DATA SHEET

4F1
Material specification

Supersedes data of September 2004 2008 Sep 01

FERROXCUBE
A YAGEO COMPANY

4F1 SPECIFICATIONS

A very high frequency NiZn power material for use in power and general purpose transformers optimized for frequencies of 4 - 10 MHz.

SYMBOL	CONDITIONS	VALUE	UNIT
μ_i	25 °C; ≤10 kHz; 0.25 mT	≈ 80	
μ_a	100 °C; 25 kHz; 200 mT	≈ 300	
B	25 °C; 10 kHz; 3000 A/m 100 °C; 10 kHz; 3000 A/m	≈ 320 ≈ 260	mT
P_V	100 °C; 3 MHz; 10 mT 100 °C; 10 MHz; 5 mT	≤ 200 ≤ 200	kW/m^3
ρ	DC; 25 °C	≈ 10^5	Ωm
T_C		≥ 260	°C
density		≈ 4600	kg/m^3

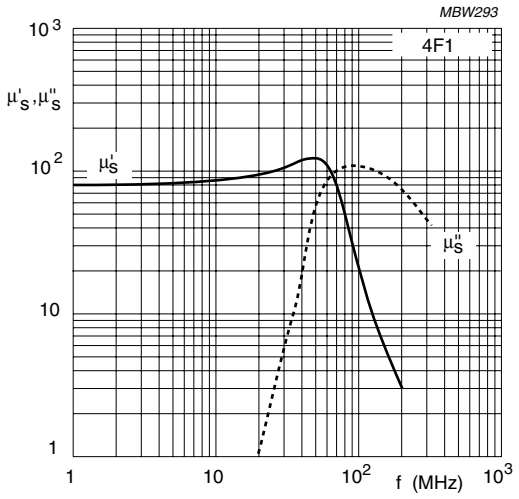

Fig.1 Complex permeability as a function of frequency.

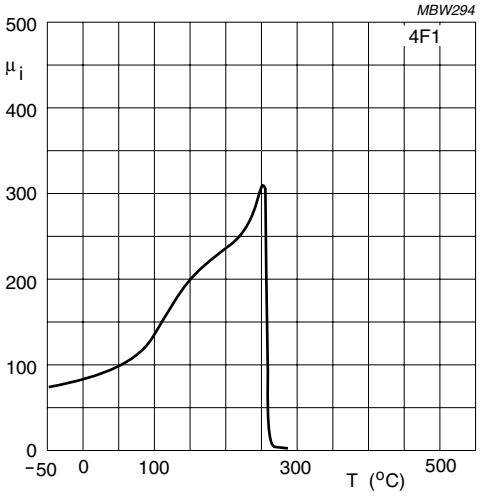

Fig.2 Initial permeability as a function of temperature.

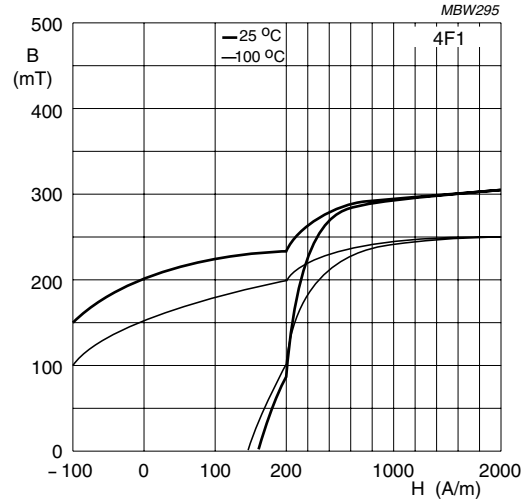

Fig.3 Typical B-H loops.

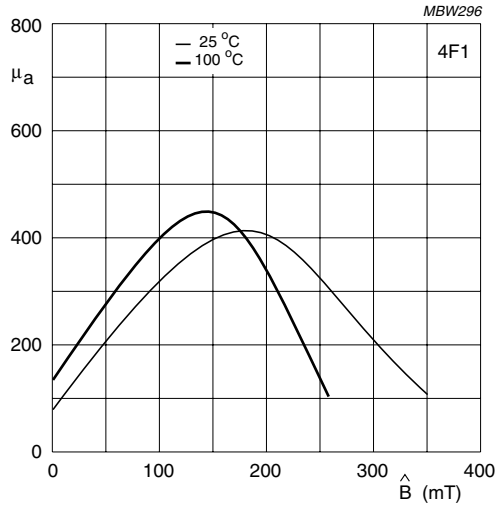

Fig.4 Amplitude permeability as function of peak flux density.

