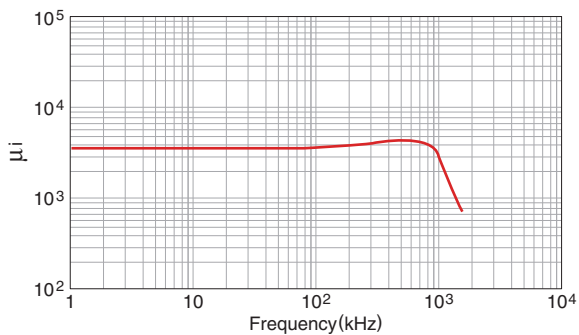
# Mn-Zn Ferrite for Switching Power Supplies Material List of PC95

## ■ MATERIAL CHARACTERISTICS

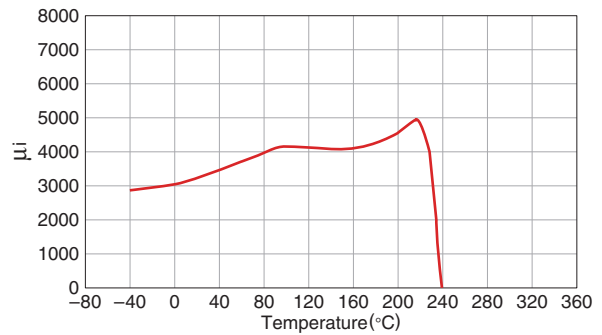
Initial permeability $\mu_i$	Core loss volume density (Core loss)* Pcv (kW/m <sup>3</sup> ) B=200mT 100kHz sine wave				Saturation magnetic flux density* Bs (mT) H=1194A/m				Remanent flux density* Br (mT) H=1194A/m				Coercive force* Hc (A/m) H=1194A/m				Curie temperature Tc (°C)	Density* db (kg/m <sup>3</sup> ) ×10 <sup>3</sup>	Electrical resistivity* $\rho_v$ ( $\Omega \cdot m$ )
	25°C	60°C	100°C	120°C	25°C	60°C	100°C	120°C	25°C	60°C	100°C	120°C	25°C	60°C	100°C	120°C			
3300±25%	350		290	350	530	480	410	380	85	70	60	55	9.5	7.5	6.5	6	>215	4.9	6

\* Typ.

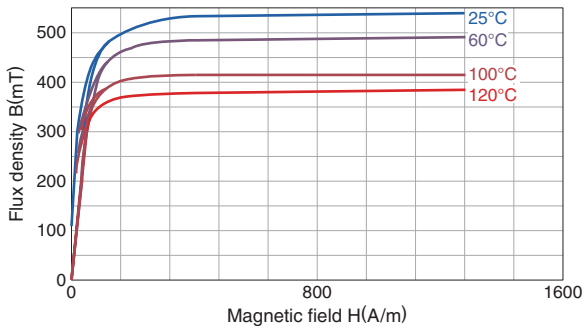
□  $\mu_i$  frequency characteristics(Typ.)



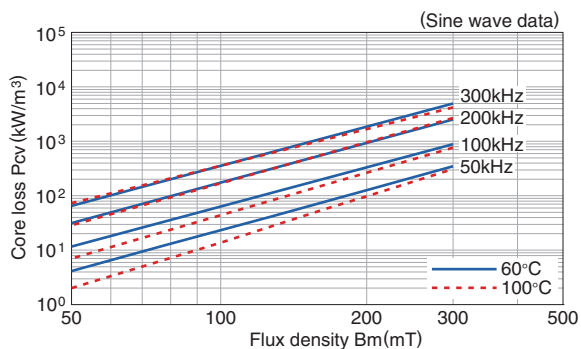
□  $\mu_i$  temperature characteristics(Typ.)



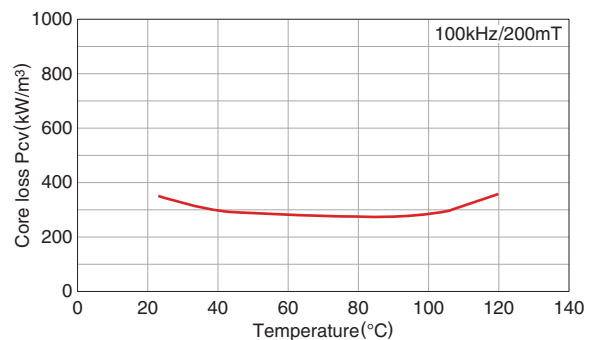
□ B-H temperature characteristics(Typ.)



□ Core Loss(Typ.)



□ Temperature Dependence of Core Loss(Typ.)



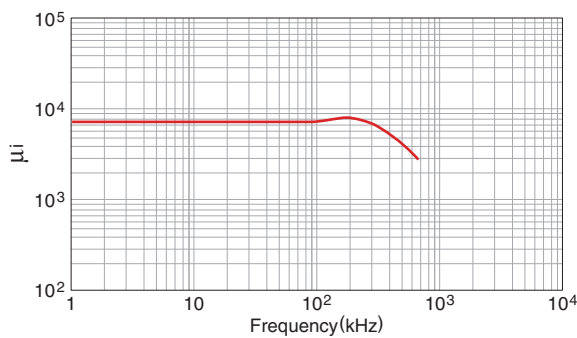
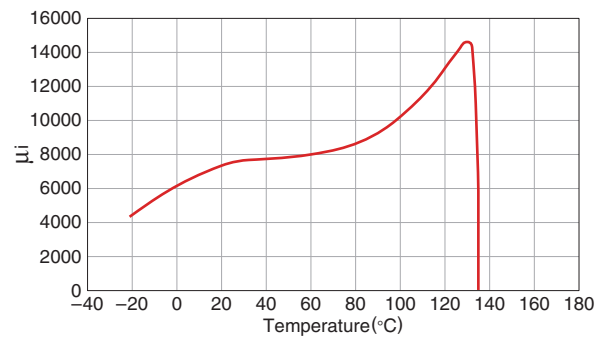
⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use.  
Please note that the contents may change without any prior notice due to reasons such as upgrading.

Mn-Zn Ferrite for Switching Power Supplies **Material List of HS72**

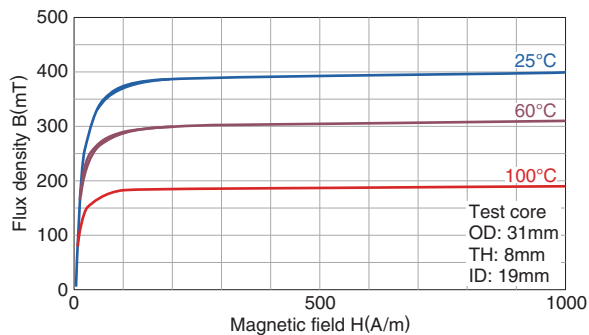
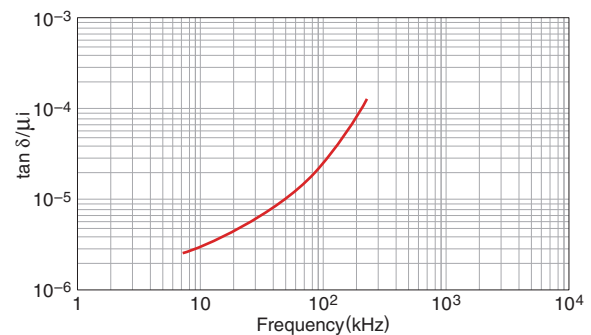
## ■ MATERIAL CHARACTERISTICS

Initial permeability $\mu_i$	Relative loss factor $\tan\delta/\mu_i$ $\times 10^{-6}$	Saturation magnetic flux density* $B_s$ (mT) H=1194A/m 25°C	Remanent flux density* $B_r$ (mT) H=1194A/m 25°C	Coercive force* $H_c$ (A/m) H=1194A/m 25°C	Curie temperature $T_c$ (°C)	Density* $d_b$ (kg/m <sup>3</sup> ) $\times 10^3$	Electrical resistivity* $\rho_v$ ( $\Omega \cdot m$ )
7500±25% (2000min. at 500kHz)	30(100kHz)	410	80	6	>130	4.9	0.2

\* Typ.

□  $\mu_i$  frequency characteristics(Typ.)□  $\mu_i$  temperature characteristics(Typ.)

## □ B-H temperature characteristics(Typ.)

□  $\tan\delta/\mu_i$  frequency characteristics(Typ.)

