

DATA SHEET

3C92

Material specification

Supersedes data of February 2002

2004 Sep 01

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3C92 SPECIFICATIONS

A low frequency, high Bsat power material for use in power inductors at frequencies up to 0.2 MHz.

| SYMBOL | CONDITIONS | VALUE | UNIT |
|---------|----------------------------------|-----------------|-------------------|
| μ_i | 25 °C; ≤ 10 kHz; 0.25 mT | 1500 $\pm 20\%$ | |
| μ_a | 100 °C; 25 kHz; 200 mT | ≈ 5000 | |
| B | 25 °C; 10 kHz; 1200 A/m | ≈ 540 | mT |
| | 100 °C; 10 kHz; 1200 A/m | ≈ 460 | |
| | 140 °C; 10 kHz; 1200 A/m | ≈ 400 | |
| P_V | 100 °C; 100 kHz; 100 mT | ≈ 50 | kW/m ³ |
| | 100 °C; 100 kHz; 200 mT | ≈ 350 | |
| ρ | DC; 25 °C | ≈ 5 | Ωm |
| T_C | | ≥ 280 | °C |
| density | | ≈ 4800 | kg/m ³ |

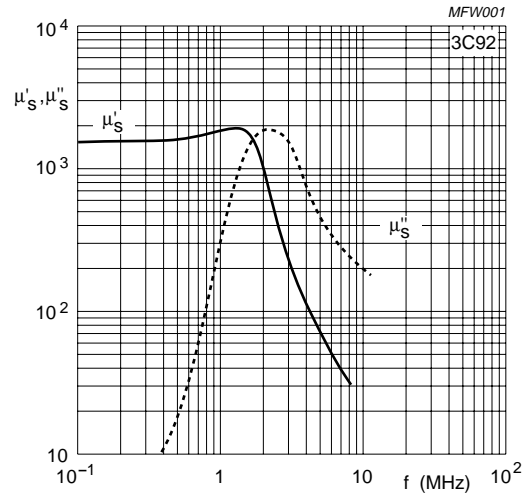


Fig.1 Complex permeability as a function of frequency.

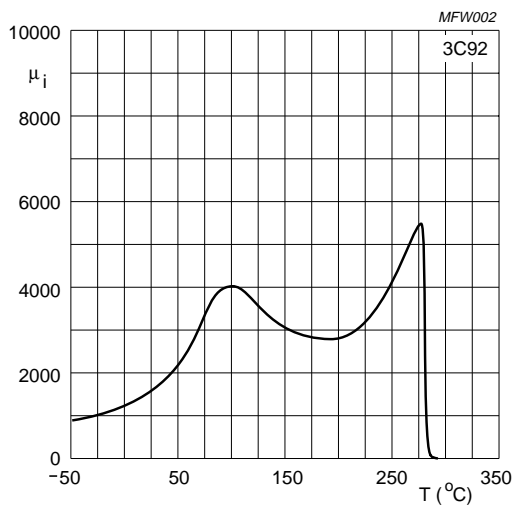


Fig.2 Initial permeability as a function of temperature.

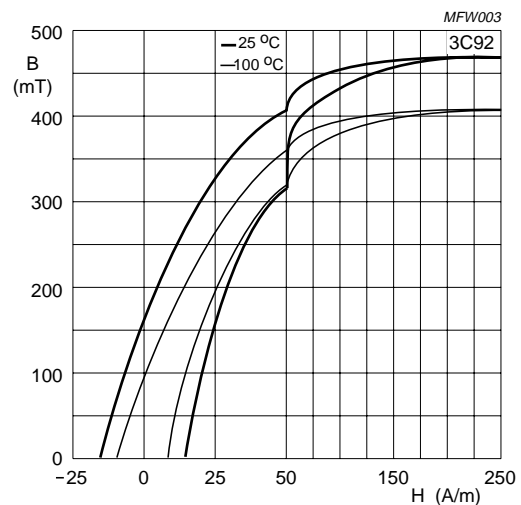


Fig.3 Typical B-H loops.