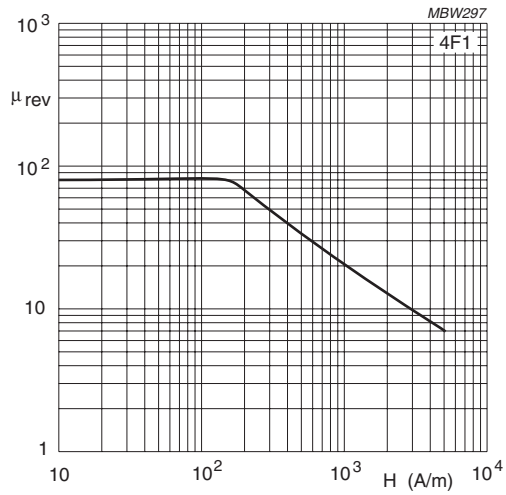

Fig.5 Reversible permeability as a function of magnetic field strength.

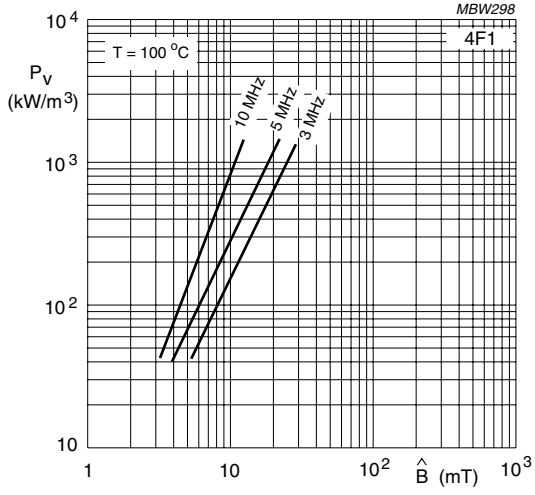

Fig.6 Specific power loss as a function of peak flux density with frequency as a parameter.

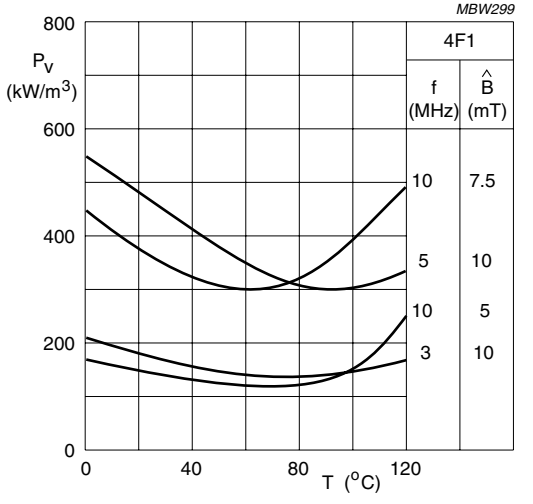

Fig.7 Specific power loss for several frequency/flux density combinations as a function of temperature.

Material specification 4F1

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DATA SHEET

3F46

Material specification

2016 March 03

FERROXCUBE
A YAGEO COMPANY

3F46 SPECIFICATION

A high frequency power material for use in power and general purpose transformers at frequencies of 1-3MHz. Temperature characteristic tuned for stable operation in range 25-100°C. Available in product size up to 40mm.

SYMBOL	CONDITIONS	VALUE	UNIT
μi	25ºC; 10kHz; 0.25mT	750 ± 20%	
μa	100ºC; 25kHz; 200mT	≈ 1500	
B	25ºC; 10kHz; 1200A/m	≈ 520	mT
	100ºC; 10kHz; 1200A/m	≈ 430	
Pv	100ºC; 1MHz; 50mT	≈ 150	mW/cm^3
	100ºC; 3MHz; 10mT	≈ 50	
	100ºC; 3MHz; 30mT	≈ 500	
ρDC	25ºC	≈ 5	Ωm
Tc		≥ 280	ºC
density		≈ 4750	kg/m^3

