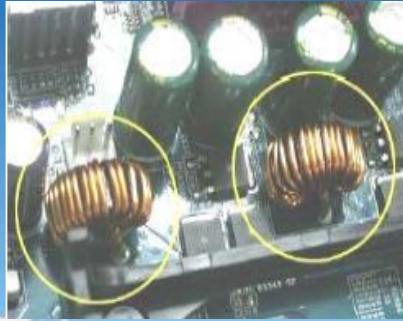


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poco



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源于美国核心实验室的突破性技术，在中国历经多年研发、应用磨砺，完成全系列金属磁粉芯产品
产品特点：

- 完全使用无机物粘结，不存在老化
- 无噪音
- 个性化服务：根据客户需要定制产品形状、颜色、尺寸，调配磁损耗、直流偏置
- 性价比优良

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POCO Magnetic Co.,Ltd

<http://www.pocomagnetic.com>

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Introduction

POCO Magnetic engages in developing and manufacturing quality, advanced NPF, PPF, NPS, PPM, PPI Cores, etc. which are mainly used for inductors and transformers.

Type	Characteristics	Applications
NPF / PPF Core	6.5% silicon iron distributed gapped powder core Good temperature stability Lower losses than powder iron cores Excellent DC Bias performance High saturation flux density	Power Factor Correction (PFC) choke EMI filters Switching Regulator inductors In line noise filters Boost inductors
NPS Core	Iron, silicon, and aluminium alloy distributed Good temperature stability Significantly lower losses than powder iron cores Good DC Bias performance Low magnetostriction Lower cost than MPP cores	In line noise filters Pulse and flyback transformers Power Factor Correction (PFC) Switching amplifier AC/ DC filters Energy storage inductors
PPM Core	Nickel, iron, and molybdenum alloy distributed Best temperature stability Lowest losses Low magnetostriction Wide range of available permeabilities	EMI / RFI filters High Q filters Loading coils Switching amplifier Flyback transformers DC output inductors
PPI Core	Silicon iron distributed gapped powder core Lower losses than powder iron cores Good DC Bias performance Lower cost	PFC choke EMI filters Switching Regulator inductors In line noise filters Boost inductors
PEE Core	Large energy storage capacity No magnetic flux leakage Good temperature stability Low core loss at high frequencies	High inductance choke coils Flyback transformers Multiple circuit choke coils Output chokes for SMPS
PER type Powder Core	Small dimensions for large current applications No magnetic flux leakage Excellent DC Bias characteristics Good temperature stability Large energy storage capacity	Small dimension DC/DC converter Large current choke coil Smoothing choke coil CPU cores for lap-top computer

Cores Description

POCO Cores Part Number System

Part Number for POCO cores constructed is showed as below. Note that the permeability rating & inductance rating is included in the electrical specification table.

<u>NPF</u>	<u>106</u>	<u>060</u>
Material*	OD Size*	Permeability*
NPF	1.06 inch	60μ

* Part Number System Table

Material Code	OD Size	Available Permeabilities
NPF	From 0.140 inch to 3.063 inch	26, 60, 75, 90, 125μ
PPF		26, 60, 75, 90μ
NPS		26, 60, 75, 90, 125, 147, 160, 173μ
PPM		26, 60, 125, 147, 160, 173, 205, 250μ

Inductance Factor Tolerance

The powder cores inductance factor tolerance usually +/-8% are showed in the electrical specification table for core size from 0.250 inch to 3.063 inch.

Specially, for NPS, with the core size from 0.140 inch to 0.183 inch, the tolerance is +/-15%; for 0.250 inch to 0.440 inch, +/-12% instead.

For NPF/PPF and PPM cores, with the core size from 0.140 inch to 0.183 inch, the tolerance is +/-12%.

Core Finishes

The core finish with Parylene-C is tested for dielectric strength at 500Vrms min.

The core finish with Epoxy is tested for dielectric strength at 1000Vrms min.

Characteristics of Basic Materials

Material	Magnetic Material	Core Loss	Perm vs DC Bias	Frequency Range	Curie Temperature	Flux Density	Temperature Stability	Gap Insulation	Relative Cost
NPF	FeSi	lower	Best	1 MHz	500°C	15000G	Better	Inorganic	Medium
PPF	FeSi	Medium	Best	1 MHz	500°C	15000G	Better	Inorganic	Low
NPS	FeSiAl	Lowest	Good	1 MHz	600°C	10000G	Good	Inorganic	Low
PPM	FeNiMo	Lowest	Better	2 MHz	450°C	8000G	Best	Inorganic	High

Magnetic Design Formulas

Inductance of Wound Core

Inductance(L) can be figured out by the inductance factor(A_L).

$$L = A_L N^2$$

A_L = inductance factor (nH/N²)

N = number of turns

Inductance can also be determined by the relative permeability and the effective core parameters.

$$L = \frac{4 \pi \mu N^2 A}{\ell}$$

A = effective cross section area (cm²)

ℓ = mean magnetic path length (cm)

μ = relative permeability (no dimensions)

Effective Magnetic Path Length

For toroidal powder cores, the effective area (A) is as the same as the cross sectional area. According to the definition and Ampere's Law, the effective magnetic path length is the ratio of ampere-turns (NI) to the average magnetizing force. Using Ampere's Law and averaging the magnetizing force gives the formula for effective path length.

$$\ell = \frac{\pi (OD-ID)}{\ln\left(\frac{OD}{ID}\right)}$$

OD = outside diameter of core (cm)

ID = inside diameter of core (cm)

Magnetic Flux Density

Using the Faraday's Law, the maximum flux density(B_{max}) is figured out with the following fomular:

$$B_{max} = \frac{E_{rms} 10^8}{4.44fAN}$$

B_{max} = maximum flux density (gaussess)

E_{rms} = voltage across coil (volts)

f = frequency (hertz)

Magnetizing Force

Using Ampere's law, the magnetizing force(H) is:

$$H = \frac{0.4 \pi NI}{\ell}$$

N = number of turns

I = peak magnetic current (amperes)

ℓ = mean magnetic path length (cm)

Permeability

The magnetizing force determines the estimate of magnetic flux density. The relative permeability is, by definition:

$$\mu = \frac{B}{H}$$

μ = relative permeability

B = magetic flux density (gausses)

H = magnetizing force (oersteds)

Magnetic Design Formulas

Q Factor

The quality factor (Q) is defined as the ratio of reactance to the effective resistance for an inductor and thus indicates its quality. The Q of wound core can be figured out with the following formula, when the effects of self-resonance caused by the distributed capacitance which resulting from the differential voltage between adjacent turns are neglected.

$$Q = \frac{\omega L}{R_{dc} + R_{ac} + R_d}$$

ω = 2π frequency (hertz)

L = inductance (henries)

R_{dc} = DC winding resistance (ohms)

R_{ac} = resistance due to core loss (ohms)

R_d = resistance due to winding dielectric loss (ohms)

Core Loss

Total core loss at low flux densities is the sum of three losses of hysteresis, residual, and eddy current.

$$\frac{R_{ac}}{\mu L} = aB_{max}f + cf + ef^2$$

a = hysteresis loss coefficient

c = residual loss coefficient

e = eddy current loss coefficient

μ, L, B_{max}, f = as above

When a varying magnetic field passed through the core, eddy currents are induced in it. Joule heat loss by this currents called eddy current loss. Hysteresis loss is due to the irreversible behavior in hysteresis curve and equal to the enclosed area of the loop. The other core loss called residual loss.

Inductance Calculation

Electrical Specifications

Core: NPF157060

A_L : 81 nH/N²

Number of winding: 75T

Current: DC 15A

By permeability vs DC Bias Curves

Inductance at non-biased:

$$L = A_L N^2$$

$$= 81 \times 75^2 / 1000$$

$$= 455.6 \text{ (}\mu\text{H)}$$

DC magnetizing force (H) at 20A:

$$H = 0.4 \pi NI / \ell$$

$$= 0.4 \times 3.14 \times 75 \times 15 / 9.84$$

$$= 143.6 \text{ (Oe)}$$

When magnetizing force is 143.6 Oe, the yield is 54% of initial permeability according to *Permeability vs DC Bias Curves*.

The inductance at 15A will decrease the inductance by 54% compared with 15A.

Therefore, **$L(@10A) = 455.6 \times 0.54 = 246 \text{ (}\mu\text{H)}$**

By A_L vs NI Curves

Calculate NI:

$$NI = 75 \times 15$$

$$= 1125$$

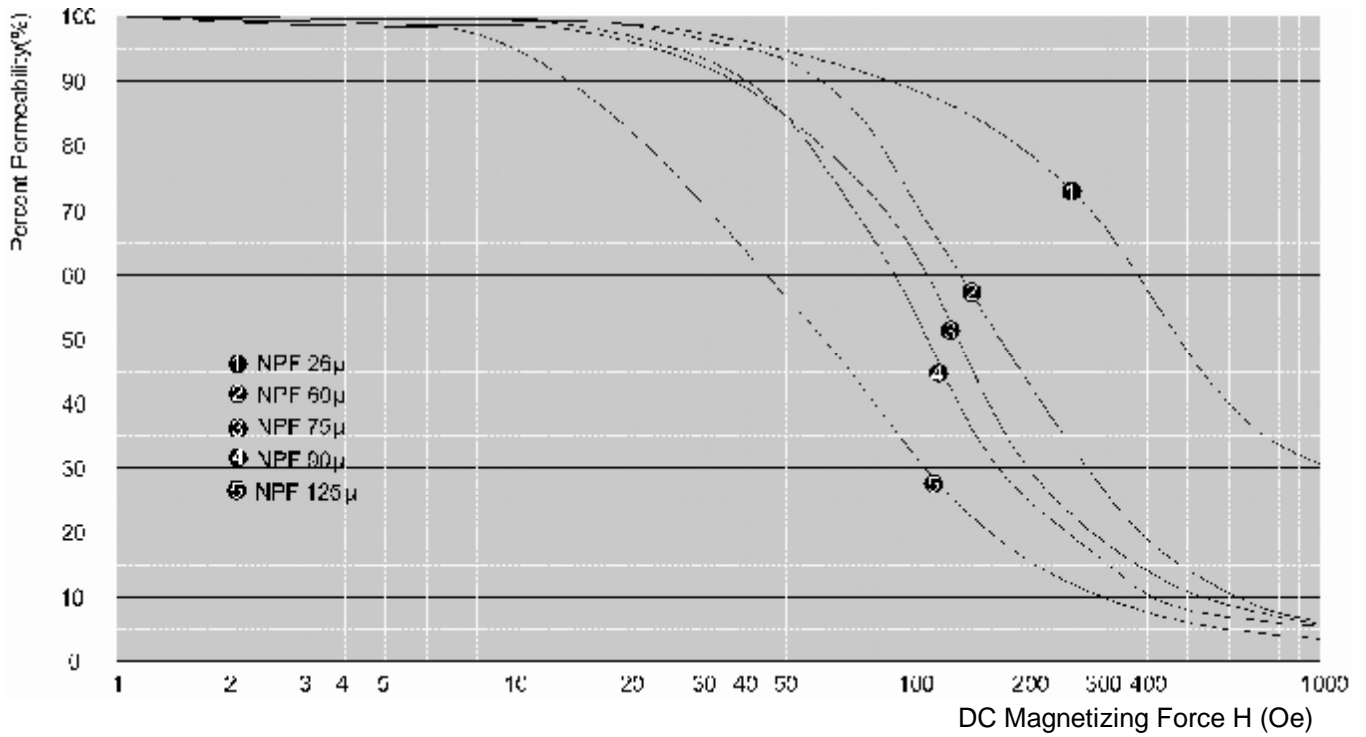
Using the *AL vs NI Curves* on core data of 1.57", the yield of AL value is 1125 when NI is 43.8.

According to the formula: $L = A_L N^2$

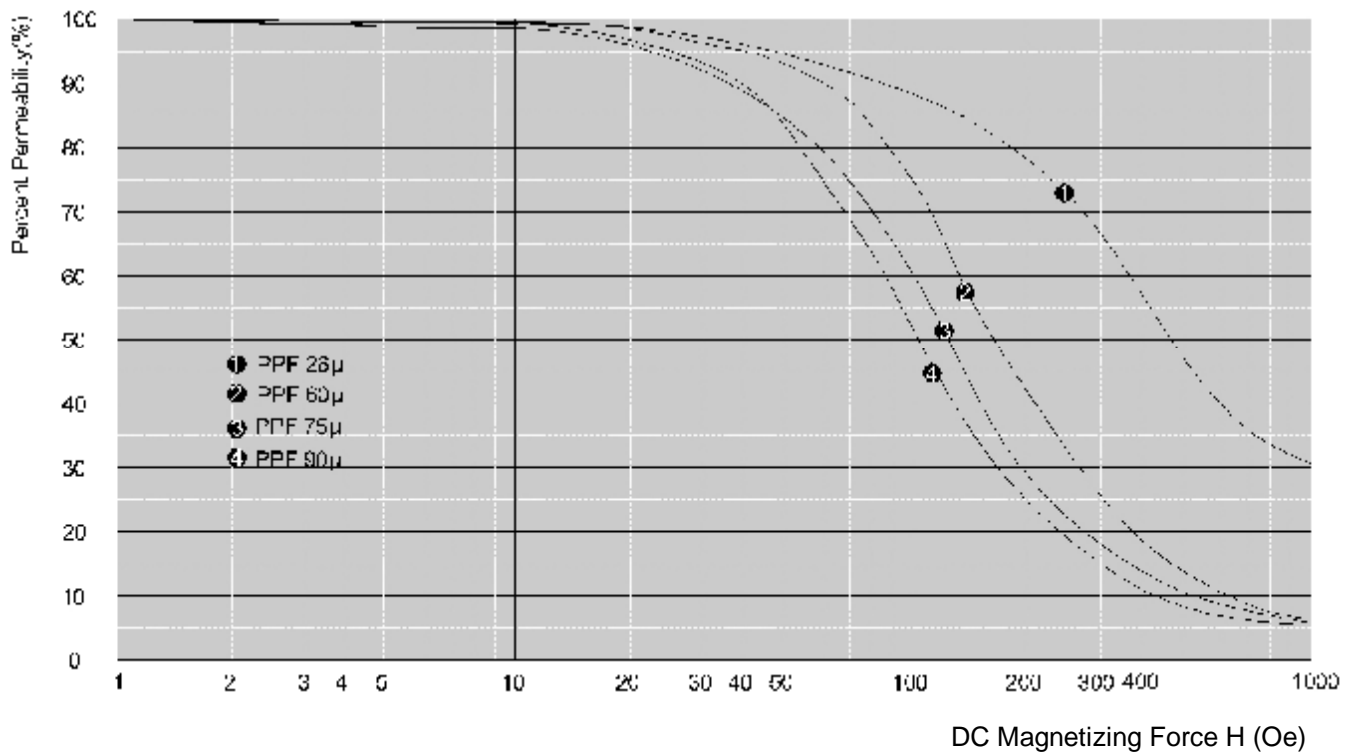
$$L(@10A) = 43.8 \times 75^2 / 1000 = 246 \text{ (}\mu\text{H)}$$

