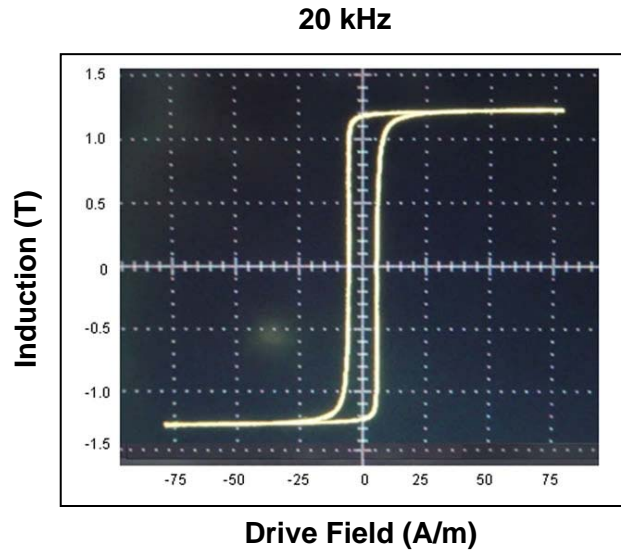


## FINEMET® Alloy

FINEMET® alloy is a nanocrystalline material obtained by heat treating an iron based amorphous alloy. Cores made from this alloy and heat treated to obtain square BH loops are useful as magnetic amplifiers in switch-mode power supplies. These cores have low coercive field and low core losses. The higher saturation induction of the alloy lends itself to small core size. This alloy is lead-free\*.



FINEMET® square loop magnetic cores exhibit square dc hysteresis loop and high  $B_{sat}$  resulting in the following benefits:

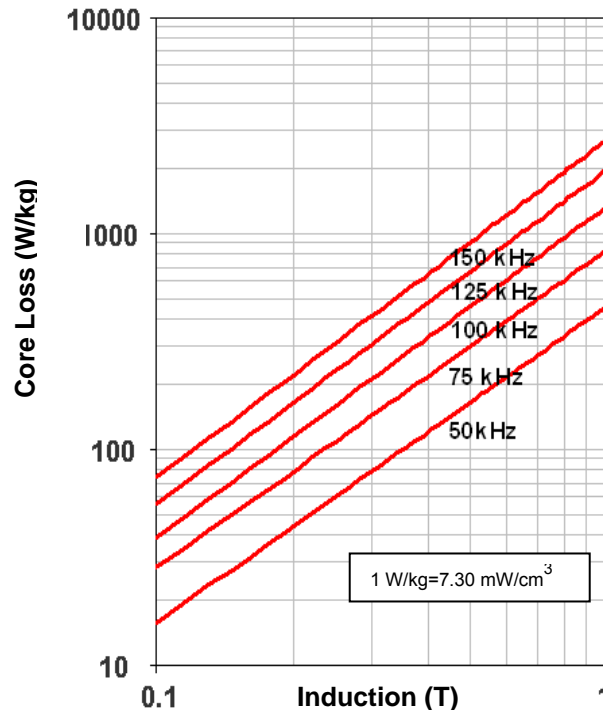
- Low saturated permeability
- Low coercive field - indicating a small reset current
- Low loss – because of thin (18µm) ribbon
- Small size

Saturation induction at 20°C    1.23 T

Saturation induction at 100°C    1.20 T

\*Lead content < 1 ppm by ICP method.

### Typical Core Losses at Various Frequencies and Induction Levels



Typical core loss is given by the following equation:

$$\text{Core loss (W/kg)} = 1.19F(\text{kHz})^{1.53}B(\text{T})^{1.52}$$

### Physical Properties FINEMET® cores

Ribbon thickness (µm)	18
Density (g/cm <sup>3</sup> )	7.30
Continuous service temperature (°C)	120

### Magnetic Properties FINEMET® cores

Saturation induction (T)	1.23
Saturation magnetostriction (ppm)	~0
Electrical resistivity (µΩ·m)	1.20
Curie temperature (°C)	570

### Standard Core Size Table \*

Part Number	Box dimensions (mm)			$l_m$ cm	$A_c$ cm <sup>2</sup>	Mass g	Vol cm <sup>3</sup>	$W_a$ cm <sup>2</sup>	$W_a A_c$ cm <sup>4</sup>
	OD	ID	HT						
MP1005LF3S	10.9	5.6	5.7	2.59	0.063	1.18	0.16	0.25	0.015
MP1006LF3S	11.4	4.8	6.4	2.51	0.084	1.54	0.21	0.18	0.015
MP1205LF3S	13.8	6.8	6.6	3.14	0.060	1.38	0.19	0.36	0.021
MP1303LF3S	14.7	7.9	5.1	3.50	0.043	1.11	0.15	0.49	0.021
MP1305LF3S	14.4	7.9	6.7	3.46	0.060	1.52	0.21	0.49	0.029

$l_m$  = mean magnetic path length  $A_c$  = net cross-sectional area  $W_a$  = core window area

L is UL approved DuPont ZYTEL® FR50 box material with a flame class of V-0 and ERTI of 130 (ZYTEL is registered trademark of E.I. du Pont de Nemours and Company).

\* Other core sizes may be available on special request

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At the time of publishing, the contact information was current and accurate

Please check <http://www.metglas.com/contacts> for a distributor near you.