based on T14/9/5

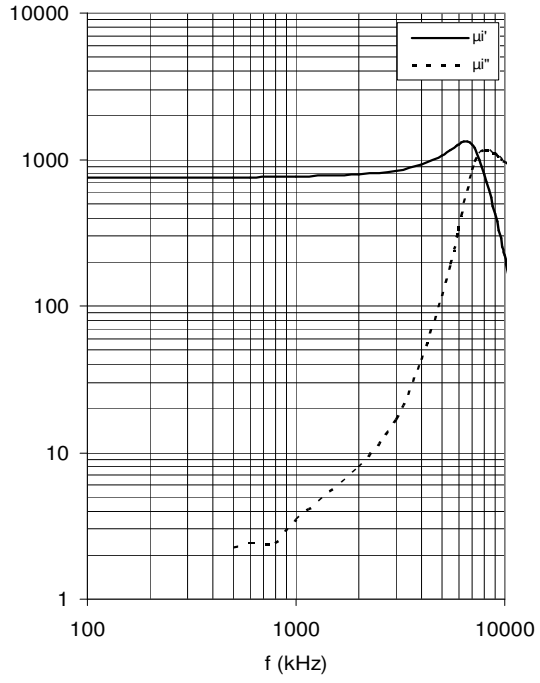

Fig.1 Complex permeability as a function of frequency

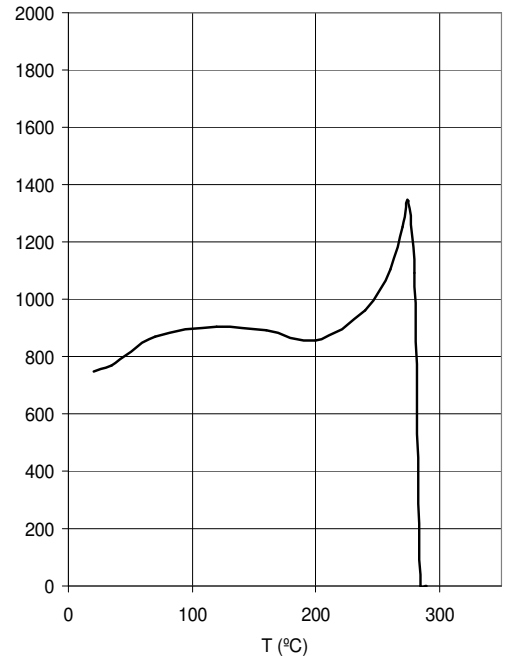

Fig.2 Permeability as a function of temperature

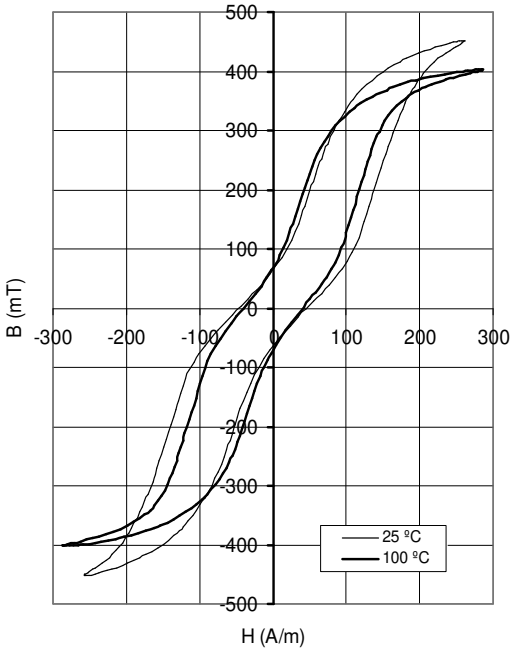

Fig.3 Typical BH loop measured at 10kHz

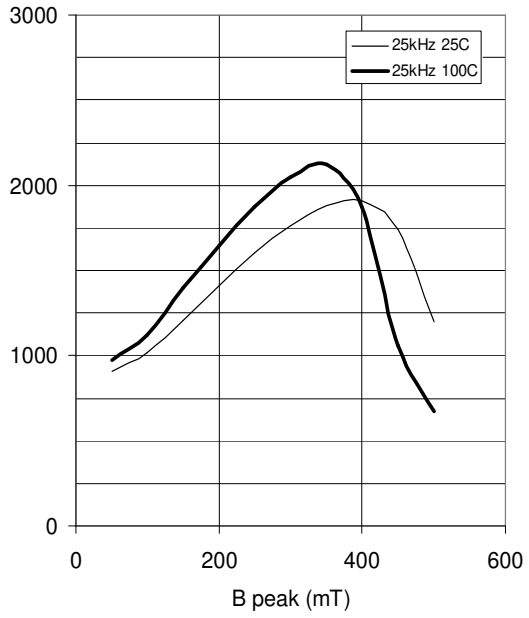

Fig.4 Amplitude permeability measured at 25kHz

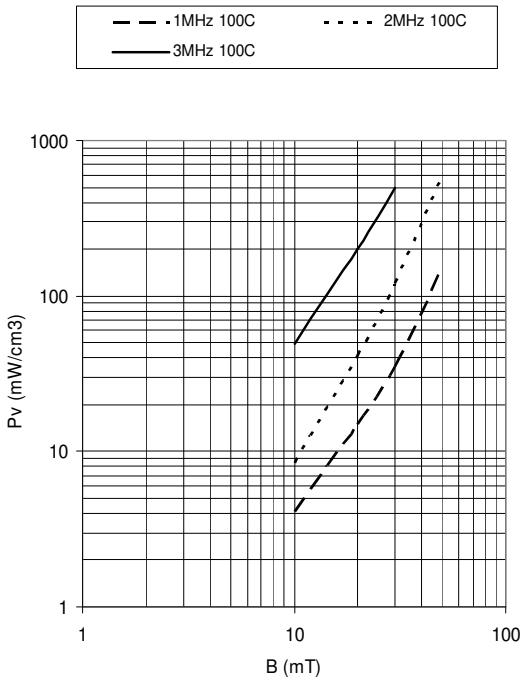

Fig.5 Power loss as a function of peak flux density

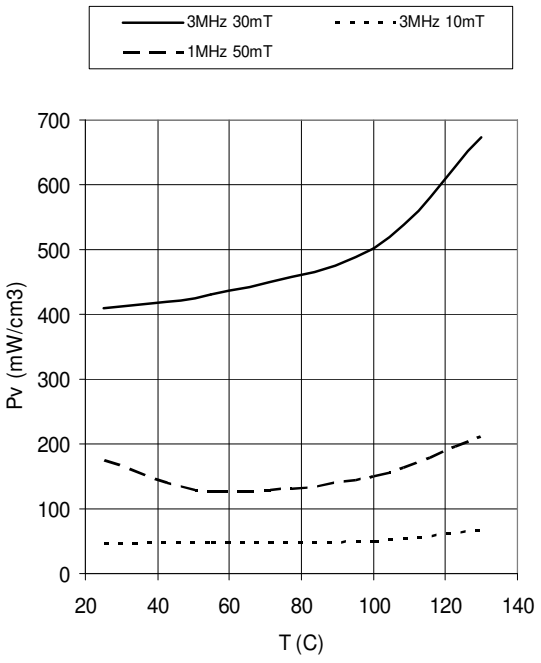

Fig.6 Power loss as a function of temperature

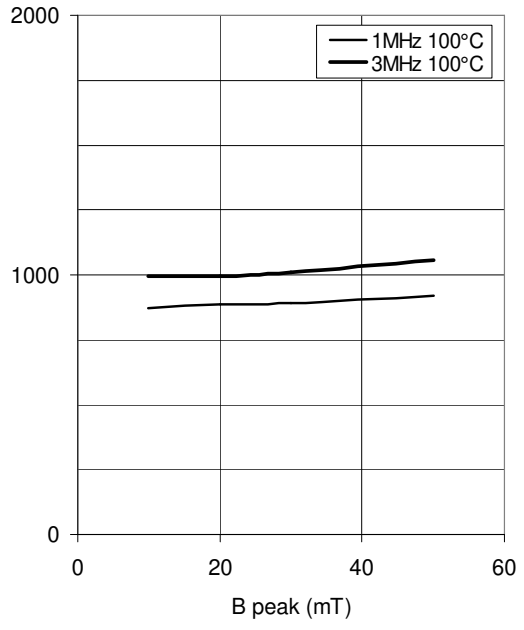

Fig.7 Amplitude permeability measured at high frequency

DATA SHEET

3F36
Material specification

2013 Jun 06

FERROXCUBE