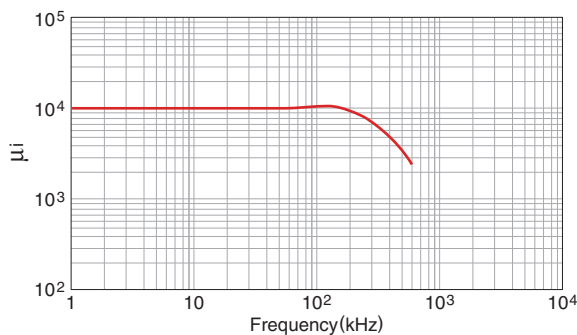
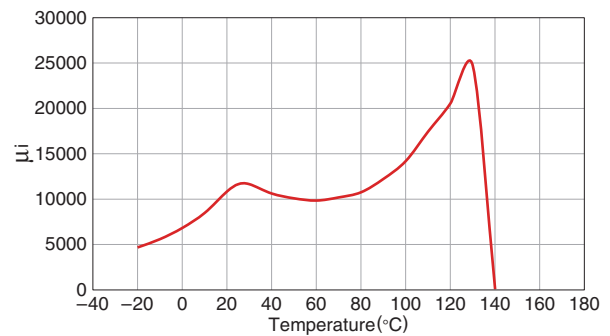


Mn-Zn Ferrite for Switching Power Supplies **Material List of HS10**

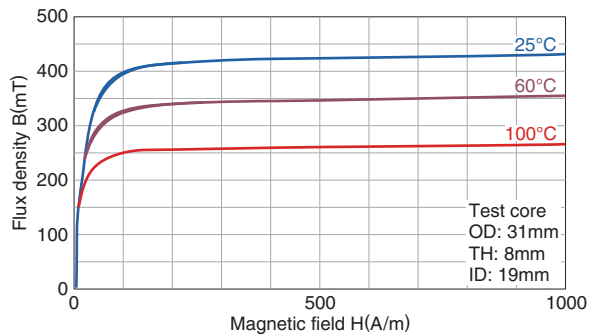
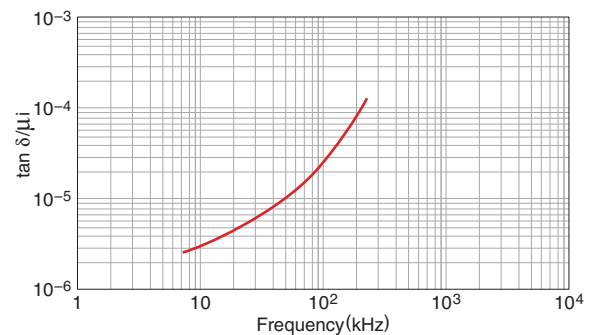
## ■ MATERIAL CHARACTERISTICS

Initial permeability $\mu_i$	Relative loss factor $\tan\delta/\mu_i$ $\times 10^{-6}$	Saturation magnetic flux density* $B_s$ (mT) H=1194A/m 25°C	Remanent flux density* $B_r$ (mT) H=1194A/m 25°C	Coercive force* $H_c$ (A/m) H=1194A/m 25°C	Curie temperature $T_c$ (°C)	Density* $\rho_b$ (kg/m <sup>3</sup> ) $\times 10^3$	Electrical resistivity* $\rho_v$ ( $\Omega \cdot m$ )
10000±25%	30(100kHz)	380	120	5	>120	4.9	0.2

\* Typ.

□  $\mu_i$  frequency characteristics(Typ.)□  $\mu_i$  temperature characteristics(Typ.)

## □ B-H temperature characteristics(Typ.)

□  $\tan\delta/\mu_i$  frequency characteristics(Typ.)

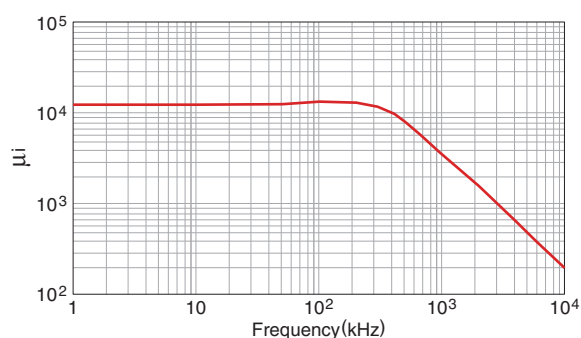
## Mn-Zn Ferrite for Switching Power Supplies Material List of HS12

### ■ MATERIAL CHARACTERISTICS

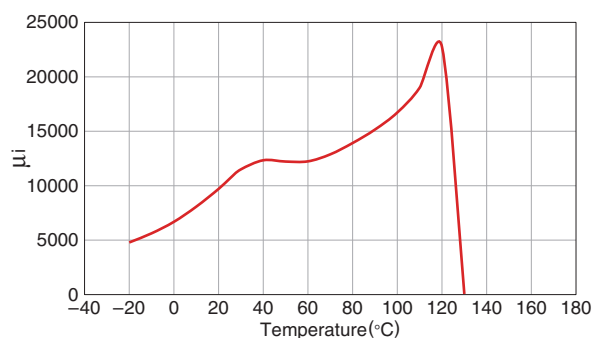
Initial permeability $\mu_i$	Relative loss factor $\tan\delta/\mu_i$  $\times 10^{-6}$	Saturation magnetic flux density* $B_s$  (mT) H=1194A/m 25°C	Remanent flux density* $B_r$  (mT) H=1194A/m 25°C	Coercive force* $H_c$  (A/m) H=1194A/m 25°C	Curie temperature $T_c$  (°C)	Density* $\rho_b$  (kg/m <sup>3</sup> ) $\times 10^3$	Electrical resistivity* $\rho_v$  ( $\Omega \cdot m$ )
12000±25% (at 150kHz)	20(100kHz)	430	80	6	>130	4.9	0.5

\* Typ.

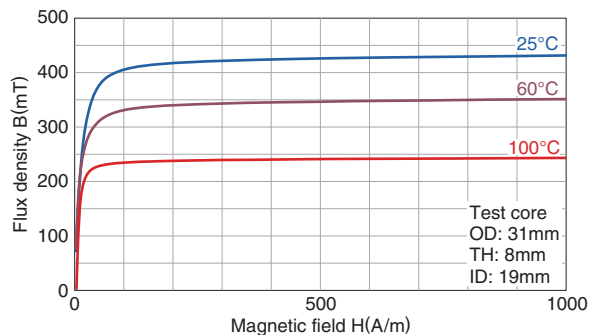
□  $\mu_i$  frequency characteristics(Typ.)



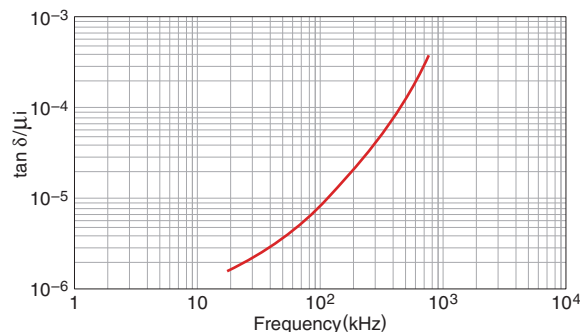
□  $\mu_i$  temperature characteristics(Typ.)



□ B-H temperature characteristics(Typ.)



□  $\tan\delta/\mu_i$  frequency characteristics(Typ.)



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## Mn-Zn Material List of Ferrite Core for Telecommunication

## MATERIAL CHARACTERISTICS

Material	Initial permeability $\mu_i$	Relative loss factor $\tan\delta/\mu_i$ $\times 10^{-6}$	Temperature factor of initial permeability $\alpha_{\mu ir}$ $\times 10^{-6}$ -30 to +20°C 0 to 20°C 20 to 70°C	Saturation magnetic flux density* <b>B<sub>s</sub></b> (mT) H=1194A/m 25°C	Remanent flux density* <b>B<sub>r</sub></b> (mT) H=1194A/m 25°C	Coercive force* <b>H<sub>c</sub></b> (A/m) H=1194A/m 25°C	Curie temperature <b>T<sub>c</sub></b> (°C)	Hysteresis material constant $\eta B$ $\frac{10^{-6}}{mT}$	Disaccommodation factor <b>DF</b> $\times 10^{-6}$	Density* <b>db</b> (kg/m <sup>3</sup> ) $\times 10^3$	Electrical resistivity* $\rho_v$ ( $\Omega \cdot m$ )
H5A	3300 <sup>+40%</sup> <sub>-0%</sub>	<2.5(10kHz) <10(100kHz)	-0.5 to 2.0 — -0.5 to 2.0	410	100	8.0	>130	<0.8	<3	4.8	1
H5B2	7500±25%	<6.5(10kHz)	0 to 1.8 — 0 to 1.8	420	40	5.6	>130	<1.0	<3	4.9	0.1
H5C2	10000±30%	<7.0(10kHz)	-0.5 to 1.5 — -0.5 to 1.5	400	90	7.2	>120	<1.4	<2	4.9	0.15
H5C3	15000±30%	<7.0(10kHz)	-0.5 to 1.5 — -0.5 to 1.5	360	105	4.4	>105	<0.5	<2	4.95	0.15
HP5	5000±20%	<3.5	— ±12.5% ±12.5%	400	65	7.2	>140	<0.4	<3	4.8	0.15
DNW45	4200±25%	<3.5	— — —	450	50	6.5	>150	<0.8	<3	4.85	0.65