Permeability vs DC Bias Curves

NPF

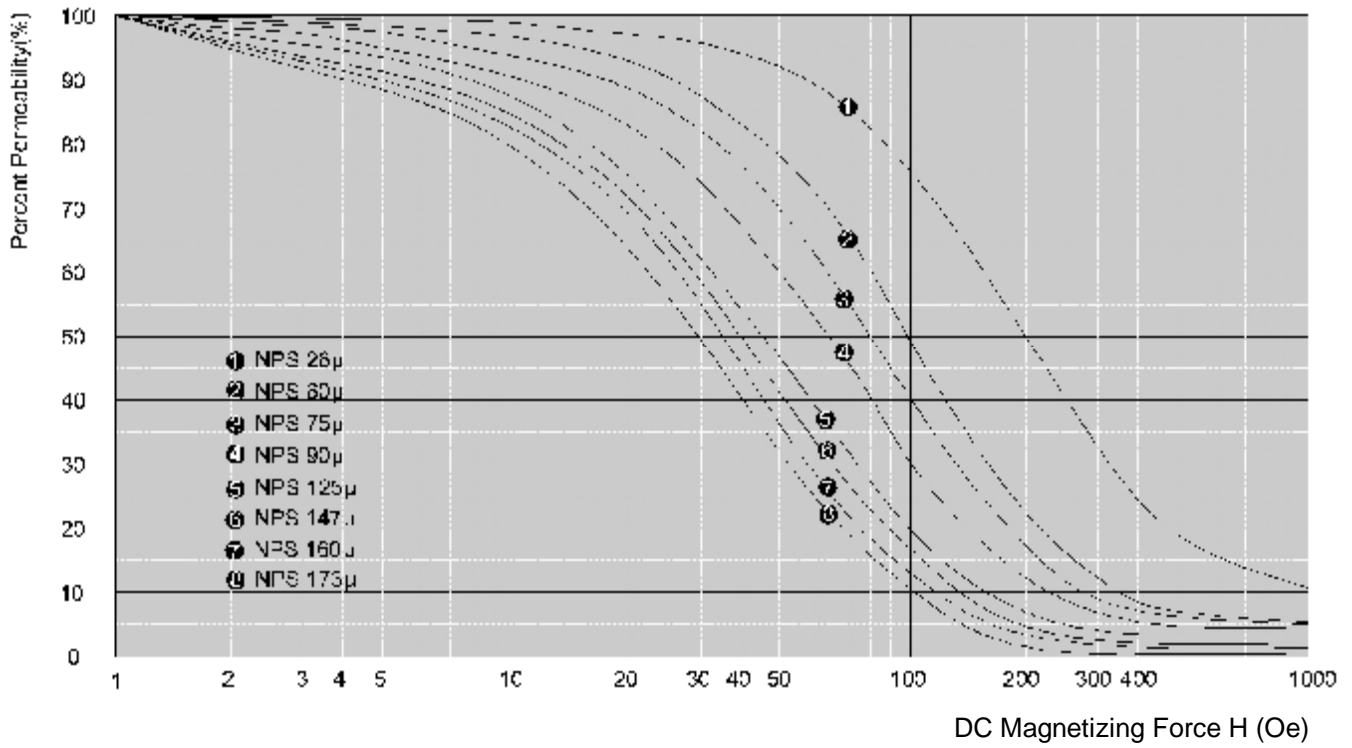


PPF

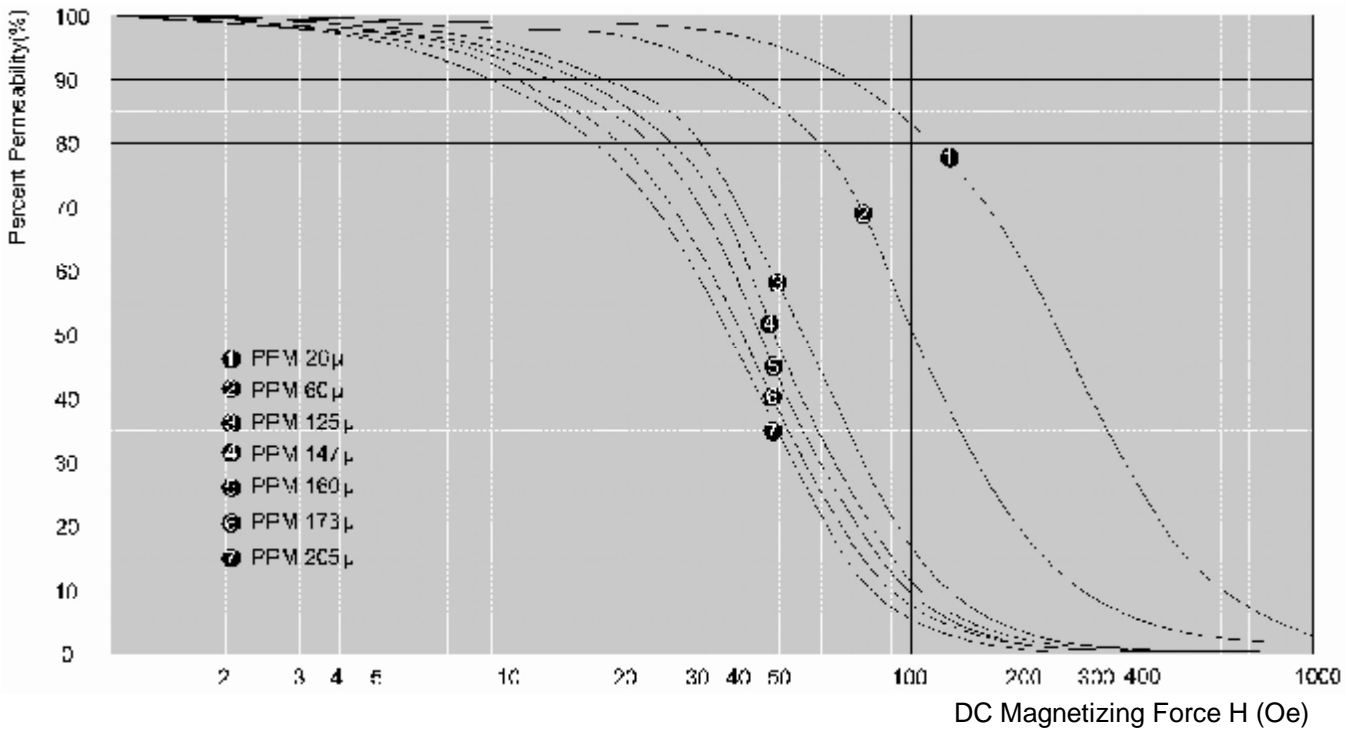


Permeability vs DC Bias Curves

NPS

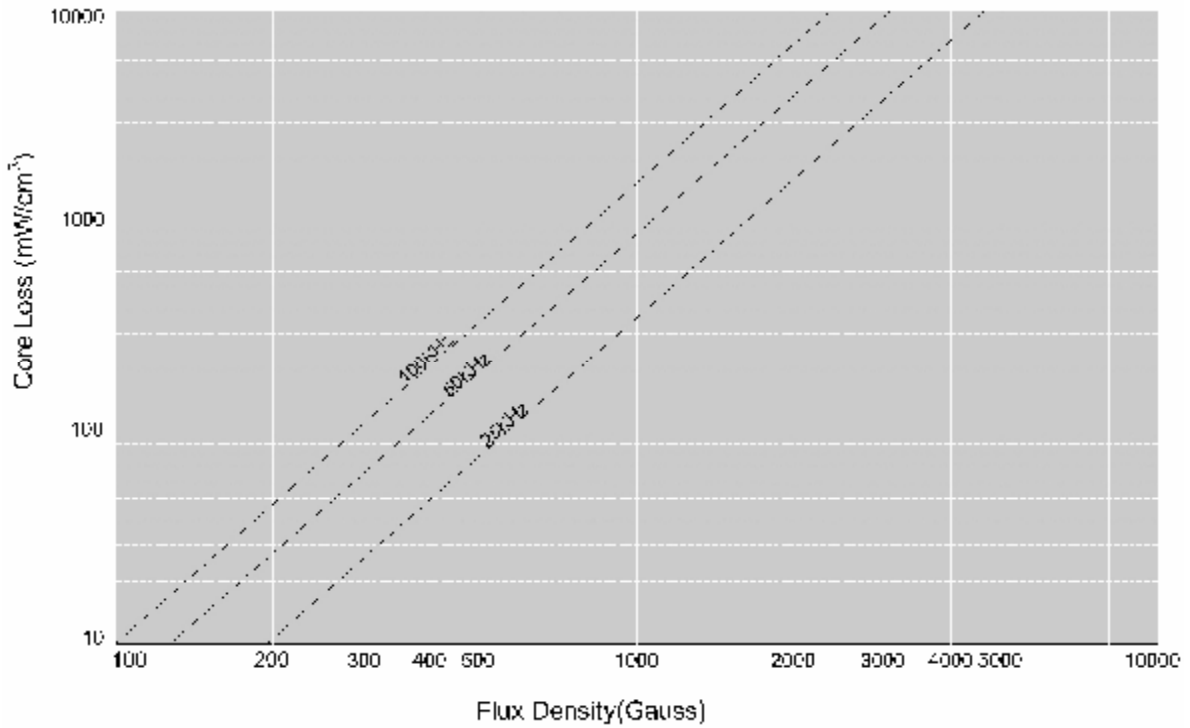


PPM

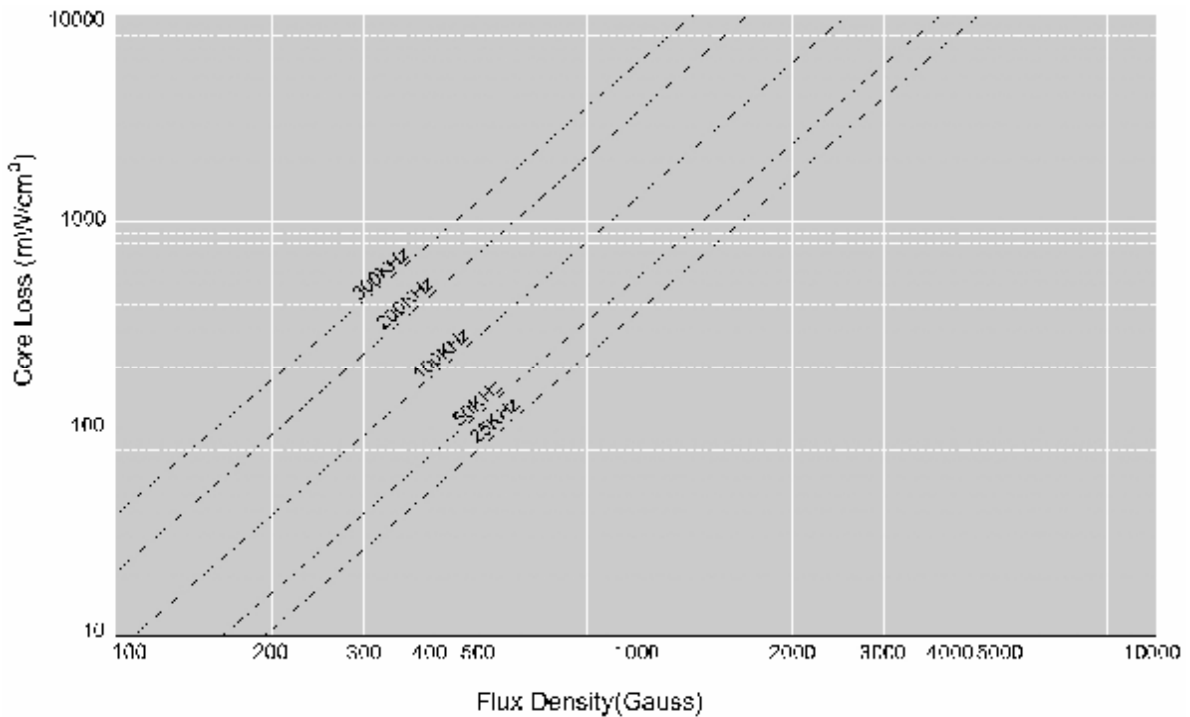


NPF Core Loss Curves

NPF 26 μ

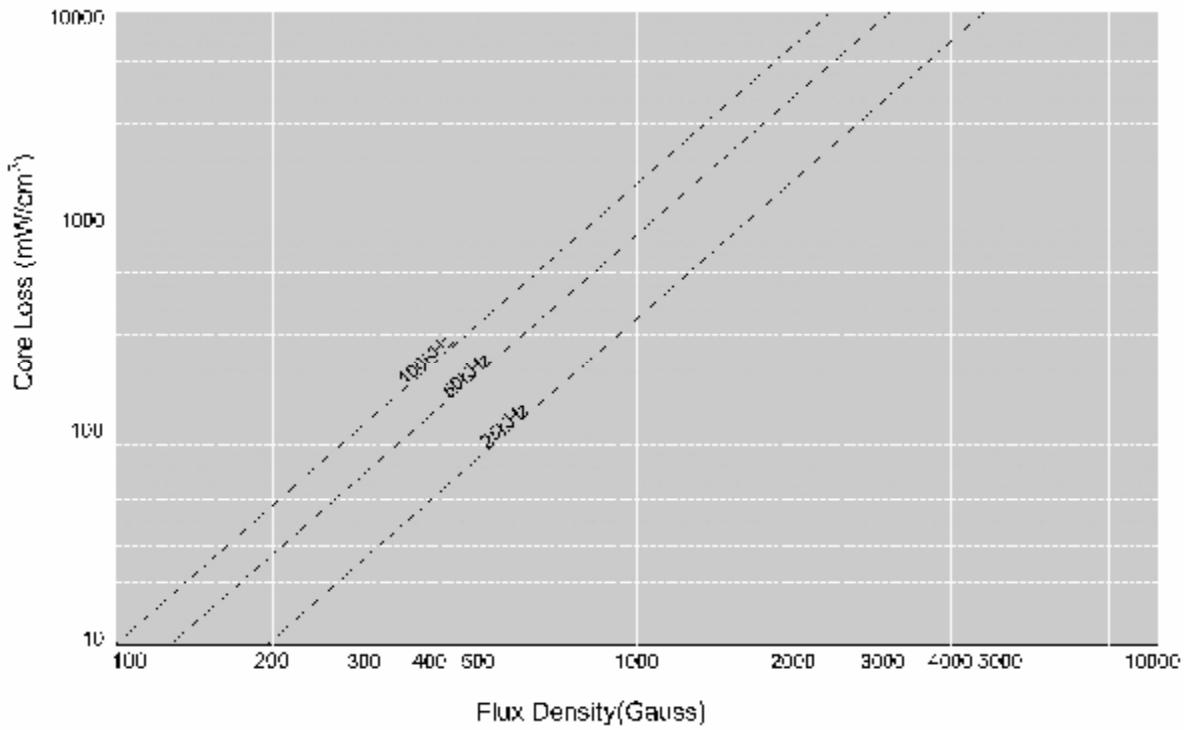


NPF 60 μ , 75 μ , 90 μ , 125 μ

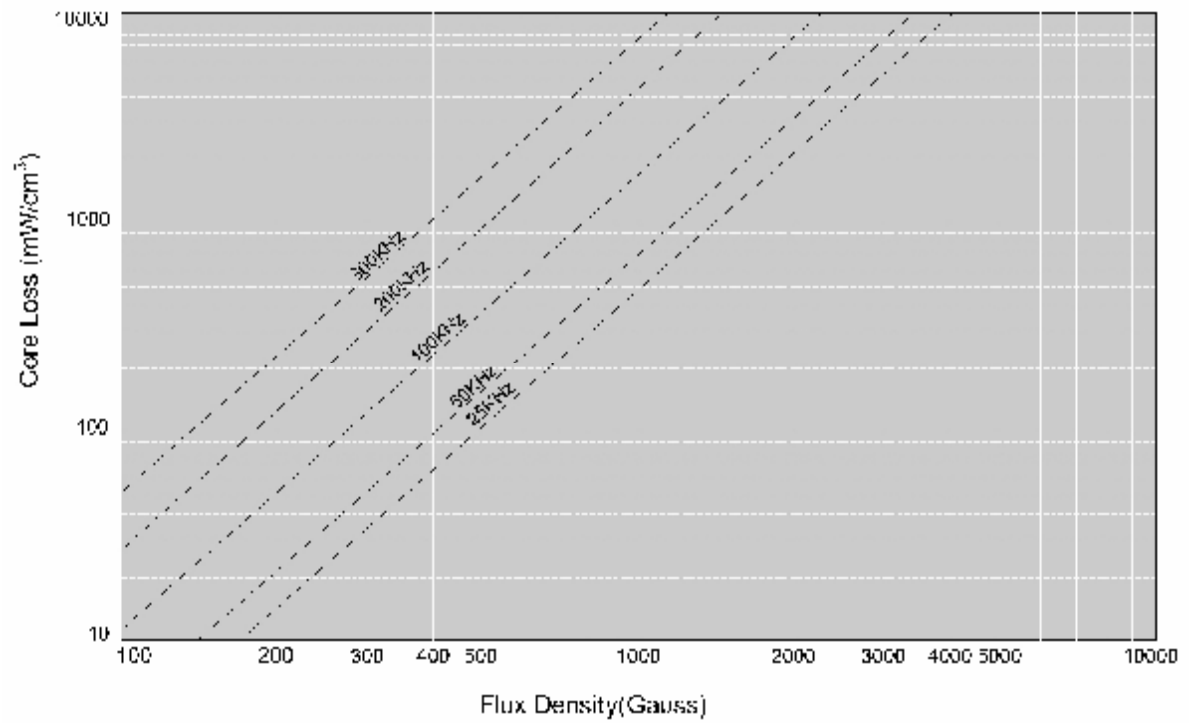


PPF Core Loss Curves

PPF 26 μ

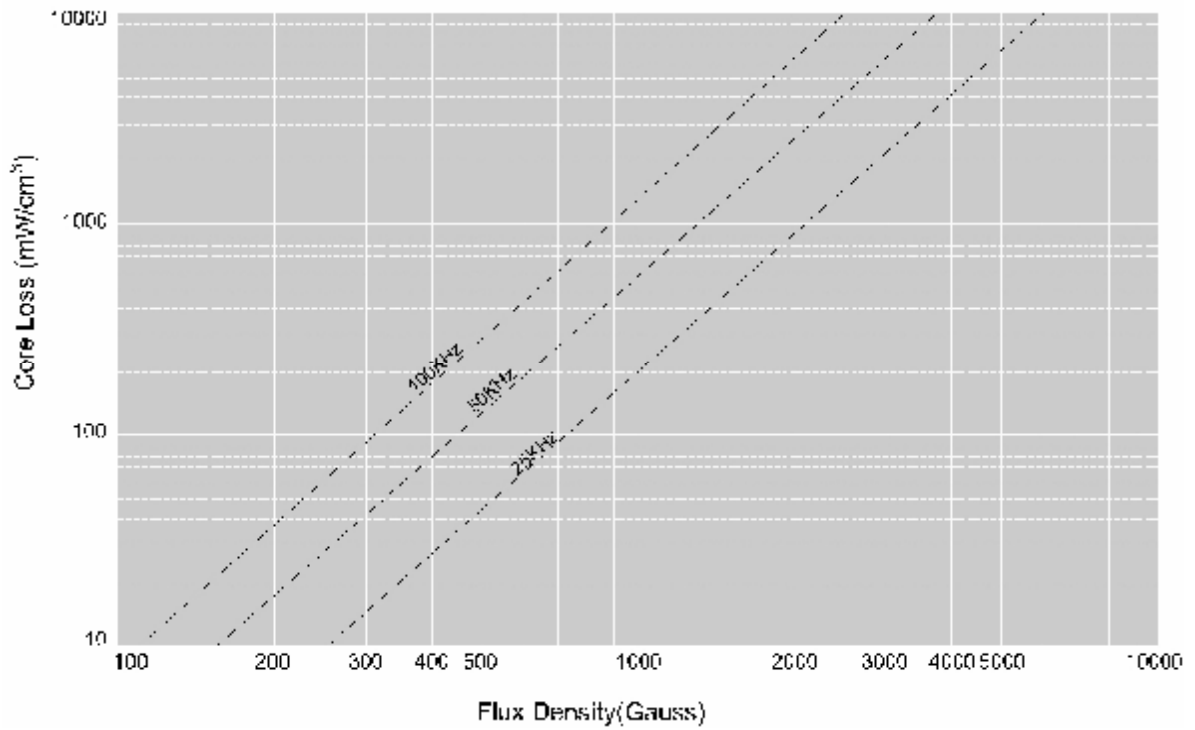


PPF 60 μ , 75 μ , 90 μ , 125 μ

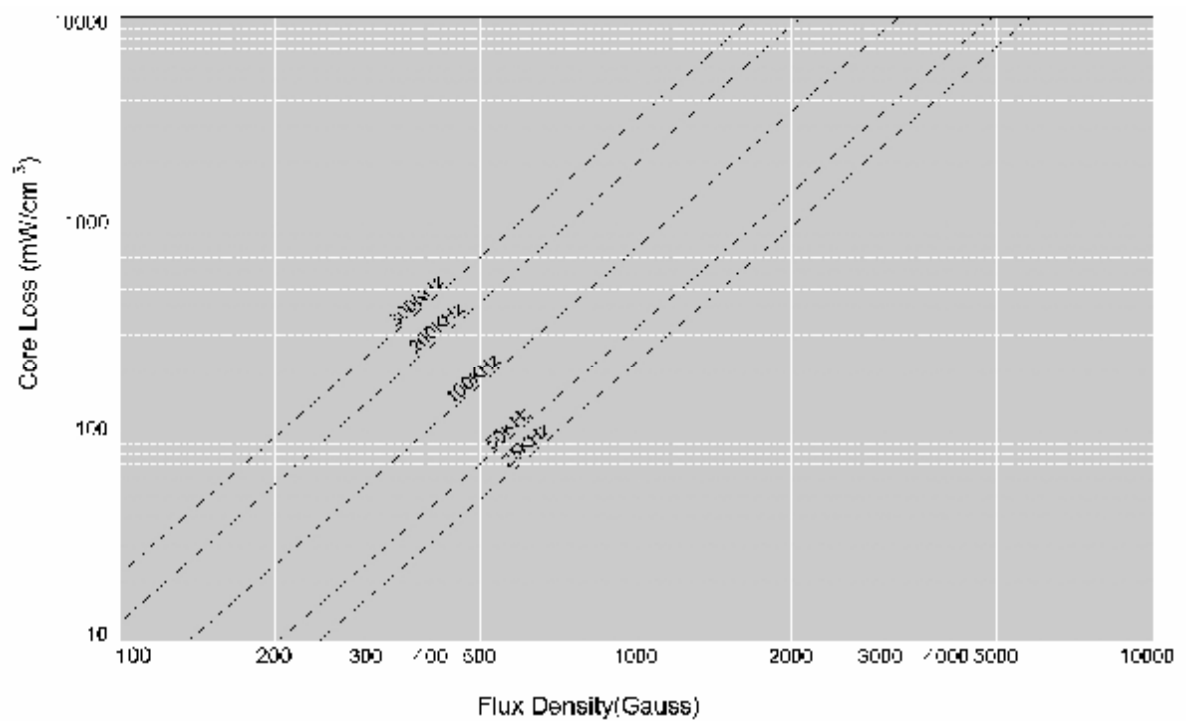


NPS Core Loss Curves

NPS 26 μ

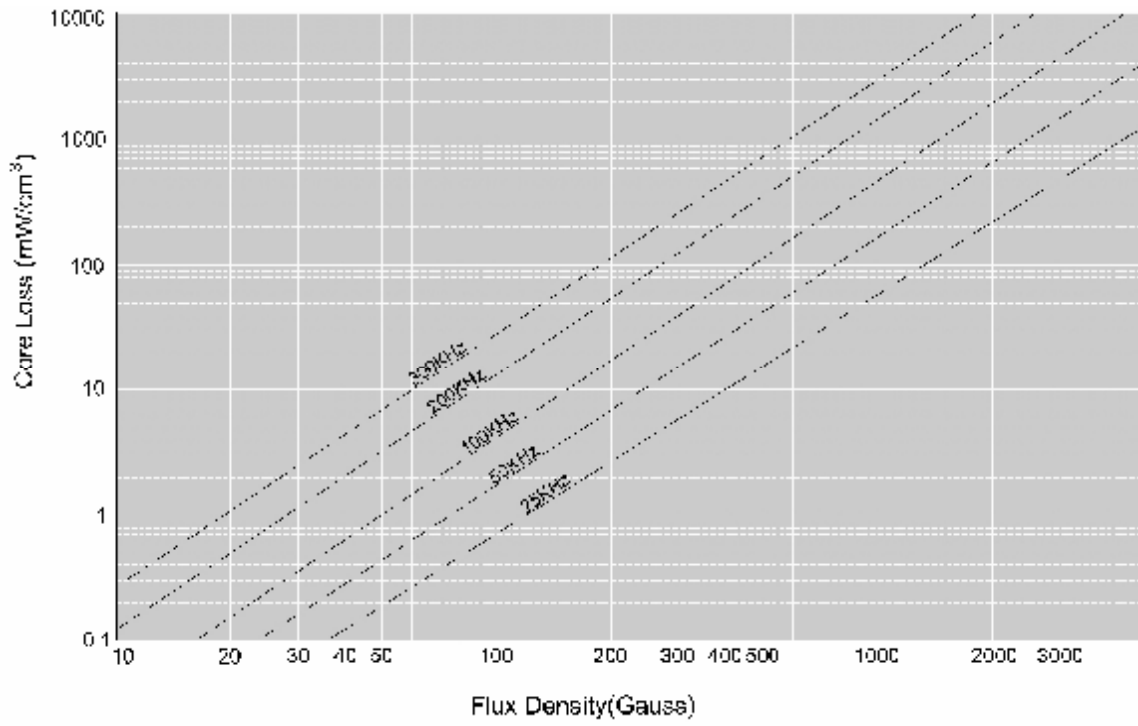


NPS 60 μ , 75 μ , 90 μ , 125 μ , 147 μ , 160 μ , 173 μ

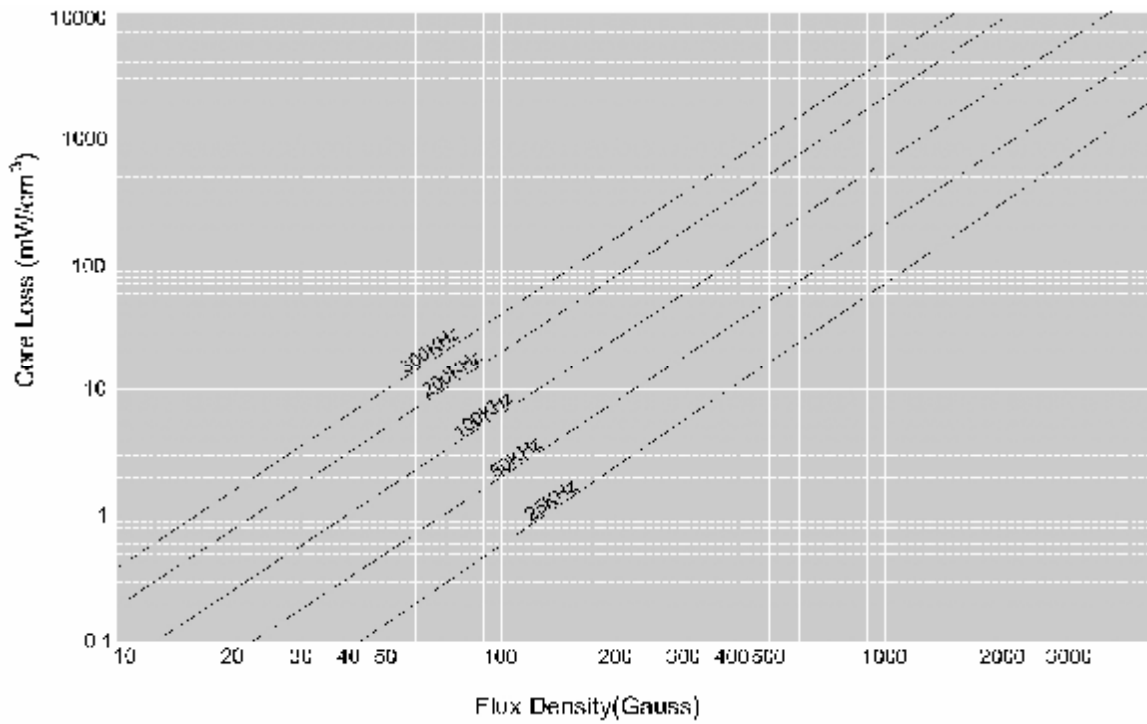


PPM Core Loss Curves

PPM 26 μ , 60 μ

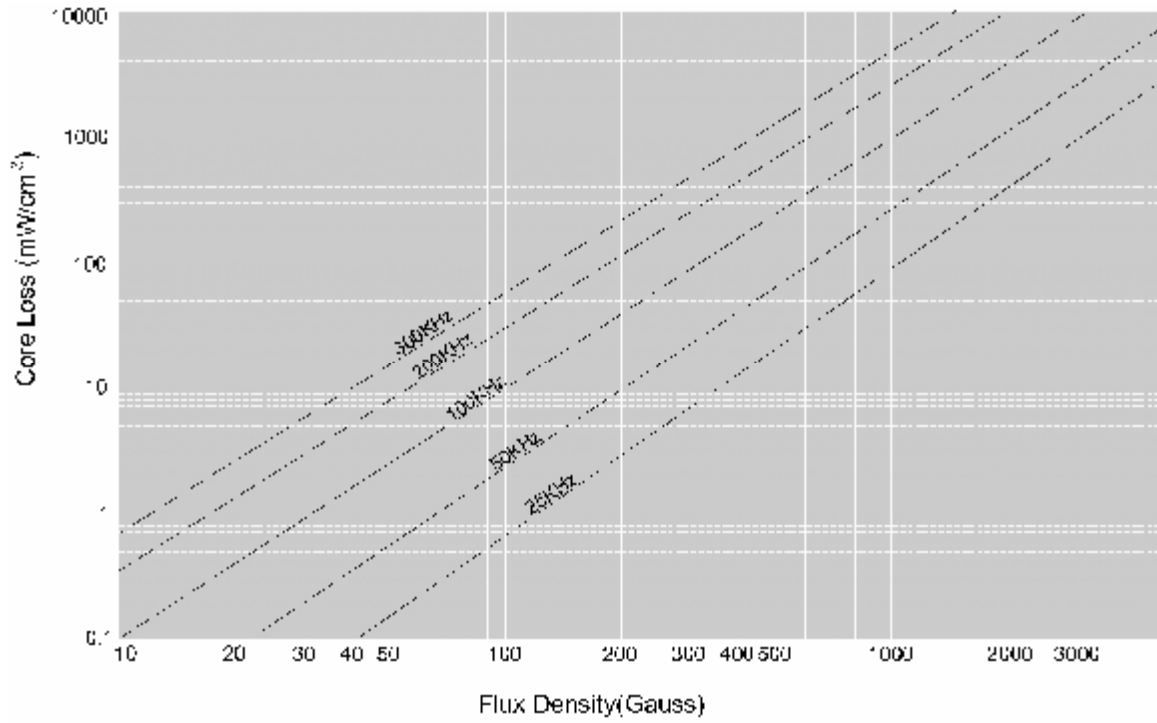


PPM 125 μ

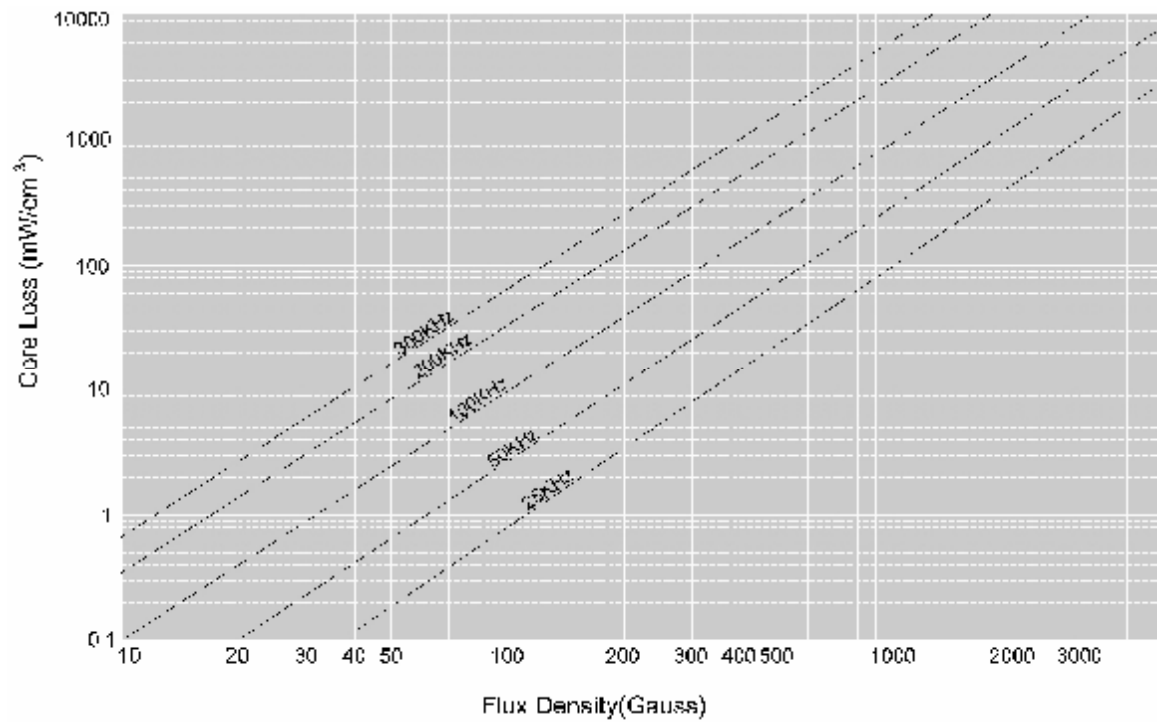


PPM Core Loss Curves

PPM 147 μ , 160 μ , 173 μ

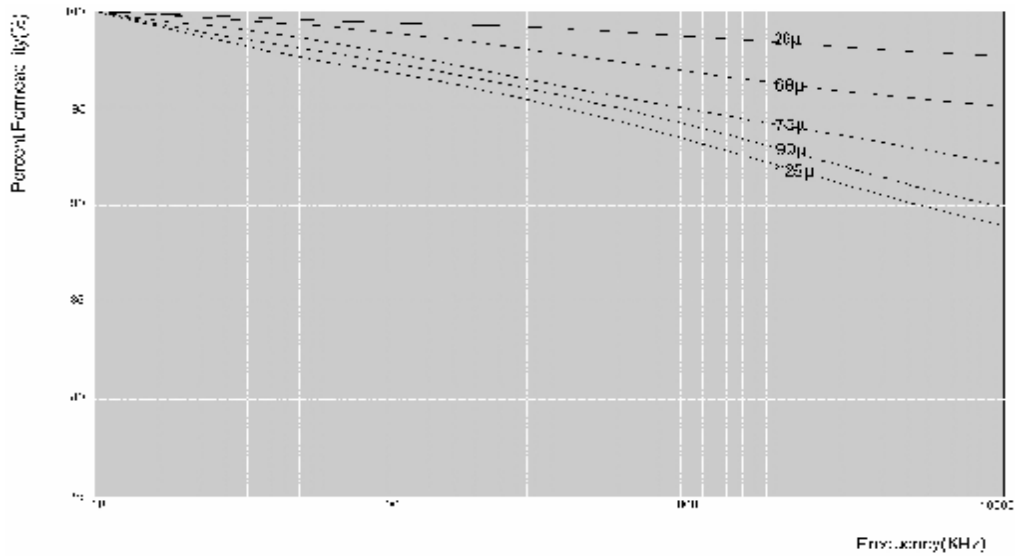


PPM 205 μ

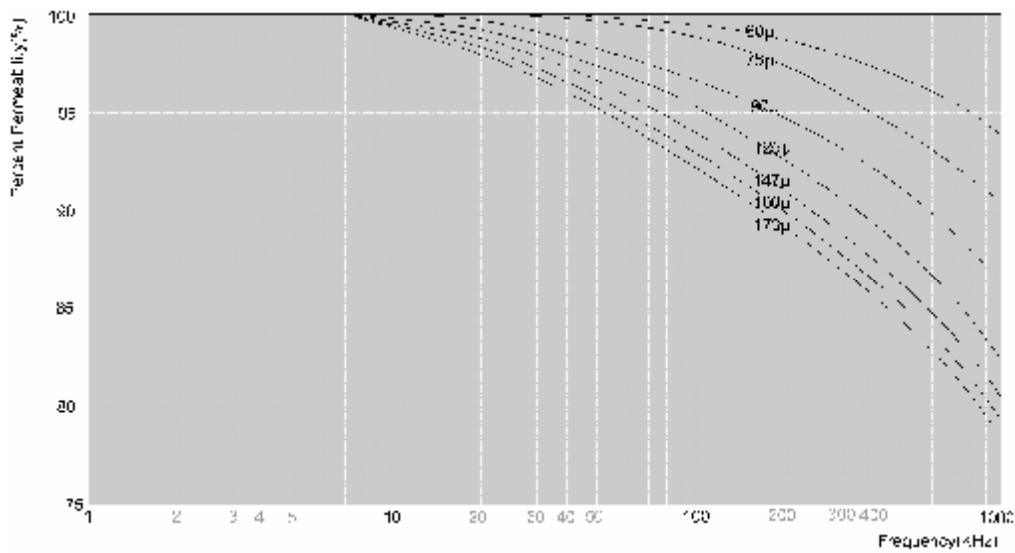


Permeability vs Frequency Curves

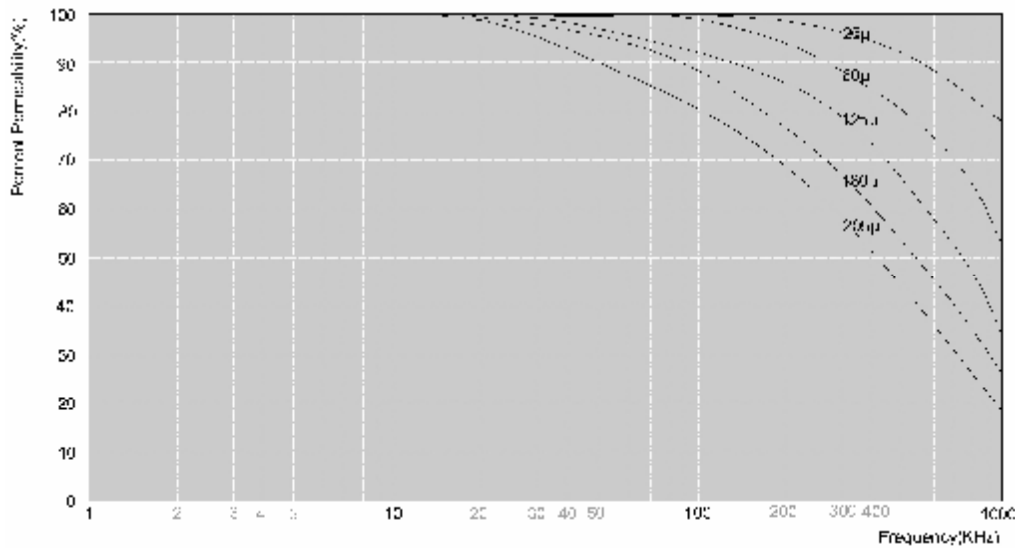
NPF & PPF



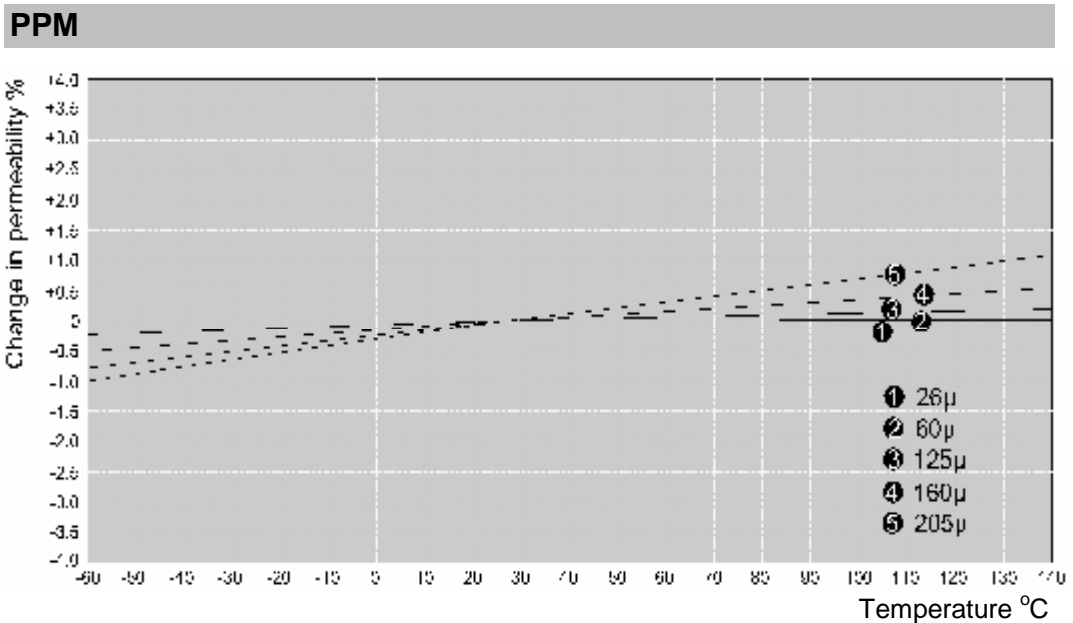
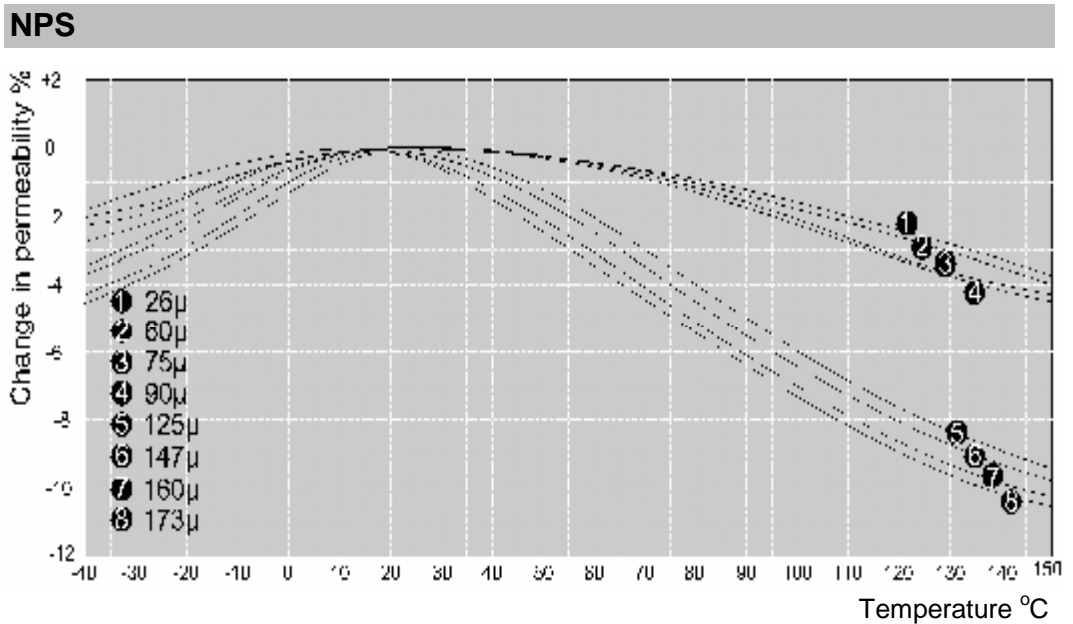
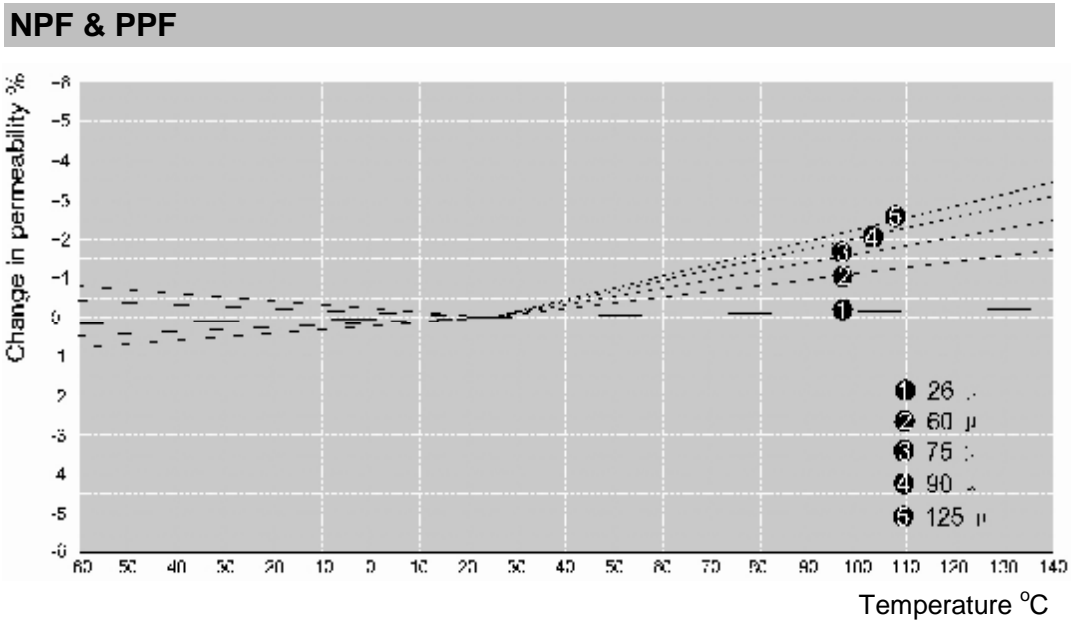
NPS



PPM



Permeability vs Temperature Curves



014

OD 3.56mm / 0.140inch

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	0.140 inch	0.070 inch	0.060 inch
	3.56 mm	1.78 mm	1.52 mm
After coating	0.148 inch	0.060 inch	0.068 inch
(Parylene-C)	3.76 mm	1.52 mm	1.73 mm

ID 1.78mm
HT 1.52mm



Electric Characteristics

Part Number				Perm. (μ)	$A_L \pm 12\%^*$ (nH/N ²)
NPF	PPF	NPS	PPM		
NPF014060	PPF014060	NPS014060	PPM014060	60	13
NPF014075	PPF014075	NPS014075	-	75	16
NPF014090	PPF014090	NPS014090	-	90	19
NPF014125	-	NPS014125	PPM014125	125	26
-	-	-	PPM014147	147	31
-	-	-	PPM014160	160	33
-	-	-	PPM014173	173	36
-	-	-	PPM014205	205	43
-	-	-	PPM014250	250	52

* A_L tolerance for NPS is $\pm 15\%$

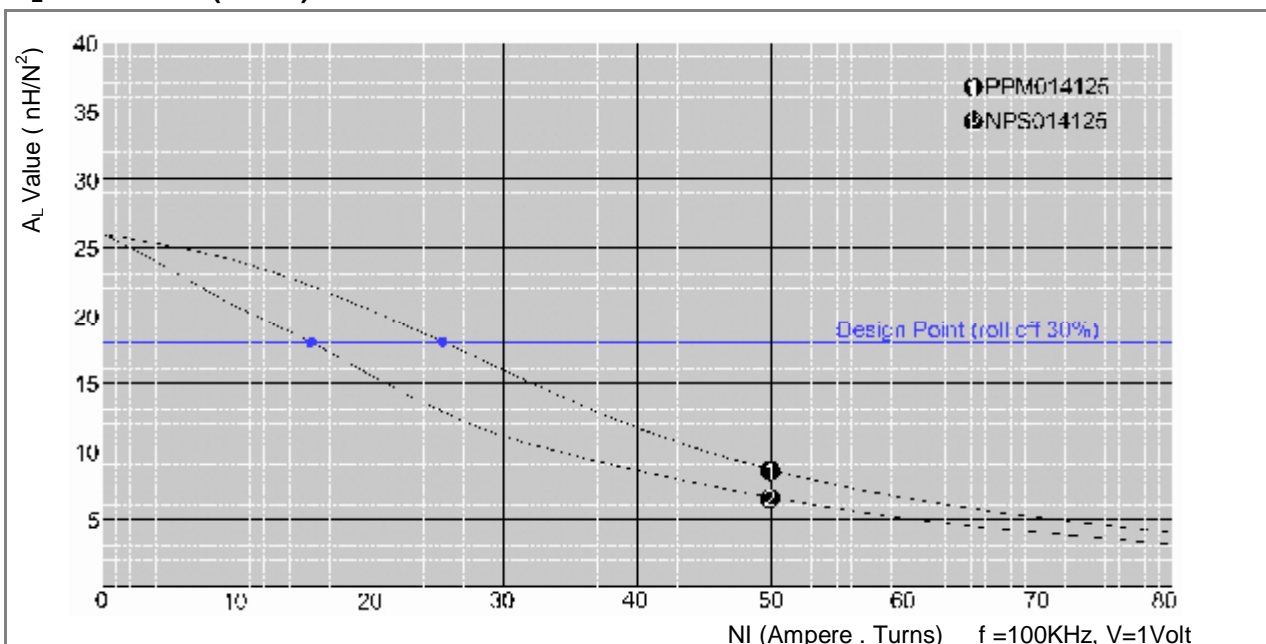
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
3600 cmil	0.0021 inch ²	0.317 inch	0.00066 inch ³	0.00020 lb	0.00015 lb	0.00018 lb
0.018 cm ²	0.0137 cm ²	0.817 cm	0.01075 cm ³	0.09 g	0.07 g	0.08 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
28	0.0366	9	0.0237	34	0.0191	19	0.146	40	0.0096	40	1.02