A YAGEO COMPANY

3F36 SPECIFICATIONS

A medium to high frequency power material for use in power and general purpose transformers at frequencies of 0.5 - 1 MHz. Low power losses from 25 to 100 °C. Especially suited for broad temperature range applications like automotive, lighting and mobile handheld.

	CONDITIONS	VALUE	UNIT
μ_i	25 °C; ≤10 kHz; 0.25 mT	1600 ± 20%	
μ_a	100 °C; 25 kHz; 200 mT	≈ 2400	
B	25 °C; 10 kHz; 1200 A/m	≈ 520	mT
	100 °C; 10 kHz; 1200 A/m	≈ 420	
P_v	100 °C; 500 kHz; 50 mT	≈ 90	kW/m^3
	25 °C; 500 kHz; 100 mT	≈ 700	
	100 °C; 500 kHz; 100 mT	≈ 700	
ρ	DC; 25 °C	≈ 12	Ωm
T_C		≥ 230	°C
density		≈ 4750	kg/m^3

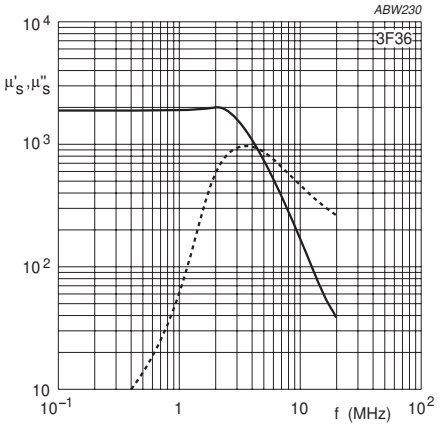

Fig.1 Complex permeability as a function of frequency.