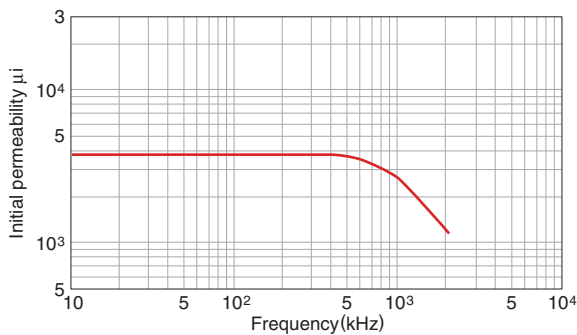
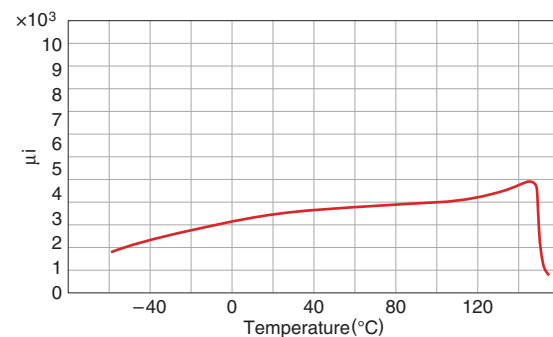
\* Typ.

Mn-Zn Ferrite for Telecommunication **Material List of H5A**

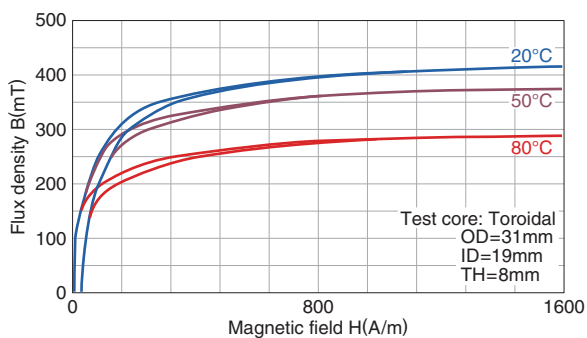
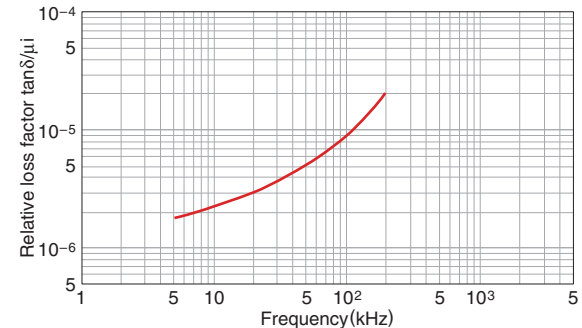
## ■ MATERIAL CHARACTERISTICS

Initial permeability	Relative loss factor	Temperature factor of initial permeability	Saturation magnetic flux density*	Remanent flux density*	Coercive force*	Curie temperature	Hysteresis material constant	Disaccommodation factor	Density*	Electrical resistivity*
$\mu_i$	$\tan\delta/\mu_i$	$\alpha_{\mu i r}$	$B_s$ (mT) H=1194A/m 25°C	$B_r$ (mT) H=1194A/m 25°C	$H_c$ (A/m) H=1194A/m 25°C	$T_c$ (°C)	$\eta B$ $\frac{10^{-6}}{\text{mT}}$	DF $\times 10^{-6}$	db (kg/m <sup>3</sup> ) $\times 10^3$	$\rho_V$ ( $\Omega \cdot \text{m}$ )
3300 +40% -0%	<2.5(10kHz) <10(100kHz)	-0.5 to 2.0 — -0.5 to 2.0	410	100	8.0	>130	<0.8	<3	4.8	1

\* Typ.

□  $\mu_i$  frequency characteristics(Typ.)□  $\mu_i$  temperature characteristics(Typ.)

□ B-H temperature characteristics(Typ.)

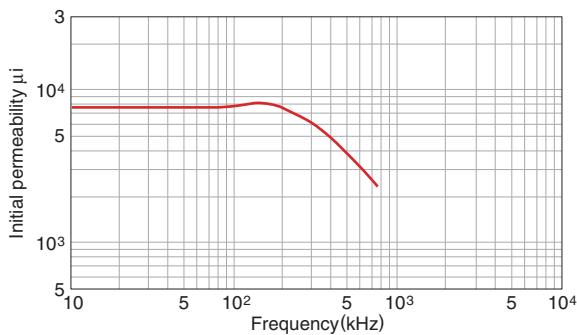
□  $\tan\delta/\mu_i$  frequency characteristics(Typ.)

Mn-Zn Ferrite for Telecommunication **Material List of H5B2**

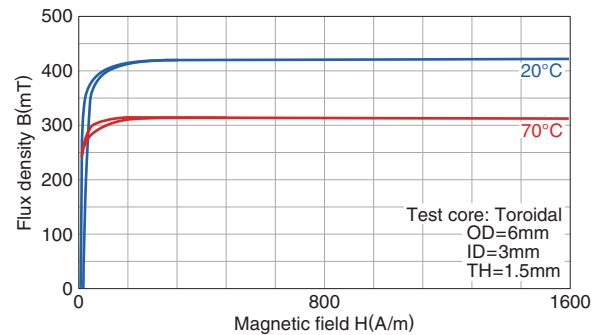
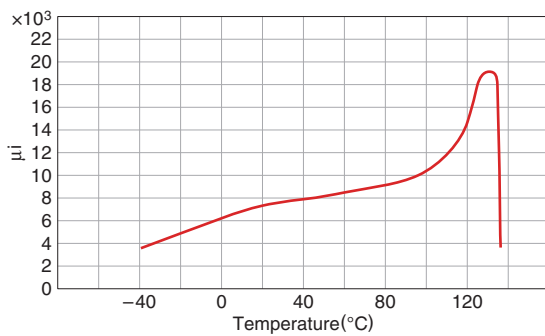
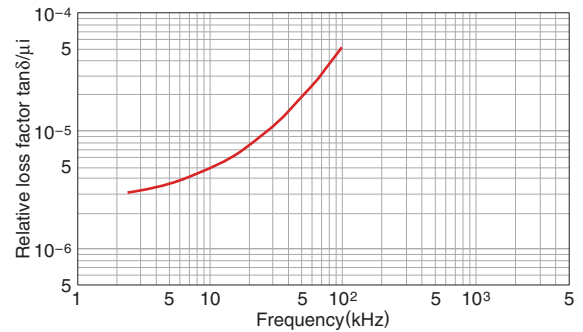
## ■ MATERIAL CHARACTERISTICS

Initial permeability	Relative loss factor	Temperature factor of initial permeability	Saturation magnetic flux density*	Remanent flux density*	Coercive force*	Curie temperature	Hysteresis material constant	Disaccommodation factor	Density*	Electrical resistivity*
$\mu_i$	$\tan\delta/\mu_i$	$\alpha_{\mu ir}$	$B_s$ (mT) H=1194A/m 25°C	$B_r$ (mT) H=1194A/m 25°C	$H_c$ (A/m) H=1194A/m 25°C	$T_c$ (°C)	$\eta B$ $\frac{10^{-6}}{mT}$	DF $\times 10^{-6}$	db (kg/m <sup>3</sup> ) $\times 10^3$	$\rho v$ ( $\Omega \cdot m$ )
7500±25%	<6.5(10kHz)	0 to 1.8 — 0 to 1.8	420	40	5.6	>130	<1.0	<3	4.9	0.1

\* Typ.

□  $\mu_i$  frequency characteristics(Typ.)

