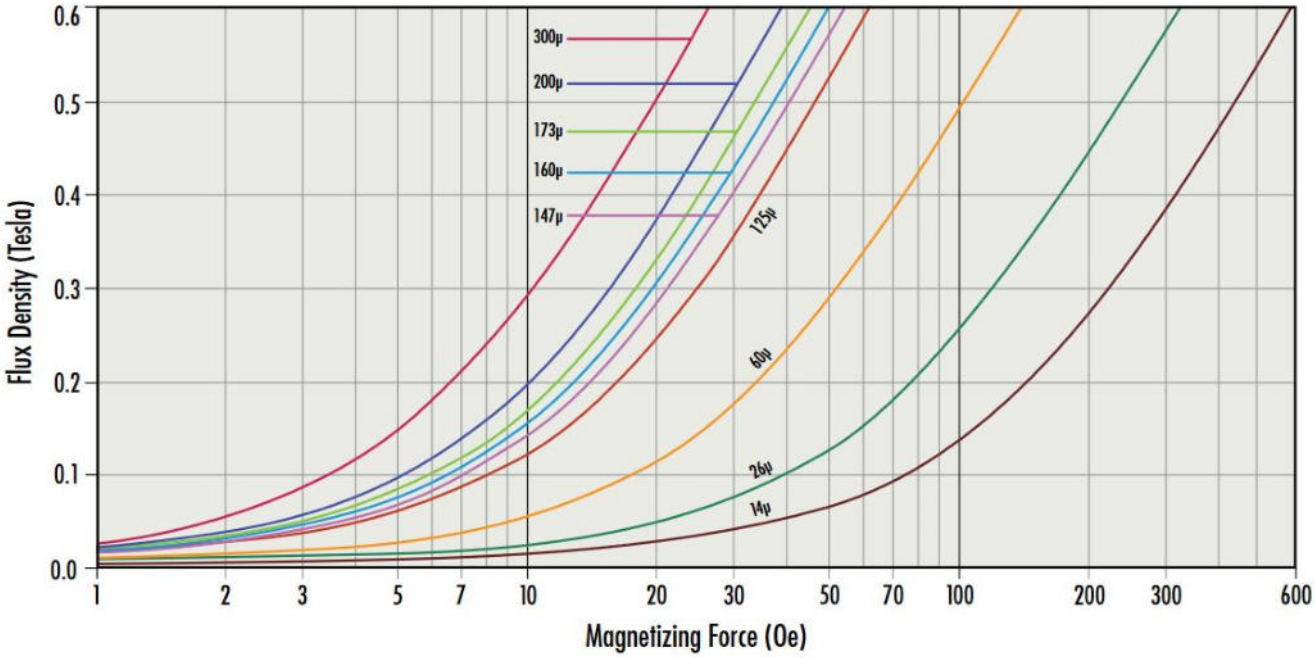
MPP
Material Property Curves

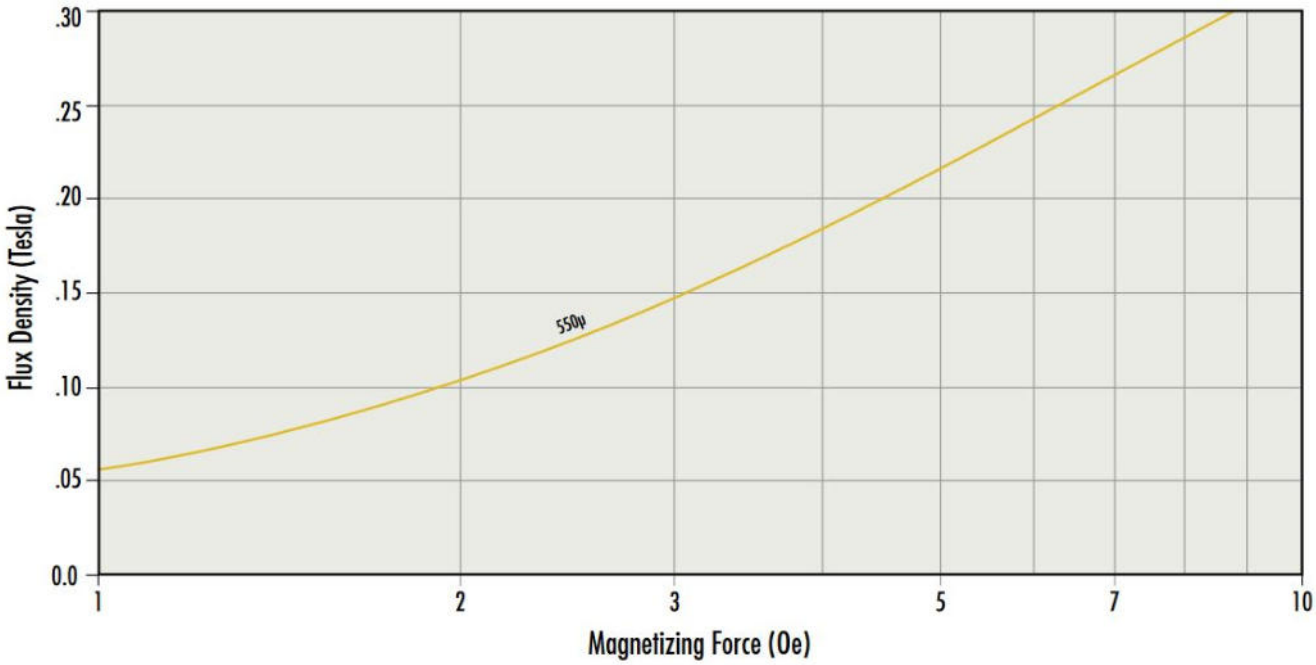
- DC Magnetization Curves
- Core Loss Density Curves
- Permeability versus Temperature Curves
- Permeability versus DC Bias Curves
- Permeability versus Frequency Curves
- Permeability versus AC Flux Curves
- Core Selection Chart