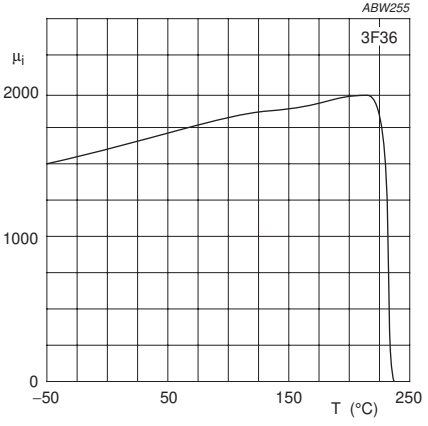

Fig.2 Initial permeability as a function of temperature.

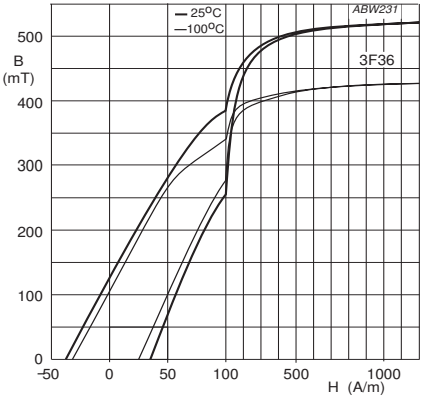

Fig.3 Typical B-H loops.

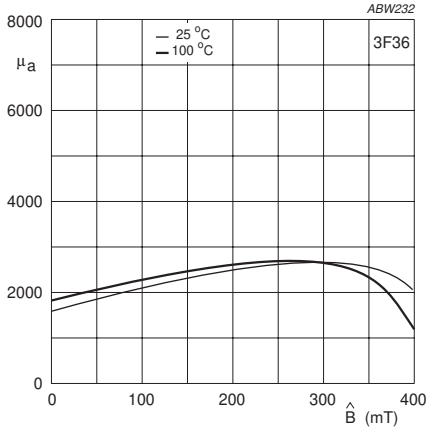

Fig.4 Amplitude permeability as function of peak flux density.

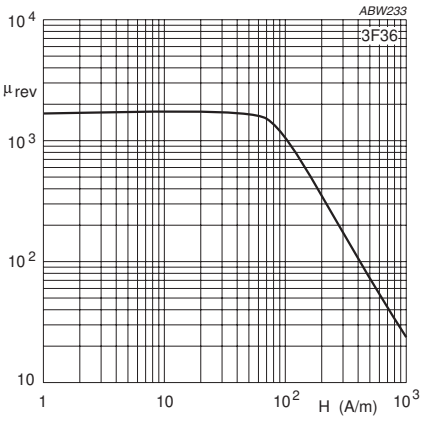

Fig.5 Reversible permeability as a function of magnetic field strength.

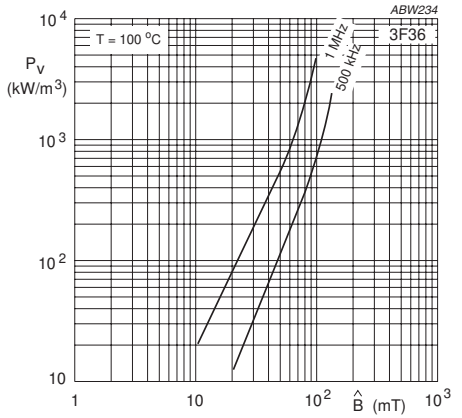

Fig.6 Specific power loss as a function of peak flux density with frequency as a parameter.

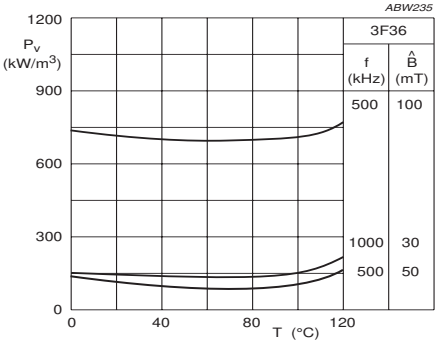

Fig.7 Specific power loss for several frequency/flux density combinations as a function of temperature.

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DATA SHEET

3F4
Material specification

Supersedes data of September 2004 2008 Sep 01

FERROXCUBE
A YAGEO COMPANY

3F4 SPECIFICATIONS

A high frequency power material for use in power and general purpose transformers at frequencies of 1 - 2 MHz.

