




Ferrites and accessories

SIFERRIT material N95

Date: September 2006

SIFERRIT materials
N95
Material properties

Preferred application			Power transformers
Material			N95 ¹⁾
Base material			MnZn
	Symbol	Unit	
Initial permeability (T = 25 °C)	μ_i		3000 ±25%
Flux density (H = 1200 A/m, f = 10 kHz)	B_S (25 °C)	mT	525
	B_S (100 °C)	mT	410
Coercive field strength (f = 10 kHz)	H_c (25 °C)	A/m	18
	H_c (100 °C)		19
Optimum frequency range		kHz	25 ... 500
Hysteresis material constant	η_B	$10^{-6}/\text{mT}$	<0.6
Curie temperature	T_C	°C	>220
Mean value of α_F at 25 ... 55 °C		$10^{-6}/\text{K}$	2
Density (typical values)		kg/m ³	4900
Relative core losses (typical values)	P_V		
25 kHz, 200 mT, 25 °C		kW/m ³	—
100 kHz, 200 mT, 25 °C		kW/m ³	425
300 kHz, 100 mT, 25 °C		kW/m ³	455
500 kHz, 50 mT, 25 °C		kW/m ³	250
25 kHz, 200 mT, 100 °C		kW/m ³	—
100 kHz, 200 mT, 100 °C		kW/m ³	350
300 kHz, 100 mT, 100 °C		kW/m ³	410
500 kHz, 50 mT, 100 °C	kW/m ³	250	
Resistivity	ρ	Ωm	6
Core shapes			E, ER, ETD

1) Preliminary data

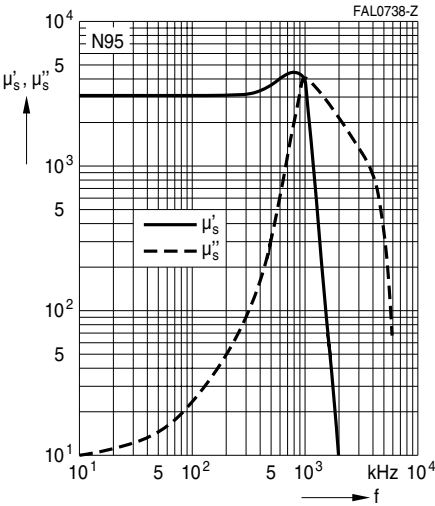
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Preliminary data

Complex permeability
versus frequency

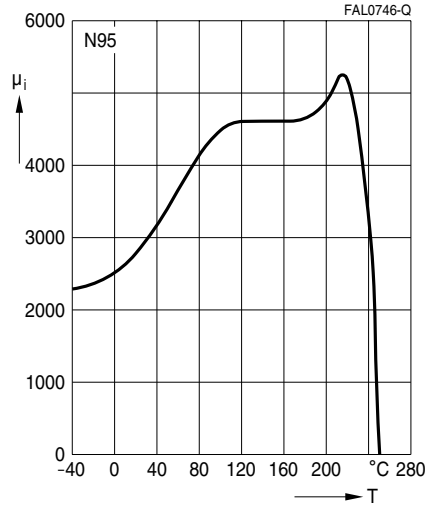
(measured on R34 toroids, $\hat{B} \leq 0.25$ mT)



Initial permeability μ_i

versus temperature

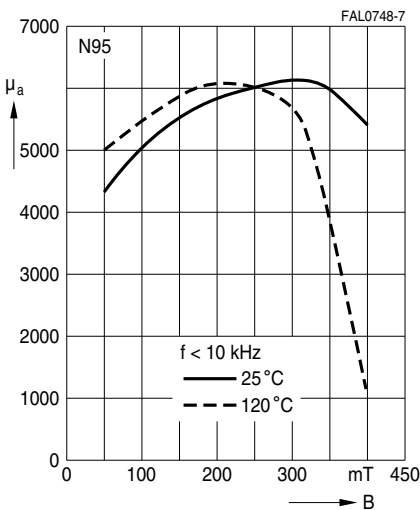
(measured on R34 toroids, $\hat{B} \leq 0.25$ mT)



Amplitude permeability

versus AC field flux density

(measured on R34 toroids, $\hat{B} \leq 0.25$ mT)



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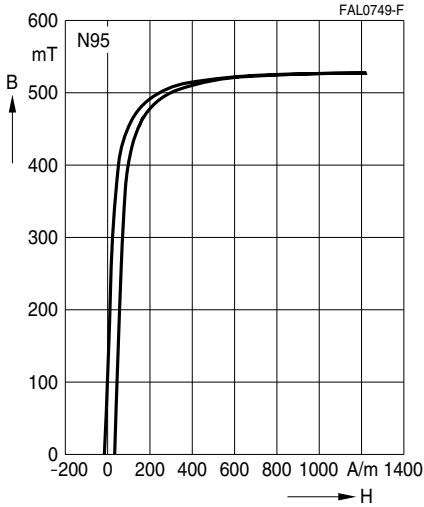
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Preliminary data

Dynamic magnetization curves

(typical values)

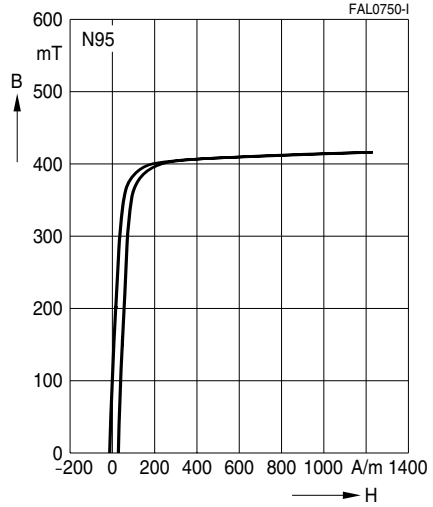
(f = 10 kHz, T = 25 °C)