## □ B-H temperature characteristics(Typ.)

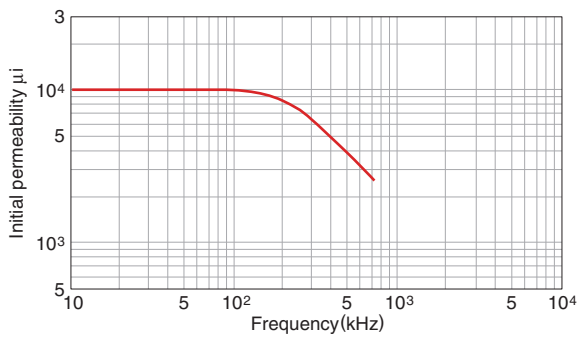
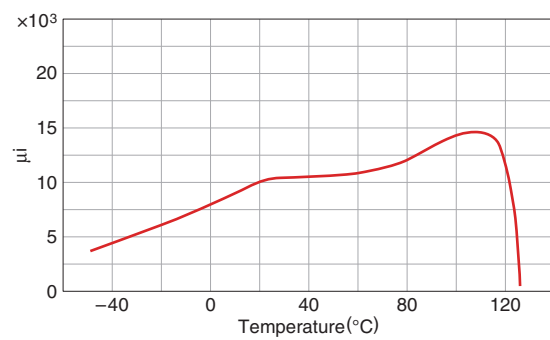
□  $\mu_i$  temperature characteristics(Typ.)□  $\tan\delta/\mu_i$  frequency characteristics(Typ.)

Mn-Zn Ferrite for Telecommunication **Material List of H5C2**

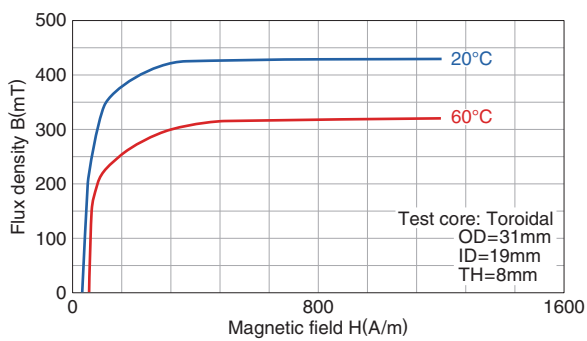
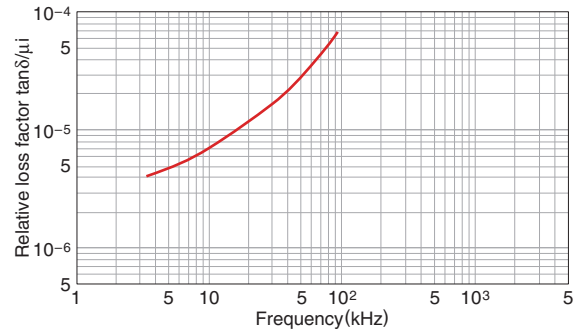
## ■ MATERIAL CHARACTERISTICS

Initial permeability	Relative loss factor	Temperature factor of initial permeability	Saturation magnetic flux density*	Remanent flux density*	Coercive force*	Curie temperature	Hysteresis material constant	Disaccommodation factor	Density*	Electrical resistivity*
$\mu_i$	$\tan\delta/\mu_i$	$\alpha_{\mu i r}$	$B_s$ (mT) H=1194A/m 25°C	$B_r$ (mT) H=1194A/m 25°C	$H_c$ (A/m) H=1194A/m 25°C	$T_c$ (°C)	$\eta B$ $\frac{10^{-6}}{mT}$	DF $\times 10^{-6}$	db (kg/m <sup>3</sup> ) $\times 10^3$	$\rho_V$ ( $\Omega \cdot m$ )
10000±30%	<7.0(10kHz)	-0.5 to 1.5 — -0.5 to 1.5	400	90	7.2	>120	<1.4	<2	4.9	0.15

\* Typ.

□  $\mu_i$  frequency characteristics(Typ.)□  $\mu_i$  temperature characteristics(Typ.)

□ B-H temperature characteristics(Typ.)

□  $\tan\delta/\mu_i$  frequency characteristics(Typ.)

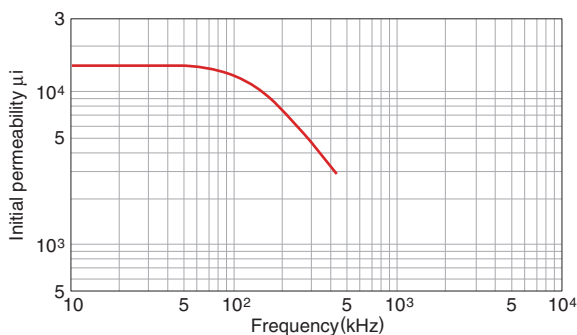
# Mn-Zn Ferrite for Telecommunication Material List of H5C3

**■ MATERIAL CHARACTERISTICS**

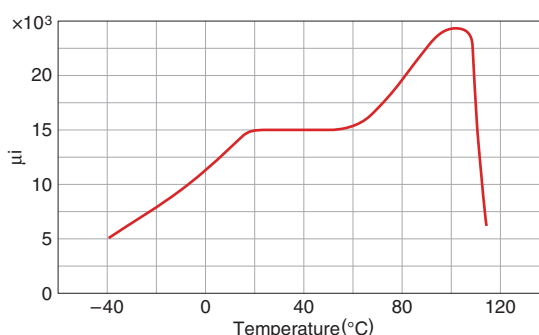
Initial permeability	Relative loss factor	Temperature factor of initial permeability	Saturation magnetic flux density*	Remanent flux density*	Coercive force*	Curie temperature	Hysteresis material constant	Disaccommodation factor	Density*	Electrical resistivity*
$\mu_i$	$\tan\delta/\mu_i$ $\times 10^{-6}$	$\alpha_{\mu ir}$ $\times 10^{-6}$ -30 to +20°C 0 to 20°C 20 to 70°C	<b>B<sub>s</sub></b> (mT) H=1194A/m 25°C	<b>B<sub>r</sub></b> (mT) H=1194A/m 25°C	<b>H<sub>c</sub></b> (A/m) H=1194A/m 25°C	<b>T<sub>c</sub></b> (°C)	$\eta B$ $\frac{10^{-6}}{mT}$	DF $\times 10^{-6}$	<b>d<sub>b</sub></b> (kg/m <sup>3</sup> ) $\times 10^3$	$\rho_V$ ( $\Omega \cdot m$ )
15000±30%	<7.0(10kHz)	-0.5 to 1.5 — -0.5 to 1.5	360	105	4.4	>105	<0.5	<2	4.95	0.15

\* Typ.

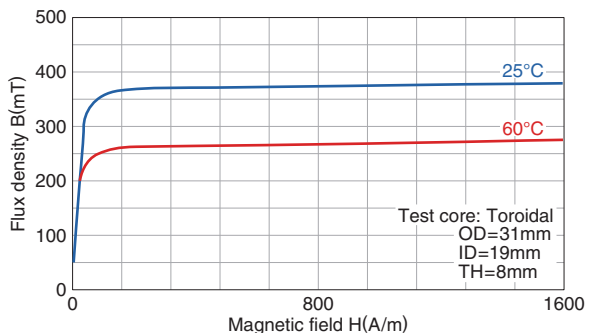
□  $\mu_i$  frequency characteristics(Typ.)



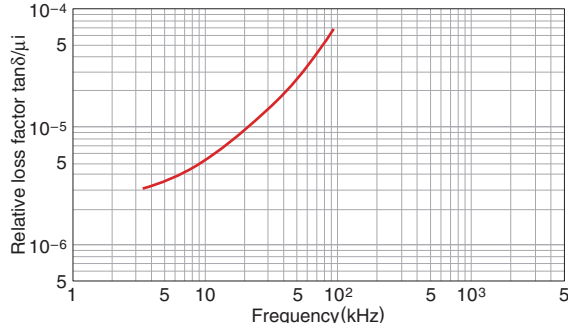
□  $\mu_i$  temperature characteristics(Typ.)



□ B-H temperature characteristics(Typ.)



□  $\tan\delta/\mu_i$  frequency characteristics(Typ.)