SYMBOL	CONDITIONS	VALUE	UNIT
μ_i	25 °C; ≤10 kHz; 0.25 mT	900 ±20%	
μ_a	100 °C; 25 kHz; 200 mT	≈ 1700	
B	25 °C; 10 kHz; 1200 A/m	≈ 410	mT
	100 °C; 10 kHz; 1200 A/m	≈ 350	
P_V	100 °C; 1 MHz; 30 mT	≈ 130	kW/m^3
	100 °C; 3 MHz; 10 mT	≈ 220	
ρ	DC; 25 °C	≈ 10	Ωm
T_C		≥ 220	°C
density		≈ 4700	kg/m^3

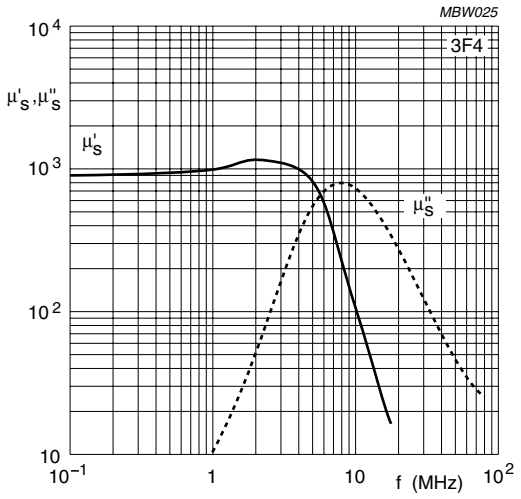

Fig.1 Complex permeability as a function of frequency.

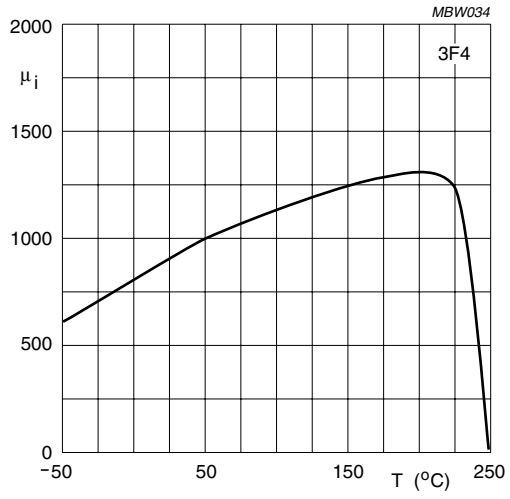

Fig.2 Initial permeability as a function of temperature.

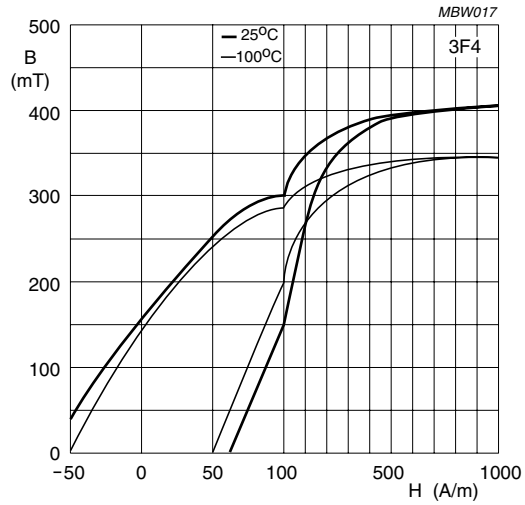

Fig.3 Typical B-H loops.

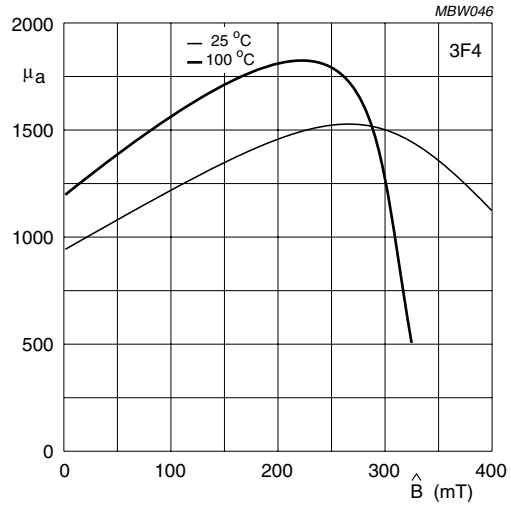

Fig.4 Amplitude permeability as function of peak flux density.

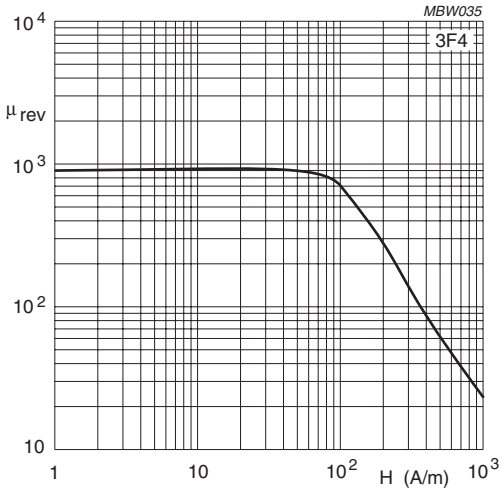

Fig.5 Reversible permeability as a function of magnetic field strength.

