TDK

July 2021

Mn-Zn Ferrite

Material characteristics

Ferrite for switching power supplies
Ferrite for high-frequency power supplies
Large size ferrite for high power
Ferrite for telecommunication

⚠ 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.
If you intend to use the products in the applications listed below or if you have special requirements exceeding the range or conditions set forth in this catalog, please contact us.

(1) Aerospace/aviation equipment
(2) Transportation equipment (cars, 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 these products in general purposes and standard use, it is recommended that protection circuits are used, devices are secured, and backup circuits are kept for increased safety.

Contents

Mn-Zn Material list of ferrite for switching power supplies

MATERIAL CHARACTERISTICS

Material	Initial permeability μi	Core loss volume density (Core loss)* Pcv (kW/m³) 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/m³) ×10³	Electrical resistivity* ρv (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 μi	Relative loss factor* tanδ/μi ×10⁻⁶	Saturation magnetic flux density* Bs (mT) H=1194A/m 25°C	Remanent flux density* Br (mT) H=1194A/m 25°C	Coercive force* Hc (A/m) H=1194A/m 25°C	Curie temperature Tc (°C)	Density* db (kg/m³) ×10³	Electrical resistivity* ρv (Ω • m)
HS72	7500±25% (2000min. at 500kHz)	30(100kHz)	430	55	4	>130	4.9	0.2
HS10	10000±25%	30(100kHz)	400	70	3	>120	4.9	0.2

* Typ.

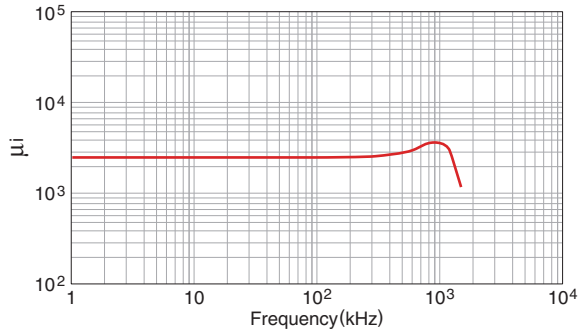
Mn-Zn Ferrite for switching power supplies **Material list of PC47**

MATERIAL CHARACTERISTICS

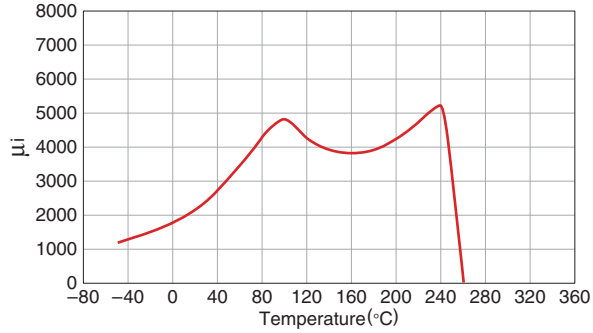
Initial permeability μi	Core loss volume density (Core loss)* Pcv (kW/m³) B=200mT 100kHz sine wave				Saturation magnetic flux density* Bs (mT) H=1194A/m				Remanent flux density* Br (mT) H=1194A/m				Coercive force* Hc (A/m) H=1194A/m				Curie temperature Tc (°C)	Density* db (kg/m³) ×10³	Electrical resistivity* ρv (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			
2500±25%	600	400	250	360	530	480	420	390	180	100	60	60	13	9	6	7	>230	4.9	4

* Typ.

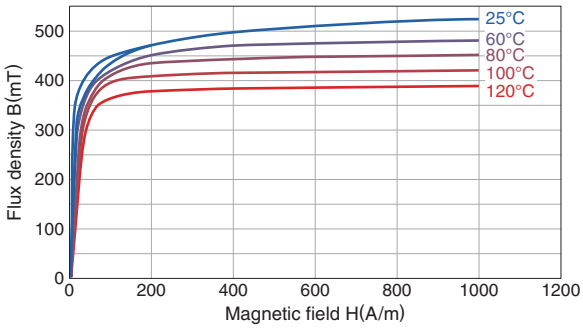
μi frequency characteristics (Typ.)



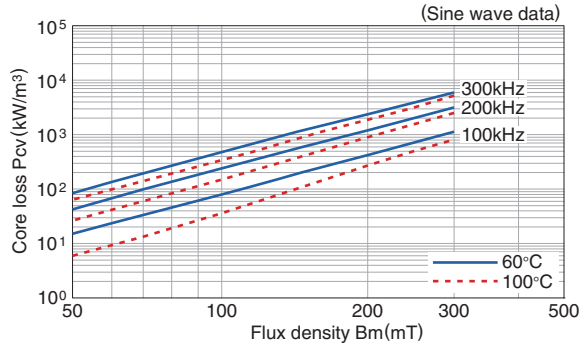
μi temperature characteristics (Typ.)



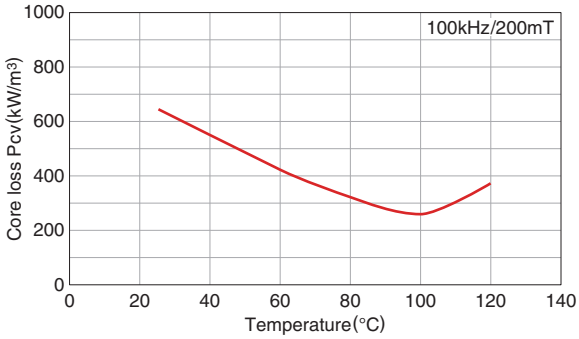
B-H temperature characteristics (Typ.)



Core loss (Typ.)



Temperature dependence of core loss (Typ.)



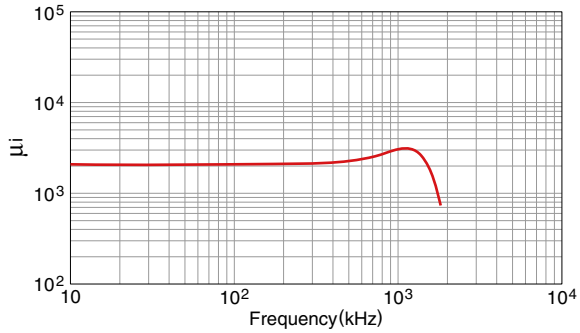
Mn-Zn Ferrite for switching power supplies **Material list of PC90**

MATERIAL CHARACTERISTICS

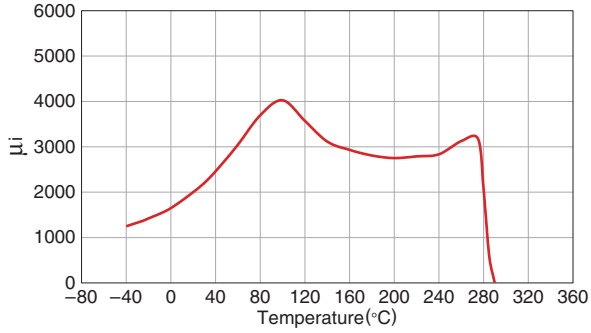
Initial permeability μi	Core loss volume density (Core loss)* Pcv (kW/m³) B=200mT 100kHz sine wave				Saturation magnetic flux density* Bs (mT) H=1194A/m				Remanent flux density* Br (mT) H=1194A/m				Coercive force* Hc (A/m) H=1194A/m				Curie temperature Tc (°C)	Density* db (kg/m³) ×10³	Electrical resistivity* ρv (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.

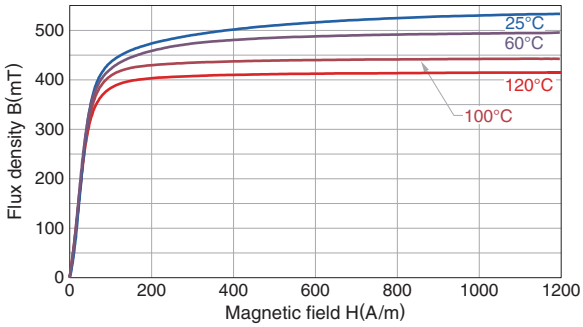
μi frequency characteristics (Typ.)



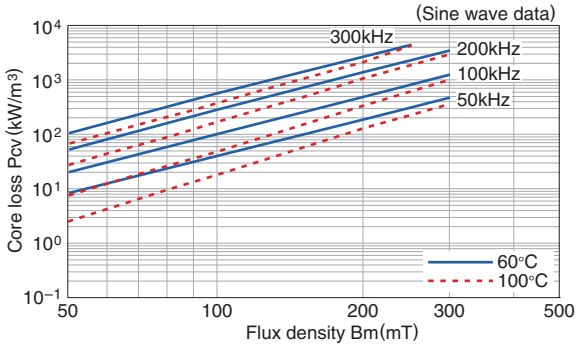
μi temperature characteristics (Typ.)