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

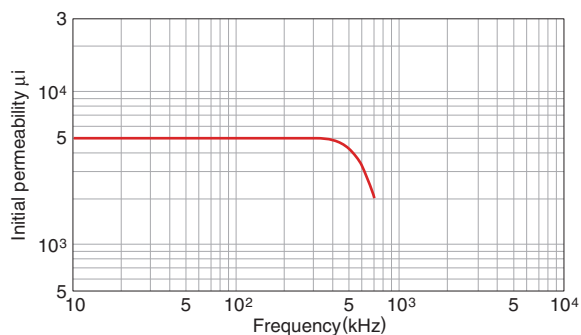
# Mn-Zn Ferrite for Telecommunication **Material List of HP5**

## ■ MATERIAL CHARACTERISTICS

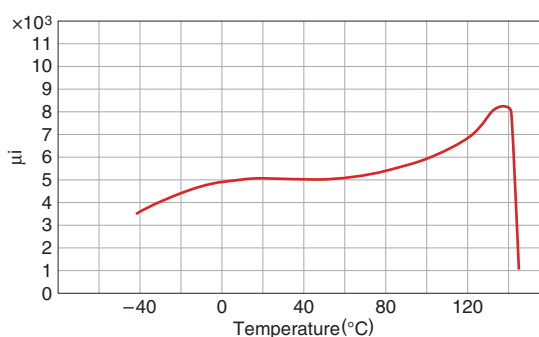
Initial permeability	Relative loss factor	Temperature factor of initial permeability	Saturation magnetic flux density*	Remanent flux density*	Coercive force*	Curie temperature	Hysteresis material constant	Disaccommodation factor	Density*	Electrical resistivity*
$\mu_i$	$\tan\delta/\mu_i$	$\alpha_{\mu ir}$	<b>B<sub>s</sub></b> (mT) H=1194A/m 25°C	<b>B<sub>r</sub></b> (mT) H=1194A/m 25°C	<b>H<sub>c</sub></b> (A/m) H=1194A/m 25°C	<b>T<sub>c</sub></b> (°C)	$\eta B$ $\frac{10^{-6}}{mT}$	<b>DF</b> $\times 10^{-6}$	<b>db</b> (kg/m <sup>3</sup> ) $\times 10^3$	$\rho V$ ( $\Omega \cdot m$ )
5000±20%	<3.5	— ±12.5% ±12.5%	400	65	7.2	>140	<0.4	<3	4.8	0.15

\* Typ.

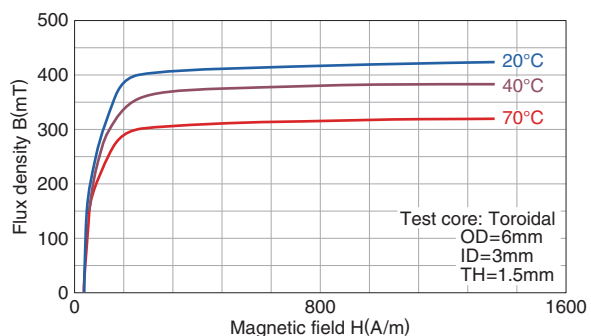
□  $\mu_i$  frequency characteristics(Typ.)



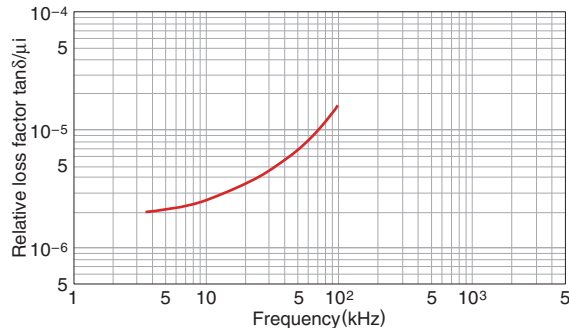
□  $\mu_i$  temperature characteristics(Typ.)



□ B-H temperature characteristics(Typ.)



□  $\tan\delta/\mu_i$  frequency characteristics(Typ.)



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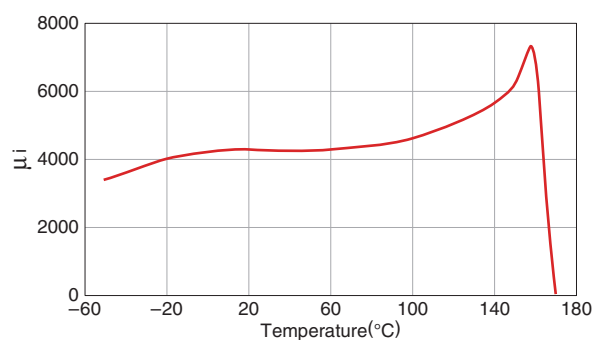
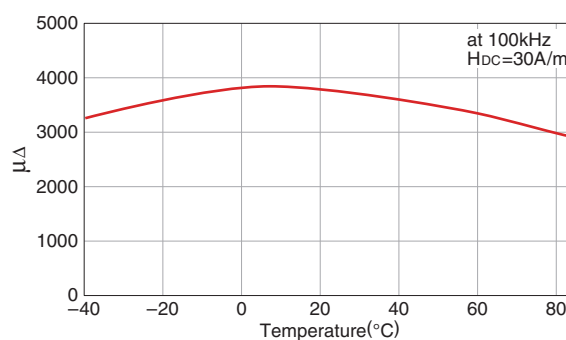


Mn-Zn Ferrite for Telecommunication **Material List of DNW45**

## ■ MATERIAL CHARACTERISTICS

Initial permeability	Relative loss factor	Temperature factor of initial permeability	Saturation magnetic flux density*	Remanent flux density*	Coercive force*	Curie temperature	Hysteresis material constant	Disaccommodation factor	Density*	Electrical resistivity*
$\mu_i$	$\tan\delta/\mu_i$	$\alpha_{\mu ir}$	$B_s$ (mT) H=1194A/m 25°C	$B_r$ (mT) H=1194A/m 25°C	$H_c$ (A/m) H=1194A/m 25°C	$T_c$ (°C)	$\eta B$ $\frac{10^{-6}}{mT}$	DF $\times 10^{-6}$	db (kg/m <sup>3</sup> ) $\times 10^3$	$\rho_V$ ( $\Omega \cdot m$ )
4200±25%	<3.5	— — —	450	50	6.5	>150	<0.8	<3	4.85	0.65

\* Typ.

□  $\mu_i$  temperature characteristics(Typ.)□  $\mu\Delta$  temperature characteristics(Typ.)

## Mn-Zn Material List of Large Size Ferrite for High Power

## MATERIAL CHARACTERISTICS

Material	Initial permeability $\mu_i$	Curie temperature $T_c$ (°C)	Saturation magnetic flux density $B_s$ (mT) H=1194A/m		Remanent flux density $B_r$ (mT) H=1194A/m	Coercive force $H_c$ (A/m) H=1194A/m	Core loss $P_{cv}$ (kW/m <sup>3</sup> ) B=200mT			Electrical resistivity $\rho$ ( $\Omega \cdot m$ )	Approximate density $d_{app}$ (kg/m <sup>3</sup> ) $\times 10^3$	Thermal expansion coefficient $\alpha$ (1/K) $\times 10^{-6}$	Thermal conductivity $\kappa$ (W/mK)	Specific heat $C_p$ (J/kg · K)	Bending strength $\delta b_3$ (N/m <sup>2</sup> ) $\times 10^7$	Young's modulus $E$ (N/m <sup>2</sup> ) $\times 10^{11}$	Magnetostriction $\lambda_s$ $\times 10^{-6}$
			23°C	100°C			23°C	23°C	25kHz								
PE22	1800	>200	510	410	140	16	79	80	520	3.0	4.8	12	5	600	9	1.2	-0.6
PC40	2300	>200	500	380	125	15	64	70	420	6.5	4.8	12	5	600	9	1.2	-0.6
PE90	2200	>250	530	430	170	13	60	68	400	6.0	4.9	12	5	600	9	1.2	-0.6

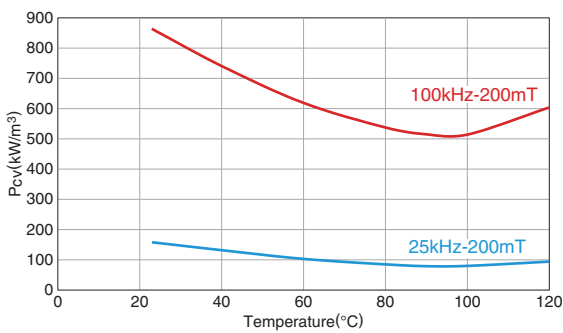
# FERRITES TDK

## Mn-Zn Large Size Ferrite for High Power Material List of PE22

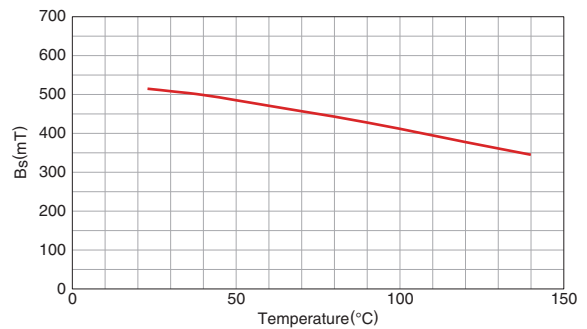
### ■ MATERIAL CHARACTERISTICS

Initial permeability $\mu_i$	Curie temperature $T_c$ (°C)	Saturation magnetic flux density $B_s$ (mT) H=1194A/m		Remanent flux density $B_r$ (mT) H=1194A/m	Coercive force $H_c$ (A/m) H=1194A/m	Core loss			Electrical resistivity $\rho$ ( $\Omega \cdot m$ )	Approximate density $d_{app}$ (kg/m <sup>3</sup> ) $\times 10^3$	Thermal expansion coefficient $\alpha$ (1/K) $\times 10^{-6}$	Thermal conductivity $\kappa$ (W/mK)	Specific heat $C_p$ (J/kg · K)	Bending strength $\delta b_3$ (N/m <sup>2</sup> ) $\times 10^7$	Young's modulus $E$ (N/m <sup>2</sup> ) $\times 10^{11}$	Magnetostriction $\lambda_s$ $\times 10^{-6}$
		23°C	100°C			23°C	25kHz	90°C								
1800	>200	510	410	140	16	79	80	520	3.0	4.8	12	5	600	9	1.2	-0.6