29	0.0330	10	0.0314	35	0.0170	21	0.200	41	0.00863	44	1.37
30	0.0294	11	0.0431	36	0.0152	24	0.272	42	0.00762	50	1.90
31	0.0267	13	0.0581	37	0.0140	27	0.363	43	0.00685	56	2.67
32	0.0241	14	0.0768	38	0.0124	30	0.503	44	0.00635	60	3.45
33	0.0216	16	0.105	39	0.0109	35	0.727				

A_L vs NI Curve(125 μ)



015

OD 3.94mm / 0.155inch



ID 2.24mm
HT 2.54mm

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	0.155 inch 3.94 mm	0.088 inch 2.24 mm	0.100 inch 2.54 mm
After coating (Parylene-C)	0.163 inch 4.14 mm	0.080 inch 2.04 mm	0.108 inch 2.74 mm

Electric Characteristics

Part Number				Perm.	$A_L \pm 12\%^*$
NPF	PPF	NPS	PPM	(μ)	(nH/N ²)
NPF015060	PPF015060	NPS015060	PPM015060	60	17
NPF015075	PPF015075	NPS015075	-	75	21
NPF015090	PPF015090	NPS015090	-	90	25
NPF015125	-	NPS015125	PPM015125	125	35
-	-	-	PPM015147	147	41
-	-	-	PPM015160	160	45
-	-	-	PPM015173	173	48
-	-	-	PPM015205	205	57
-	-	-	PPM015250	250	70

* A_L tolerance for NPS is $\pm 15\%$

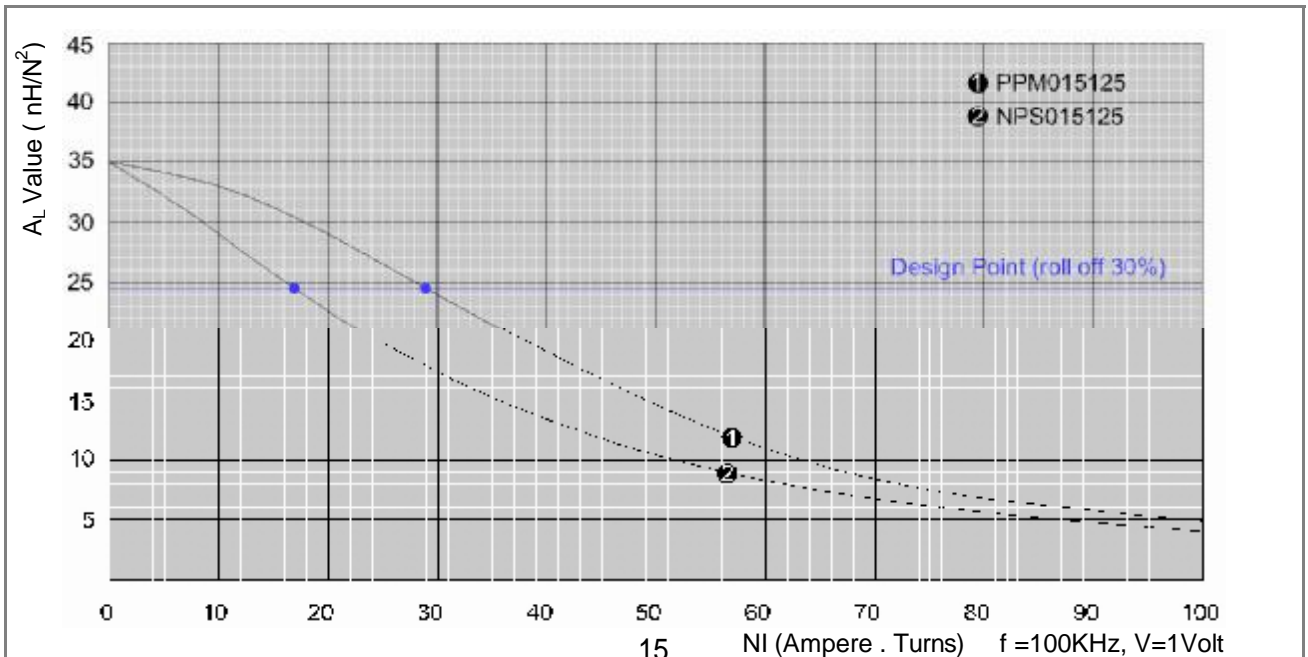
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
6080 cmil	0.0032 inch ²	0.370 inch	0.0012 inch ³	0.00042 lb	0.00026 lb	0.00031 lb
0.031 cm ²	0.0211 cm ²	0.942 cm	0.0197 cm ³	0.19 g	0.12 g	0.14 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
27	0.0409	11	0.0248	33	0.0216	23	0.161	39	0.0109	47	1.18
28	0.0366	12	0.0342	34	0.0191	26	0.226	40	0.0096	53	1.67
29	0.0330	14	0.0458	35	0.0170	29	0.313	41	0.00863	59	2.25
30	0.0294	16	0.0638	36	0.0152	33	0.430	42	0.00762	67	3.15
31	0.0267	18	0.0869	37	0.0140	36	0.579	43	0.00685	74	4.45
32	0.0241	20	0.116	38	0.0124	41	0.807	44	0.00635	80	5.76

A_L vs NI Curve(125 μ)



018

OD 4.65mm / 0.183inch

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	0.183 inch	0.093 inch	0.100 inch
	4.65 mm	2.36 mm	2.54 mm
After coating	0.191 inch	0.085 inch	0.108 inch
(Parylene-C)	4.85 mm	2.16 mm	2.74 mm

ID 2.36mm
HT 2.54mm



Electric Characteristics

Part Number				Perm. (μ)	$A_L \pm 12\%^*$ (nH/N ²)
NPF	PPF	NPS	PPM		
NPF018026	PPF018026	NPS018026	PPM018026	26	9
NPF018060	PPF018060	NPS018060	PPM018060	60	20
NPF018075	PPF018075	NPS018075	-	75	25
NPF018090	PPF018090	NPS018090	-	90	30
NPF018125	-	NPS018125	PPM018125	125	42
-	-	-	PPM018147	147	49
-	-	-	PPM018160	160	53
-	-	-	PPM018173	173	57
-	-	-	PPM018205	205	68
-	-	-	PPM018250	250	83