DC Magnetization Curves

MPP Toroids 14µ-300µ



MPP Toroids 550µ



DC Magnetization Curves

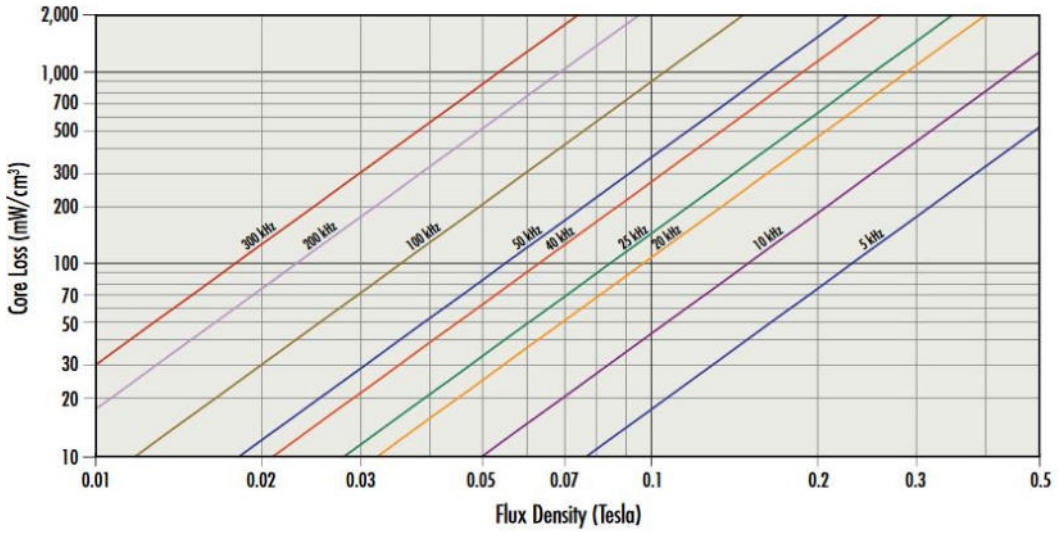
Fit Formula

$$B = \left[\frac{a + bH + cH^2}{1 + dH + eH^2}\right]^x$$ where B = Tesla (T), H = Oersteds (Oe)

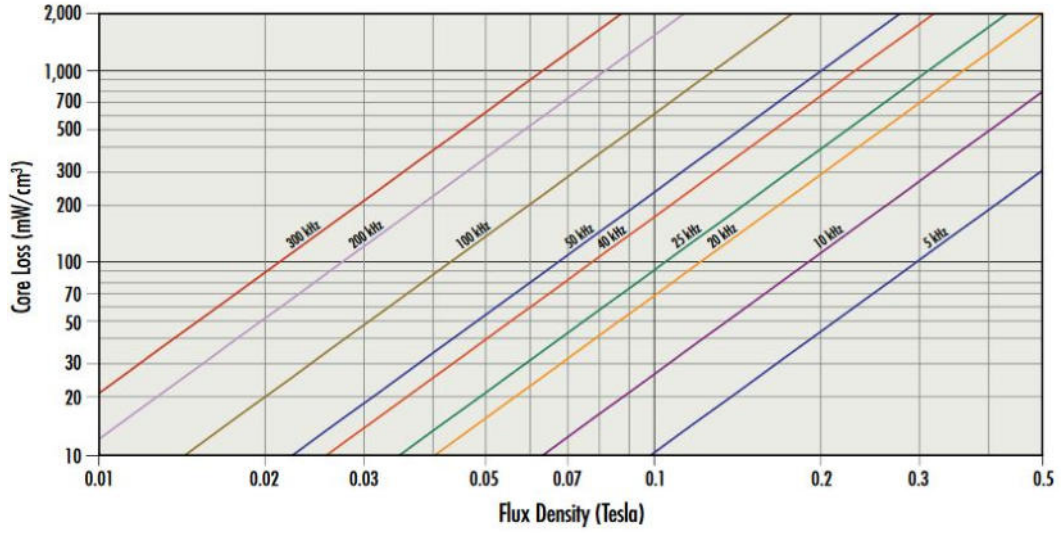
	Perm	a	b	c	d	e	x
MPP Toroids	14µ	3.918E-02	1.824E-02	4.911E-04	1.331E-01	4.502E-04	1.938
	26µ	5.340E-02	1.144E-02	5.419E-04	8.772E-02	5.000E-04	1.699
	60µ	3.933E-02	1.371E-02	5.727E-04	5.100E-02	5.216E-04	1.528
	125µ	3.423E-02	2.092E-02	5.477E-04	3.371E-02	4.941E-04	1.364
	147µ	2.888E-02	2.651E-02	5.290E-04	3.462E-02	5.025E-04	1.396
	160µ	2.843E-02	2.738E-02	5.121E-04	3.243E-02	5.052E-04	1.365
	173µ	2.933E-02	2.707E-02	4.917E-04	2.795E-02	5.130E-04	1.325
	200µ	2.257E-02	3.252E-02	5.097E-04	3.170E-02	5.225E-04	1.316
	300µ	2.880E-03	5.179E-02	5.787E-04	4.904E-02	5.100E-04	1.254
	550µ	1.681E-03	7.555E-02	1.118E-10	9.743E-02	1.754E-03	1.100