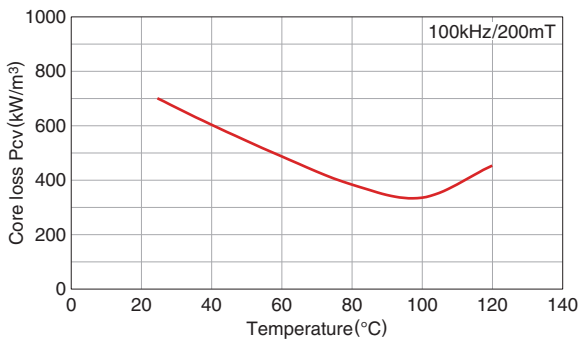
B-H temperature characteristics (Typ.)



Core loss (Typ.)



Temperature dependence of core loss (Typ.)



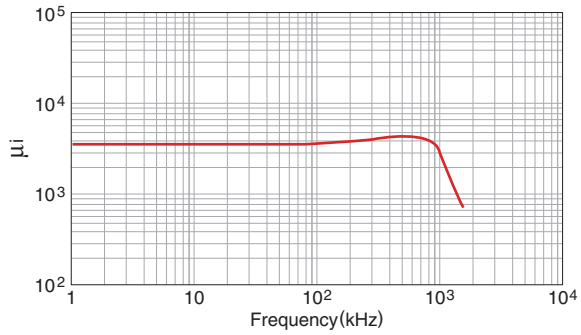
Mn-Zn Ferrite for switching power supplies **Material list of PC95**

MATERIAL CHARACTERISTICS

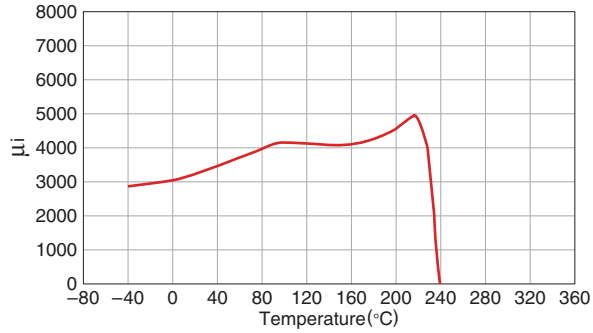
Initial permeability μi	Core loss volume density (Core loss)* Pcv (kW/m³) B=200mT 100kHz sine wave				Saturation magnetic flux density* Bs (mT) H=1194A/m				Remanent flux density* Br (mT) H=1194A/m				Coercive force* Hc (A/m) H=1194A/m				Curie temperature Tc (°C)	Density* db (kg/m³) ×10³	Electrical resistivity* ρv (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			
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.

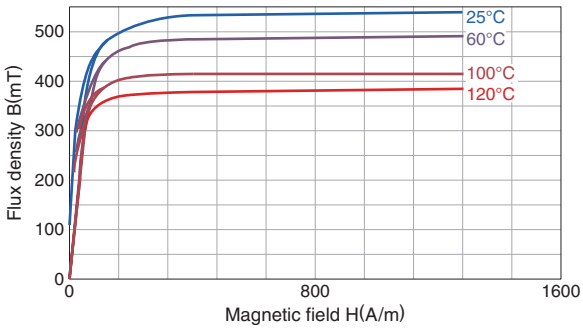
□μi frequency characteristics (Typ.)



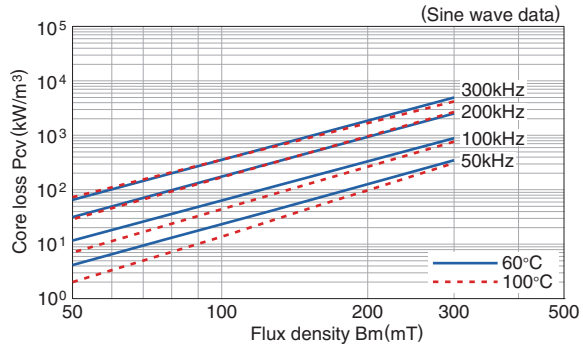
□μi temperature characteristics (Typ.)



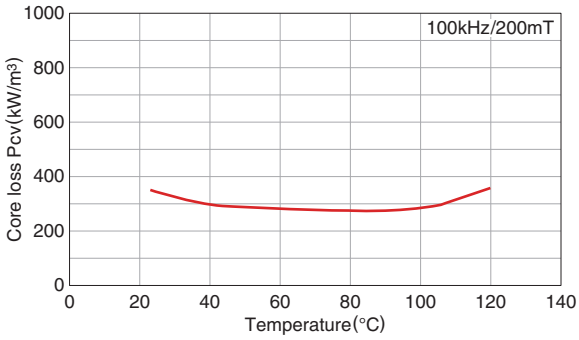
□B-H temperature characteristics (Typ.)



□Core loss (Typ.)



□Temperature dependence of core loss (Typ.)



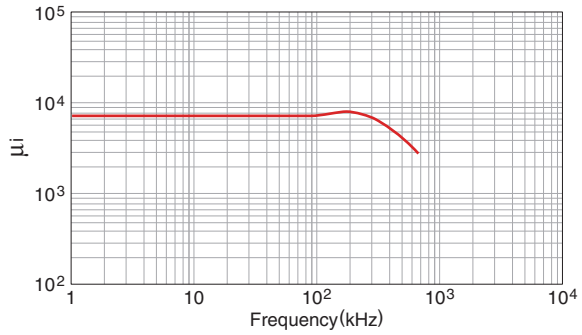
Mn-Zn Ferrite for switching power supplies **Material list of HS72**

MATERIAL CHARACTERISTICS

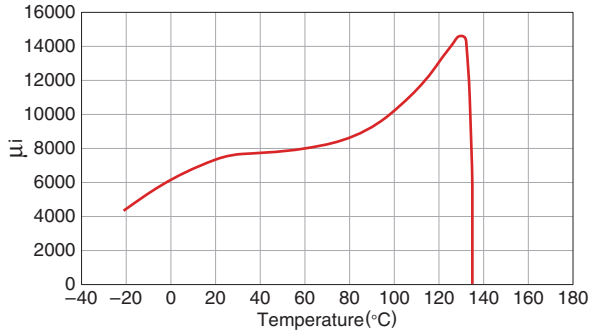
Initial permeability μi	Relative loss factor* tanδ/μi ×10⁻⁶	Saturation magnetic flux density* Bs (mT) H=1194A/m 25°C	Remanent flux density* Br (mT) H=1194A/m 25°C	Coercive force* Hc (A/m) H=1194A/m 25°C	Curie temperature Tc (°C)	Density* db (kg/m³) ×10³	Electrical resistivity* ρv (Ω • m)
7500±25% (2000min. at 500kHz)	30(100kHz)	430	55	4	>130	4.9	0.2

* Typ.

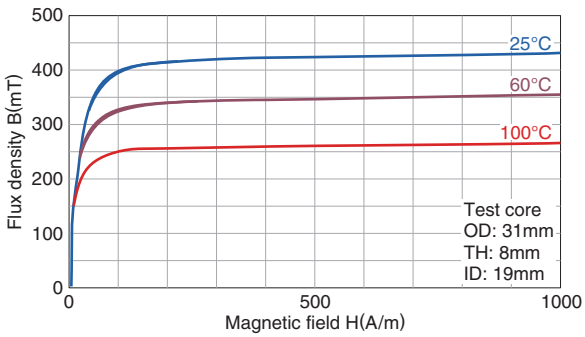
□μi frequency characteristics (Typ.)



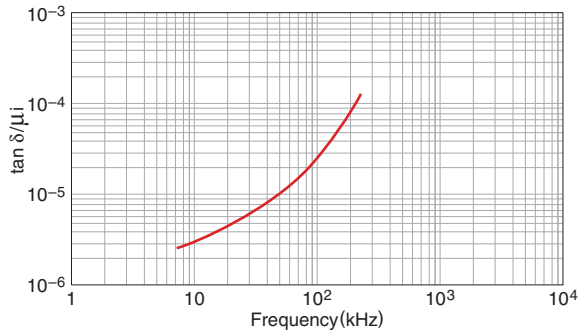
□μi temperature characteristics (Typ.)



□B-H temperature characteristics (Typ.)



□tanδ/ μi frequency characteristics (Typ.)