* A_L tolerance for NPS is $\pm 15\%$

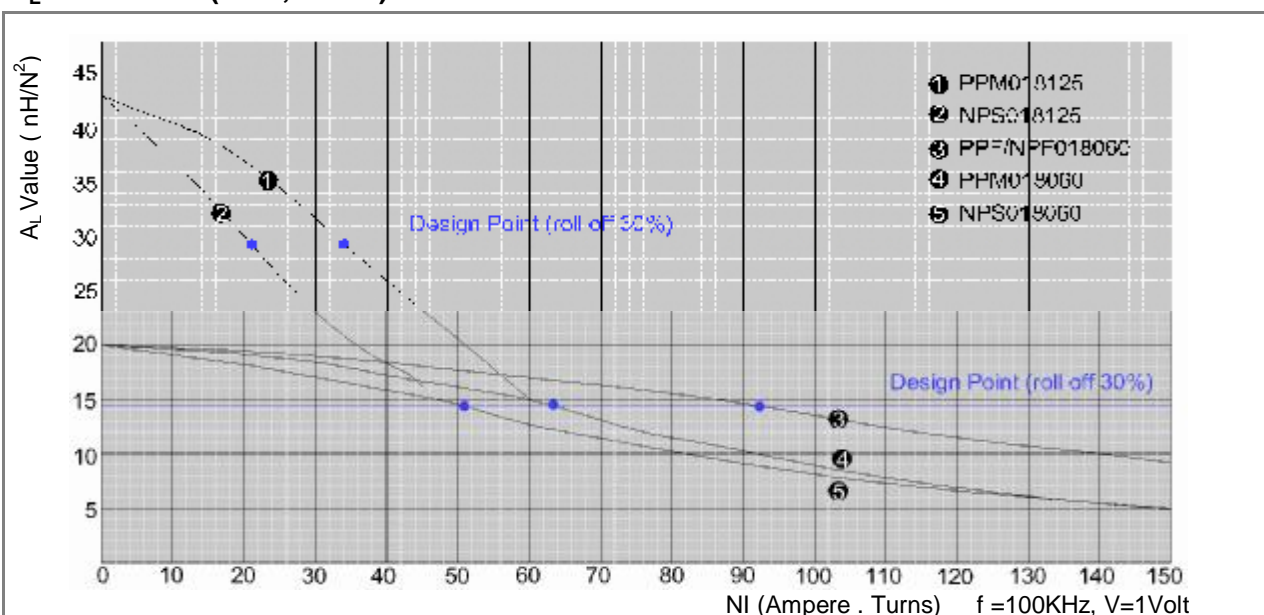
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
5,780	0.00442 inch ²	0.418 inch	0.001837 inch ³	0.00057 lb	0.00044 lb	0.00051 lb
0.029 cm ²	0.0285 cm ²	1.060 cm	0.0302 cm ³	0.26 g	0.20 g	0.23 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
26	0.0452	9	0.0205	32	0.0241	19	0.135	38	0.0124	39	0.968
27	0.0409	10	0.0280	33	0.0216	22	0.188	39	0.0109	45	1.42
28	0.0366	12	0.0388	34	0.0191	25	0.266	40	0.0096	51	2.02
29	0.0330	13	0.0524	35	0.0170	28	0.371	41	0.00863	57	2.73
30	0.0294	15	0.0734	36	0.0152	31	0.511	42	0.00762	64	3.83
31	0.0267	17	0.101	37	0.0140	35	0.691	43	0.00685	71	5.42

A_L vs NI Curve(60 μ , 125 μ)



025

OD 6.35mm / 0.250inch



ID 2.79mm
HT 2.79mm

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	0.250 inch 6.35 mm	0.110 inch 2.79 mm	0.110 inch 2.79 mm
After coating (Epoxy)	0.275 inch 6.99 mm	0.090 inch 2.29 mm	0.135 inch 3.43 mm

Electric Characteristics

Part Number				Perm. (μ)	$A_L \pm 8\%^*$ (nH/N ²)
NPF	PPF	NPS	PPM		
NPF025026	PPF025026	NPS025026	PPM025026	26	10
NPF025060	PPF025060	NPS025060	PPM025060	60	24
NPF025075	PPF025075	NPS025075	-	75	30
NPF025090	PPF025090	NPS025090	-	90	36
NPF025125	-	NPS025125	PPM025125	125	50
-	-	-	PPM025147	147	59
-	-	-	PPM025160	160	64
-	-	-	PPM025173	173	69
-	-	-	PPM025205	205	82
-	-	-	PPM025250	250	100

* A_L tolerance for NPS is $\pm 12\%$

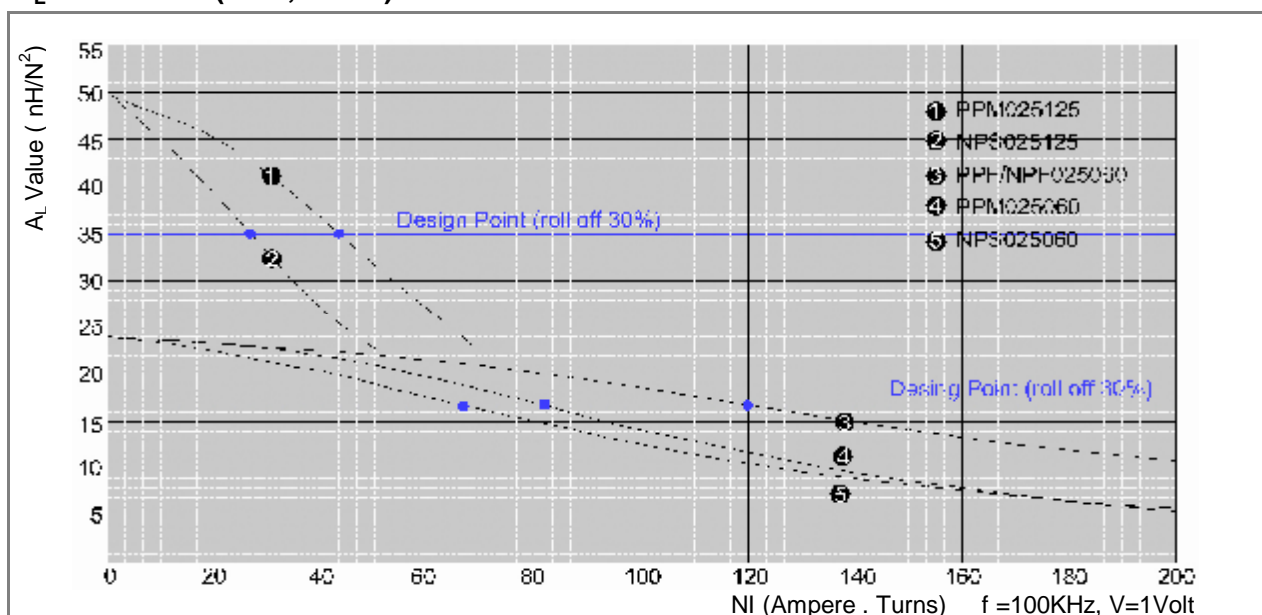
Physical Characteristics

Window Area (W_a)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
8,100 cmil	0.00729 inch ²	0.536 inch	0.003919 inch ³	0.0012 lb	0.0009 lb	0.0010 lb
0.0412 cm ²	0.0470 cm ²	1.361 cm	0.064219 cm ³	0.56 g	0.41 g	0.47 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
24	0.0566	8	0.0132	30	0.0294	19	0.092	36	0.0152	38	0.65
25	0.0505	10	0.0183	31	0.0267	21	0.126	37	0.0140	42	0.88
26	0.0452	11	0.0253	32	0.0241	23	0.170	38	0.0124	47	1.24
27	0.0409	13	0.0346	33	0.0216	26	0.238	39	0.0109	54	1.82
28	0.0366	14	0.0482	34	0.0191	30	0.337	40	0.0096	61	2.59
29	0.0330	16	0.0653	35	0.0170	34	0.470	41	0.00863	68	3.50

A_L vs NI Curve(60 μ , 125 μ)



026

OD 6.60mm / 0.260inch

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	0.260 inch	0.105 inch	0.100 inch
	6.60 mm	2.67 mm	2.54 mm
After coating (Epoxy)	0.285 inch	0.090 inch	0.125 inch
	7.24 mm	2.29 mm	3.18 mm

ID 2.67mm
HT 2.54mm



Electric Characteristics

Part Number				Perm. (μ)	$A_L \pm 8\%^*$ (nH/N ²)
NPF	PPF	NPS	PPM		
NPF026026	PPF026026	NPS026026	PPM026026	26	11
NPF026060	PPF026060	NPS026060	PPM026060	60	26
NPF026075	PPF026075	NPS026075	-	75	32
NPF026090	PPF026090	NPS026090	-	90	39
NPF026125	-	NPS026125	PPM026125	125	54
-	-	-	PPM026147	147	64
-	-	-	PPM026160	160	69
-	-	-	PPM026173	173	75
-	-	-	PPM026205	205	89
-	-	-	PPM026250	250	108

* A_L tolerance for NPS is $\pm 12\%$

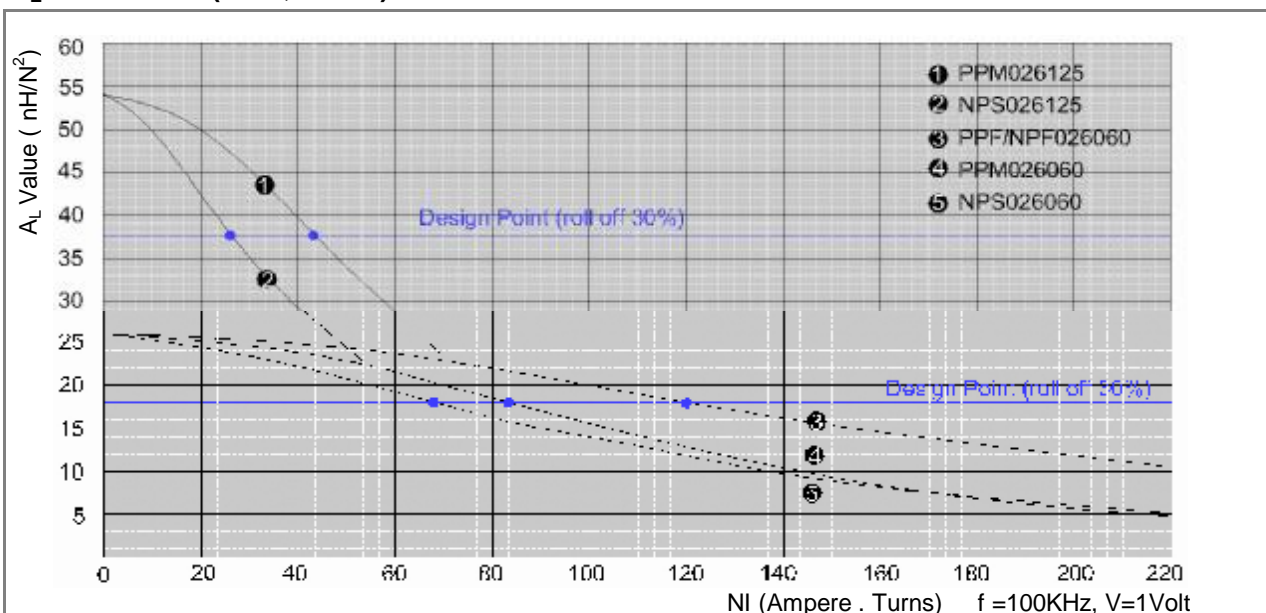
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
8,100 cmil	0.00738 inch ²	0.537 inch	0.003904 inch ³	0.0013 lb	0.0010 lb	0.0011 lb
0.0412 cm ²	0.0476 cm ²	1.363 cm	0.063971 cm ³	0.60 g	0.44 g	0.50 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
25	0.0505	10	0.0180	31	0.0267	21	0.124	37	0.0140	42	0.862
26	0.0452	11	0.0249	32	0.0241	23	0.167	38	0.0124	47	1.21
27	0.0409	13	0.0341	33	0.0216	26	0.233	39	0.0109	54	1.78
28	0.0366	14	0.0474	34	0.0191	30	0.330	40	0.0096	61	2.53
29	0.0330	16	0.0642	35	0.0170	34	0.461	41	0.00863	68	3.43
30	0.0294	19	0.0902	36	0.0152	38	0.637	42	0.00762	77	4.81

A_L vs NI Curve(60 μ , 125 μ)



027

OD 6.60mm / 0.260inch



ID 2.67mm
HT 4.78mm

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	0.260 inch	0.105 inch	0.188 inch
	6.60 mm	2.67 mm	4.78 mm
After coating	0.288 inch	0.087 inch	0.218 inch
(Epoxy)	7.32 mm	2.21 mm	5.54 mm

Electric Characteristics

Part Number				Perm. (μ)	$A_L \pm 8\%^*$ (nH/N ²)
NPF	PPF	NPS	PPM		
NPF027026	PPF027026	NPS027026	PPM027026	26	21
NPF027060	PPF027060	NPS027060	PPM027060	60	50
NPF027075	PPF027075	NPS027075	-	75	62
NPF027090	PPF027090	NPS027090	-	90	74
NPF027125	-	NPS027125	PPM027125	125	103
-	-	-	PPM027147	147	122
-	-	-	PPM027160	160	132
-	-	-	PPM027173	173	144
-	-	-	PPM027205	205	170
-	-	-	PPM027250	250	206

* A_L tolerance for NPS is $\pm 12\%$

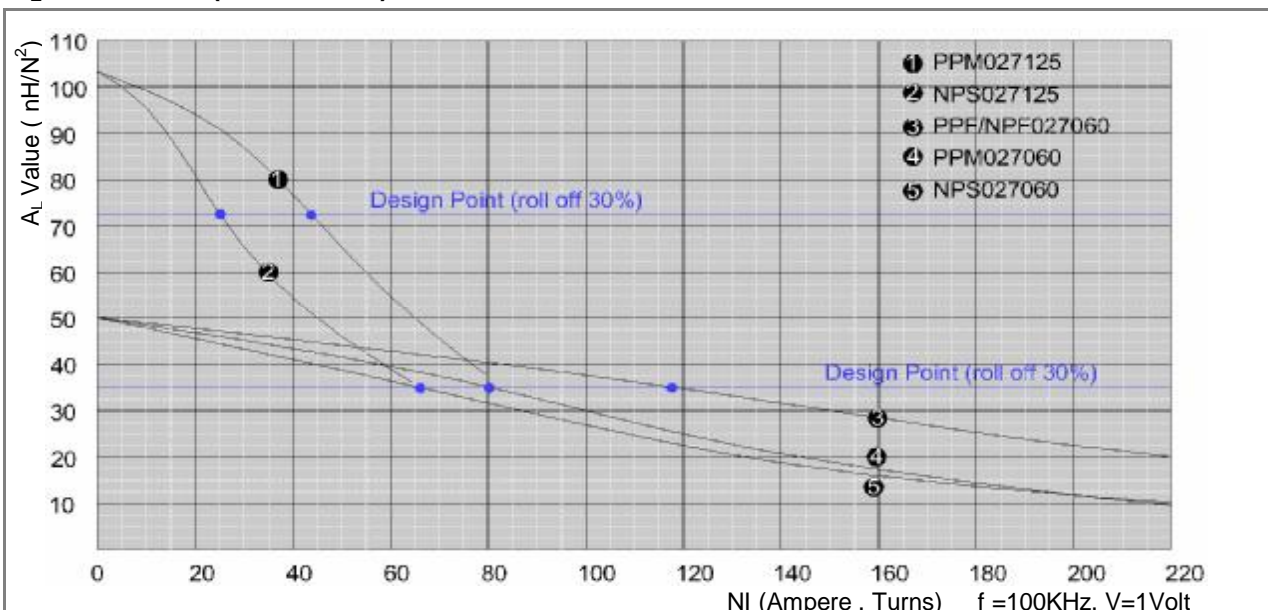
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
7,570 cmil	0.01426 inch ²	0.537 inch	0.007443 inch ³	0.0025 lb	0.0018 lb	0.0021 lb
0.0384 cm ²	0.0920 cm ²	1.363 cm	0.1254 cm ³	1.12 g	0.83 g	0.96 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
25	0.0505	9	0.0223	31	0.0267	20	0.162	37	0.0140	40	1.17
26	0.0452	11	0.0312	32	0.0241	22	0.220	38	0.0124	45	1.64
27	0.0409	12	0.0431	33	0.0216	25	0.309	39	0.0109	52	2.42
28	0.0366	14	0.0605	34	0.0191	29	0.440	40	0.0096	59	3.46
29	0.0330	16	0.0826	35	0.0170	32	0.617	41	0.00863	66	4.70
30	0.0294	18	0.117	36	0.0152	36	0.857	42	0.00762	74	6.62

A_L vs NI Curve(60 μ , 125 μ)



028

OD 7.04mm / 0.277inch

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	0.277 inch	0.156 inch	0.200 inch
	7.04 mm	3.96 mm	5.08 mm
After coating (Epoxy)	0.302 inch	0.136 inch	0.225 inch
	7.67 mm	3.45 mm	5.72 mm

ID 3.96mm
HT 5.08mm



Electric Characteristics

Part Number				Perm. (μ)	$A_L \pm 8\%^*$ (nH/N ²)
NPF	PPF	NPS	PPM		
NPF028026	PPF028026	NPS028026	PPM028026	26	14
NPF028060	PPF028060	NPS028060	PPM028060	60	33
NPF028075	PPF028075	NPS028075	-	75	42
NPF028090	PPF028090	NPS028090	-	90	50
NPF028125	-	NPS028125	PPM028125	125	70
-	-	-	PPM028147	147	81
-	-	-	PPM028160	160	89
-	-	-	PPM028173	173	95
-	-	-	PPM028205	205	113
-	-	-	PPM028250	250	138

* A_L tolerance for NPS is $\pm 12\%$

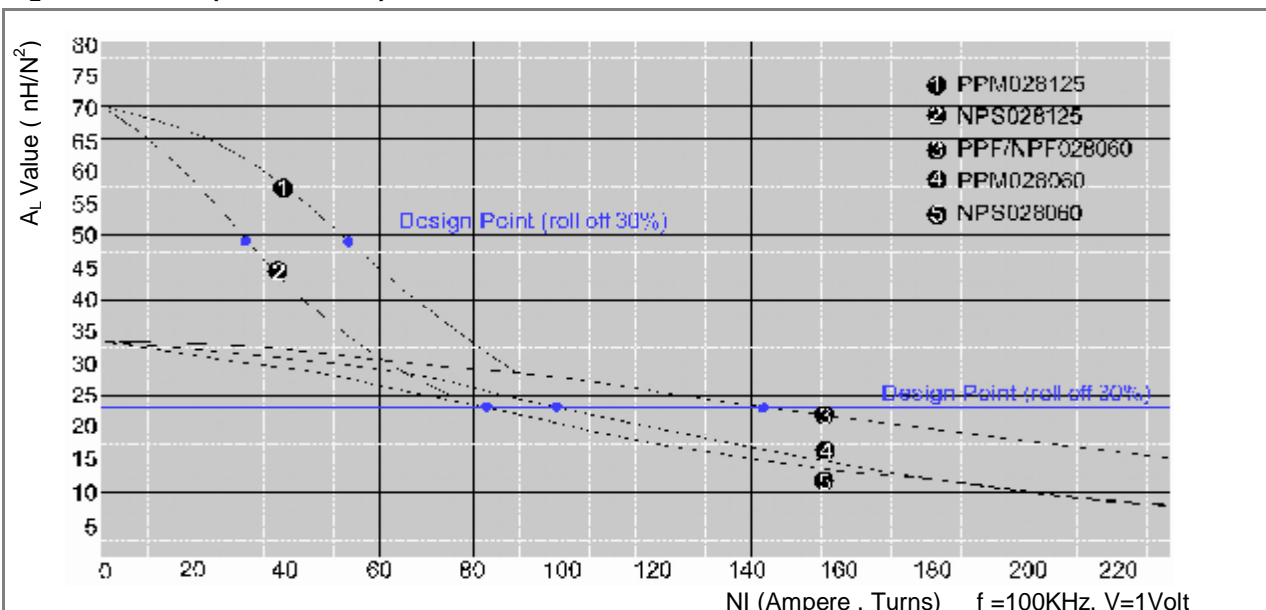
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
18,496 cmil	0.01162 inch ²	0.662 inch	0.007693 inch ³	0.0023 lb	0.0017 lb	0.0019 lb
0.09372 cm ²	0.07497 cm ²	1.682 cm	0.126069 cm ³	1.03 g	0.79 g	0.88 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
21	0.0785	9	0.00902	27	0.0409	21	0.0651	33	0.0216	41	0.466
22	0.0701	11	0.0126	28	0.0366	23	0.0915	34	0.0191	46	0.664
23	0.0632	12	0.0174	29	0.0330	26	0.125	35	0.0170	52	0.932
24	0.0566	14	0.0242	30	0.0294	29	0.177	36	0.0152	58	1.290
25	0.0505	16	0.0338	31	0.0267	33	0.244	37	0.0140	65	1.76
26	0.0452	18	0.0472	32	0.0241	36	0.331	38	0.0124	73	2.48

A_L vs NI Curve(60 μ , 125 μ)



031

OD 7.87mm / 0.310inch



ID 3.96mm
HT 3.18mm

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	0.310 inch 7.87 mm	0.156 inch 3.96 mm	0.125 inch 3.18 mm
After coating (Epoxy)	0.335 inch 8.51 mm	0.135 inch 3.43 mm	0.150 inch 3.81 mm

Electric Characteristics

Part Number				Perm. (μ)	$A_L \pm 8\%^*$ (nH/N ²)
NPF	PPF	NPS	PPM		
NPF031026	PPF031026	NPS031026	PPM031026	26	11
NPF031060	PPF031060	NPS031060	PPM031060	60	25
NPF031075	PPF031075	NPS031075	-	75	31
NPF031090	PPF031090	NPS031090	-	90	37
NPF031125	-	NPS031125	PPM031125	125	52
-	-	-	PPM031147	147	62
-	-	-	PPM031160	160	66
-	-	-	PPM031173	173	73
-	-	-	PPM031205	205	86
-	-	-	PPM031250	250	104

* A_L tolerance for NPS is $\pm 12\%$

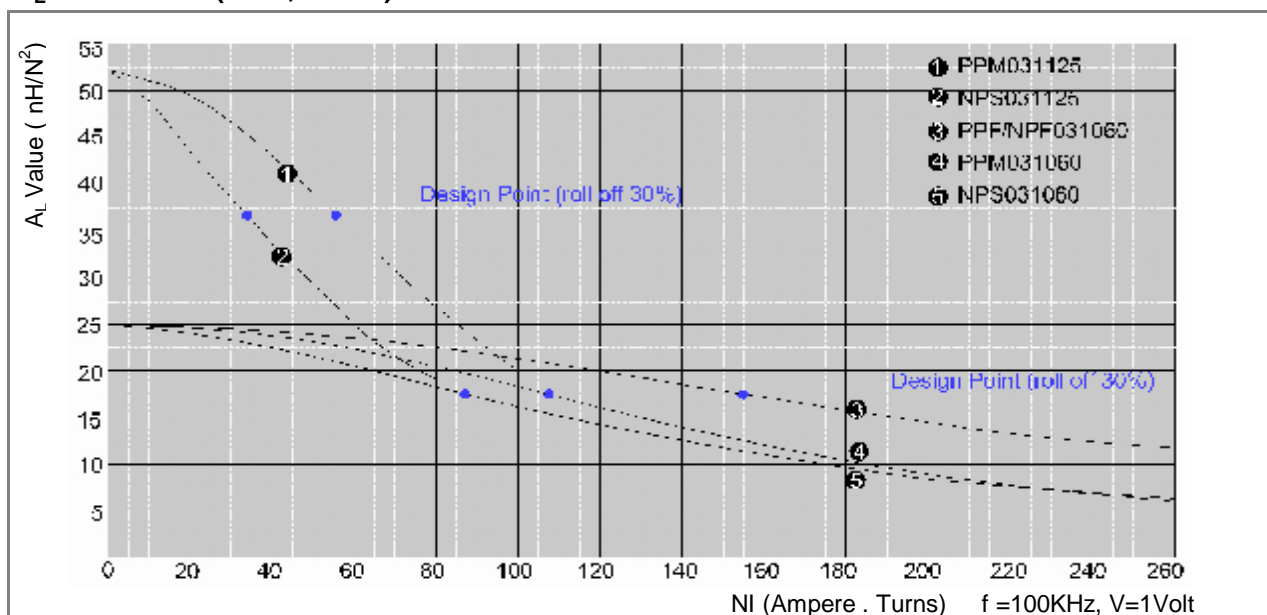
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
18,200 cmil 0.0922 cm ²	0.00953 inch ² 0.0615 cm ²	0.704 inch 1.787 cm	0.0067 inch ³ 0.1099 cm ³	0.0022 lb 1.00 g	0.0015 lb 0.69 g	0.0018 lb 0.80 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
21	0.0785	9	0.0078	27	0.0409	20	0.0545	33	0.0216	41	0.382
22	0.0701	11	0.0108	28	0.0366	23	0.0762	34	0.0191	46	0.543
23	0.0632	12	0.0148	29	0.0330	26	0.104	35	0.0170	52	0.760
24	0.0566	14	0.0206	30	0.0294	29	0.146	36	0.0152	58	1.050
25	0.0505	16	0.0285	31	0.0267	33	0.201	37	0.0140	64	1.43
26	0.0452	18	0.0397	32	0.0241	36	0.272	38	0.0124	72	2.01