Core Loss Density Curves

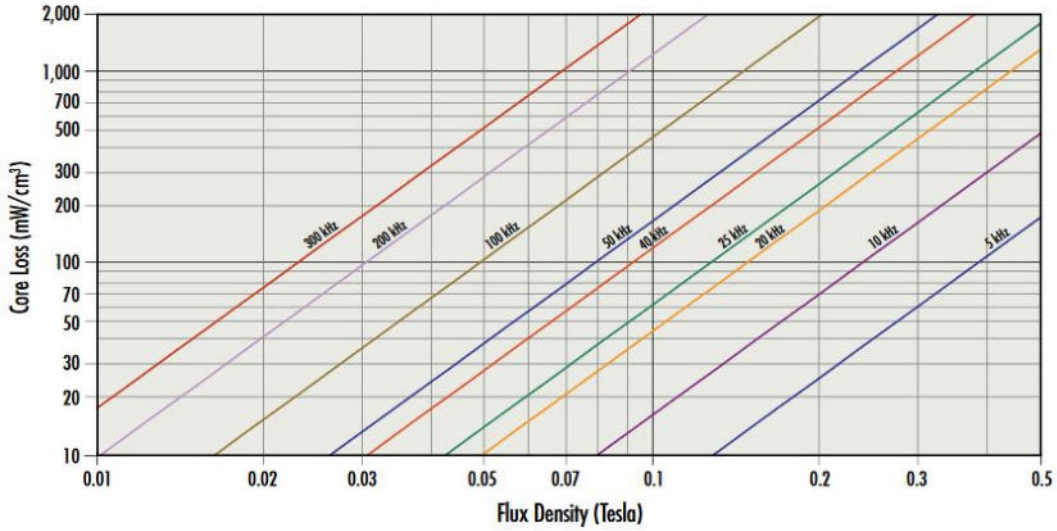
MPP Toroids 14µ



MPP Toroids 26µ

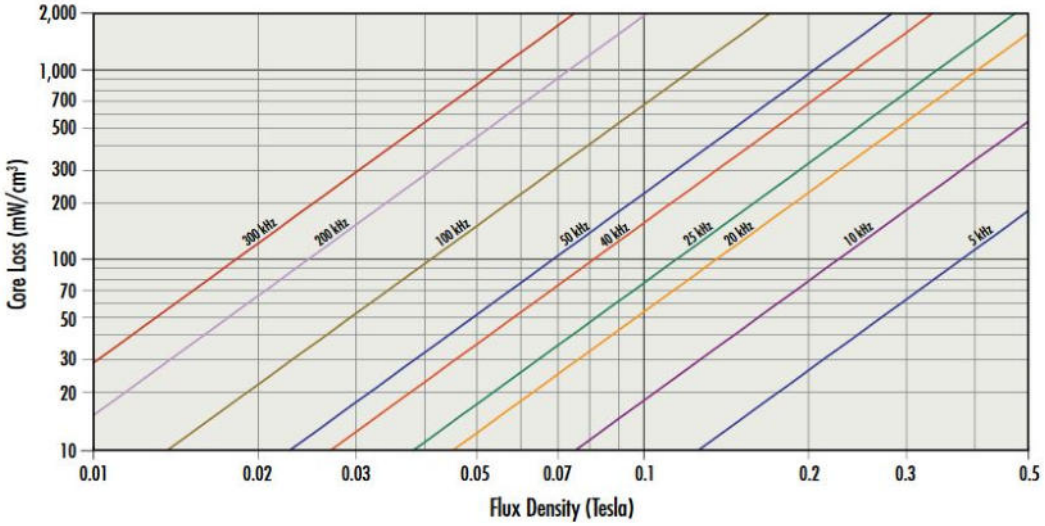


MPP Toroids 60µ

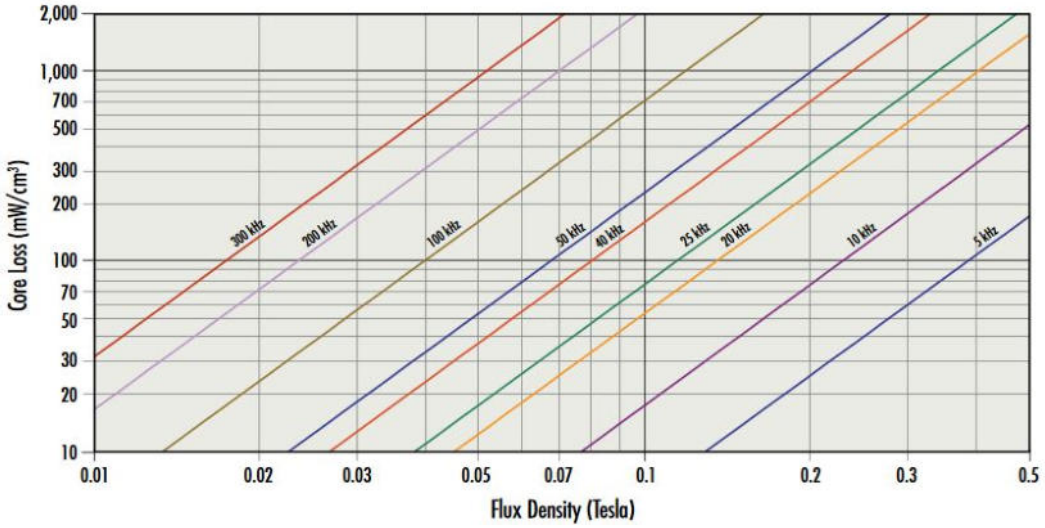


Core Loss Density Curves

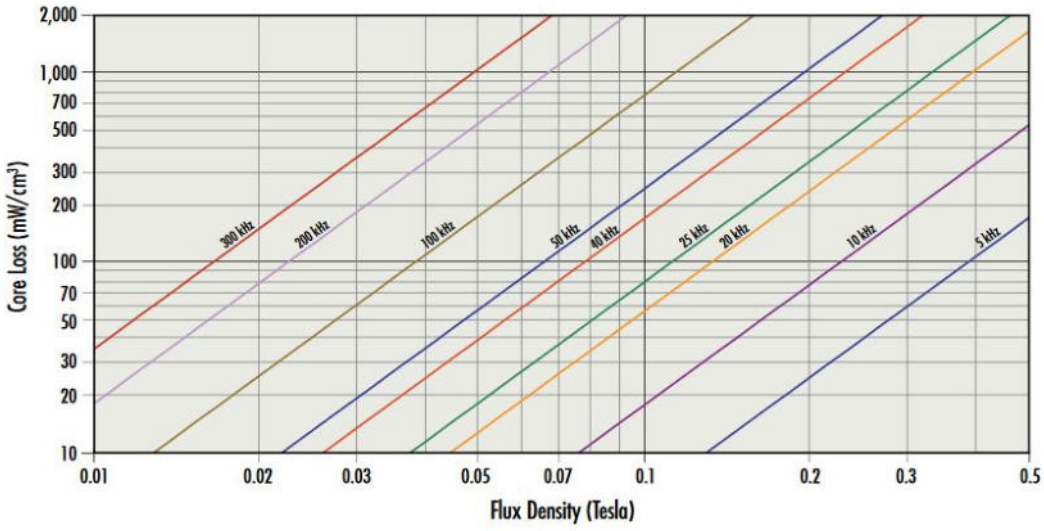