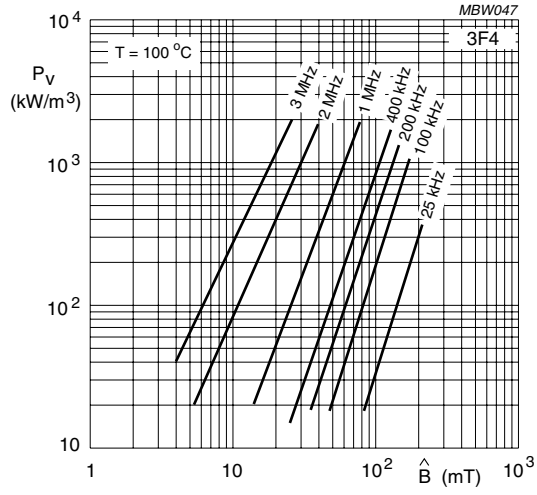

Fig.6 Specific power loss as a function of peak flux density with frequency as a parameter.

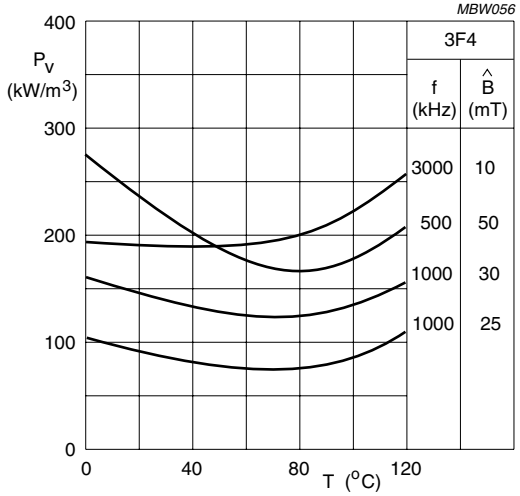

Fig.7 Specific power loss for several frequency/flux density combinations as a function of temperature.

Material specification 3F4

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DATA SHEET

3F3
Material specification

Supersedes data of September 2004 2008 Sep 01

FERROXCUBE
A YAGEO COMPANY

3F3 SPECIFICATIONS

A medium frequency power material for use in power and general purpose transformers at frequencies of 0.2 - 0.5 MHz.

SYMBOL	CONDITIONS	VALUE	UNIT
μ_i	25 °C; ≤10 kHz; 0.25 mT	2000 ±20%	
μ_a	100 °C; 25 kHz; 200 mT	≈ 4000	
B	25 °C; 10 kHz; 1200 A/m	≈ 440	mT
	100 °C; 10 kHz; 1200 A/m	≈ 370	
P_V	100 °C; 100 kHz; 100 mT	≤80	kW/m^3
	100 °C; 400 kHz; 50 mT	≤150	
ρ	DC; 25 °C	≈ 2	Ωm
T_C		≥200	°C
density		≈ 4750	kg/m^3

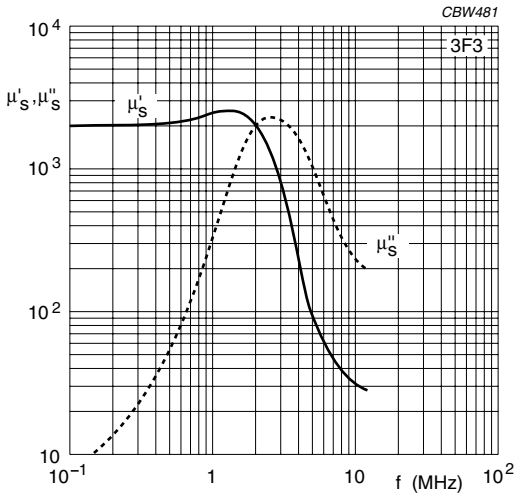

Fig.1 Complex permeability as a function of frequency.

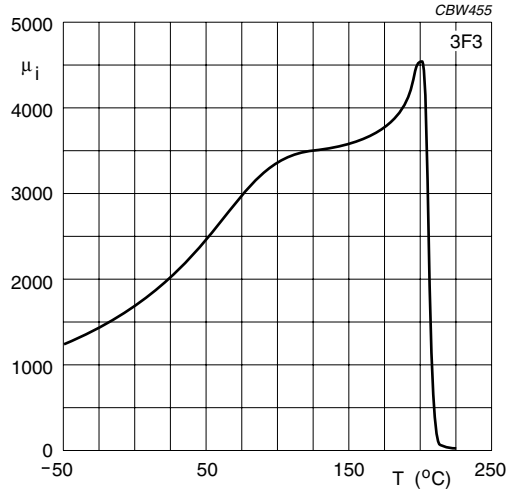

Fig.2 Initial permeability as a function of temperature.