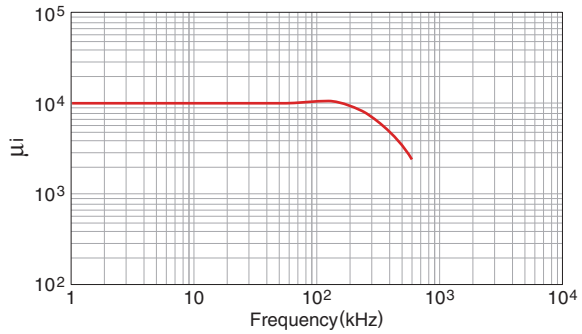
Mn-Zn Ferrite for switching power supplies **Material list of HS10**

MATERIAL CHARACTERISTICS

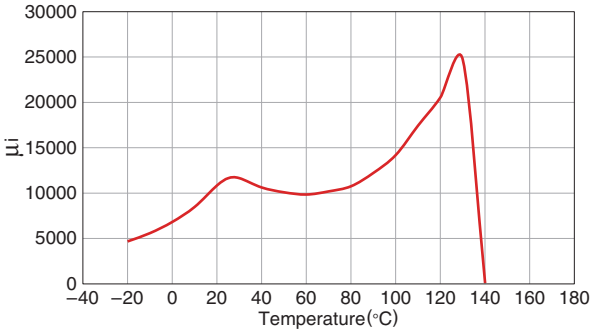
Initial permeability μi	Relative loss factor* tanδ/μi ×10⁻⁶	Saturation magnetic flux density* Bs (mT) H=1194A/m 25°C	Remanent flux density* Br (mT) H=1194A/m 25°C	Coercive force* Hc (A/m) H=1194A/m 25°C	Curie temperature Tc (°C)	Density* db (kg/m³) ×10³	Electrical resistivity* ρv (Ω • m)
10000±25%	30(100kHz)	400	70	3	>120	4.9	0.2

* Typ.

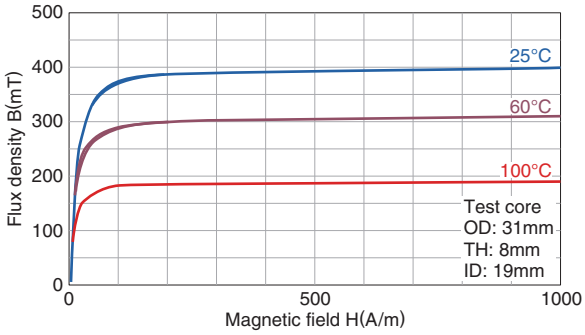
μi frequency characteristics (Typ.)



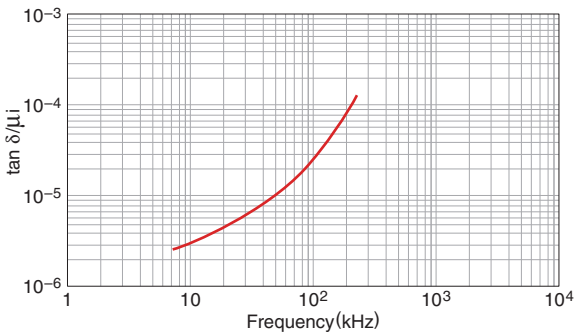
μi temperature characteristics (Typ.)



B-H temperature characteristics (Typ.)



tanδ/ μi frequency characteristics (Typ.)



Mn-Zn Material list of ferrite for high-frequency power supplies

MATERIAL CHARACTERISTICS

Material	Initial permeability μi	Core loss volume density (Core loss)* Pcv (kW/m³) 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/m³) ×10³	Electrical resistivity* (Ω • m)
		500kHz B=50mT		1MHz B=50mT		2MHz B=30mT										
		25°C	100°C	25°C	100°C	25°C	100°C	25°C	100°C	25°C	100°C	25°C	100°C			
PC50	1400±25%	130	80					470	380	140	98	37	27	>240	4.8	30
PC200	800±25%			145	180	160	200	485	410	141	144	51	48	>280	4.9	22

* Typ.

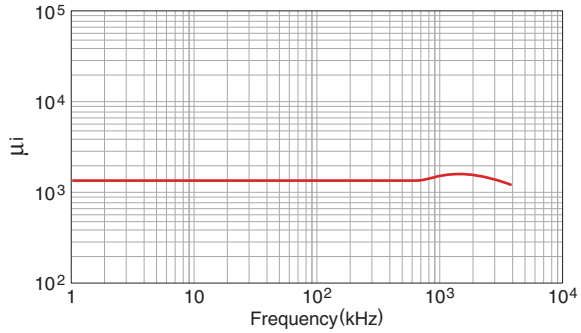
Mn-Zn Ferrite for high-frequency power supplies **Material list of PC50**

MATERIAL CHARACTERISTICS

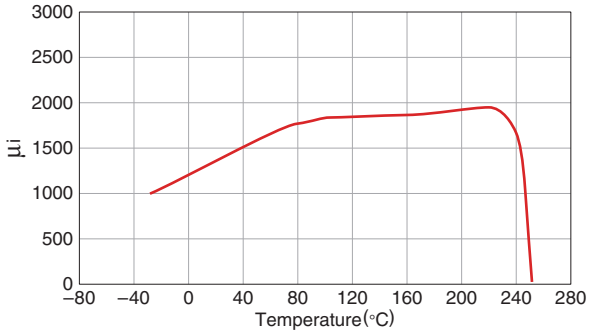
Initial permeability μi	Core loss volume density (Core loss)* Pcv (kW/m³) sine wave 500kHz B=50mT		Saturation magnetic flux density* Bs (mT) H=1194A/m		Remanent flux density* Br (mT) H=1194A/m		Coercive force* Hc (A/m) H=1194A/m		Curie temperature Tc (°C)	Density* db (kg/m³) ×10³	Electrical resistivity* (Ω • m)
	25°C	100°C	25°C	100°C	25°C	100°C	25°C	100°C			
1400±25%	130	80	470	380	140	98	37	27	>240	4.8	30

* Typ.

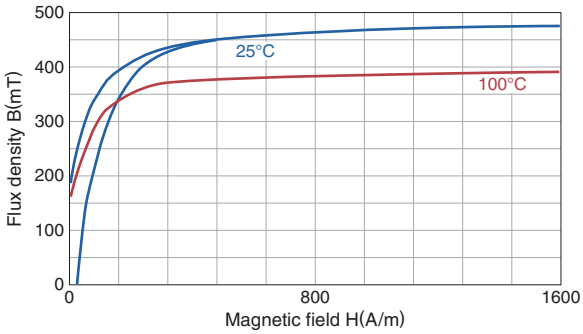
μi frequency characteristics (Typ.)



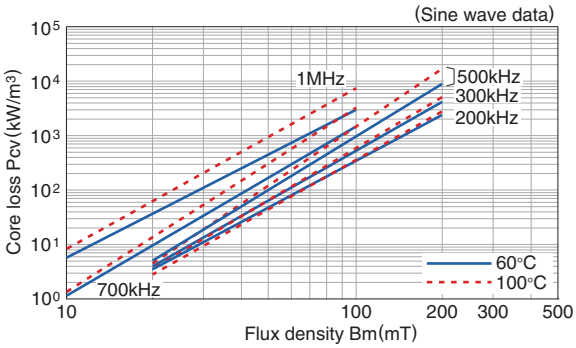
μi temperature characteristics (Typ.)



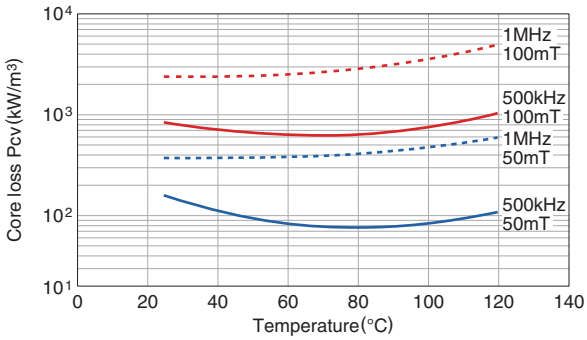
B-H temperature characteristics (Typ.)



Core loss (Typ.)



Temperature dependence of core loss (Typ.)