MPP Toroids 125µ



MPP Toroids 147µ, 160µ, 173µ

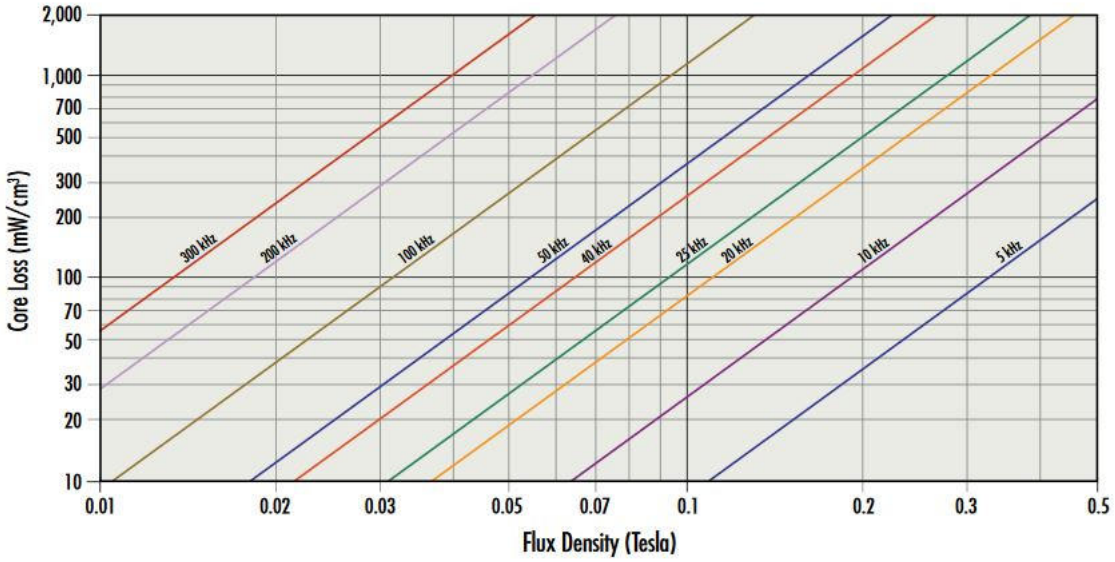


MPP Toroids 200µ, 300µ



Core Loss Density Curves

MPP Toroids 550µ



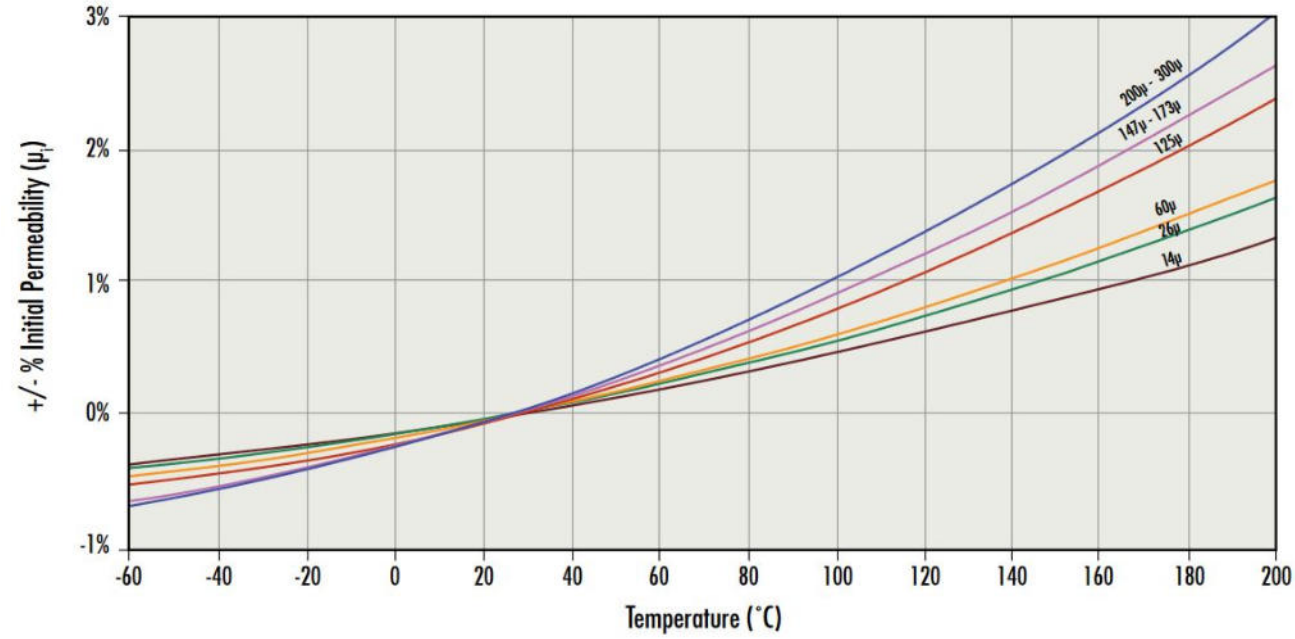
Fit Formula

$P = aB^bf^c$ where B = Tesla (T), f = kilohertz (kHz)