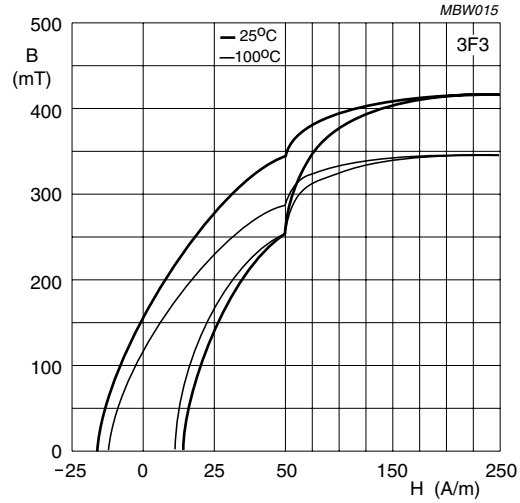

Fig.3 Typical B-H loops.

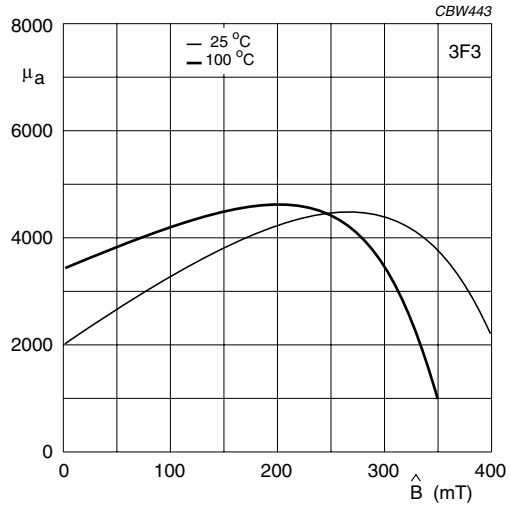

Fig.4 Amplitude permeability as function of peak flux density.

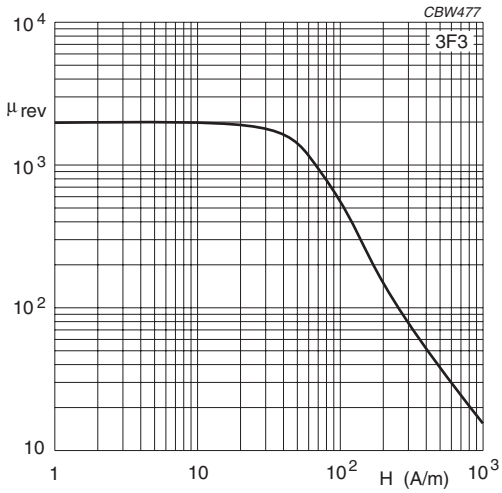

Fig.5 Reversible permeability as a function of magnetic field strength.

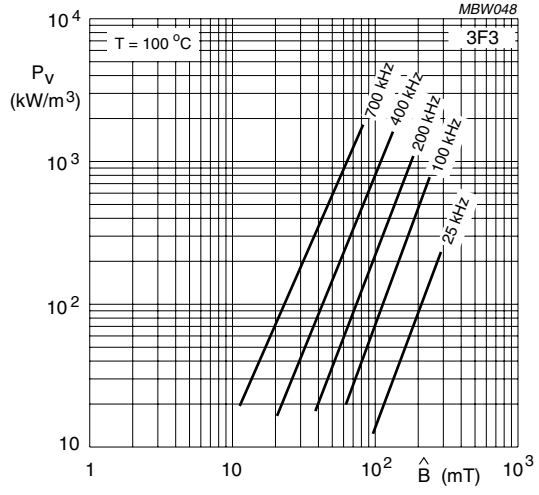

Fig.6 Specific power loss as a function of peak flux density with frequency as a parameter.

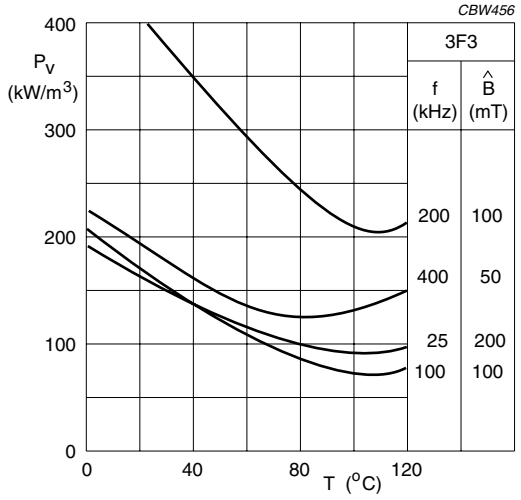

Fig.7 Specific power loss for several frequency/flux density combinations as a function of temperature.

Material specification 3F3

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