A_L vs NI Curve(60 μ , 125 μ)



037

OD 9.65mm / 0.380inch

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	0.380 inch	0.188 inch	0.125 inch
	9.65 mm	4.78 mm	3.18 mm
After coating (Epoxy)	0.405 inch	0.168 inch	0.150 inch
	10.29 mm	4.27 mm	3.81 mm

ID 4.78mm
HT 3.18mm



Electric Characteristics

Part Number				Perm. (μ)	$A_L \pm 8\%^*$ (nH/N ²)
NPF	PPF	NPS	PPM		
NPF037026	PPF037026	NPS037026	PPM037026	26	11
NPF037060	PPF037060	NPS037060	PPM037060	60	25
NPF037075	PPF037075	NPS037075	-	75	32
NPF037090	PPF037090	NPS037090	-	90	38
NPF037125	-	NPS037125	PPM037125	125	53
-	-	-	PPM037147	147	63
-	-	-	PPM037160	160	68
-	-	-	PPM037173	173	74
-	-	-	PPM037205	205	84
-	-	-	PPM037250	250	106

* A_L tolerance for NPS is $\pm 12\%$

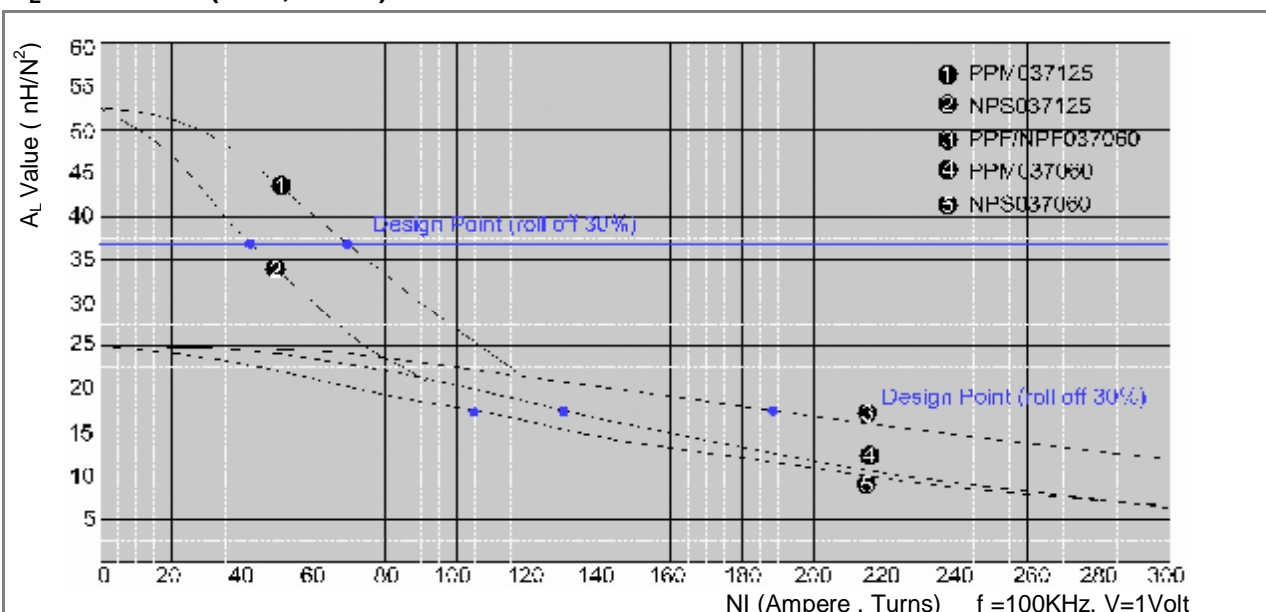
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
28,200 cmil	0.01166 inch ²	0.859 inch	0.0100 inch ³	0.0031 lb	0.0022 lb	0.0026 lb
0.1429 cm ²	0.0752 cm ²	2.18 cm	0.1639 cm ³	1.41 g	1.00 g	1.20 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
19	0.0980	9	0.00529	25	0.0505	21	0.0372	31	0.0267	41	0.266
20	0.0879	11	0.00729	26	0.0452	23	0.0519	32	0.0241	46	0.360
21	0.0785	12	0.0101	27	0.0409	26	0.0714	33	0.0216	51	0.505
22	0.0701	14	0.0141	28	0.0366	29	0.100	34	0.0191	58	0.719
23	0.0632	16	0.0193	29	0.0330	33	0.136	35	0.0170	65	1.01
24	0.0566	18	0.0268	30	0.0294	37	0.193	36	0.0152	73	1.40

A_L vs NI Curve(60 μ , 125 μ)



038

OD 9.65mm / 0.380inch



ID 4.78mm
HT 3.96mm

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	0.380 inch	0.188 inch	0.156 inch
	9.65 mm	4.78 mm	3.96 mm
After coating	0.405 inch	0.168 inch	0.180 inch
(Epoxy)	10.29 mm	4.27 mm	4.57 mm

Electric Characteristics

Part Number				Perm. (μ)	$A_L \pm 8\%^*$ (nH/N ²)
NPF	PPF	NPS	PPM		
NPF038026	PPF038026	NPS038026	PPM038026	26	14
NPF038060	PPF038060	NPS038060	PPM038060	60	32
NPF038075	PPF038075	NPS038075	-	75	40
NPF038090	PPF038090	NPS038090	-	90	48
NPF038125	-	NPS038125	PPM038125	125	66
-	-	-	PPM038147	147	78
-	-	-	PPM038160	160	84
-	-	-	PPM038173	173	92
-	-	-	PPM038205	205	109
-	-	-	PPM038250	250	132

* A_L tolerance for NPS is $\pm 12\%$

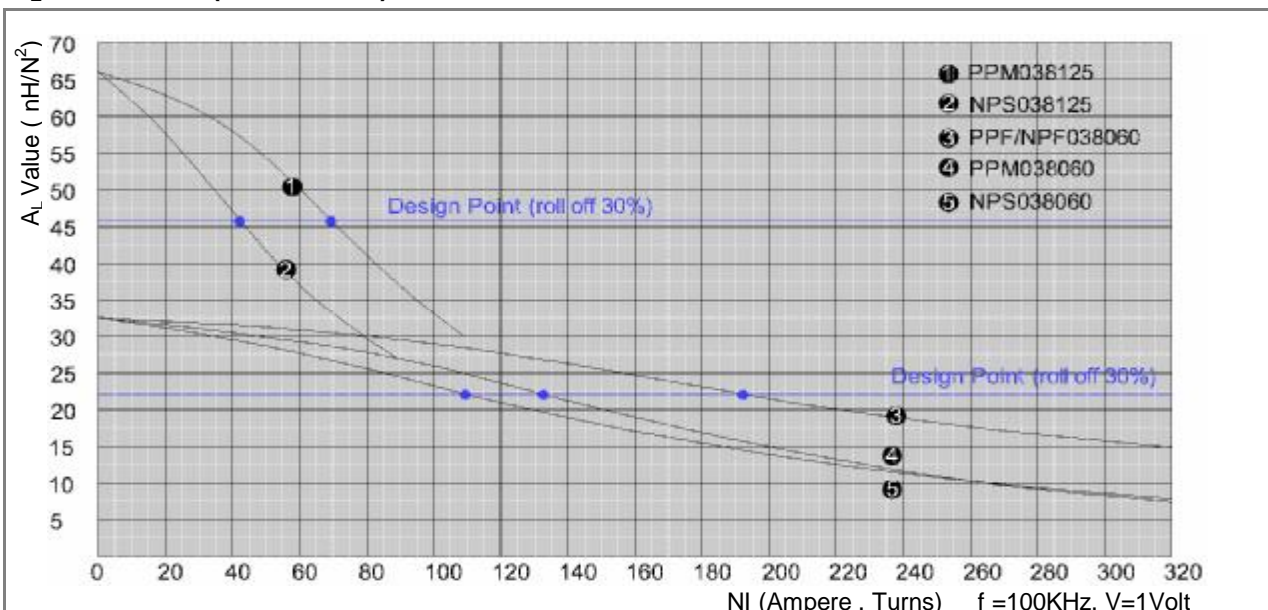
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
28,200 cmil	0.01465 inch ²	0.859 inch	0.01258 inch ³	0.0040 lb	0.0029 lb	0.0033 lb
0.1429 cm ²	0.0945 cm ²	2.18 cm	0.2060 cm ³	1.80 g	1.30 g	1.50 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
19	0.0980	9	0.00567	25	0.0505	21	0.0405	31	0.0267	41	0.293
20	0.0879	11	0.00783	26	0.0452	23	0.0567	32	0.0241	46	0.397
21	0.0785	12	0.0109	27	0.0409	26	0.0782	33	0.0216	51	0.558
22	0.0701	14	0.0152	28	0.0366	29	0.110	34	0.0191	58	0.795
23	0.0632	16	0.0209	29	0.0330	33	0.150	35	0.0170	65	1.12
24	0.0566	18	0.0291	30	0.0294	37	0.212	36	0.0152	73	1.55

A_L vs NI Curve(60 μ , 125 μ)



040

OD 10.16mm / 0.400inch

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	0.400 inch 10.16 mm	0.200 inch 5.08 mm	0.156 inch 3.96 mm
After coating (Epoxy)	0.425 inch 10.80 mm	0.180 inch 4.57 mm	0.180 inch 4.57 mm

ID 5.08mm
HT 3.96mm



Electric Characteristics

Part Number				Perm. (μ)	$A_L \pm 8\%^*$ (nH/N ²)
NPF	PPF	NPS	PPM		
NPF040026	PPF040026	NPS040026	PPM040026	26	14
NPF040060	PPF040060	NPS040060	PPM040060	60	32
NPF040075	PPF040075	NPS040075	-	75	40
NPF040090	PPF040090	NPS040090	-	90	48
NPF040125	-	NPS040125	PPM040125	125	66
-	-	-	PPM040147	147	78
-	-	-	PPM040160	160	84
-	-	-	PPM040173	173	92
-	-	-	PPM040200	200	105
-	-	-	PPM040250	250	132

* A_L tolerance for NPS is $\pm 12\%$

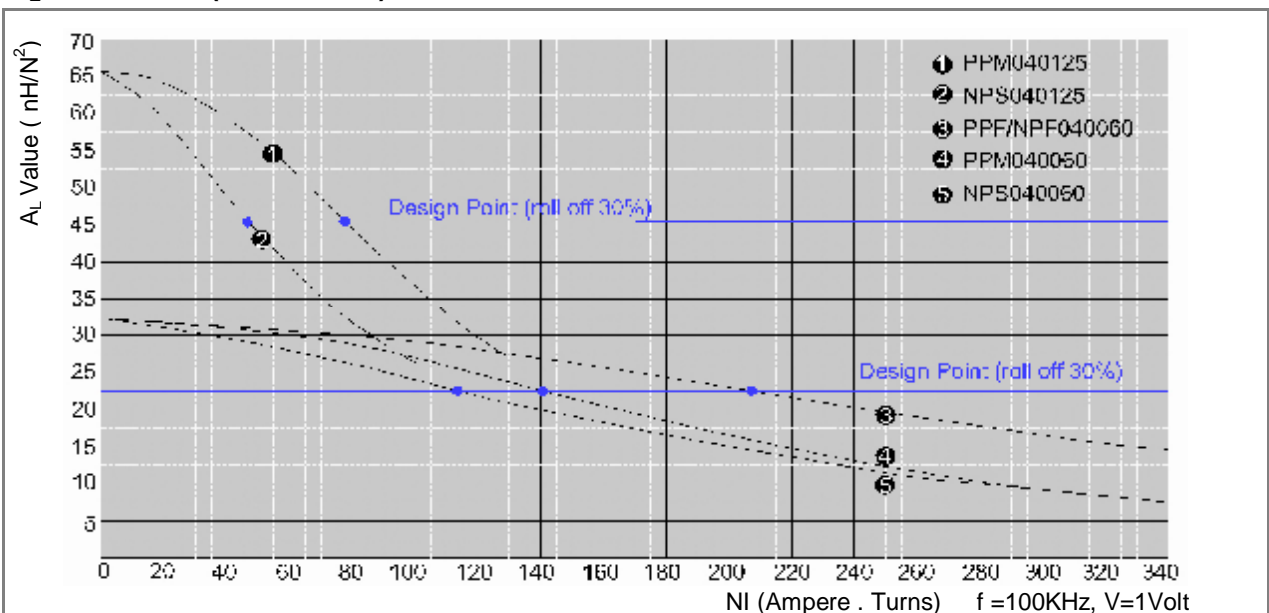
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
32,400 cmil 0.164 cm ²	0.01550 inch ² 0.1000cm ²	0.906 inch 2.38 cm	0.0140 inch ³ 0.2380 cm ³	0.0044 lb 2.0 g	0.0033 lb 1.5 g	0.0037 lb 1.7 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
18	0.1090	9	0.00442	24	0.0566	20	0.0315	30	0.0294	40	0.230
19	0.0980	10	0.00613	25	0.0505	22	0.0439	31	0.0267	44	0.317
20	0.0879	12	0.00847	26	0.0452	25	0.0614	32	0.0241	49	0.430
21	0.0785	13	0.0118	27	0.0409	28	0.0846	33	0.0216	55	0.605
22	0.0701	15	0.0164	28	0.0366	32	0.119	34	0.0191	62	0.862
23	0.0632	17	0.0226	29	0.0330	35	0.162	35	0.0170	70	1.21

A_L vs NI Curve(60 μ , 125 μ)



044

OD 11.18mm / 0.440inch



ID 6.35mm
HT 3.96mm

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	0.440 inch 11.18 mm	0.250 inch 6.35 mm	0.156 inch 3.96 mm
After coating (Epoxy)	0.468 inch 11.89 mm	0.232 inch 5.89 mm	0.186 inch 4.72 mm

Electric Characteristics

Part Number				Perm. (μ)	$A_L \pm 8\%^*$ (nH/N ²)
NPF	PPF	NPS	PPM		
NPF044026	PPF044026	NPS044026	PPM044026	26	11
NPF044060	PPF044060	NPS044060	PPM044060	60	26
NPF044075	PPF044075	NPS044075	-	75	32
NPF044090	PPF044090	NPS044090	-	90	38
NPF044125	-	NPS044125	PPM044125	125	53
-	-	-	PPM044147	147	63
-	-	-	PPM044160	160	68
-	-	-	PPM044173	173	74
-	-	-	PPM044205	205	88
-	-	-	PPM044250	250	106

* A_L tolerance for NPS is $\pm 12\%$

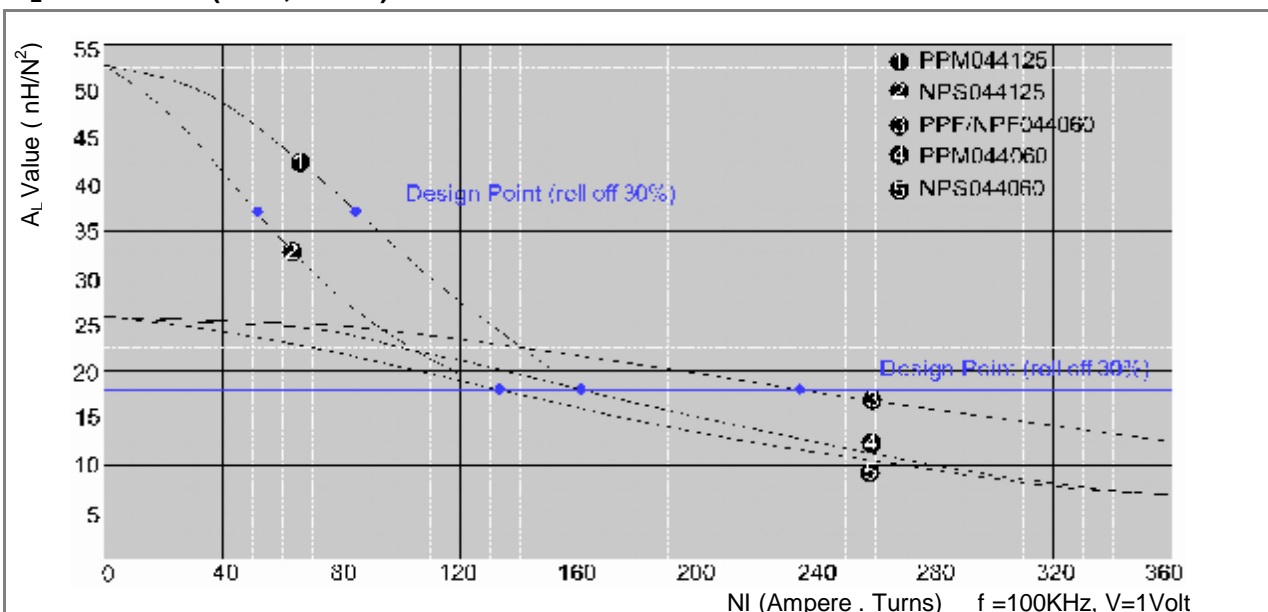
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
53,800 cmil 0.273 cm ²	0.01403 inch ² 0.0906 cm ²	1.08 inch 2.69 cm	0.01515 inch ³ 0.2437 cm ³	0.0044 lb 2.0 g	0.0033 lb 1.5 g	0.0037 lb 1.7 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
16	0.137	9	0.00299	22	0.0701	21	0.0212	28	0.0366	42	0.153
17	0.122	11	0.00412	23	0.0632	23	0.0292	29	0.0330	46	0.209
18	0.109	12	0.00572	24	0.0566	26	0.0406	30	0.0294	52	0.297
19	0.098	14	0.00792	25	0.0505	29	0.0566	31	0.0267	58	0.410
20	0.0879	16	0.0109	26	0.0452	33	0.0792	32	0.0241	64	0.556
21	0.0785	18	0.0152	27	0.0409	37	0.109	33	0.0216	72	0.782

A_L vs NI Curve(60 μ , 125 μ)



050

OD 12.70mm / 0.500inch

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	0.500 inch 12.70 mm	0.300 inch 7.62 mm	0.187 inch 4.75 mm
After coating (Epoxy)	0.530 inch 13.46 mm	0.275 inch 6.99 mm	0.217 inch 5.51 mm

ID 7.62mm
HT 4.75mm



Electric Characteristics

Part Number				Perm.	$A_L \pm 8\%$
NPF	PPF	NPS	PPM	(μ)	(nH/N ²)
NPF050026	PPF050026	NPS050026	PPM050026	26	12
NPF050060	PPF050060	NPS050060	PPM050060	60	27
NPF050075	PPF050075	NPS050075	-	75	34
NPF050090	PPF050090	NPS050090	-	90	40
NPF050125	-	NPS050125	PPM050125	125	56
-	-	NPS050147	PPM050147	147	67
-	-	NPS050160	PPM050160	160	72
-	-	NPS050173	PPM050173	173	79
-	-	-	PPM050205	205	93
-	-	-	PPM050250	250	112

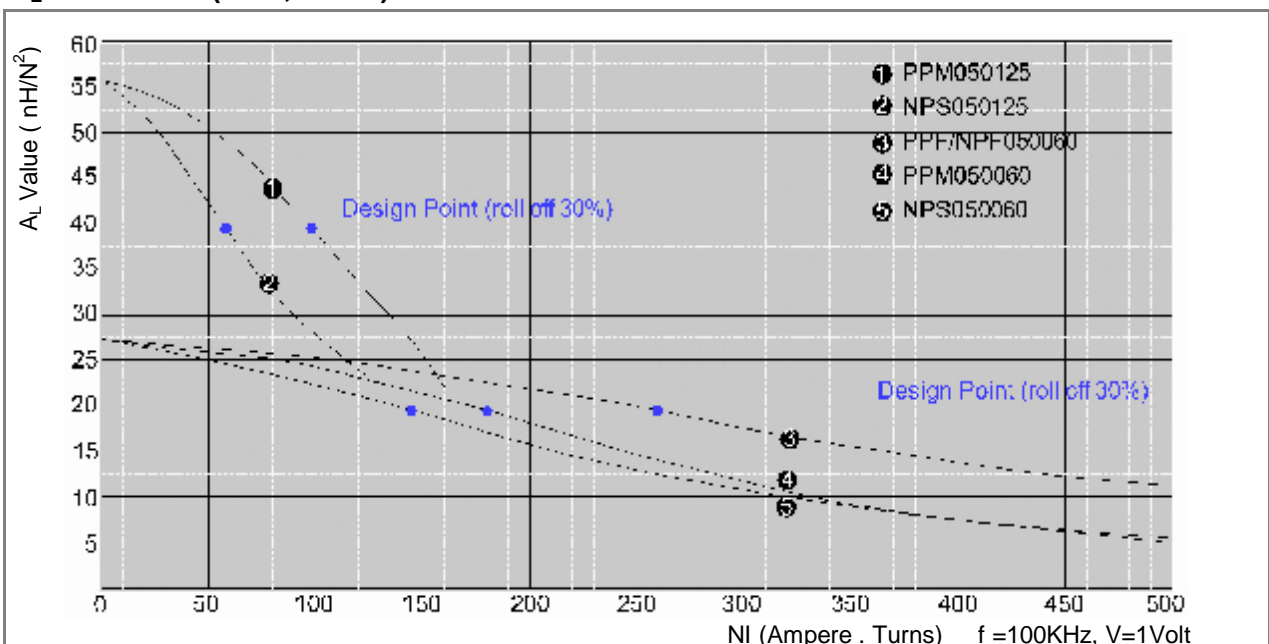
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
75,600 cmil 0.383 cm ²	0.01767 inch ² 0.114 cm ²	1.229 inch 3.12 cm	0.02172 inch ³ 0.35568 cm ³	0.0066 lb 3.0 g	0.0049 lb 2.2 g	0.0055 lb 2.5 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
15	0.153	10	0.00271	21	0.0785	22	0.0193	27	0.0409	45	0.14
16	0.137	11	0.00376	22	0.0701	25	0.027	28	0.0366	50	0.197
17	0.122	13	0.00520	23	0.0632	28	0.0371	29	0.0330	56	0.269
18	0.109	15	0.00722	24	0.0566	31	0.0518	30	0.0294	63	0.381
19	0.098	17	0.01	25	0.0505	35	0.0723	31	0.0267	69	0.527
20	0.0879	19	0.0139	26	0.0452	40	0.101	32	0.0241	77	0.716

A_L vs NI Curve(60 μ , 125 μ)