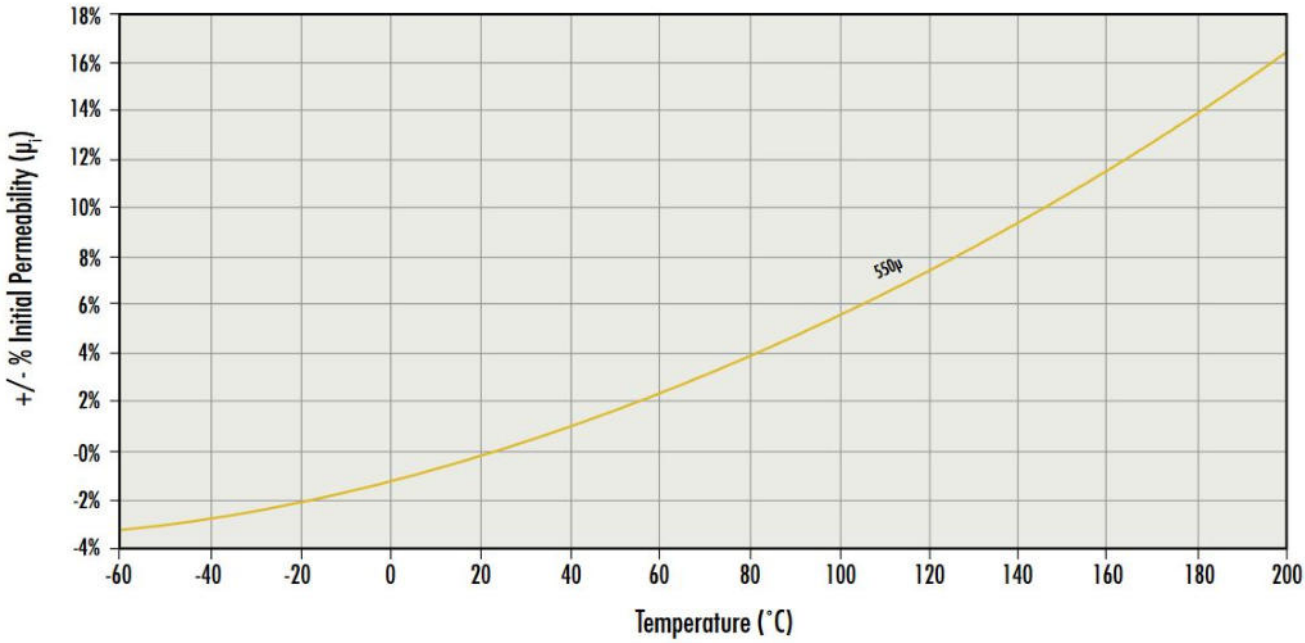
	Perm	a	b	c
MPP Toroids	14µ	266.22	2.103	1.316
	26µ	146.94	2.103	1.357
	60µ	72.15	2.103	1.449
	125µ	62.22	2.103	1.561
	147µ, 160µ, 173µ	56.51	2.103	1.598
	200µ, 300µ	53.71	2.103	1.624
	550µ	74.76	2.103	1.645