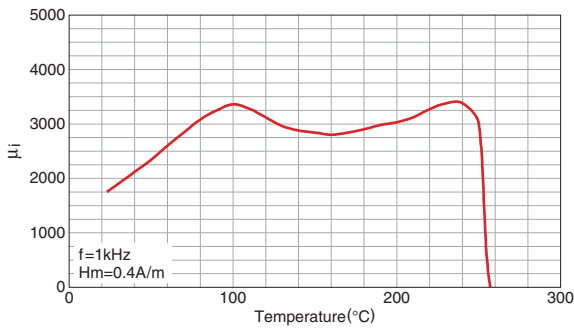
□ Core loss vs. temperature characteristics(Typ.)



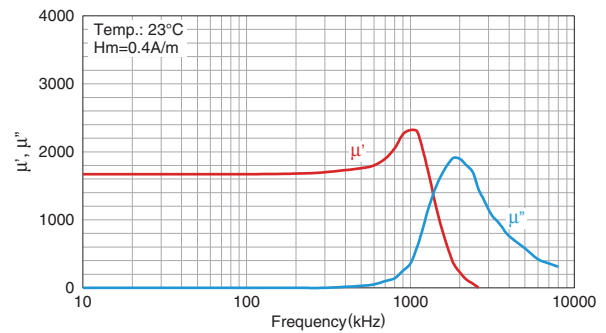
□ Saturation magnetic flux density vs. temperature characteristics(Typ.)



□ Initial magnetic permeability vs. temperature characteristics(Typ.)



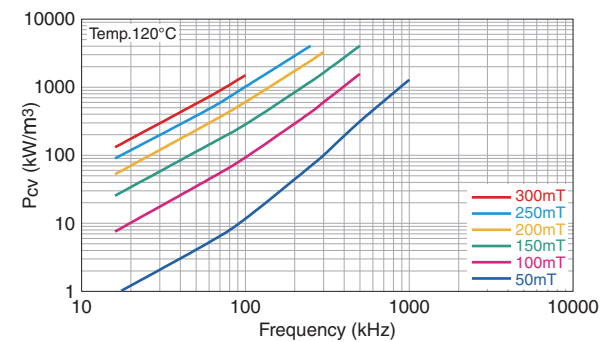
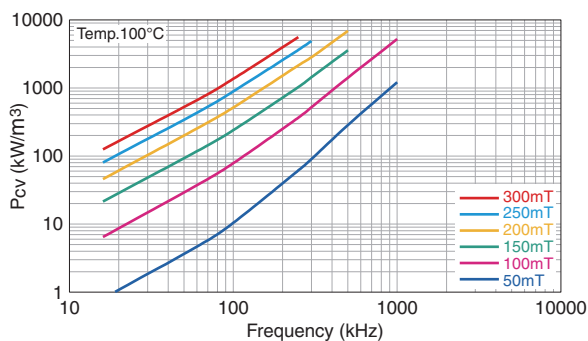
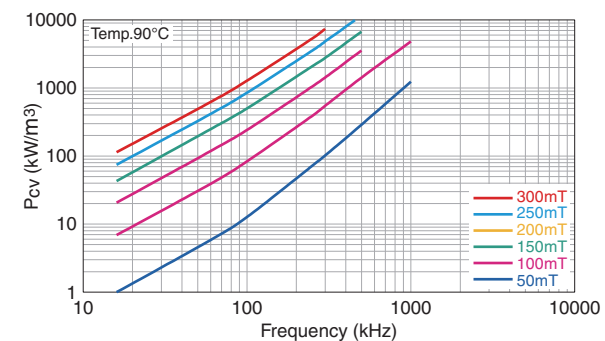
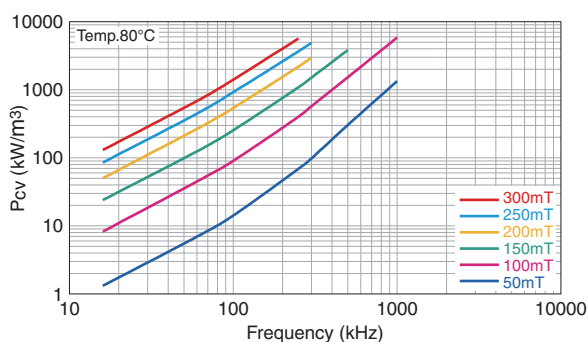
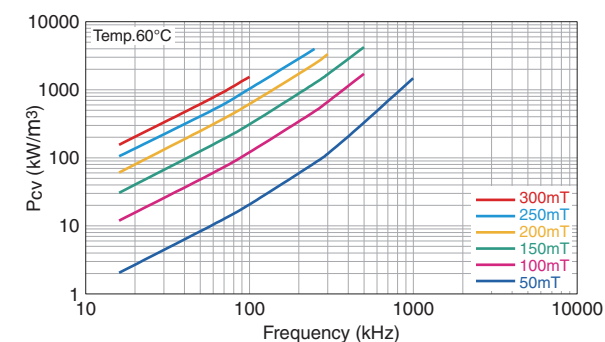
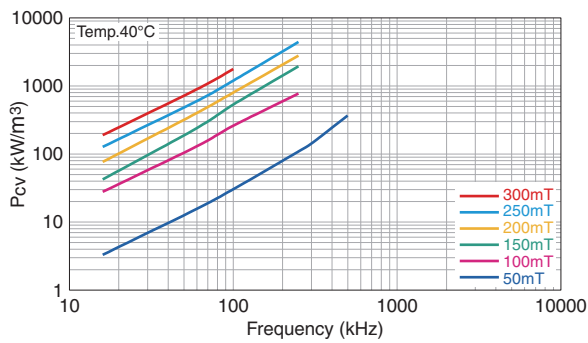
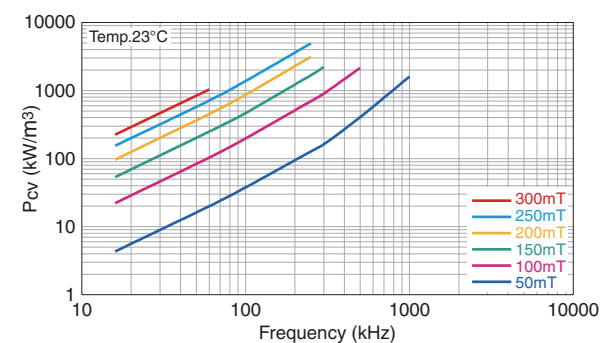
□ Magnetic permeability vs. frequency characteristics(Typ.)