065

OD 16.51mm / 0.655inch



ID 10.16mm
HT 6.35mm

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	0.655 inch 16.64 mm	0.400 inch 10.16 mm	0.250 inch 6.35 mm
After coating (Epoxy)	0.685 inch 17.40 mm	0.375 inch 9.53 mm	0.280 inch 7.11 mm

Electric Characteristics

Part Number				Perm. (μ)	$A_L \pm 8\%$ (nH/N ²)
NPF	PPF	NPS	PPM		
NPF065026	PPF065026	NPS065026	PPM065026	26	15
NPF065060	PPF065060	NPS065060	PPM065060	60	36
NPF065075	PPF065075	NPS065075	-	75	43
NPF065090	PPF065090	NPS065090	-	90	52
NPF065125	-	NPS065125	PPM065125	125	72
-	-	NPS065147	PPM065147	147	88
-	-	NPS065160	PPM065160	160	92
-	-	NPS065173	PPM065173	173	104
-	-	-	PPM065205	205	123
-	-	-	PPM065250	250	144

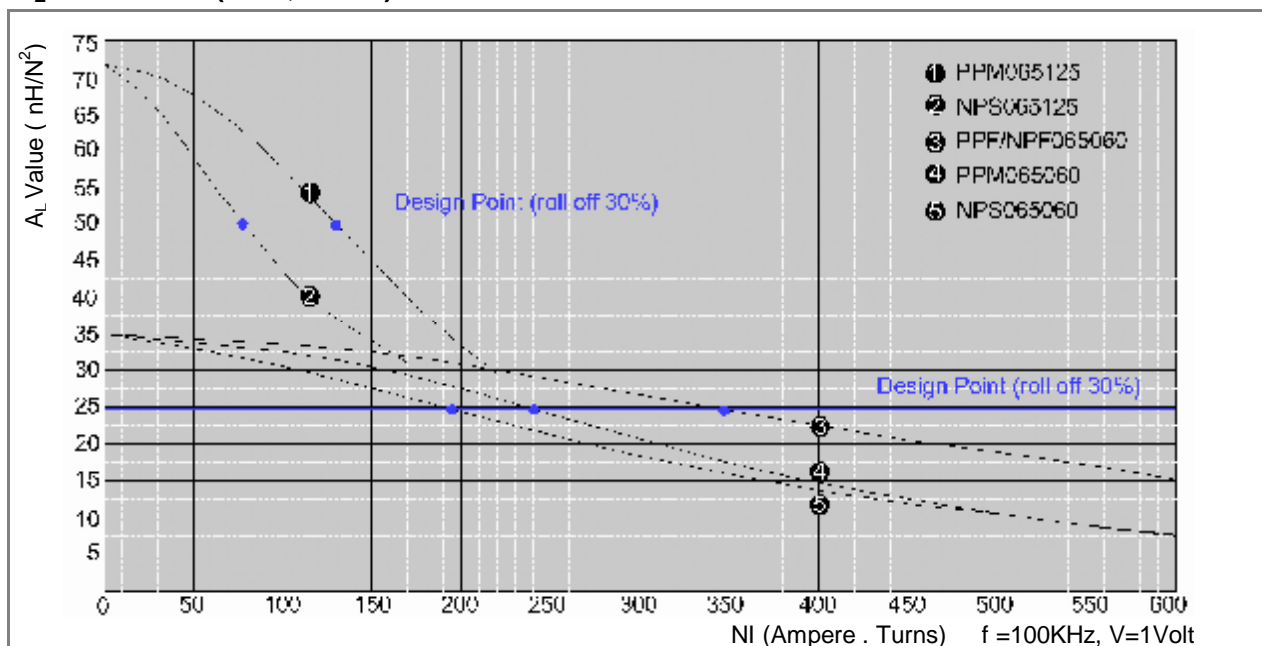
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
140,625 cmil 0.713 cm ²	0.0298 inch ² 0.1920 cm ²	1.619 inch 4.11 cm	0.0483 inch ³ 0.7891 cm ³	0.0150 lb 6.8 g	0.0108 lb 4.9 g	0.0121 lb 5.5 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
12	0.213	10	0.00165	18	0.109	21	0.0119	24	0.0566	44	0.0876
13	0.190	11	0.00230	19	0.098	24	0.0166	25	0.0505	49	0.123
14	0.171	13	0.00318	20	0.0879	27	0.0231	26	0.0452	55	0.172
15	0.153	15	0.00443	21	0.0785	31	0.0323	27	0.0409	62	0.239
16	0.137	17	0.00617	22	0.0701	35	0.0453	28	0.0366	69	0.336
17	0.122	19	0.00856	23	0.0632	39	0.0626	29	0.0330	77	0.460

A_L vs NI Curve(60 μ , 125 μ)



068

OD 17.27mm / 0.680inch

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	0.680 inch	0.380 inch	0.250 inch
	17.27 mm	9.65 mm	6.35 mm
After coating	0.710 inch	0.355 inch	0.280 inch
(Epoxy)	18.03 mm	9.02 mm	7.11 mm

ID 9.65mm
HT 6.35mm



Electric Characteristics

Part Number				Perm. (μ)	$A_L \pm 8\%$ (nH/N ²)
NPF	PPF	NPS	PPM		
NPF068026	PPF068026	NPS068026	PPM068026	26	19
NPF068060	PPF068060	NPS068060	PPM068060	60	43
NPF068075	PPF068075	NPS068075	-	75	53
NPF068090	PPF068090	NPS068090	-	90	64
NPF068125	-	NPS068125	PPM068125	125	89
-	-	NPS068147	PPM068147	147	105
-	-	NPS068160	PPM068160	160	114
-	-	NPS068173	PPM068173	173	123
-	-	-	PPM068205	205	146
-	-	-	PPM068250	250	178

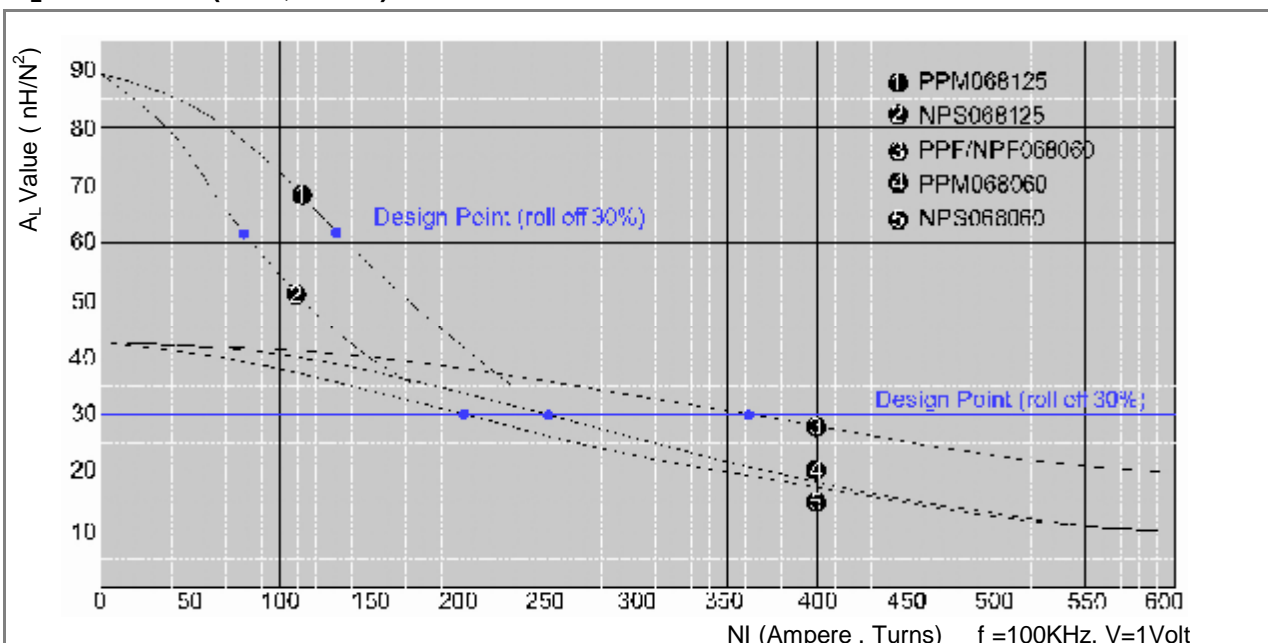
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
126,000 cmil	0.0360 inch ²	1.63 inch	0.05868 inch ³	0.0176 lb	0.0132 lb	0.0148 lb
0.638 cm ²	0.232 cm ²	4.14 cm	0.9605 cm ³	8.0 g	6.0 g	6.7 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
12	0.213	9	0.00161	18	0.109	20	0.0118	24	0.0566	41	0.0869
13	0.190	10	0.00225	19	0.098	23	0.0164	25	0.0505	47	0.122
14	0.171	12	0.00311	20	0.0879	26	0.0228	26	0.0452	52	0.171
15	0.153	14	0.00434	21	0.0785	29	0.0319	27	0.0409	58	0.237
16	0.137	16	0.00606	22	0.0701	33	0.0449	28	0.0366	65	0.334
17	0.122	18	0.00843	23	0.0632	37	0.0621	29	0.0330	73	0.458

A_L vs NI Curve(60 μ , 125 μ)



080

OD 20.32mm / 0.800inch



ID 12.70mm
HT 6.35mm

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	0.800 inch 20.32 mm	0.500 inch 12.70 mm	0.250 inch 6.35 mm
After coating (Epoxy)	0.830 inch 21.08 mm	0.475 inch 12.07 mm	0.280 inch 7.11 mm

Electric Characteristics

Part Number				Perm. (μ)	$A_L \pm 8\%$ (nH/N ²)
NPF	PPF	NPS	PPM		
NPF080026	PPF080026	NPS080026	PPM080026	26	14
NPF080060	PPF080060	NPS080060	PPM080060	60	32
NPF080075	PPF080075	NPS080075	-	75	41
NPF080090	PPF080090	NPS080090	-	90	49
NPF080125	-	NPS080125	PPM080125	125	68
-	-	NPS080147	PPM080147	147	81
-	-	NPS080160	PPM080160	160	87
-	-	NPS080173	PPM080173	173	96
-	-	-	PPM080205	205	113
-	-	-	PPM080250	250	136

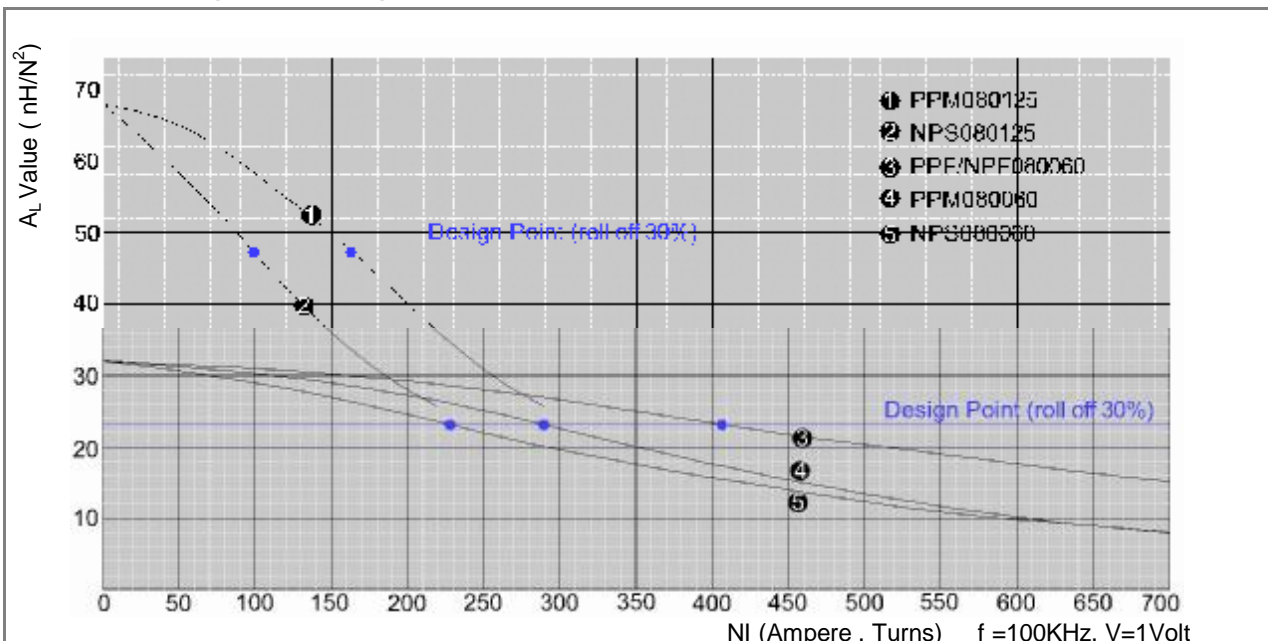
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
225,600 cmil 1.14 cm ²	0.035 inch ² 0.226 cm ²	2.01 inch 5.09 cm	0.07035 inch ³ 1.151 cm ³	0.0220 lb 10.0 g	0.0157 lb 7.1 g	0.0176 lb 8.0 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
12	0.213	13	0.00221	18	0.109	28	0.0159	24	0.0566	56	0.117
13	0.190	15	0.00307	19	0.098	32	0.0222	25	0.0505	63	0.164
14	0.171	17	0.00424	20	0.0879	35	0.0308	26	0.0452	71	0.230
15	0.153	19	0.00590	21	0.0785	40	0.0430	27	0.0409	79	0.318
16	0.137	22	0.00822	22	0.0701	45	0.0604	28	0.0366	89	0.448
17	0.122	25	0.01140	23	0.0632	50	0.0834	29	0.0330	98	0.614

A_L vs NI Curve(60 μ , 125 μ)



090

OD 22.86mm / 0.900inch

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	0.900 inch 22.86 mm	0.550 inch 13.97 mm	0.300 inch 7.62 mm
After coating (Epoxy)	0.930 inch 23.62 mm	0.527 inch 13.39 mm	0.330 inch 8.38 mm

ID 13.970mm
HT 7.62mm



Electric Characteristics

Part Number				Perm. (μ)	$A_L \pm 8\%$ (nH/N ²)
NPF	PPF	NPS	PPM		
NPF090026	PPF090026	NPS090026	PPM090026	26	19
NPF090060	PPF090060	NPS090060	PPM090060	60	43
NPF090075	PPF090075	NPS090075	-	75	54
NPF090090	PPF090090	NPS090090	-	90	65
NPF090125	-	NPS090125	PPM090125	125	90
-	-	NPS090147	PPM090147	147	106
-	-	NPS090160	PPM090160	160	115
-	-	NPS090173	PPM090173	173	124
-	-	-	PPM090205	205	147
-	-	-	PPM090250	250	180

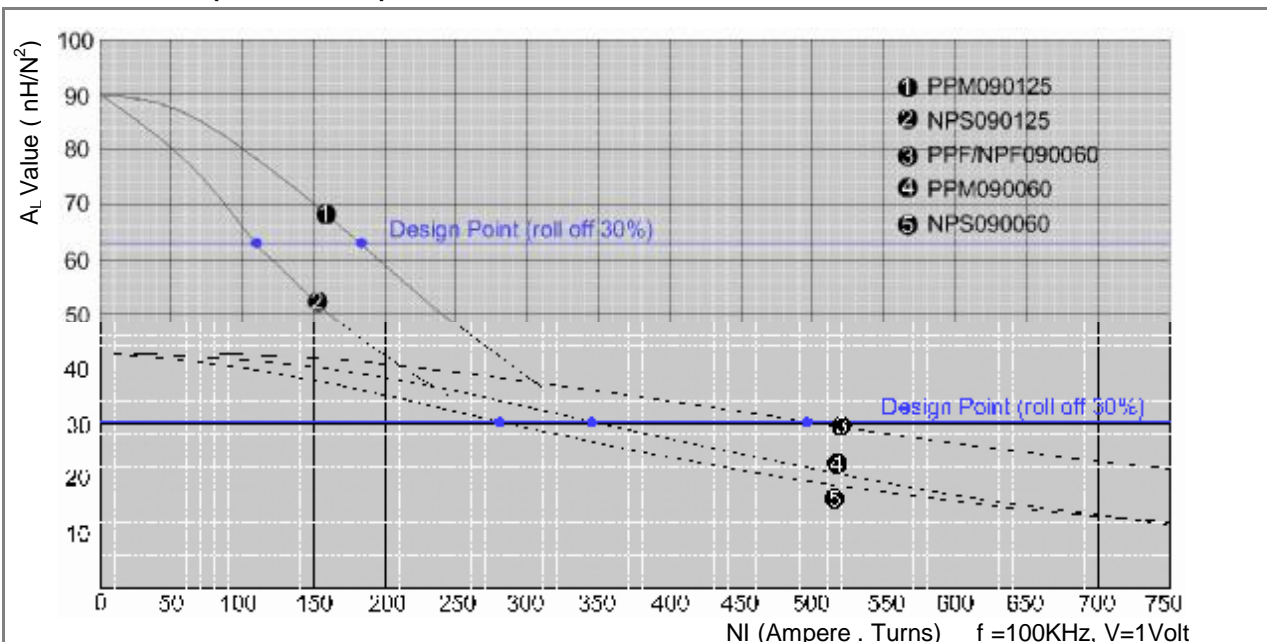
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
277,700 cmil	0.0513 inch ²	2.23 inch	0.11455 inch ³	0.0331 lb	0.0256 lb	0.0289 lb
1.41 cm ²	0.331 cm ²	5.67 cm	1.877 cm ³	15.0 g	11.6 g	13.1 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
12	0.213	15	0.00276	18	0.109	31	0.0202	24	0.0566	63	0.150
13	0.190	17	0.00384	19	0.098	35	0.0281	25	0.0505	71	0.210
14	0.171	19	0.00532	20	0.0879	40	0.0392	26	0.0452	79	0.295
15	0.153	22	0.00742	21	0.0785	45	0.0548	27	0.0409	88	0.409
16	0.137	25	0.0104	22	0.0701	50	0.0771	28	0.0366	99	0.577
17	0.122	28	0.0144	23	0.0632	56	0.0107	29	0.0330	109	0.791

A_L vs NI Curve(60 μ , 125 μ)



092

OD 23.57mm / 0.928inch



ID 14.40mm
HT 8.89mm

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	0.928 inch 23.57 mm	0.567 inch 14.40 mm	0.350 inch 8.89 mm
After coating (Epoxy)	0.956 inch 24.28 mm	0.542 inch 13.77 mm	0.382 inch 9.70 mm

Electric Characteristics

Part Number				Perm. (μ)	$A_L \pm 8\%$ (nH/N ²)
NPF	PPF	NPS	PPM		
NPF092026	PPF092026	NPS092026	PPM092026	26	22
NPF092060	PPF092060	NPS092060	PPM092060	60	51
NPF092075	PPF092075	NPS092075	-	75	63
NPF092090	PPF092090	NPS092090	-	90	76
NPF092125	-	NPS092125	PPM092125	125	105
-	-	NPS092147	PPM092147	147	124
-	-	NPS092160	PPM092160	160	135
-	-	NPS092173	PPM092173	173	146
-	-	-	PPM092205	205	173
-	-	-	PPM092250	250	211

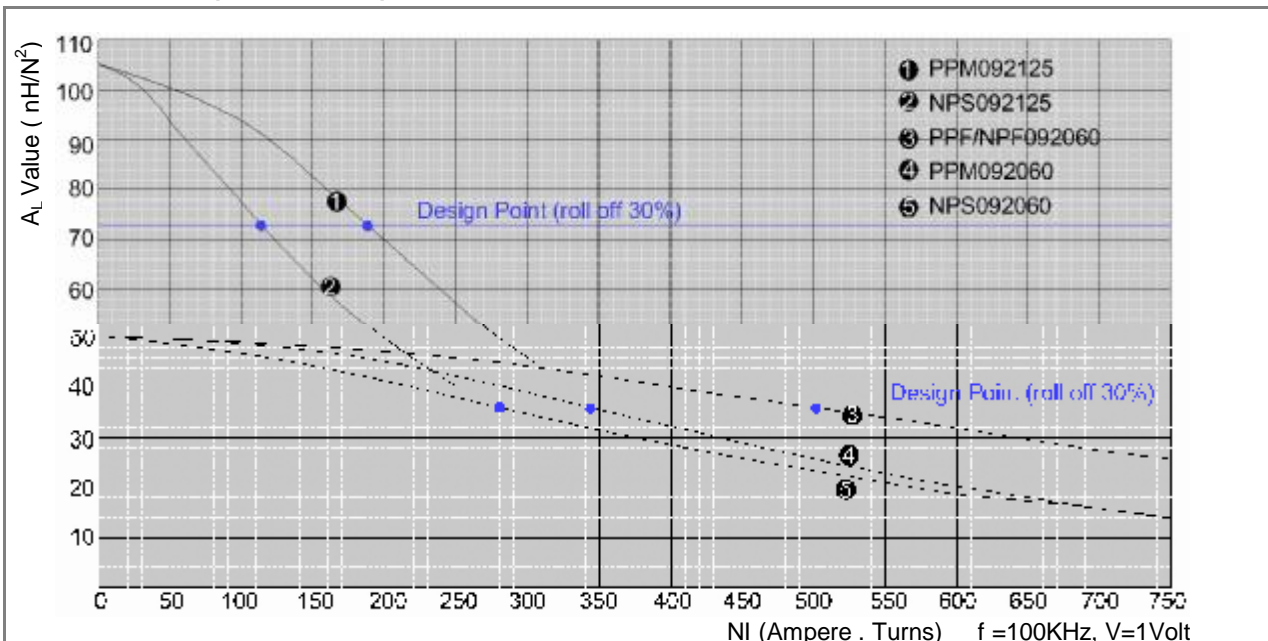
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
293,800 cmil 1.49 cm ²	0.061 inch ² 0.388 cm ²	2.32 inch 5.88 cm	0.1415 inch ³ 2.2814 cm ³	0.0432 lb 19.6 g	0.0311 lb 14.1 g	0.0353 lb 16.0 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
12	0.213	15	0.00221	18	0.109	32	0.0159	24	0.0566	65	0.117
13	0.190	17	0.00307	19	0.098	36	0.0222	25	0.0505	73	0.164
14	0.171	20	0.00424	20	0.0879	41	0.0308	26	0.0452	81	0.230
15	0.153	22	0.00590	21	0.0785	46	0.0430	27	0.0409	91	0.318
16	0.137	25	0.00822	22	0.0701	52	0.0604	28	0.0366	101	0.448
17	0.122	29	0.01140	23	0.0632	58	0.0834	29	0.0330	112	0.614

A_L vs NI Curve(60 μ , 125 μ)



106

OD 26.92mm / 1.060inch

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	1.060 inch 26.92 mm	0.580 inch 14.73 mm	0.440 inch 11.18 mm
After coating (Epoxy)	1.090 inch 27.69 mm	0.555 inch 14.10 mm	0.472 inch 11.99 mm

ID 14.73mm
HT 11.18mm



Electric Characteristics

Part Number				Perm. (μ)	$A_L \pm 8\%$ (nH/N ²)
NPF	PPF	NPS	PPM		
NPF106026	PPF106026	NPS106026	PPM106026	26	32
NPF106060	PPF106060	NPS106060	PPM106060	60	75
NPF106075	PPF106075	NPS106075	-	75	94
NPF106090	PPF106090	NPS106090	-	90	113
NPF106125	-	NPS106125	PPM106125	125	157
-	-	NPS106147	PPM106147	147	185
-	-	NPS106160	PPM106160	160	201
-	-	NPS106173	PPM106173	173	217
-	-	NPS106205	PPM106205	205	257
-	-	NPS106250	PPM106250	250	314