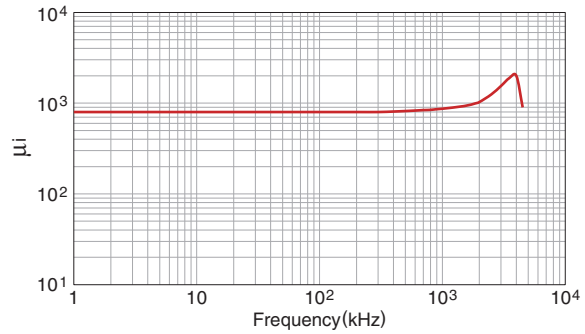
Mn-Zn Ferrite for high-frequency power supplies **Material list of PC200**

MATERIAL CHARACTERISTICS

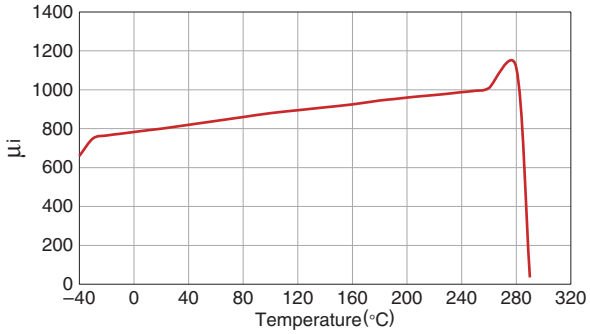
Initial permeability μi	Core loss volume density (Core loss)* Pcv (kW/m³) sine wave 1MHz B=50mT		2MHz B=30mT		Saturation magnetic flux density* Bs (mT) H=1194A/m		Remanent flux density* Br (mT) H=1194A/m		Coercive force* Hc (A/m) H=1194A/m		Curie temperature Tc (°C)	Density* db (kg/m³) ×10³	Electrical resistivity* (Ω • m)
	25°C	100°C	25°C	100°C	25°C	100°C	25°C	100°C	25°C	100°C			
800±25%	145	180	160	200	485	410	141	144	51	48	>280	4.9	22

* Typ.

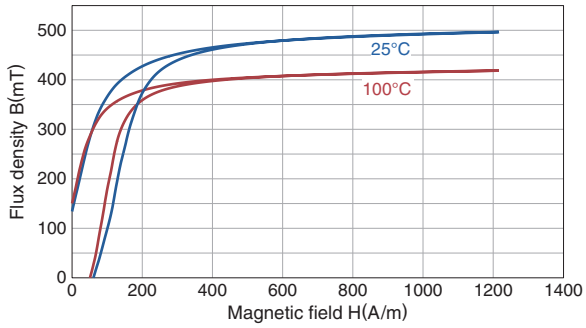
□μi frequency characteristics (Typ.)



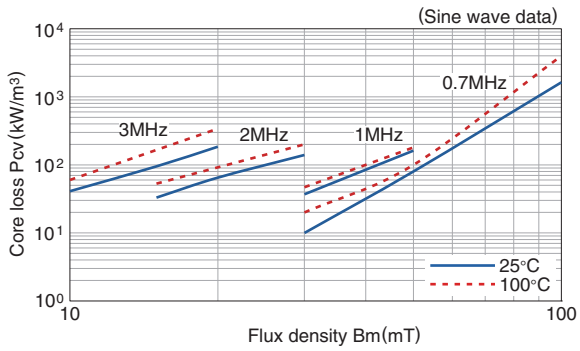
□μi temperature characteristics (Typ.)



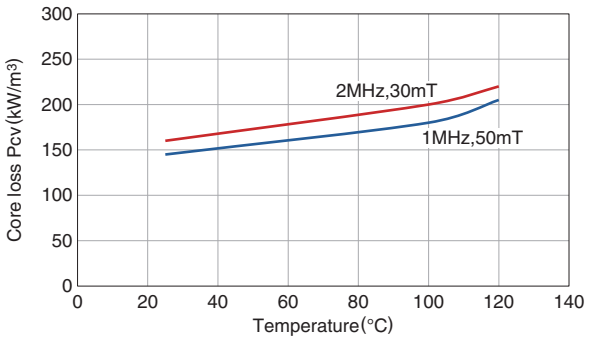
□B-H temperature characteristics (Typ.)



□Core loss (Typ.)



□Temperature dependence of core loss (Typ.)

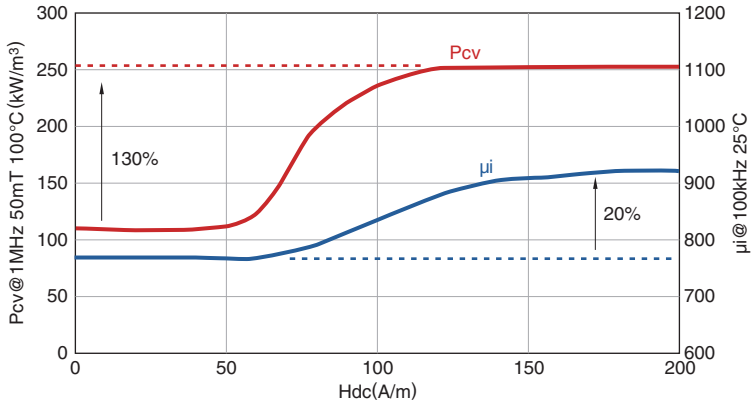


Mn-Zn Ferrite for high-frequency power supplies **Material list of PC200**

PRECAUTIONS FOR USE OF PC200 MATERIALS

The characteristics of the PC200 material change as follows depending on the application of a DC magnetic field such as a magnet or the magnitude of the applied magnetic field (Hdc) at the time of use.
The characteristics of the PC200 material are changed as follows in the reliability test.
PC200 material recommends use by a little low magnetic field of a special quality change.

Characteristic change due to applied magnetic field *



Characteristic change due to applied magnetic field	Change rate (Typ.)
Pcv at 1MHz, 50mT, 100°C	+130%
μi at 100kHz, 25°C	+20%

Reliability test results *

Characteristics change by thermal shock test	Change rate (Typ.)
Pcv at 1MHz, 50mT, 100°C	–18%
μi at 100kHz, 25°C	–7%

Test conditions: –40 ～ 125°C. 1000 cycles. Exposure time = 30 minutes

Characteristic changes due to high temperature storage tests	Change rate (Typ.)
Pcv at 1MHz, 50mT, 100°C	–32%
μi at 100kHz, 25°C	–14%

Test conditions: 125±2°C. Retention time = 2000 hours

Characteristic changes due to low temperature storage tests	Change rate (Typ.)
Pcv at 1MHz, 50mT, 100°C	±5% max.
μi at 100kHz, 25°C	±5% max.

Test conditions: –40±3°C. Retention time = 2000 hours

Characteristics change by humidity endurance tests	Change rate (Typ.)
Pcv at 1MHz, 50mT, 100°C	±5% max.
μi at 100kHz, 25°C	±5% max.

Test conditions: 60±2°C, 90-95%R.H.(Ⅲ) Retention time = 2000 hours

*Evaluated by toroidal shape Pcv: Core loss μi: Initial permeability

Mn-Zn Material list of large size ferrite for high power

MATERIAL CHARACTERISTICS

Material	Initial permeability* μi 23°C	Curie temperature Tc (°C)	Saturation magnetic flux density* Bs (mT) H=1194A/m 23°C	Saturation magnetic flux density* Bs (mT) H=1194A/m 100°C	Remanent flux density* Br (mT) 23°C	Coercive force* Hc (A/m) 23°C	Core loss* Pcv (kW/m³) B=200mT 25kHz 90°C	Core loss* Pcv (kW/m³) B=200mT 25kHz 100°C	Core loss* Pcv (kW/m³) B=200mT 100kHz 100°C	Electrical resistivity* ρ (Ω • m)	Approximate density* dapp (kg/m³) ×10³	Thermal expansion coefficient* α (1/K) ×10⁻⁶	Thermal conductivity* κ (W/mK)	Specific heat* Cp (J/kg • K)	Bending strength* δb3 (N/m²) ×10⁷	Young's modulus* E (N/m²) ×10¹¹	Magnetostriction* λs ×10⁻⁶
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

* Typ.