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

# Mn-Zn Large Size Ferrite for High Power Material List of PE22

## Core loss vs. temperature characteristics



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

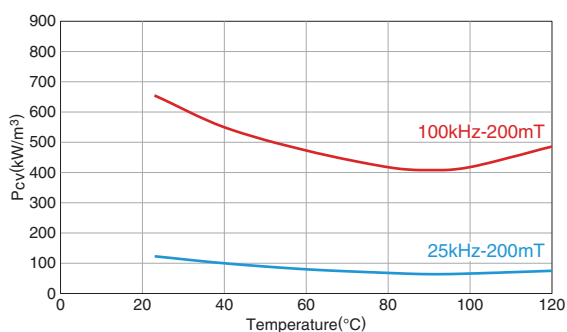
# FERRITES TDK

## Mn-Zn Large Size Ferrite for High Power Material List of PC40

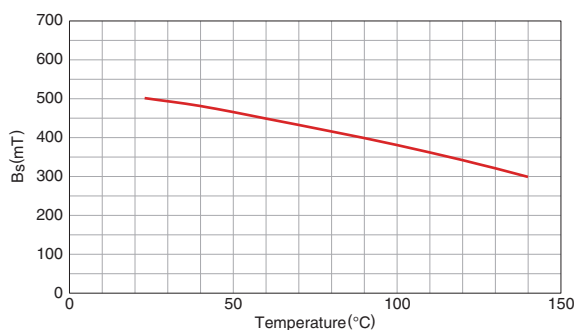
### ■ MATERIAL CHARACTERISTICS

Initial permeability $\mu_i$	Curie temperature $T_c$ (°C)	Saturation magnetic flux density $B_s$ (mT) H=1194A/m		Remanent flux density $B_r$ (mT) H=1194A/m	Coercive force $H_c$ (A/m) H=1194A/m	Core loss			Electrical resistivity $\rho$ ( $\Omega \cdot m$ )	Approximate density $d_{app}$ ( $kg/m^3$ ) $\times 10^3$	Thermal expansion coefficient $\alpha$ (1/K) $\times 10^{-6}$	Thermal conductivity $\kappa$ (W/mK)	Specific heat $C_p$ (J/kg · K)	Bending strength $\delta b_3$ (N/m <sup>2</sup> ) $\times 10^7$	Young's modulus $E$ (N/m <sup>2</sup> ) $\times 10^{11}$	Magnetostriction $\lambda_s$ $\times 10^{-6}$
		23°C	100°C			23°C	23°C	25kHz								
2300	>200	500	380	125	15	64	70	420	6.5	4.8	12	5	600	9	1.2	-0.6

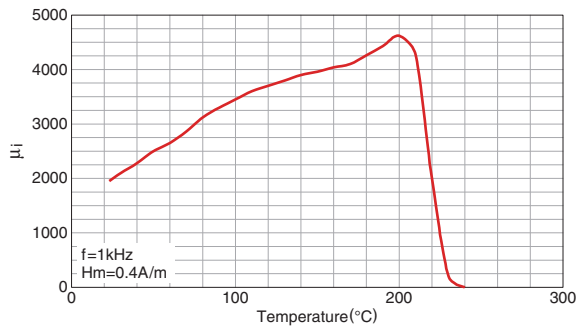
□ Core loss vs. temperature characteristics(Typ.)



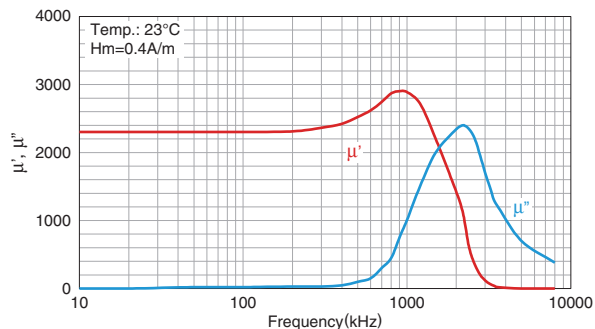
□ Saturation magnetic flux density vs. temperature characteristics(Typ.)



□ Initial magnetic permeability vs. temperature characteristics(Typ.)



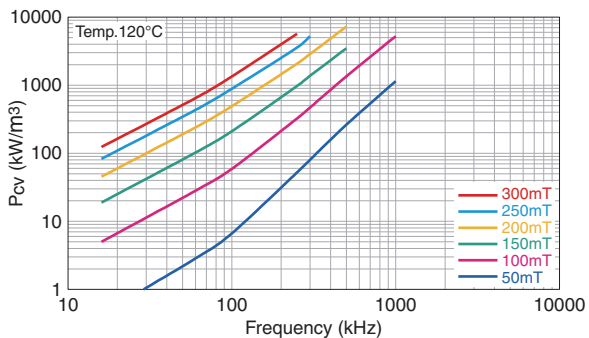
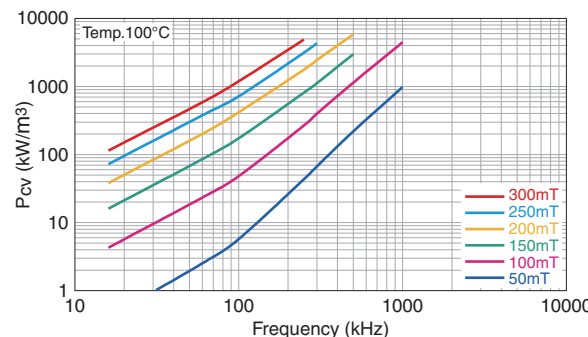
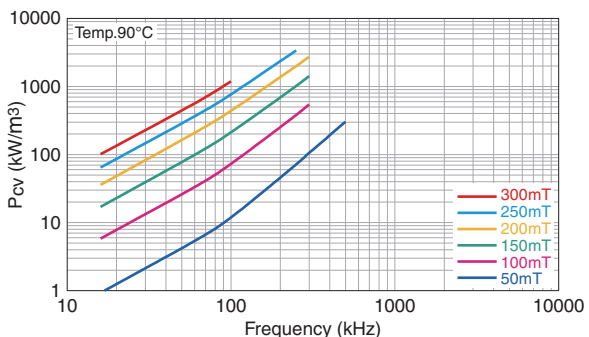
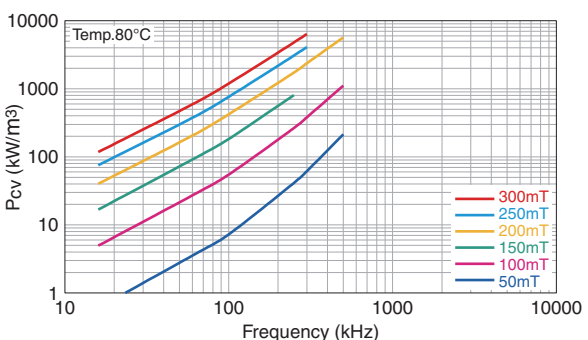
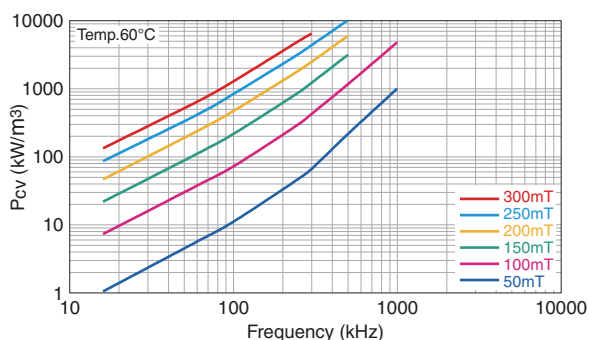
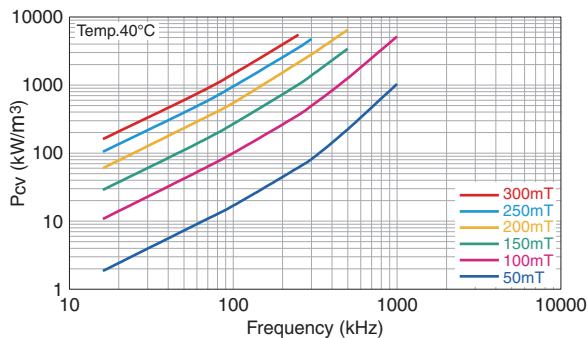
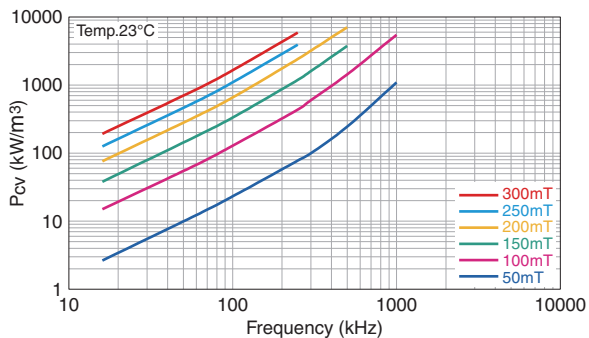
□ Magnetic permeability vs. frequency characteristics(Typ.)