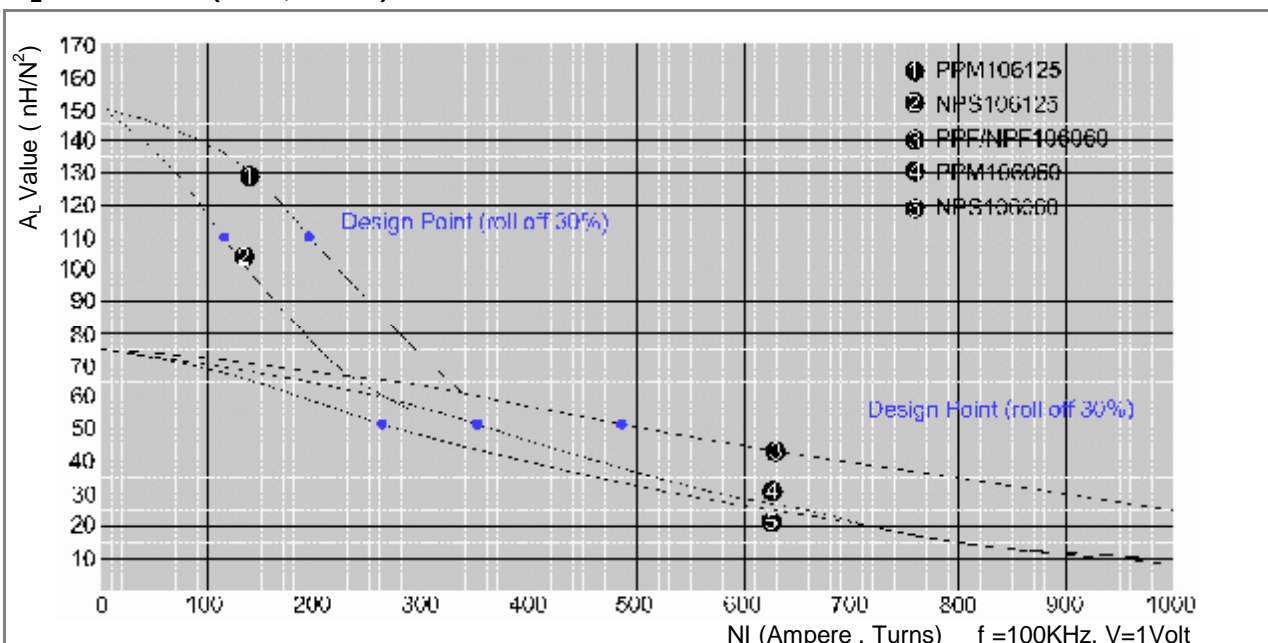
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
308,000 cmil 1.56 cm ²	0.1014 inch ² 0.654 cm ²	2.50 inch 6.35 cm	0.2536 inch ³ 4.154 cm ³	0.0750 lb 34.0 g	0.0567 lb 25.7 g	0.0639 lb 29.0 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
12	0.213	16	0.00367	18	0.109	33	0.0276	24	0.0566	66	0.209
13	0.190	18	0.00514	19	0.098	37	0.0387	25	0.0505	74	0.294
14	0.171	20	0.00715	20	0.0879	42	0.0541	26	0.0452	83	0.414
15	0.153	23	0.0100	21	0.0785	47	0.0759	27	0.0409	93	0.575
16	0.137	26	0.0141	22	0.0701	53	0.1070	28	0.0366	104	0.812
17	0.122	29	0.0197	23	0.0632	59	0.0149	29	0.0330	115	1.11

A_L vs NI Curve(60 μ , 125 μ)



130

OD 33.02mm / 1.300inch



ID 19.94mm
HT 10.67mm

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	1.300 inch	0.785 inch	0.420 inch
	33.02 mm	19.94 mm	10.67 mm
After coating	1.332 inch	0.760 inch	0.457 inch
(Epoxy)	33.83 mm	19.30 mm	11.61 mm

Electric Characteristics

Part Number				Perm. (μ)	$A_L \pm 8\%$ (nH/N ²)
NPF	PPF	NPS	PPM		
NPF130026	PPF130026	NPS130026	PPM130026	26	28
NPF130060	PPF130060	NPS130060	PPM130060	60	61
NPF130075	PPF130075	NPS130075	-	75	76
NPF130090	PPF130090	NPS130090	-	90	91
NPF130125	-	NPS130125	PPM130125	125	127
-	-	NPS130147	PPM130147	147	150
-	-	NPS130160	PPM130160	160	163
-	-	NPS130173	PPM130173	173	176
-	-	-	PPM130205	205	208
-	-	-	PPM130250	250	254

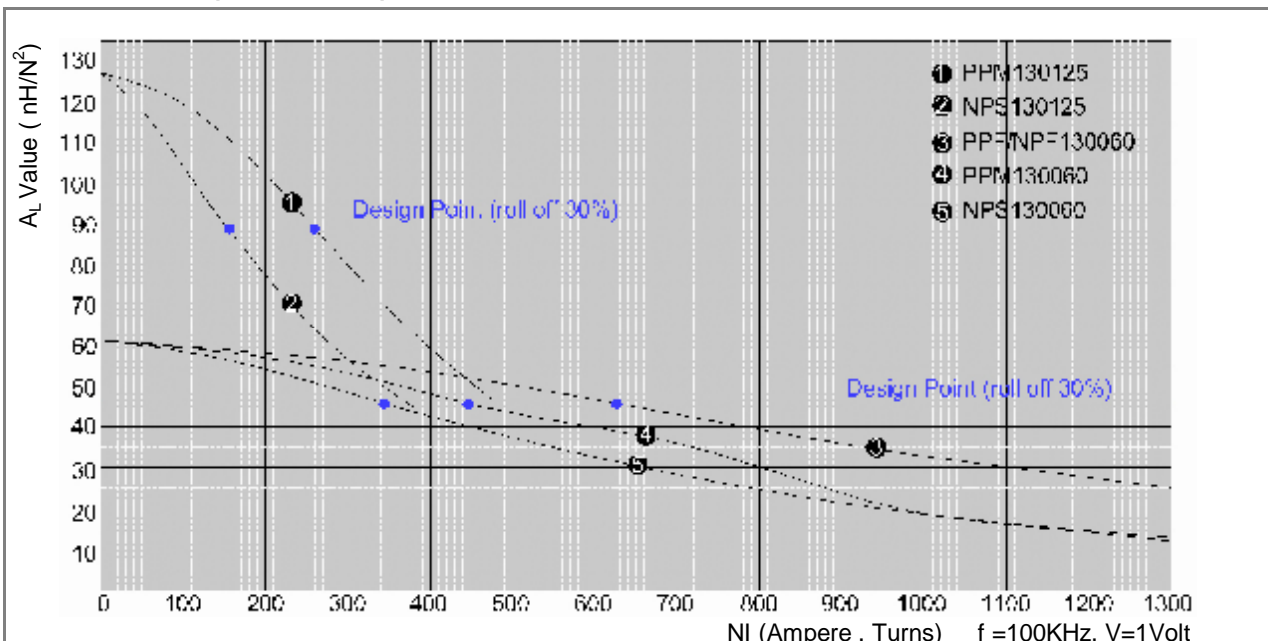
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
577,600 cmil	0.1042 inch ²	3.21 inch	0.3345 inch ³	0.1016 lb	0.0747 lb	0.0838 lb
2.93 cm ²	0.672 cm ²	8.15 cm	5.4768 cm ³	46.1 g	33.9 g	38.0 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
12	0.213	23	0.00517	18	0.109	46	0.0384	24	0.0566	92	0.289
13	0.190	26	0.00722	19	0.098	52	0.0538	25	0.0505	103	0.406
14	0.171	29	0.0100	20	0.0879	58	0.075	26	0.0452	115	0.572
15	0.153	32	0.0140	21	0.0785	66	0.105	27	0.0409	128	0.794
16	0.137	37	0.0197	22	0.0701	74	0.148	28	0.0366	143	1.12
17	0.122	41	0.0274	23	0.0632	82	0.206	29	0.0330	159	1.54

A_L vs NI Curve(60 μ , 125 μ)



135

OD 34.29mm / 1.350inch

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	1.350 inch 34.29 mm	0.920 inch 23.37 mm	0.350 inch 8.89 mm
After coating (Epoxy)	1.382 inch 35.10 mm	0.888 inch 22.56 mm	0.387 inch 9.83 mm

ID 23.37mm
HT 8.89mm



Electric Characteristics

Part Number				Perm. (μ)	$A_L \pm 8\%$ (nH/N ²)
NPF	PPF	NPS	PPM		
NPF135026	PPF135026	NPS135026	PPM135026	26	16
NPF135060	PPF135060	NPS135060	PPM135060	60	38
NPF135075	PPF135075	NPS135075	-	75	47
NPF135090	PPF135090	NPS135090	-	90	57
NPF135125	-	NPS135125	PPM135125	125	79
-	-	NPS135147	PPM135147	147	93
-	-	NPS135160	PPM135160	160	101
-	-	NPS135173	PPM135173	173	109
-	-	-	PPM135205	205	130
-	-	-	PPM135250	250	158

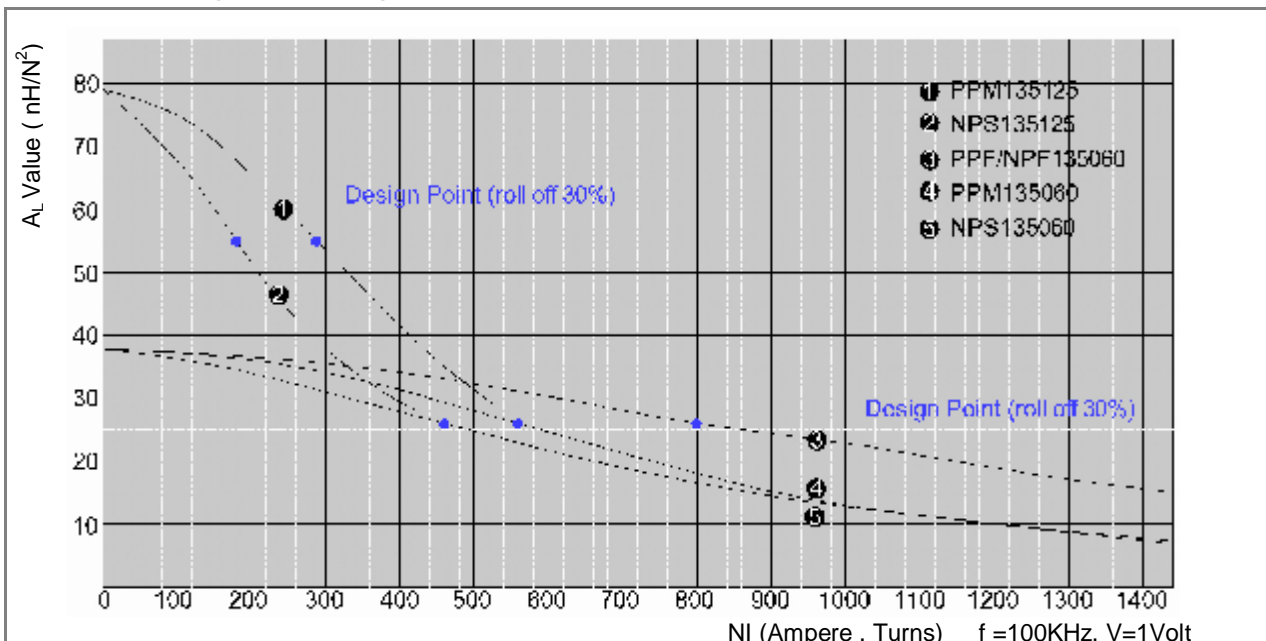
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
788,500 cmil 4.01 cm ²	0.0704 inch ² 0.454 cm ²	3.53 inch 8.95 cm	0.2485 inch ³ 4.0633 cm ³	0.0756 lb 34.3 g	0.0556 lb 25.2 g	0.0624 lb 28.3 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
12	0.213	27	0.00533	18	0.109	55	0.0388	24	0.0566	108	0.288
13	0.190	30	0.00740	19	0.098	61	0.0541	25	0.0505	121	0.404
14	0.171	34	0.0102	20	0.0879	69	0.0754	26	0.0452	135	0.569
15	0.153	38	0.0143	21	0.0785	77	0.105	27	0.0409	150	0.789
16	0.137	43	0.0199	22	0.0701	87	0.148	28	0.0366	168	1.11
17	0.122	49	0.0277	23	0.0632	96	0.206	29	0.0330	186	1.53

A_L vs NI Curve(60 μ , 125 μ)



141

OD 35.81mm / 1.410inch



ID 22.35mm
HT 10.46mm

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	1.410 inch 35.81 mm	0.880 inch 22.35 mm	0.412 inch 10.46 mm
After coating (Epoxy)	1.445 inch 36.70 mm	0.848 inch 21.54 mm	0.444 inch 11.28 mm

Electric Characteristics

Part Number				Perm.	A _L ±8%
NPF	PPF	NPS	PPM	(μ)	(nH/N ²)
NPF141026	PPF141026	NPS141026	PPM141026	26	24
NPF141060	PPF141060	NPS141060	PPM141060	60	56
NPF141075	PPF141075	NPS141075	-	75	70
NPF141090	PPF141090	NPS141090	-	90	84
NPF141125	-	NPS141125	PPM141125	125	117
-	-	NPS141147	PPM141147	147	138
-	-	NPS141160	PPM141160	160	150
-	-	NPS141173	PPM141173	173	162
-	-	-	PPM141205	205	187
-	-	-	PPM141250	250	234

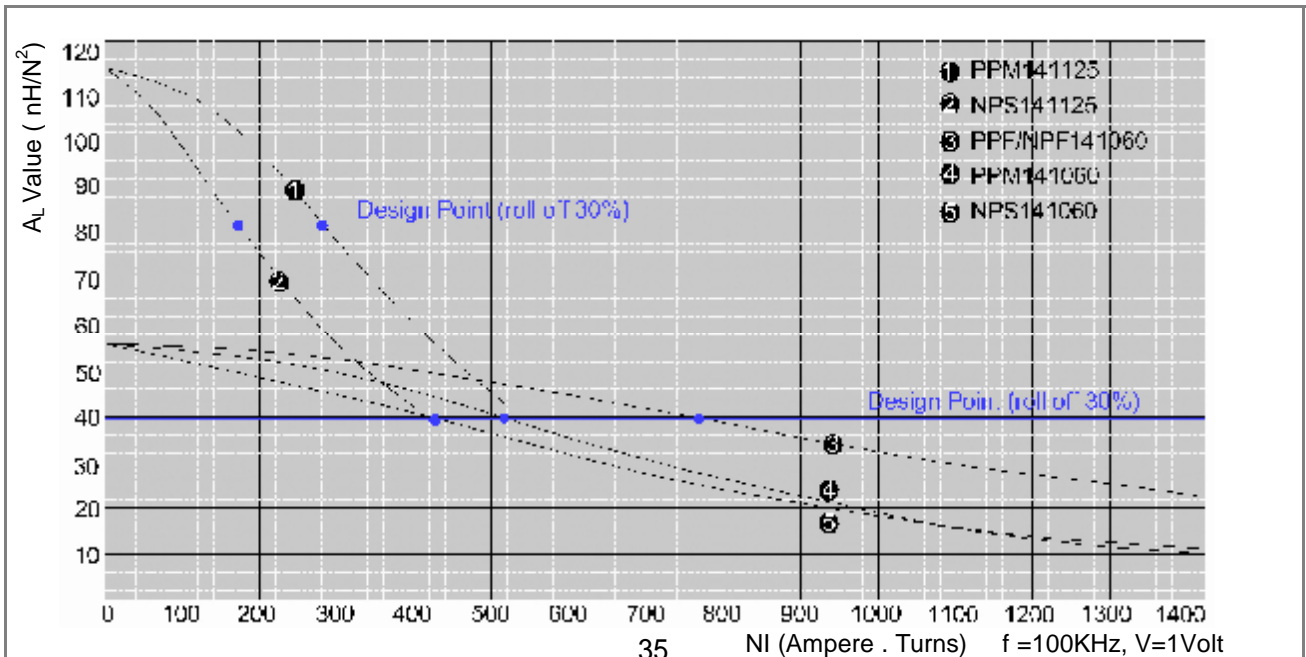
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
719,100 cmil 3.64 cm ²	0.1051 inch ² 0.678 cm ²	3.54 inch 8.98 cm	0.3721 inch ³ 6.0884 cm ³	0.1124 lb 51.0 g	0.0831 lb 37.7 g	0.0935 lb 42.4 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
12	0.213	25	0.00579	18	0.109	52	0.0429	24	0.0566	103	0.322
13	0.190	29	0.00809	19	0.098	58	0.0600	25	0.0505	115	0.452
14	0.171	32	0.0112	20	0.0879	65	0.0837	26	0.0452	129	0.637
15	0.153	37	0.0157	21	0.0785	74	0.117	27	0.0409	143	0.885
16	0.137	41	0.0220	22	0.0701	82	0.166	28	0.0366	160	1.25
17	0.122	46	0.0306	23	0.0632	92	0.229	29	0.0330	177	1.71

A_L vs NI Curve(60 μ , 125 μ)



157

OD 39.88mm / 1.570inch

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	1.570 inch 39.88 mm	0.950 inch 24.13 mm	0.570 inch 14.48 mm
After coating (Epoxy)	1.602 inch 40.69 mm	0.918 inch 23.32 mm	0.605 inch 15.37 mm

ID 24.13mm
HT 14.48mm



Electric Characteristics

Part Number				Perm. (μ)	$A_L \pm 8\%$ (nH/N ²)
NPF	PPF	NPS	PPM		
NPF157026	PPF157026	NPS157026	PPM157026	26	35
NPF157060	PPF157060	NPS157060	PPM157060	60	81
NPF157075	PPF157075	NPS157075	-	75	101
NPF157090	PPF157090	NPS157090	-	90	121
NPF157125	-	NPS157125	PPM157125	125	168
-	-	NPS157147	PPM157147	147	198
-	-	NPS157160	PPM157160	160	215
-	-	NPS157173	PPM157173	173	233
-	-	-	PPM157205	205	276
-	-	-	PPM157250	250	338

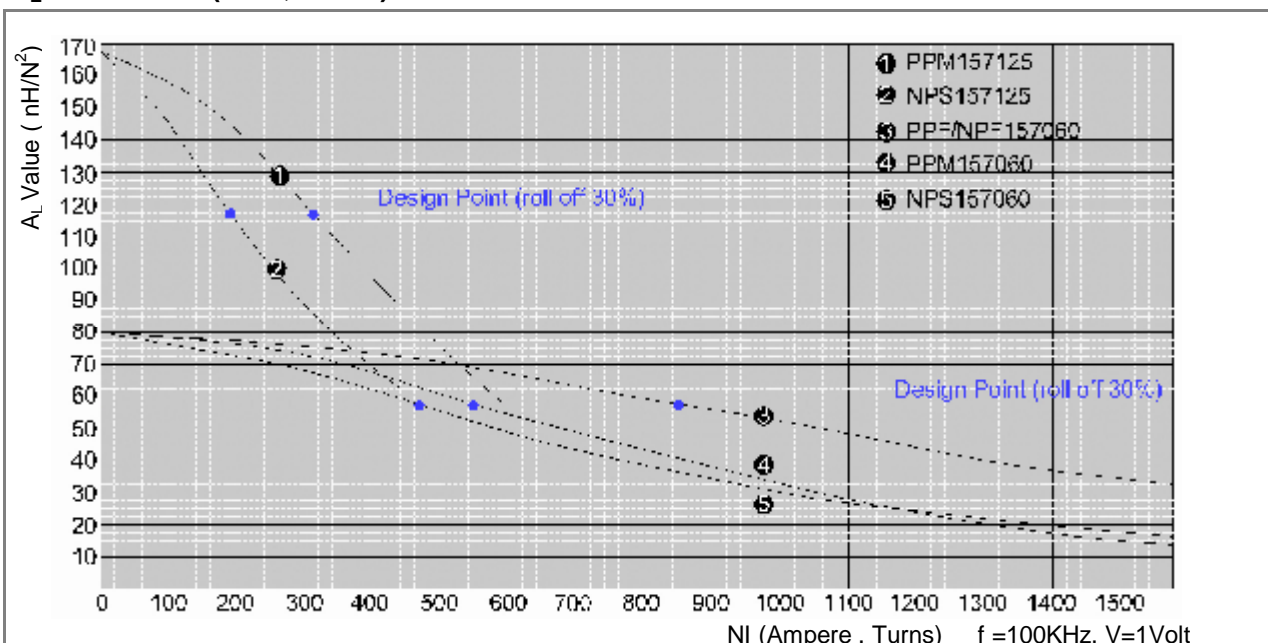
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
842,700 cmil 4.27 cm ²	0.1662 inch ² 1.072 cm ²	3.88 inch 9.84 cm	0.6449 inch ³ 10.5485 cm ³	0.1962 lb 89.0 g	0.1442 lb 65.4 g	0.1653 lb 75.0 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
10	0.267	22	0.00389	16	0.137	45	0.0292	22	0.0701	90	0.223
11	0.238	25	0.00545	17	0.122	50	0.0408	23	0.0632	100	0.309
12	0.213	28	0.00762	18	0.109	57	0.0574	24	0.0566	112	0.435
13	0.190	31	0.0107	19	0.098	64	0.0804	25	0.0505	125	0.611
14	0.171	35	0.0148	20	0.0879	71	0.112	26	0.0452	140	0.862
15	0.153	40	0.0208	21	0.0785	80	0.158	27	0.0409	155	1.20

A_L vs NI Curve(60 μ , 125 μ)



184

OD 46.74mm / 1.840inch



ID 24.13mm
HT 18.03mm

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	1.840 inch 46.74 mm	0.950 inch 24.13 mm	0.710 inch 18.03 mm
After coating (Epoxy)	1.875 inch 47.63 mm	0.918 inch 23.32 mm	0.745 inch 18.92 mm

Electric Characteristics

Part Number				Perm. (μ)	$A_L \pm 8\%$ (nH/N ²)
NPF	PPF	NPS	PPM		
NPF184026	PPF184026	NPS184026	PPM184026	26	59
NPF184060	PPF184060	NPS184060	PPM184060	60	135
NPF184075	PPF184075	NPS184075	-	75	169
NPF184090	PPF184090	NPS184090	-	90	202
NPF184125	-	NPS184125	PPM184125	125	281
-	-	NPS184147	PPM184147	147	330
-	-	NPS184160	PPM184160	160	360
-	-	NPS184173	PPM184173	173	390
-	-	-	PPM184205	205	462
-	-	-	PPM184250	250	563