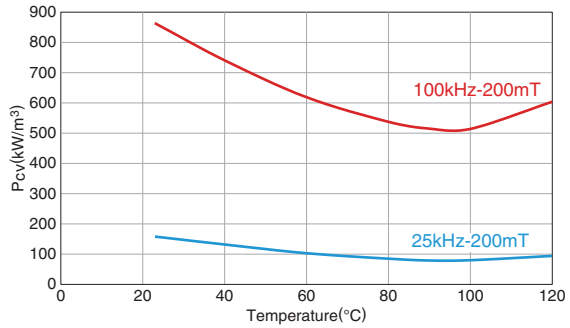
Mn-Zn Large size ferrite for high power **Material list of PE22**

MATERIAL CHARACTERISTICS

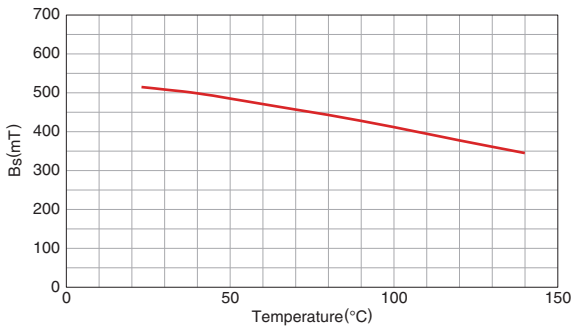
Initial permeability* μi 23°C	Curie temperature Tc (°C)	Saturation magnetic flux density* Bs (mT) H=1194A/m 23°C	Saturation magnetic flux density* Bs (mT) H=1194A/m 100°C	Remanent flux density* Br (mT) 23°C	Coercive force* Hc (A/m) 23°C	Core loss* Pcv (kW/m³) B=200mT 25kHz 90°C	Core loss* Pcv (kW/m³) B=200mT 25kHz 100°C	Core loss* Pcv (kW/m³) B=200mT 100kHz 100°C	Electrical resistivity* ρ (Ω • m)	Approximate density* dapp (kg/m³) ×10³	Thermal expansion coefficient* α (1/K) ×10⁻⁶	Thermal conductivity* κ (W/mK)	Specific heat* Cp (J/kg • K)	Bending strength* δb3 (N/m²) ×10⁷	Young's modulus* E (N/m²) ×10¹¹	Magneto striction* λs ×10⁻⁶
1800	>200	510	410	140	16	79	80	520	3.0	4.8	12	5	600	9	1.2	-0.6

* Typ.

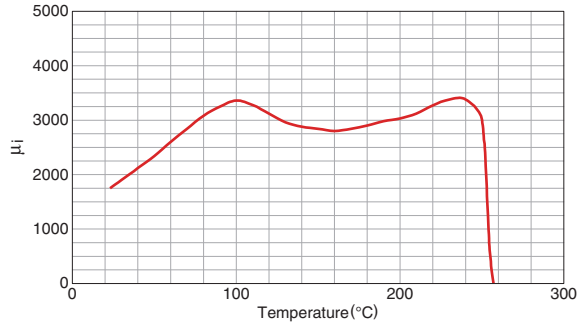
Core loss vs. temperature characteristics (Typ.)



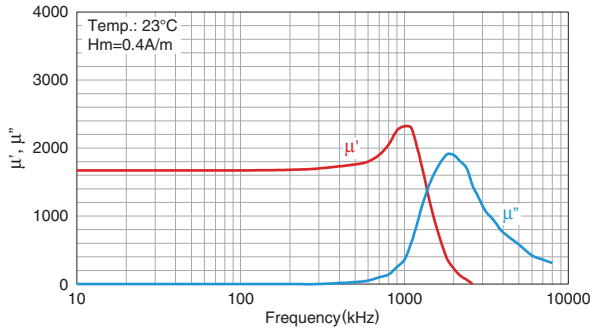
Saturation magnetic flux density vs. temperature characteristics (Typ.)



Initial magnetic permeability vs. temperature characteristics (Typ.)

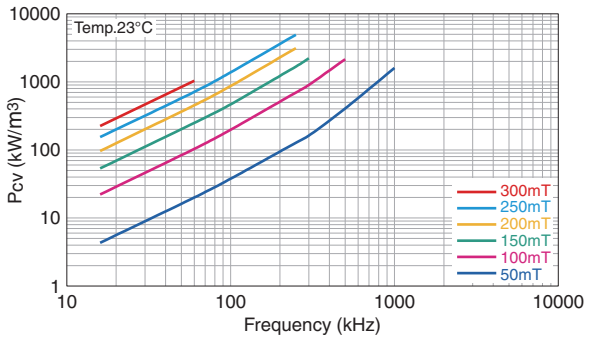


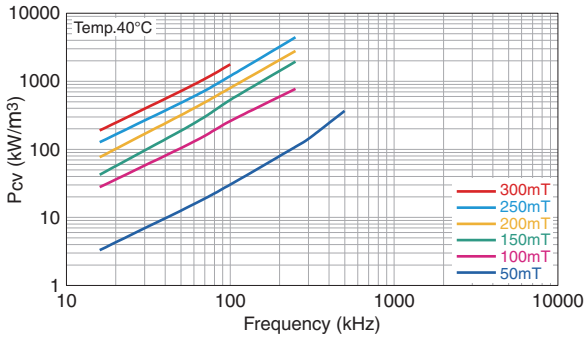
Magnetic permeability vs. frequency characteristics (Typ.)

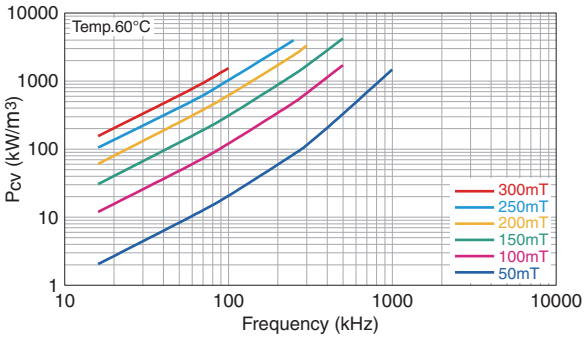


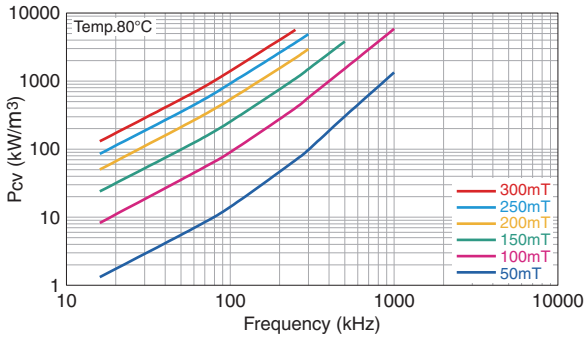
Mn-Zn Large size ferrite for high power **Material list of PE22**

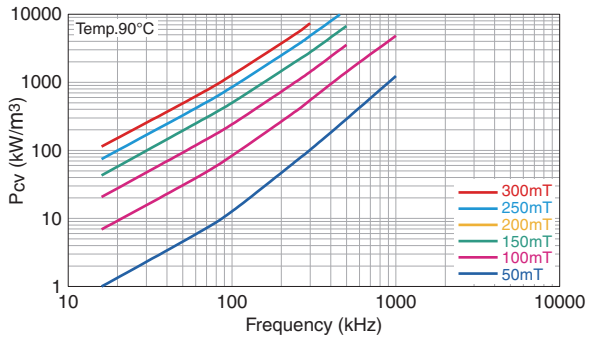
☐Core loss vs. frequency characteristics

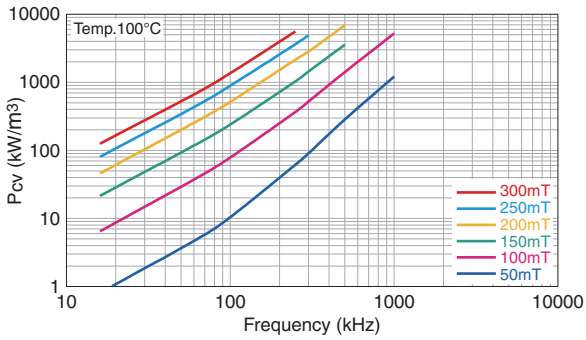


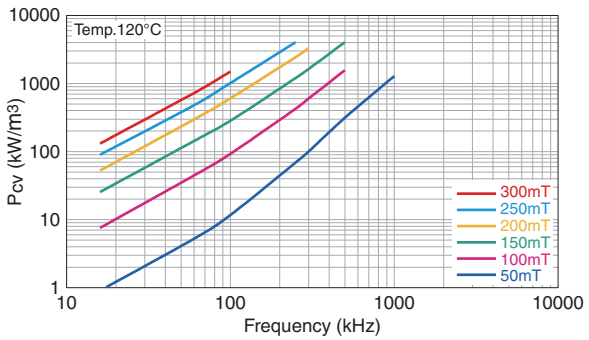












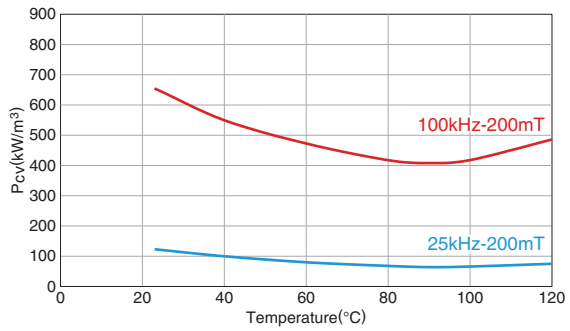
Mn-Zn Large size ferrite for high power **Material list of PC40**

