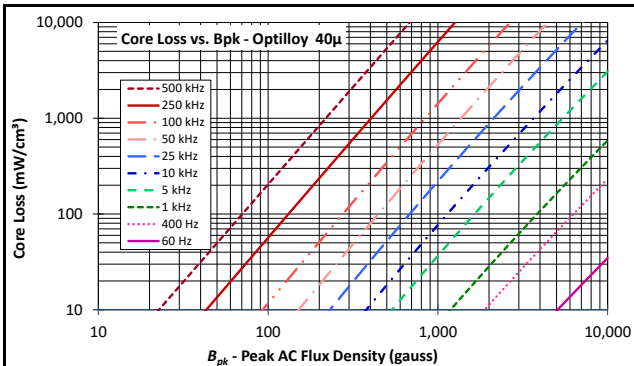




Material: Optilloy 40μ Toroid

Revision 20200519 - Generated 2020-May-26

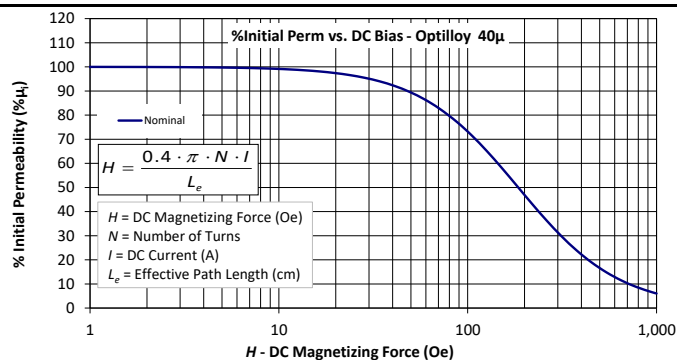
μi (reference)	040
Typical AL tolerance	± 8%
Density	6.3 g/cm ³
Bsat	13.0 kG
Core Loss (50kHz, 1000g)	529 mW/cm ³ (nom) 609 mW/cm ³ (max)
%Perm at DC Bias (100 Oe)	73.2% (nom) 66.9% (min)



$$\text{Core Loss (mW/cc)} = \frac{a}{B_{pk}^3} + \frac{b}{B_{pk}^{2.3}} + \frac{c}{B_{pk}^{1.65}} + d \cdot B_{pk}^2 \cdot f^2$$

where B_{pk} expressed in gauss, f in hertz, and:

$$a=3.471E+09, b=6.469E+08, c=5.242E+06, d=7.252E-14$$



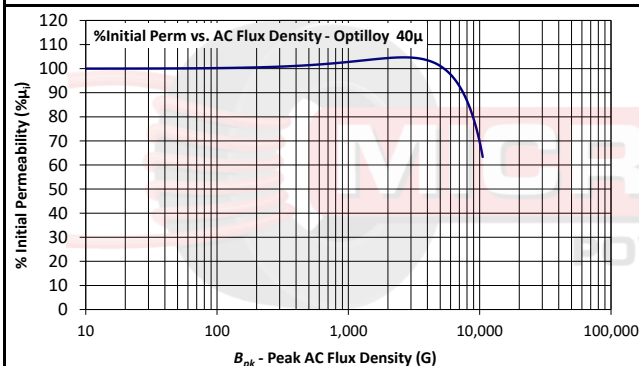
$$H = \frac{0.4 \cdot \pi \cdot N \cdot I}{L_e}$$

H = DC Magnetizing Force (Oe)
N = Number of Turns
I = DC Current (A)
L_e = Effective Path Length (cm)

$$\% \mu_i = \frac{1}{a + b \cdot H^c} + d$$

where H expressed in oersted, and:

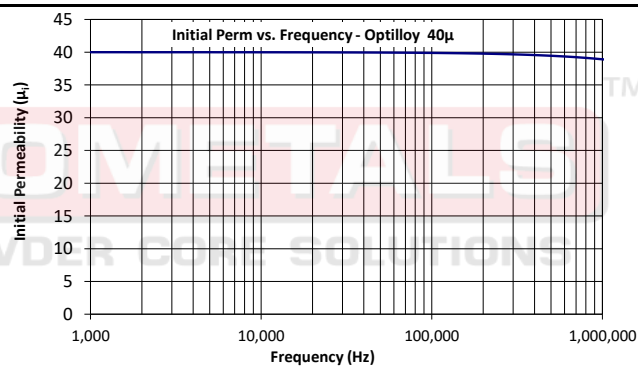
$$a=1.000E-02, b=2.043E-06, c=1.627E+00, d=0.000E+00$$



$$\% \mu_i = \frac{1}{\frac{1}{a + bB^c} + \frac{1}{dB^e} + \frac{1}{f}}$$

where B_{pk} expressed in gauss, and:

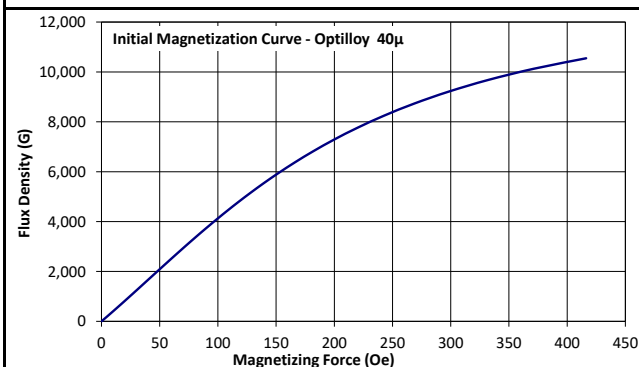
$$a=8.767E+02, b=6.069E-01, c=1.079E+00, d=2.543E+09, e=-1.752E+00, f=1.129E+02$$



$$\mu_i = \frac{1}{a + bf^c} + d$$

where f expressed in hertz, and:

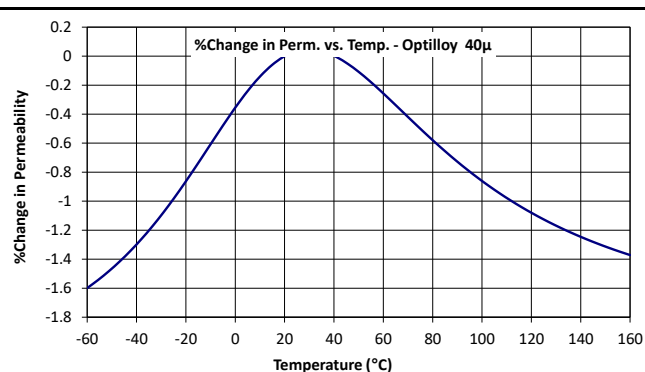
$$a=2.500E-02, b=6.059E-10, c=1.010E+00, d=0.000E+00$$



$$B_{pk} = \frac{\mu_i}{\frac{1}{H + aH^b} + \frac{1}{cH^d} + \frac{1}{e}}$$

where B_{pk} expressed in gauss, H in oersted, and:

$$a=3.762E-03, b=2.067E+00, c=5.781E+06, d=2.120E+00, e=3.252E+02$$



$$\% \left(\frac{\Delta \mu_i}{\mu_i} \right) = \frac{a + cT + eT^2}{1 + bT + dT^2}$$

where T expressed in celsius, and:

$$a=-3.552E-01, b=7.181E-03, c=2.652E-02, d=2.153E-04, e=-4.392E-04$$