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

# Mn-Zn Large Size Ferrite for High Power **Material List of PC40**

## Core loss vs. temperature characteristics



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

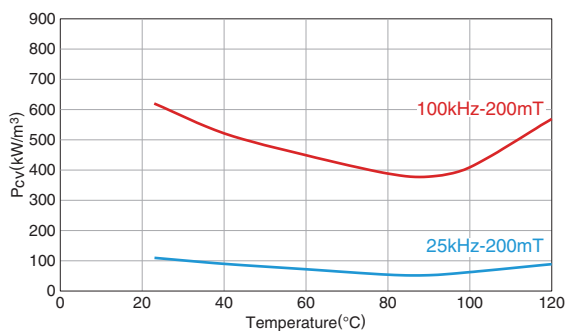
# FERRITES TDK

## Mn-Zn Large Size Ferrite for High Power Material List of PE90

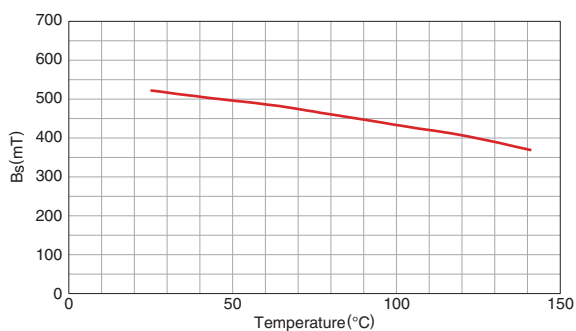
### ■ MATERIAL CHARACTERISTICS

Initial permeability $\mu_i$	Curie temperature $T_c$ (°C)	Saturation magnetic flux density $B_s$ (mT) H=1194A/m		Remanent flux density $B_r$ (mT) H=1194A/m	Coercive force $H_c$ (A/m) H=1194A/m	Core loss			Electrical resistivity $\rho$ ( $\Omega \cdot m$ )	Approximate density $d_{app}$ ( $kg/m^3$ ) $\times 10^3$	Thermal expansion coefficient $\alpha$ (1/K) $\times 10^{-6}$	Thermal conductivity $\kappa$ (W/mK)	Specific heat $C_p$ (J/kg · K)	Bending strength $\delta b_3$ (N/m <sup>2</sup> ) $\times 10^7$	Young's modulus $E$ (N/m <sup>2</sup> ) $\times 10^{11}$	Magnetostriction $\lambda_s$ $\times 10^{-6}$
		23°C	100°C			23°C	23°C	25kHz								
2200	>250	530	430	170	13	60	68	400	6.0	4.9	12	5	600	9	1.2	-0.6

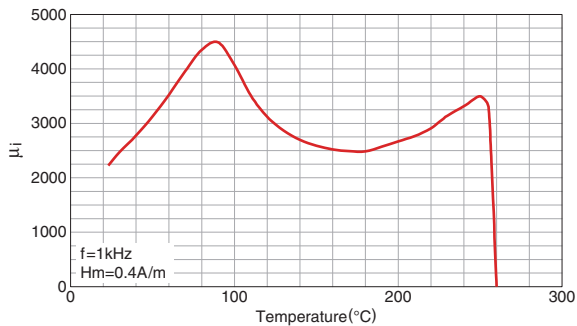
□ Core loss vs. temperature characteristics(Typ.)



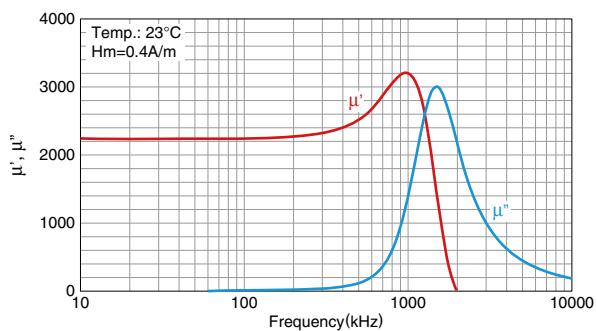
□ Saturation magnetic flux density vs. temperature characteristics(Typ.)



□ Initial magnetic permeability vs. temperature characteristics(Typ.)



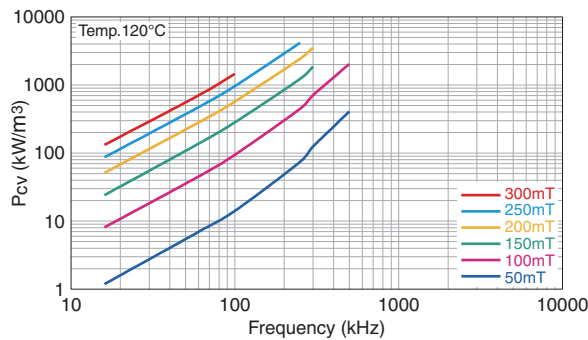
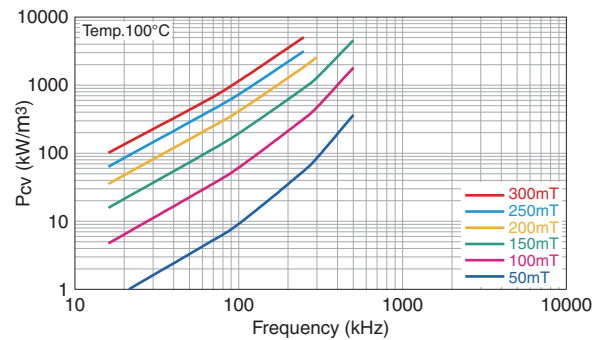
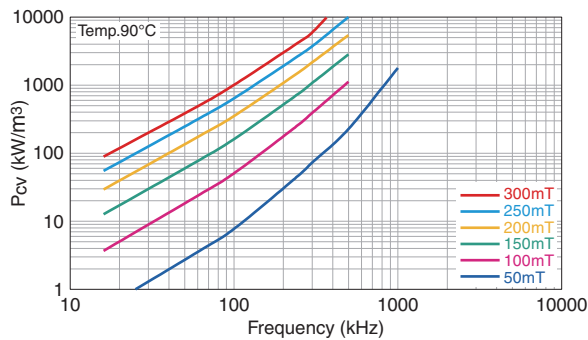
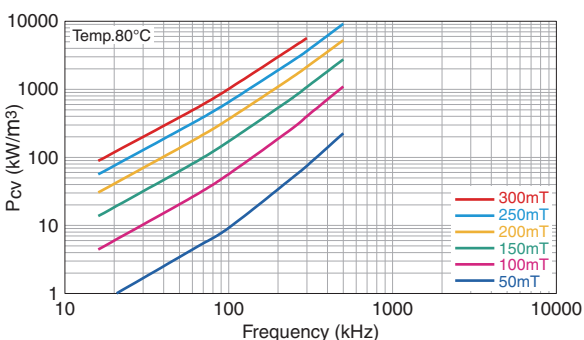
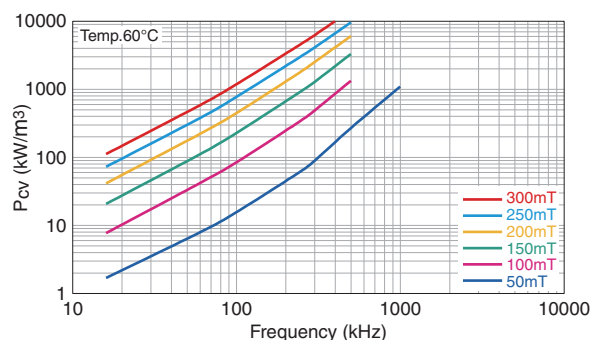
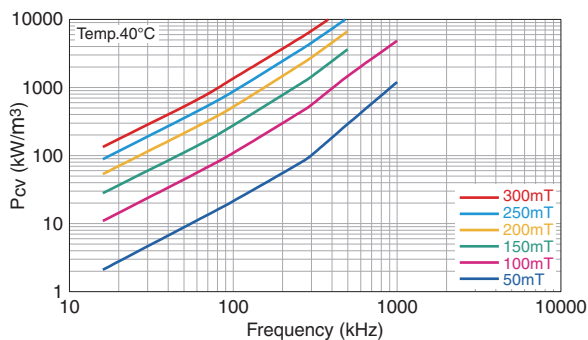
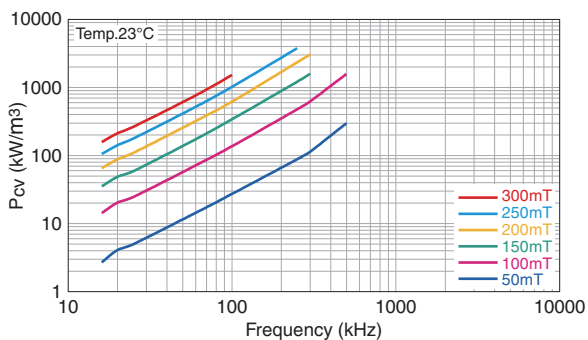
□ Magnetic permeability vs. frequency characteristics(Typ.)



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

# Mn-Zn Large Size Ferrite for High Power **Material List of PE90**

## Core loss vs. temperature characteristics



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.