MATERIAL CHARACTERISTICS

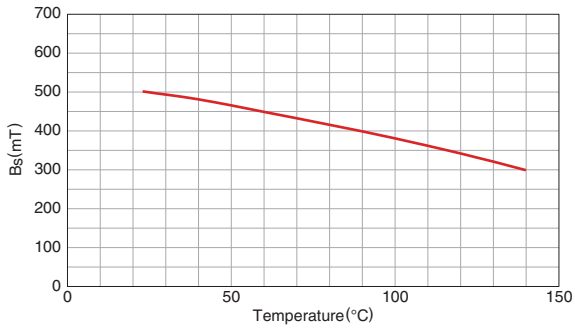
Initial permeability* μi 23°C	Curie temperature Tc (°C)	Saturation magnetic flux density* Bs (mT) H=1194A/m 23°C	Saturation magnetic flux density* Bs (mT) H=1194A/m 100°C	Remanent flux density* Br (mT) 23°C	Coercive force* Hc (A/m) 23°C	Core loss* Pcv (kW/m³) B=200mT 25kHz 90°C	Core loss* Pcv (kW/m³) B=200mT 25kHz 100°C	Core loss* Pcv (kW/m³) B=200mT 100kHz 100°C	Electrical resistivity* ρ (Ω • m)	Approximate density* dapp (kg/m³) ×10³	Thermal expansion coefficient* α (1/K) ×10⁻⁶	Thermal conductivity* κ (W/mK)	Specific heat* Cp (J/kg • K)	Bending strength* δb3 (N/m²) ×10⁷	Young's modulus* E (N/m²) ×10¹¹	Magneto striction* λs ×10⁻⁶
2300	>200	500	380	125	15	64	70	420	6.5	4.8	12	5	600	9	1.2	-0.6

* Typ.

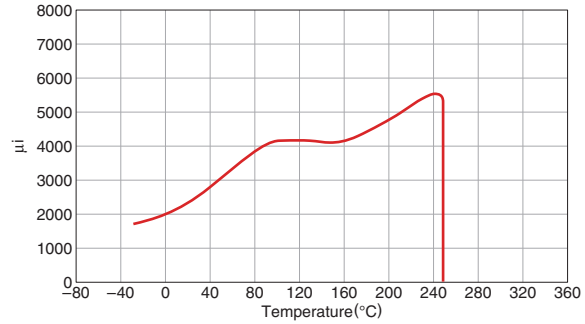
Core loss vs. temperature characteristics (Typ.)



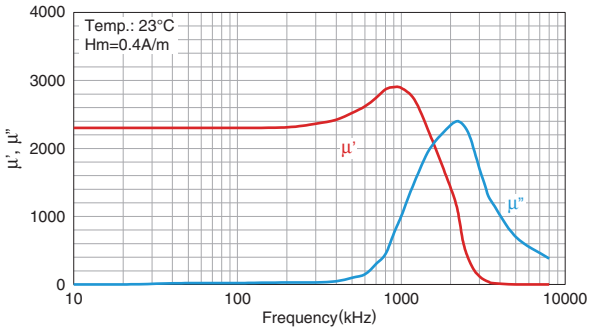
Saturation magnetic flux density vs. temperature characteristics (Typ.)



Initial magnetic permeability vs. temperature characteristics (Typ.)

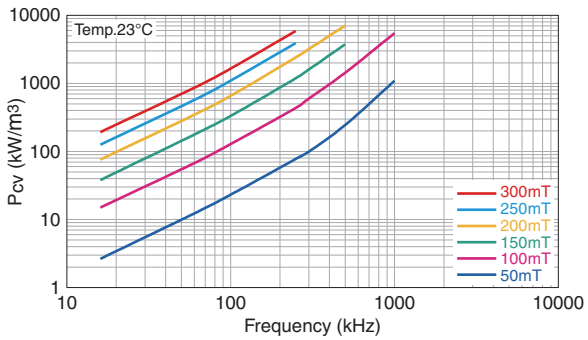


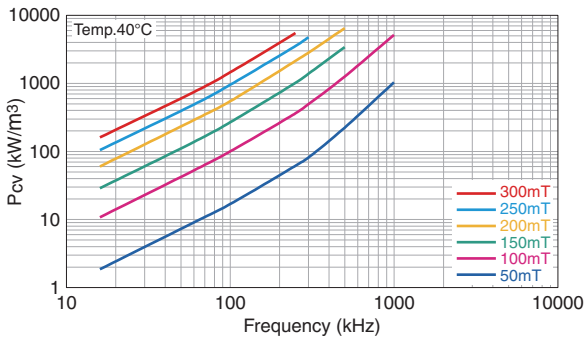
Magnetic permeability vs. frequency characteristics (Typ.)

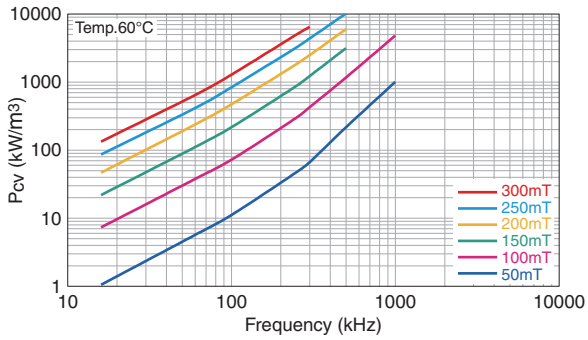


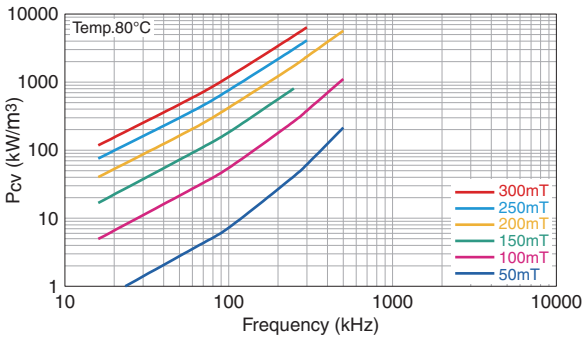
Mn-Zn Large size ferrite for high power **Material list of PC40**

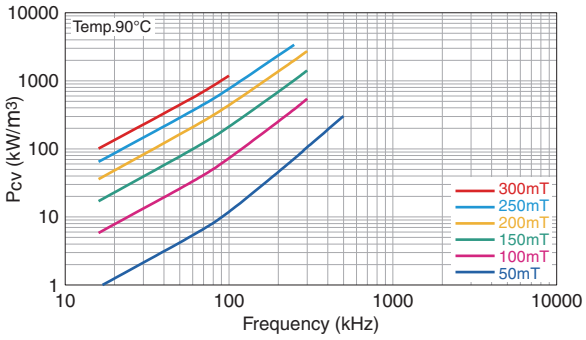
☐Core loss vs. frequency characteristics

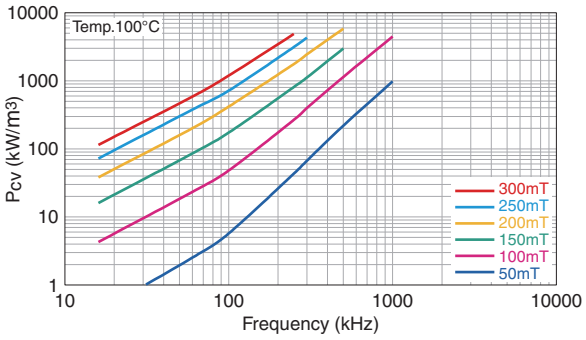


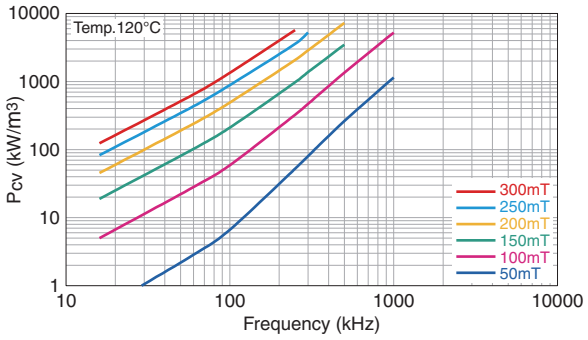












Mn-Zn Material list of ferrite core for telecommunication

MATERIAL CHARACTERISTICS

Material	Initial permeability μi	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* Bs (mT) H=1194A/m 25°C	Residual flux density* Br (mT) 25°C	Coercive force* Hc (A/m) 25°C	Curie temperature Tc (°C)	Hysteresis material constant ηB $\frac{10^{-6}}{mT}$	Disaccommodation factor DF $\times 10^{-6}$	Density* db (kg/m^3) $\times 10^3$	Electrical resistivity* ρv ($\Omega \cdot m$)
H5A	$3300^{+40\%}_{-0\%}$	<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
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

* Typ.