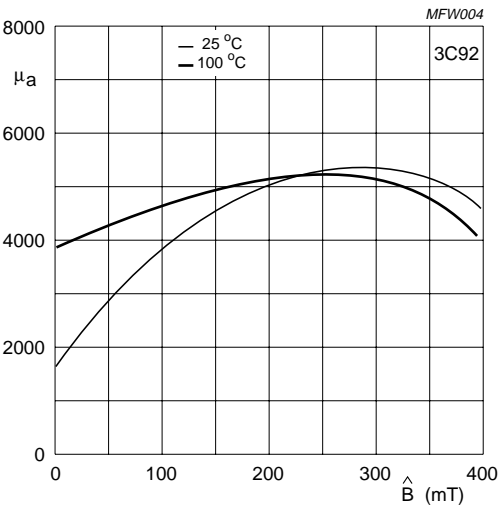


Fig.4 Amplitude permeability as a function of peak flux density.

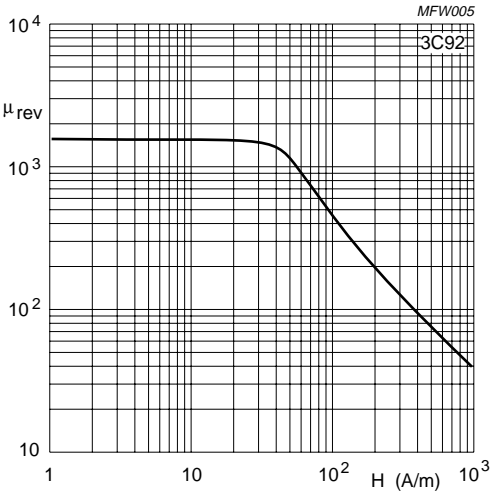


Fig.5 Reversible permeability as a function of magnetic field strength.

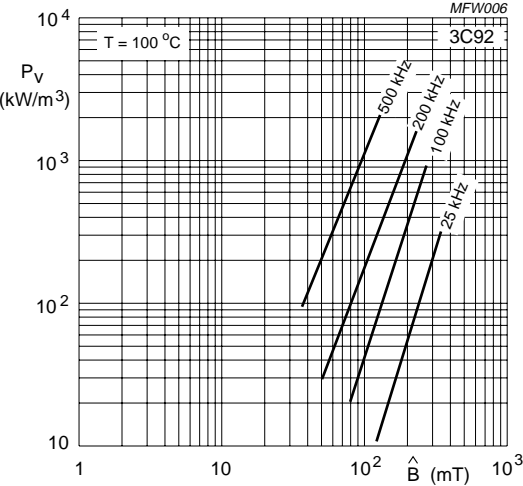


Fig.6 Specific power loss as a function of peak flux density with frequency as a parameter.

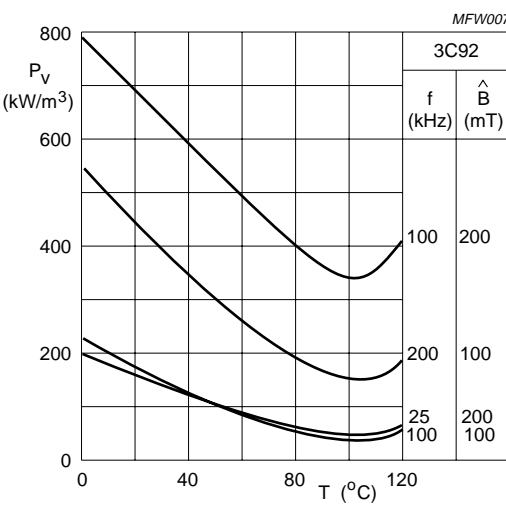


Fig.7 Specific power loss for several frequency/flux density combinations as a function of temperature.

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DATA SHEET STATUS DEFINITIONS

| DATA SHEET STATUS | PRODUCT STATUS | DEFINITIONS |
|---------------------------|----------------|--|
| Preliminary specification | Development | This data sheet contains preliminary data. Ferroxcube reserves the right to make changes at any time without notice in order to improve design and supply the best possible product. |
| Product specification | Production | This data sheet contains final specifications. Ferroxcube reserves the right to make changes at any time without notice in order to improve design and supply the best possible product. |

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PRODUCT STATUS DEFINITIONS

| STATUS | INDICATION | DEFINITION |
|------------------|---|--|
| Prototype |  | These are products that have been made as development samples for the purposes of technical evaluation only. The data for these types is provisional and is subject to change. |
| Design-in |  | These products are recommended for new designs. |
| Preferred | | These products are recommended for use in current designs and are available via our sales channels. |
| Support |  | These products are not recommended for new designs and may not be available through all of our sales channels. Customers are advised to check for availability. |