Permeability versus Temperature Curves

MPP 14µ-300µ



MPP 550µ



Permeability versus Temperature Curves

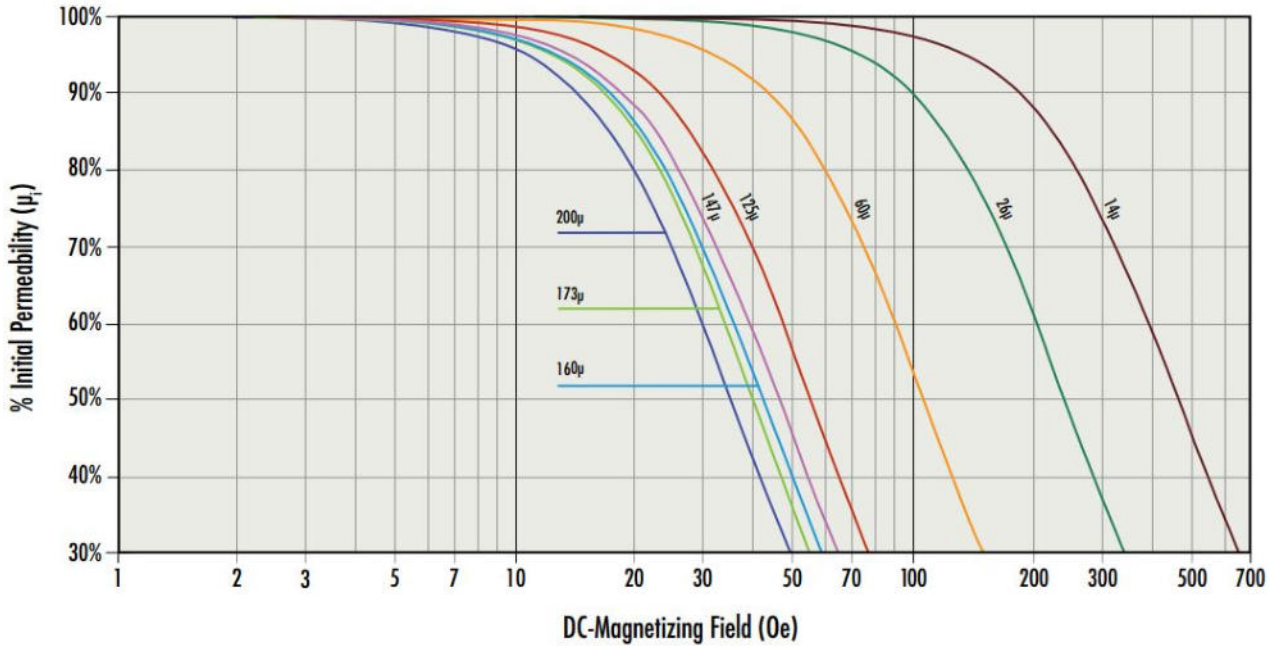
Fit Formula

$$\text{Change compared with } \mu_{25^\circ C} = \frac{\mu_T - \mu_{25^\circ C}}{\mu_{25^\circ C}} = a + bT + cT^2$$

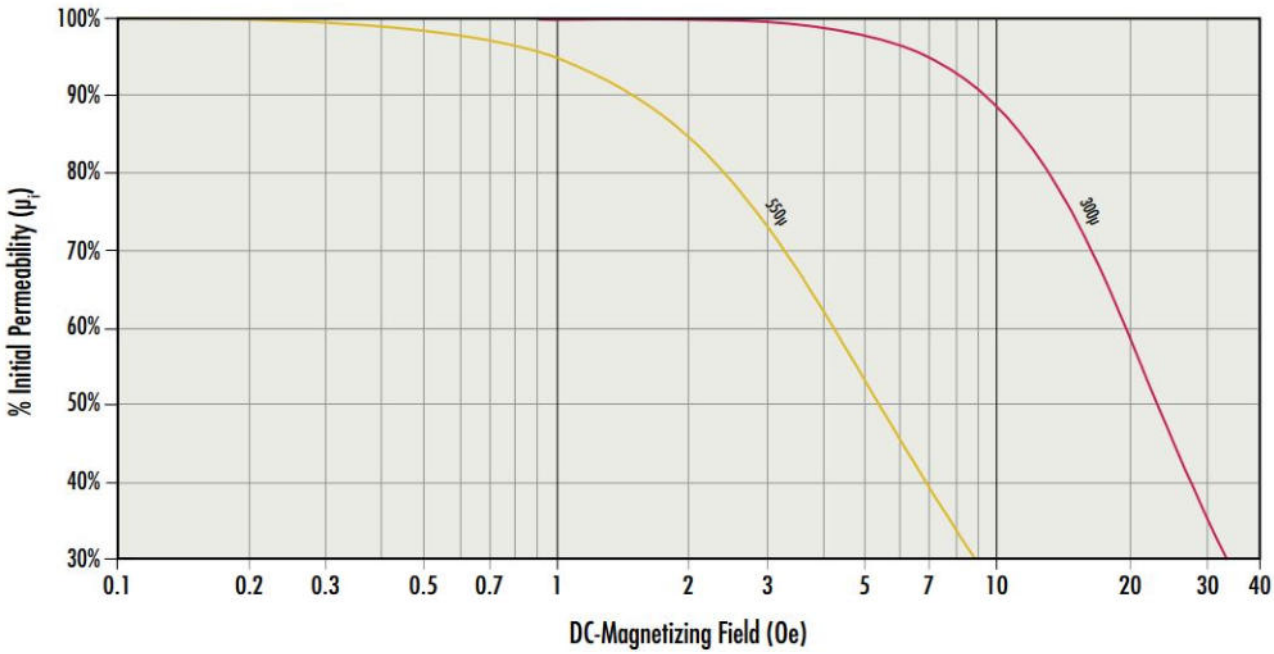
	Perm	a	b	c
MPP	14μ	-1.300E-03	4.750E-05	1.300E-07
	26μ	-1.431E-03	5.265E-05	1.837E-07
	60μ	-1.604E-03	5.945E-05	1.875E-07
	125μ	-1.939E-03	7.013E-05	2.967E-07
	147μ	-2.308E-03	8.497E-05	2.943E-07
	160μ	-2.308E-03	8.497E-05	2.943E-07
	173μ	-2.308E-03	8.497E-05	2.943E-07
	200μ	-2.528E-03	9.211E-05	3.601E-07
	300μ	-2.528E-03	9.211E-05	3.601E-07
	550μ	-1.309E-02	4.716E-04	2.086E-06