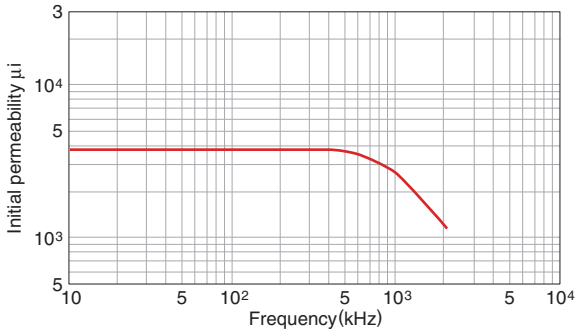
Mn-Zn Ferrite for telecommunication **Material list of H5A**

MATERIAL CHARACTERISTICS

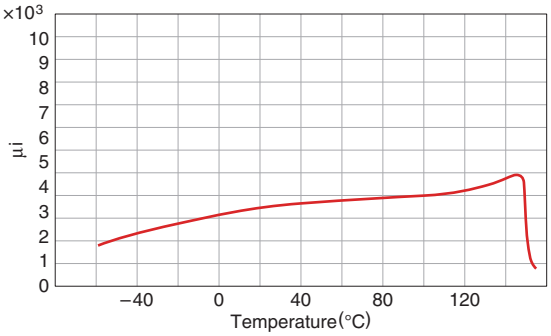
Initial permeability μi	Relative loss factor tanδ/μi ×10⁻⁶	Temperature factor of initial permeability αμir ×10⁻⁶ −30 to +20°C 0 to 20°C 20 to 70°C	Saturation magnetic flux density* Bs (mT) H=1194A/m 25°C	Residual flux density* Br (mT) 25°C	Coercive force* Hc (A/m) 25°C	Curie temperature Tc (°C)	Hysteresis material constant ηB $\frac{10^{-6}}{mT}$	Disaccommodation factor DF ×10⁻⁶	Density* db (kg/m³) ×10³	Electrical resistivity* ρv (Ω • 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.

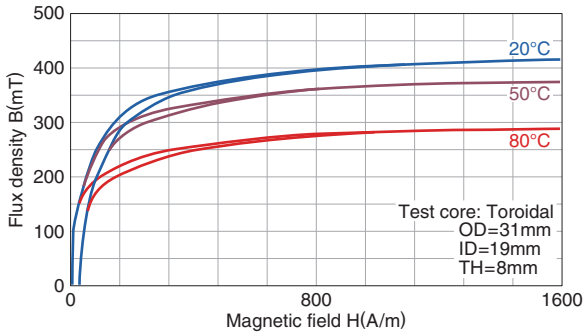
□μi frequency characteristics (Typ.)



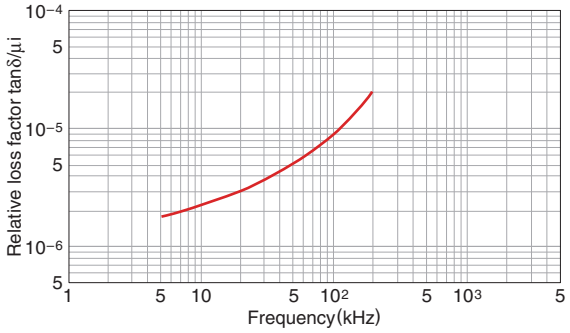
□μi temperature characteristics (Typ.)



□B-H temperature characteristics (Typ.)



□tanδ/ μi frequency characteristics (Typ.)



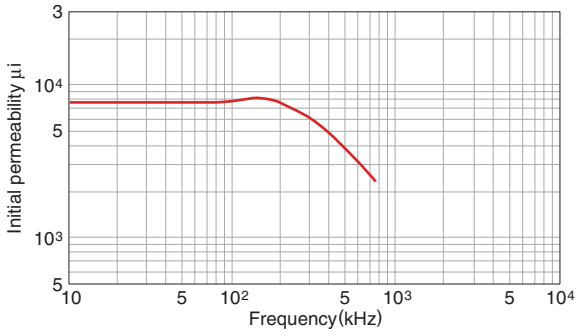
Mn-Zn Ferrite for telecommunication **Material list of H5B2**

MATERIAL CHARACTERISTICS

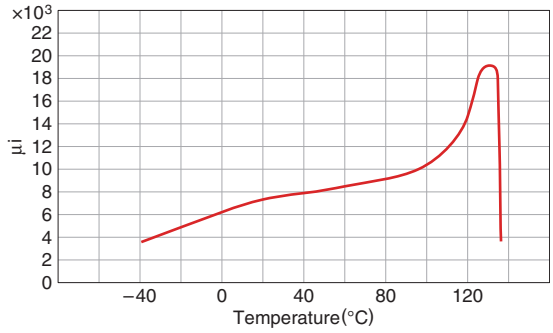
Initial permeability μi	Relative loss factor tanδ/μi ×10⁻⁶	Temperature factor of initial permeability αμir ×10⁻⁶ −30 to +20°C 0 to 20°C 20 to 70°C	Saturation magnetic flux density* Bs (mT) H=1194A/m 25°C	Residual flux density* Br (mT) 25°C	Coercive force* Hc (A/m) 25°C	Curie temperature Tc (°C)	Hysteresis material constant ηB $\frac{10^{-6}}{mT}$	Disaccommodation factor DF ×10⁻⁶	Density* db (kg/m³) ×10³	Electrical resistivity* ρv (Ω • 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.

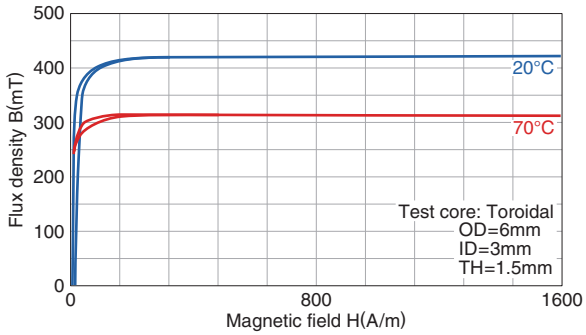
□μi frequency characteristics (Typ.)



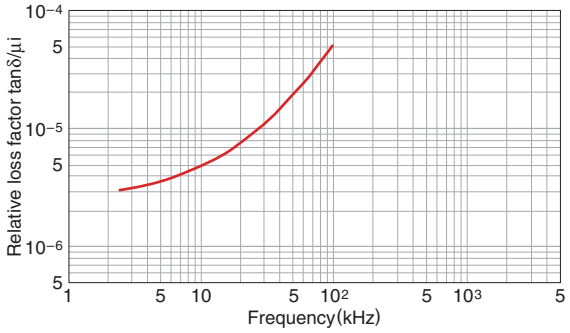
□μi temperature characteristics (Typ.)



□B-H temperature characteristics (Typ.)



□tanδ/ μi frequency characteristics (Typ.)



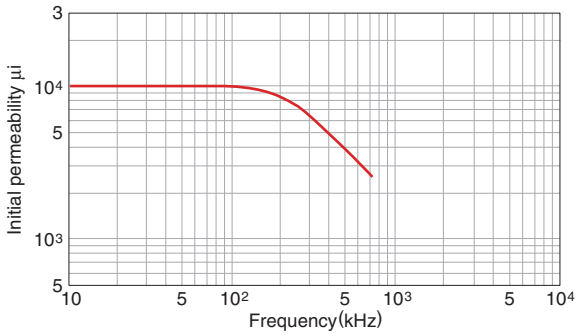
Mn-Zn Ferrite for telecommunication **Material list of H5C2**

MATERIAL CHARACTERISTICS

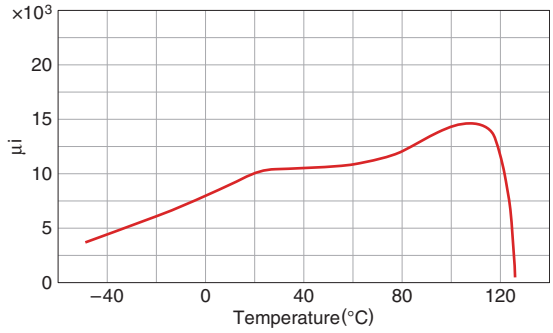
Initial permeability μi	Relative loss factor tanδ/μi ×10⁻⁶	Temperature factor of initial permeability αμir ×10⁻⁶ –30 to +20°C 0 to 20°C 20 to 70°C	Saturation magnetic flux density* Bs (mT) H=1194A/m 25°C	Residual flux density* Br (mT) 25°C	Coercive force* Hc (A/m) 25°C	Curie temperature Tc (°C)	Hysteresis material constant ηB $\frac{10^{-6}}{mT}$	Disaccommodation factor DF ×10⁻⁶	Density* db (kg/m³) ×10³	Electrical resistivity* ρv (Ω • 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.