Dynamic magnetization curves

(typical values)

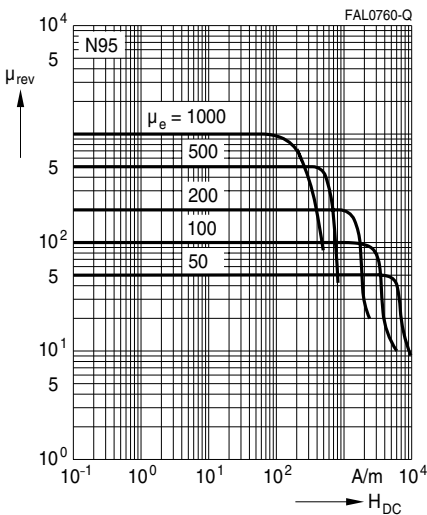
(f = 10 kHz, T = 100 °C)



DC magnetic bias

measured on ETD cores

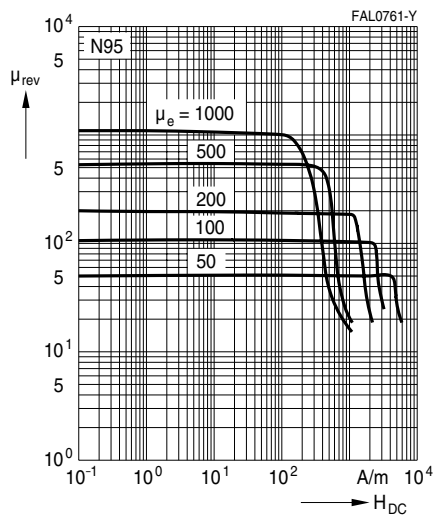
($\dot{B} \leq 0.25$ mT, f = 10 kHz, T = 25 °C)



DC magnetic bias

measured on ETD cores

($\dot{B} \leq 0.25$ mT, f = 10 kHz, T = 100 °C)

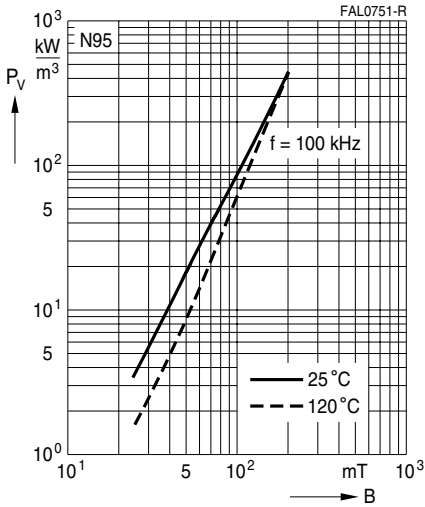


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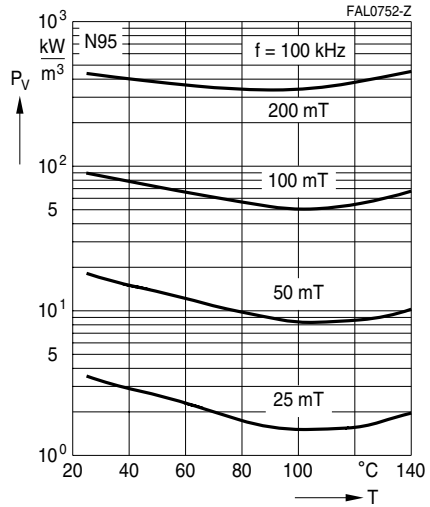
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Preliminary data

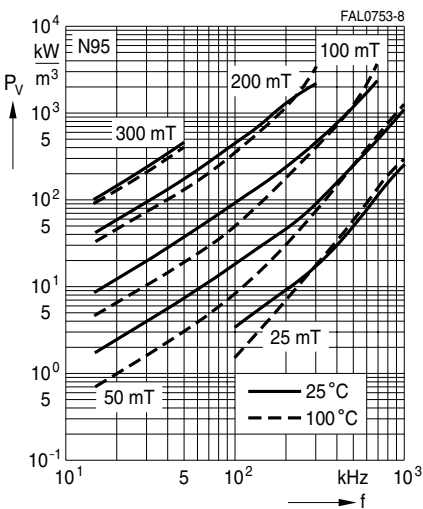
Relative core losses
versus AC field flux density
(measured on R34 toroids)



Relative core losses
versus temperature
(measured on R34 toroids)



Relative core losses
versus frequency
(measured on R34 toroids)



General

Based on IEC 60401-3, the data specified here are typical data for the material in question, which have been determined principally on the basis of toroids (ring cores).

The purpose of such characteristic material data is to provide the user with improved means for comparing different materials.

There is no direct relationship between characteristic material data and the data measured using other core shapes and/or core sizes made of the same material. In the absence of further agreements with the manufacturer, only those specifications given for the core shape and/or core size in question are binding.

Effects of core combination on A_L value

Stresses in the core affect not only the mechanical but also the magnetic properties. It is apparent that the initial permeability is dependent on the stress state of the core. The higher the stresses are in the core, the lower is the value for the initial permeability. Thus the embedding medium should have the greatest possible elasticity.

For detailed information see Data Book 2007, chapter "General – Definitions, 8.2".

Heating up

Ferrites can run hot during operation at higher flux densities and higher frequencies.

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