Permeability versus DC Bias Curves

MPP Toroids 14µ - 200µ



MPP Toroids 300µ & 550µ



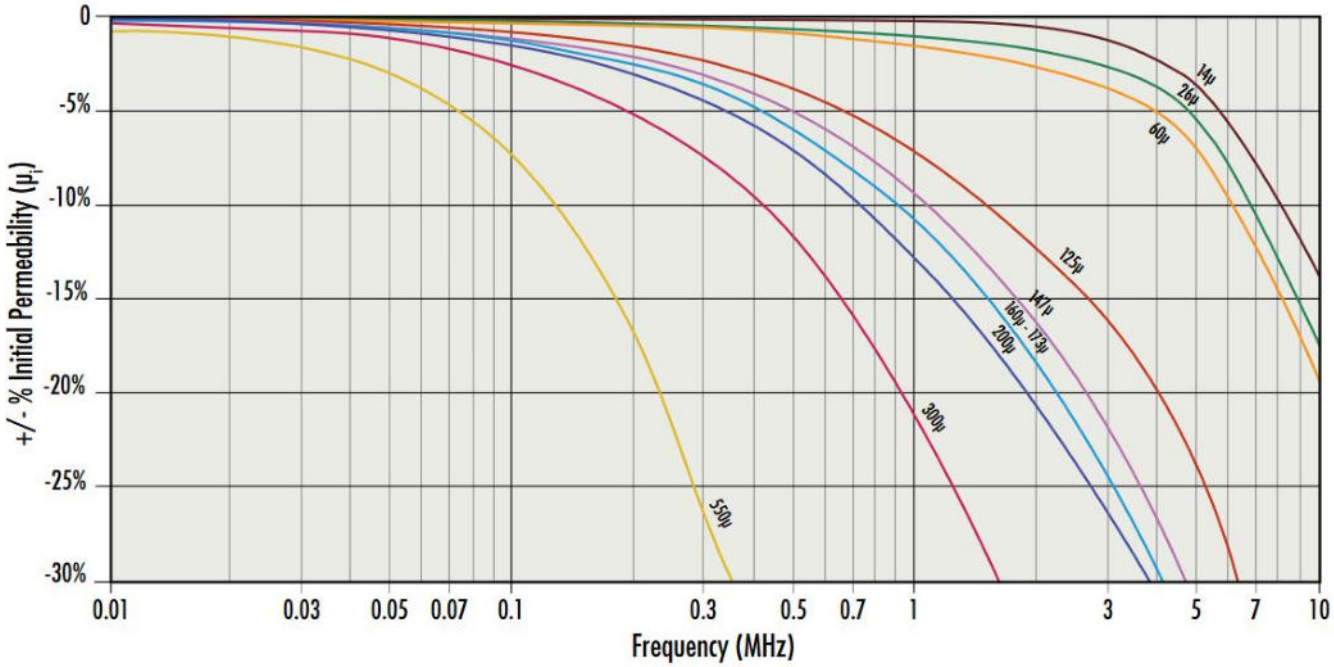
Fit Formula

$$\% \text{ initial permeability} = \frac{1}{(a + bH^c)}$$ where H is Oersteds (Oe)

	Perm	a	b	c
MPP Toroids	14µ	0.01	4.357E-09	2.385
	26µ	0.01	1.090E-08	2.505
	60µ	0.01	1.165E-07	2.436
	125µ	0.01	4.061E-07	2.518
	147µ	0.01	9.118E-07	2.430
	160µ	0.01	9.525E-07	2.477
	173µ	0.01	8.078E-07	2.563
	200µ	0.01	1.496E-06	2.477
	300µ	0.01	4.913E-06	2.430
	550µ	0.01	5.597E-04	1.710

Permeability versus Frequency Curves

MPP



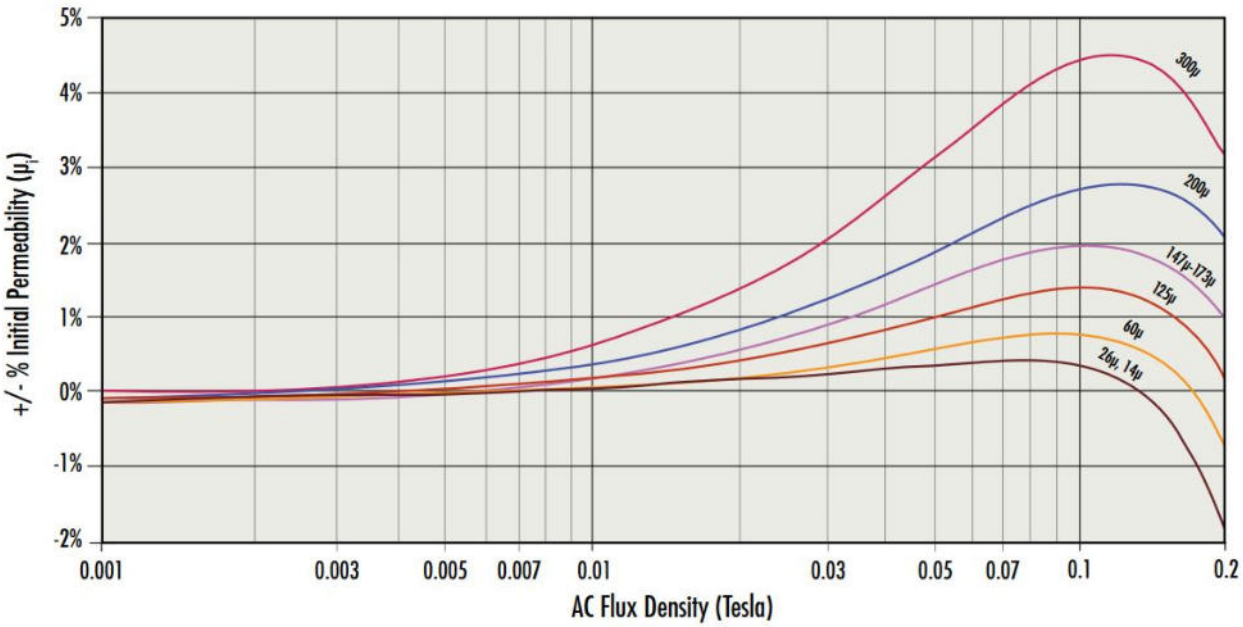
Fit Formula

$\pm \%\mu_i = a + bf + cf^2 + df^3 + ef^4$ where f = megahertz (MHz)