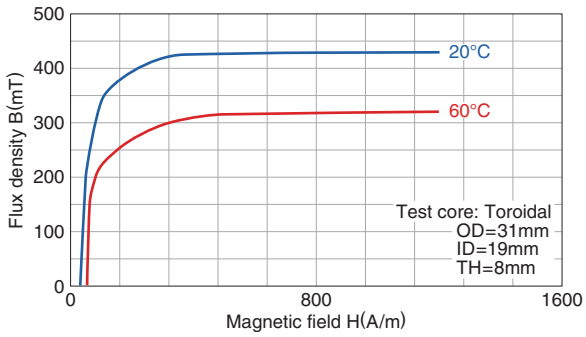
□μi frequency characteristics (Typ.)



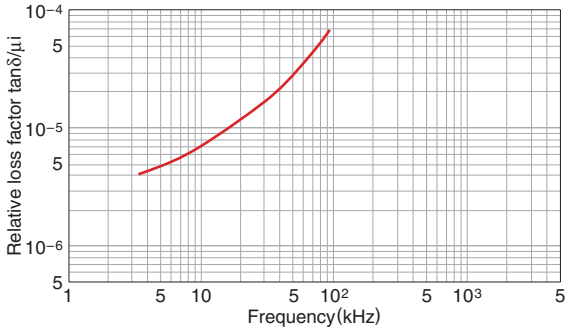
□μi temperature characteristics (Typ.)



□B-H temperature characteristics (Typ.)



□tanδ/ μi frequency characteristics (Typ.)



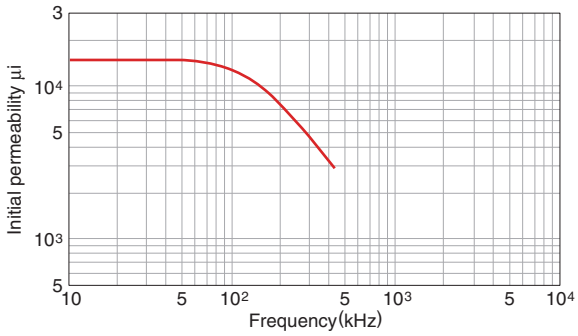
Mn-Zn Ferrite for telecommunication **Material list of H5C3**

MATERIAL CHARACTERISTICS

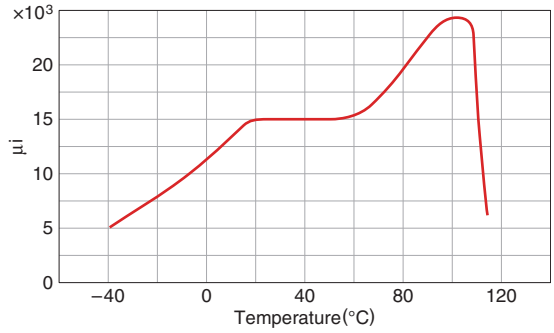
Initial permeability μi	Relative loss factor tanδ/μi ×10⁻⁶	Temperature factor of initial permeability αμir ×10⁻⁶ –30 to +20°C 0 to 20°C 20 to 70°C	Saturation magnetic flux density* Bs (mT) H=1194A/m 25°C	Residual flux density* Br (mT) 25°C	Coercive force* Hc (A/m) 25°C	Curie temperature Tc (°C)	Hysteresis material constant ηB $\frac{10^{-6}}{mT}$	Disaccommodation factor DF ×10⁻⁶	Density* db (kg/m³) ×10³	Electrical resistivity* ρv (Ω • 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.

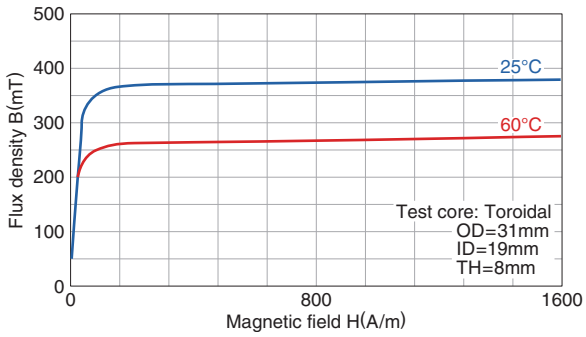
□μi frequency characteristics (Typ.)



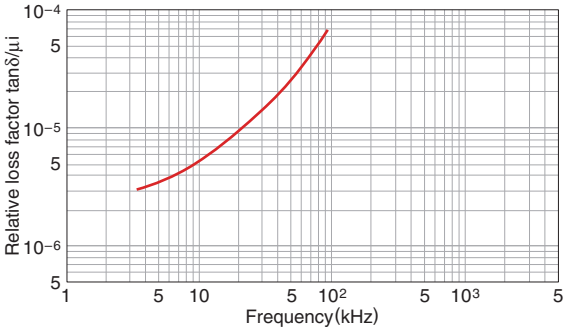
□μi temperature characteristics (Typ.)



□B-H temperature characteristics (Typ.)



□tanδ/ μi frequency characteristics (Typ.)



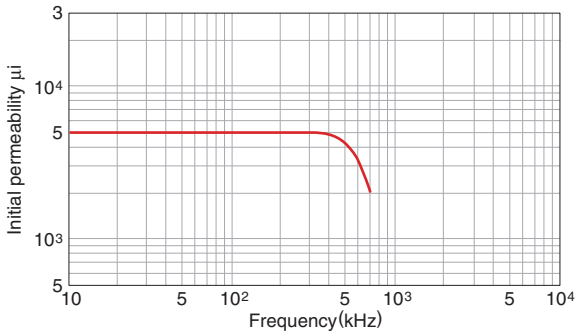
Mn-Zn Ferrite for telecommunication **Material list of HP5**

MATERIAL CHARACTERISTICS

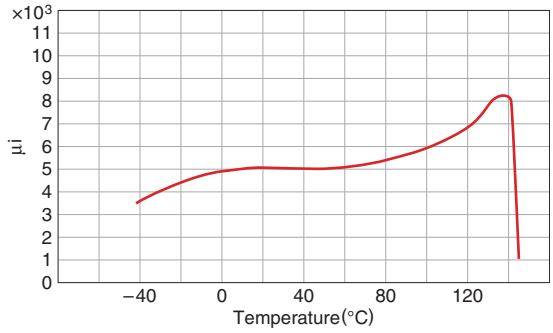
Initial permeability μi	Relative loss factor tanδ/μi ×10⁻⁶	Temperature factor of initial permeability αμir ×10⁻⁶ −30 to +20°C 0 to 20°C 20 to 70°C	Saturation magnetic flux density* Bs (mT) H=1194A/m 25°C	Residual flux density* Br (mT) 25°C	Coercive force* Hc (A/m) 25°C	Curie temperature Tc (°C)	Hysteresis material constant ηB $\frac{10^{-6}}{mT}$	Disaccommodation factor DF ×10⁻⁶	Density* db (kg/m³) ×10³	Electrical resistivity* ρv (Ω • m)
5000±20%	<3.5	— ±12.5% ±12.5%	400	65	7.2	>140	<0.4	<3	4.8	0.15

* Typ.

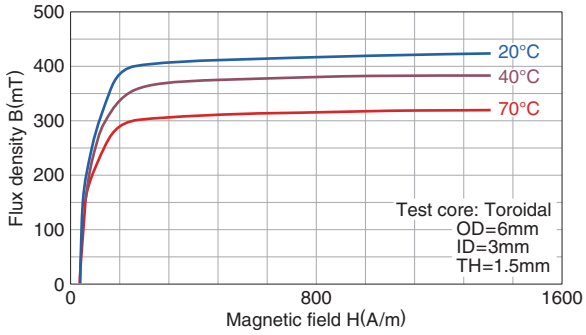
□μi frequency characteristics (Typ.)



□μi temperature characteristics (Typ.)



□B-H temperature characteristics (Typ.)



□tanδ/ μi frequency characteristics (Typ.)