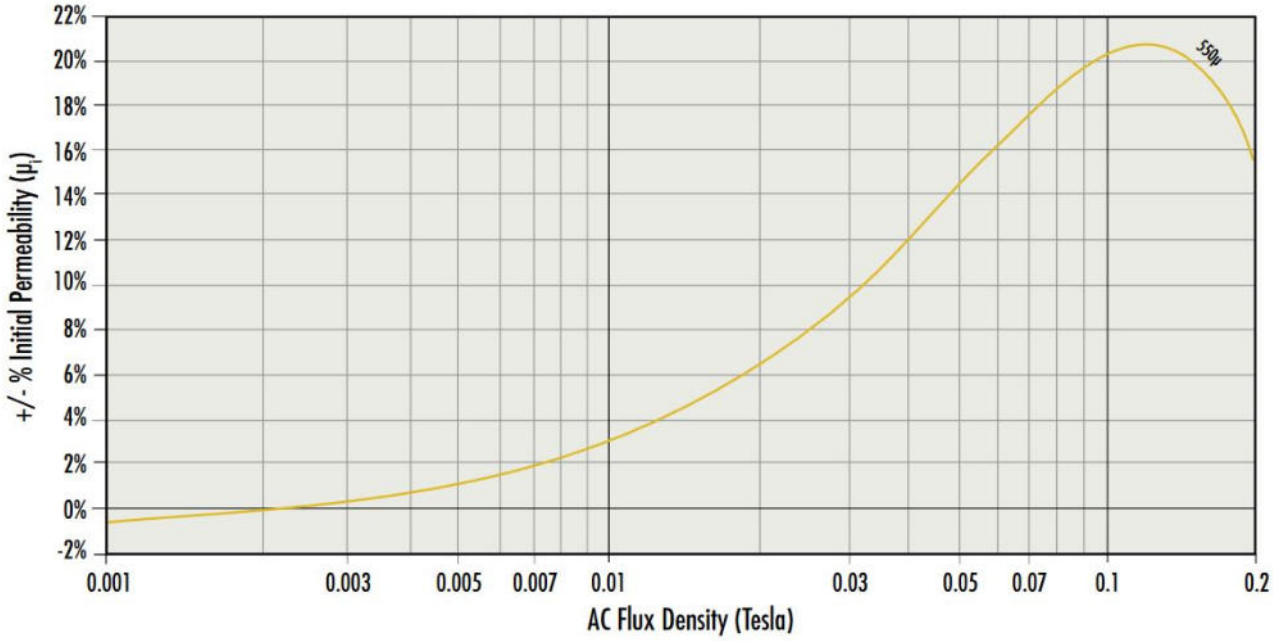
	Perm	a	b	c	d	e
MPP	14μ	0	-2.320E-03	7.630E-04	-5.070E-04	3.170E-05
	26μ	0	-1.560E-02	5.190E-03	-1.160E-03	6.230E-05
	60μ	0	-1.820E-02	4.320E-03	-9.780E-04	5.360E-05
	125μ	0	-8.430E-02	1.590E-02	-2.270E-03	1.080E-04
	147μ	0	-1.110E-01	2.040E-02	-2.810E-03	1.300E-04
	160μ	0	-1.290E-01	2.390E-02	-3.080E-03	1.410E-04
	173μ	0	-1.290E-01	2.390E-02	-3.080E-03	1.410E-04
	200μ	0	-1.610E-01	3.820E-02	-5.170E-03	2.160E-04
	300μ	0	-2.590E-01	5.570E-02	-6.530E-03	2.780E-04
	550μ	0	-4.590E-01	-3.300E+00	8.140E+00	-5.730E+00

Permeability versus AC Flux Curves

MPP 14µ-300µ



MPP 550µ



Permeability versus AC Flux Curves

Fit Formula

$$\pm \%\mu_i = (a + bB + cB^2 + dB^3 + eB^4) \quad \text{where B is Tesla}$$

	Perm	a	b	c	d	e
MPP	14μ	-5.000E-04	1.186E-01	-5.096E-01	-2.727E+00	0
	26μ	-5.000E-04	1.186E-01	-5.096E-01	-2.727E+00	0
	60μ	-1.000E-03	1.708E-01	-6.675E-01	-1.792E+00	0
	125μ	-1.000E-03	2.960E-01	-1.561E+00	8.254E-01	0
	147μ	-2.000E-03	4.393E-01	-2.591E+00	3.446E+00	0
	160μ	-2.000E-03	4.393E-01	-2.591E+00	3.446E+00	0
	173μ	-2.000E-03	4.393E-01	-2.591E+00	3.446E+00	0
	200μ	-1.000E-03	5.145E-01	-2.688E+00	3.308E+00	0
	300μ	-2.000E-03	9.038E-01	-5.112E+00	7.055E+00	0
	550μ	-9.000E-03	4.042E+00	-2.240E+01	3.123E+01	0

Core selection charts

MPP Toroids