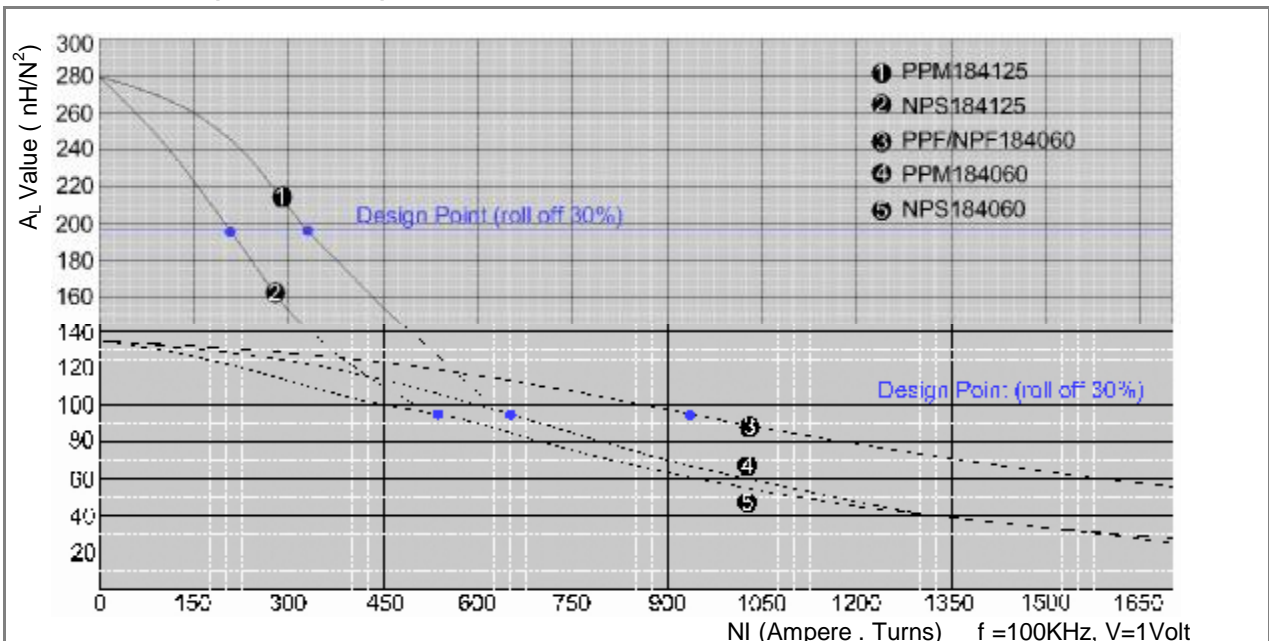
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
842,700 cmil 4.27 cm ²	0.308 inch ² 1.990 cm ²	4.23 inch 10.74 cm	0.6449 inch ³ 10.5485 cm ³	0.3946 lb 179 g	0.2932 lb 133 g	0.3285 lb 149 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
10	0.267	22	0.00488	16	0.137	45	0.0375	22	0.0701	90	0.290
11	0.238	25	0.00688	17	0.122	50	0.0526	23	0.0632	100	0.403
12	0.213	28	0.00966	18	0.109	57	0.074	24	0.0566	112	0.567
13	0.190	31	0.0136	19	0.098	64	0.104	25	0.0505	125	0.798
14	0.171	35	0.0189	20	0.0879	71	0.146	26	0.0452	140	1.13
15	0.153	40	0.0267	21	0.0785	80	0.205	27	0.0409	155	1.57

A_L vs NI Curve(60 μ , 125 μ)



185

OD 46.74mm / 1.840inch

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	1.840 inch 46.74 mm	1.130 inch 28.70 mm	0.600 inch 15.24 mm
After coating (Epoxy)	1.875 inch 47.63 mm	1.098 inch 27.89 mm	0.635 inch 16.13 mm

ID 28.70mm
HT 15.24mm



Electric Characteristics

Part Number				Perm. (μ)	$A_L \pm 8\%$ (nH/N ²)
NPF	PPF	NPS	PPM		
NPF185026	PPF185026	NPS185026	PPM185026	26	37
NPF185060	PPF185060	NPS185060	PPM185060	60	86
NPF185075	PPF185075	NPS185075	-	75	107
NPF185090	PPF185090	NPS185090	-	90	128
NPF185125	-	NPS185125	PPM185125	125	178
-	-	NPS185147	PPM185147	147	210
-	-	NPS185160	PPM185160	160	228
-	-	NPS185173	PPM185173	173	246
-	-	-	PPM185205	205	292
-	-	-	PPM185250	250	356

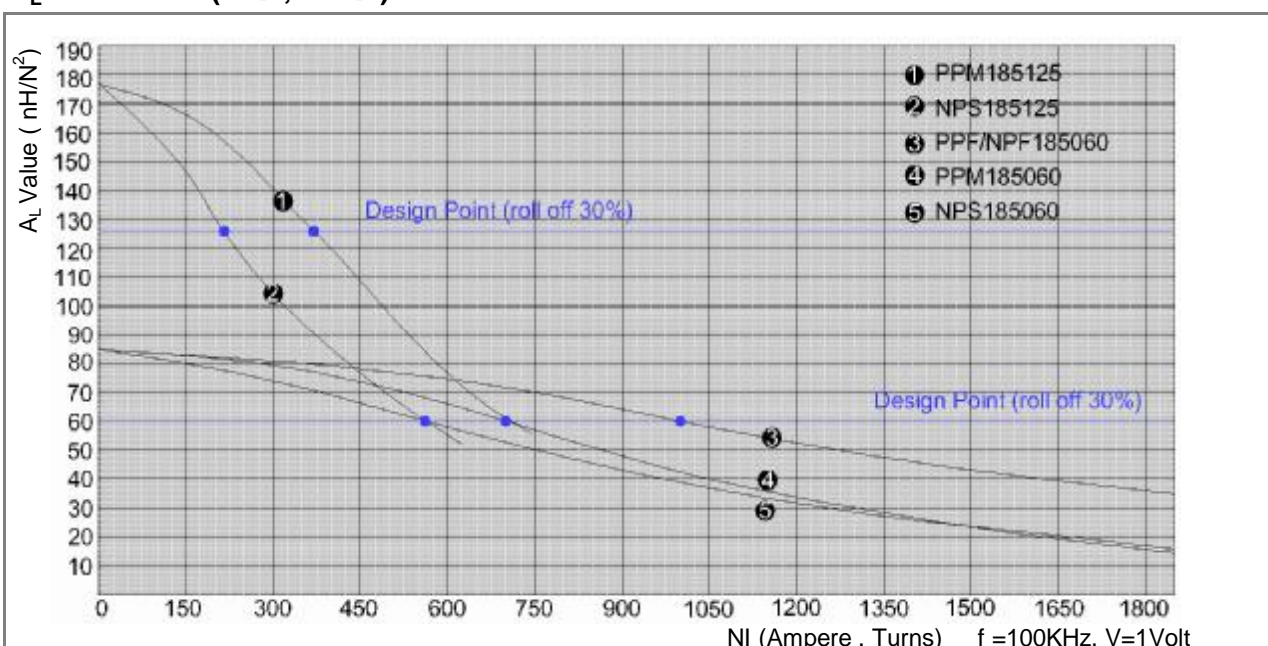
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
1,206,000 cmil 6.11 cm ²	0.208 inch ² 1.340 cm ²	4.58 inch 11.63 cm	0.9526 inch ³ 15.584 cm ³	0.2822 lb 128 g	0.2138 lb 97 g	0.2403 lb 109 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
10	0.267	26	0.00505	16	0.137	54	0.0380	22	0.0701	108	0.290
11	0.238	30	0.00708	17	0.122	61	0.0530	23	0.0632	120	0.402
12	0.213	34	0.0099	18	0.109	68	0.0745	24	0.0566	134	0.565
13	0.190	38	0.0139	19	0.098	77	0.104	25	0.0505	150	0.795
14	0.171	43	0.0193	20	0.0879	86	0.146	26	0.0452	168	1.12
15	0.153	48	0.0270	21	0.0785	96	0.205	27	0.0409	186	1.56

A_L vs NI Curve(60 μ , 125 μ)



200

OD 50.80mm / 2.000inch



ID 31.75mm
HT 13.46mm

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	2.000 inch	1.250 inch	0.530 inch
	50.80 mm	31.75 mm	13.46 mm
After coating	2.035 inch	1.218 inch	0.565 inch
(Epoxy)	51.69 mm	30.94 mm	14.35 mm

Electric Characteristics

Part Number				Perm. (μ)	$A_L \pm 8\%$ (nH/N ²)
NPF	PPF	NPS	PPM		
NPF200026	PPF200026	NPS200026	PPM200026	26	32
NPF200060	PPF200060	NPS200060	PPM200060	60	73
NPF200075	PPF200075	NPS200075	-	75	91
NPF200090	PPF200090	NPS200090	-	90	109
NPF200125	-	NPS200125	PPM200125	125	152
-	-	NPS200147	PPM200147	147	179
-	-	NPS200160	PPM200160	160	195
-	-	NPS200173	PPM200173	173	210
-	-	-	PPM200205	205	249

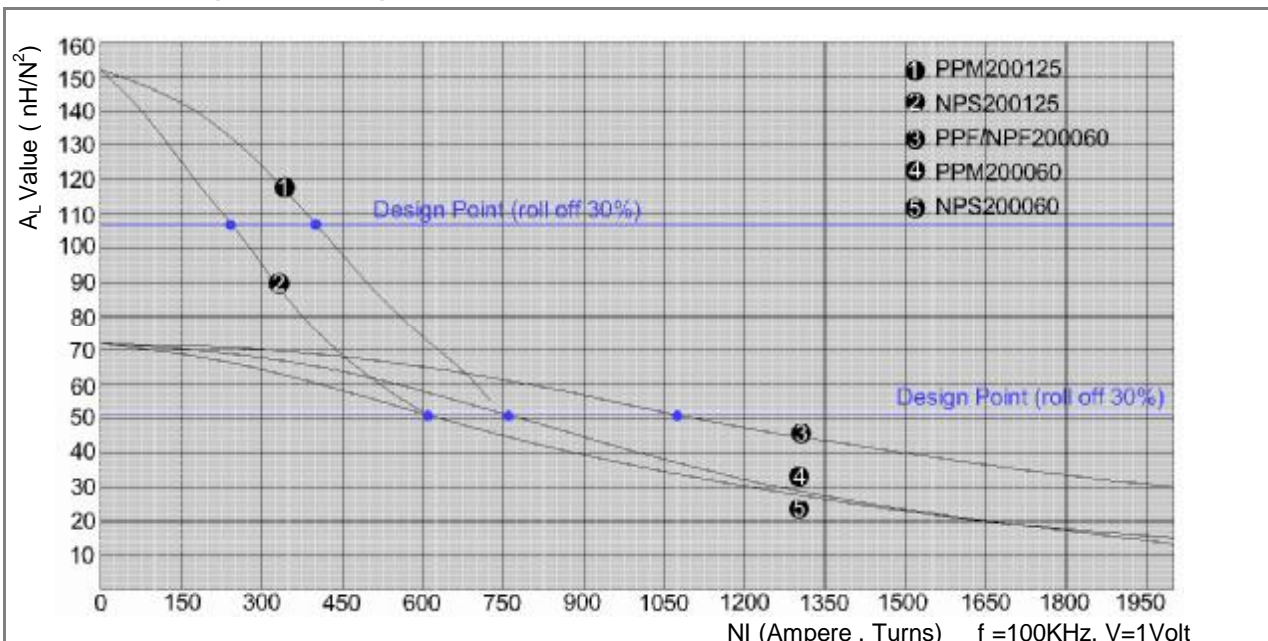
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
1,484,000 cmil	0.194 inch ²	5.02 inch	0.9739 inch ³	0.2866 lb	0.2183 lb	0.2447 lb
7.50 cm ²	1.251 cm ²	12.73 cm	15.929 cm ³	130 g	99 g	111 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
10	0.267	30	0.00539	16	0.137	60	0.0402	22	0.0701	120	0.306
11	0.238	33	0.00754	17	0.122	68	0.0562	23	0.0632	133	0.424
12	0.213	38	0.0105	18	0.109	76	0.0788	24	0.0566	149	0.596
13	0.190	43	0.0147	19	0.098	85	0.11	25	0.0505	167	0.838
14	0.171	48	0.0205	20	0.0879	95	0.154	26	0.0452	186	1.08
15	0.153	54	0.0287	21	0.0785	107	0.216	27	0.0409	207	1.64

A_L vs NI Curve(60 μ , 125 μ)



225

OD 57.15mm / 2.250inch

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	2.250 inch	1.400 inch	0.550 inch
	57.15 mm	35.56 mm	13.97 mm
After coating (Epoxy)	2.285 inch	1.368 inch	0.585 inch
	58.04 mm	34.75 mm	14.86 mm

ID 35.56mm
HT 13.97mm



Electric Characteristics

Part Number				Perm. (μ)	$A_L \pm 8\%$ (nH/N ²)
NPF	PPF	NPS	PPM		
NPF225026	PPF225026	NPS225026	PPM225026	26	33
NPF225060	PPF225060	NPS225060	PPM225060	60	75
NPF225075	PPF225075	NPS225075	-	75	94
NPF225090	PPF225090	NPS225090	-	90	112
NPF225125	-	NPS225125	PPM225125	125	156
-	-	NPS225147	PPM225147	147	185
-	-	NPS225160	PPM225160	160	200
-	-	NPS225173	PPM225173	173	218
-	-	-	PPM225205	205	259

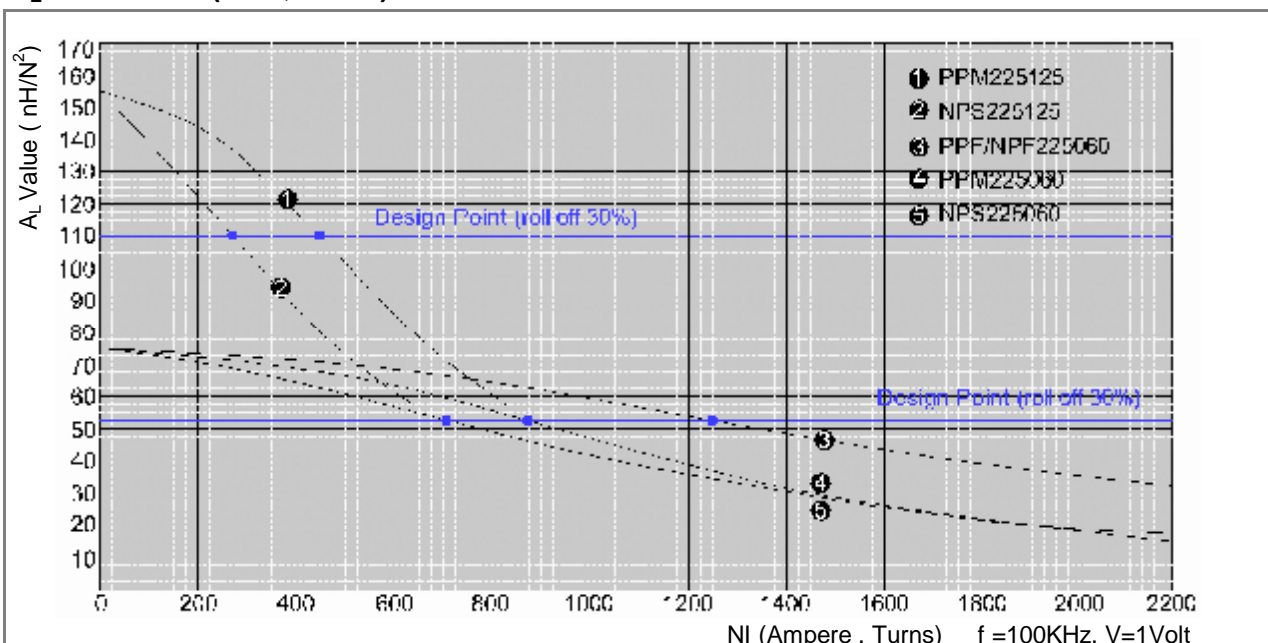
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
1,871,000 cmil	0.224 inch ²	5.63 inch	1.261 inch ³	0.3792 lb	0.2822 lb	0.3175 lb
9.48 cm ²	1.444 cm ²	14.30 cm	20.65 cm ³	172 g	128 g	144 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
10	0.267	37	0.00644	16	0.137	76	0.0531	22	0.0701	152	0.428
11	0.238	42	0.00920	17	0.122	85	0.0746	23	0.0632	169	0.596
12	0.213	48	0.0133	18	0.109	96	0.107	24	0.0566	189	0.845
13	0.190	54	0.0188	19	0.098	108	0.152	25	0.0505	212	1.19
14	0.171	60	0.0263	20	0.0879	120	0.211	26	0.0452	237	1.69
15	0.153	68	0.0376	21	0.0785	135	0.300	27	0.0409	263	2.35

A_L vs NI Curve(60 μ , 125 μ)



226

OD 57.15mm / 2.250inch



ID 26.39mm
HT 15.24mm

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	2.250 inch 57.15 mm	1.039 inch 26.39 mm	0.600 inch 15.24 mm
After coating (Epoxy)	2.285 inch 58.04 mm	1.007 inch 25.58 mm	0.635 inch 16.13 mm

Electric Characteristics

Part Number				Perm. (μ)	$A_L \pm 8\%$ (nH/N ²)
NPF	PPF	NPS	PPM		
NPF226026	PPF226026	NPS226026	PPM226026	26	60
NPF226060	PPF226060	NPS226060	PPM226060	60	138
NPF226075	PPF226075	NPS226075	-	75	172
NPF226090	PPF226090	NPS226090	-	90	207
NPF226125	-	NPS226125	PPM226125	125	287
-	-	NPS226147	PPM226147	147	338
-	-	NPS226160	PPM226160	160	368
-	-	NPS226173	PPM226173	173	398
-	-	-	PPM226200	205	460

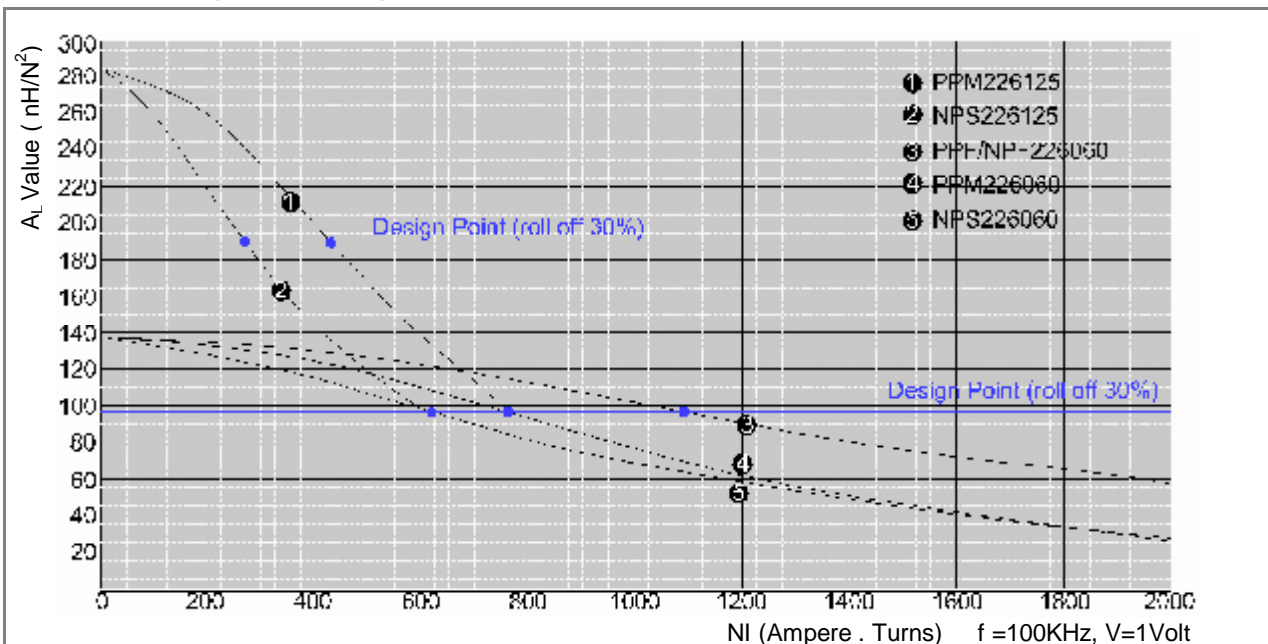
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
1,014,049 cmil 5.14 cm ²	0.355 inch ² 2.29 cm ²	4.93 inch 12.5 cm	1.75 inch ³ 28.6 cm ³	0.5357 lb 243 g	0.3902 lb 177 g	0.4387 lb 199 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
10	0.267	26	0.00551	16	0.137	55	0.0469	22	0.0701	111	0.381
11	0.238	30	0.00801	17	0.122	62	0.0664	23	0.0632	124	0.534
12	0.213	34	0.0115	18	0.109	70	0.0948	24	0.0566	138	0.752
13	0.190	39	0.0165	19	0.098	78	0.133	25	0.0505	156	1.07
14	0.171	43	0.0230	20	0.0879	88	0.189	26	0.0452	174	1.51
15	0.153	49	0.0330	21	0.0785	99	0.269	27	0.0409	193	2.10

A_L vs NI Curve(60 μ , 125 μ)



300

OD 77.8mm / 3.063inch

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	3.063 inch 77.80 mm	1.938 inch 49.23 mm	0.500 inch 12.70 mm
After coating (Epoxy)	3.108 inch 78.94 mm	1.888 inch 47.96 mm	0.550 inch 13.97 mm

ID 49.23mm
HT 12.70mm



Electric Characteristics

Part Number				Perm. (μ)	$A_L \pm 8\%$ (nH/N ²)
NPF	PPF	NPS	PPM		
NPF300026	PPF300026	NPS300026	PPM300026	26	30
NPF300060	PPF300060	NPS300060	PPM300060	60	68
NPF300075	PPF300075	NPS300075	-	75	85
NPF300090	PPF300090	NPS300090	-	90	102
NPF300125	-	NPS300125	PPM300125	125	142
-	-	NPS300147	PPM300147	147	167
-	-	NPS300160	PPM300160	160	182
-	-	NPS300173	PPM300173	173	197
-	-	-	PPM300205	205	233

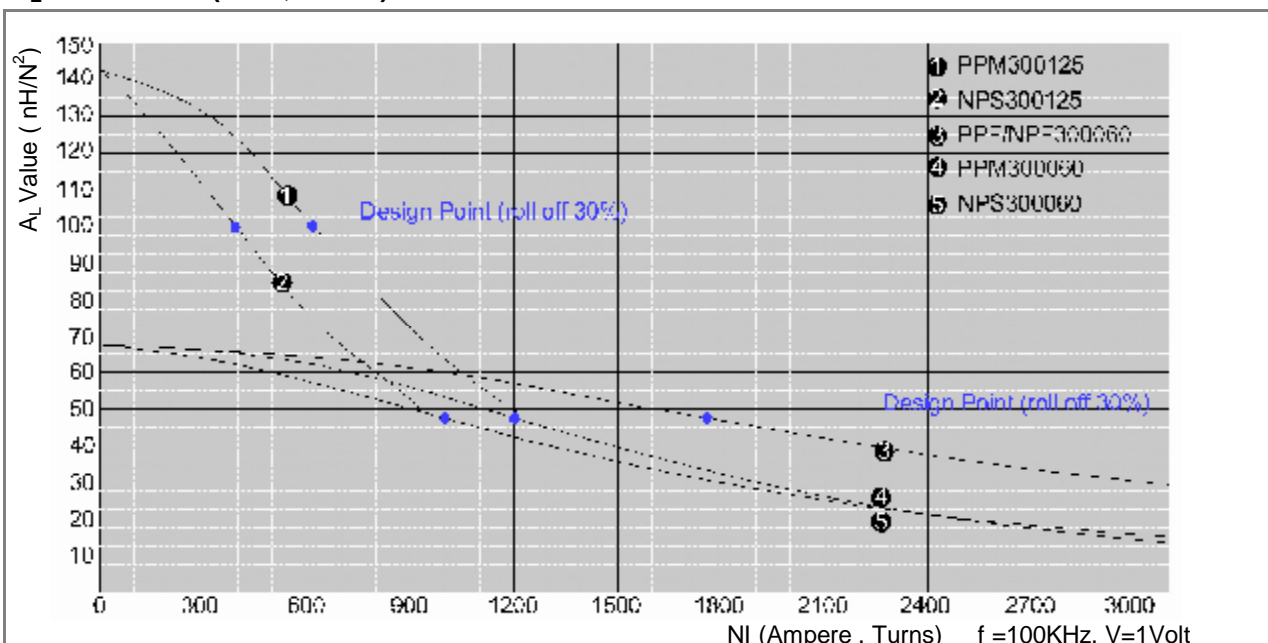
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
3,564,544 cmil 18.06 cm ²	0.274 inch ² 1.770 cm ²	7.72 inch 19.61 cm	2.122 inch ³ 34.770 cm ³	0.6188 lb 281 g	0.4777 lb 217 g	0.5344 lb 242 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
10	0.267	47	0.0100	16	0.137	95	0.0749	22	0.0701	187	0.570
11	0.238	53	0.0140	17	0.122	107	0.105	23	0.0632	208	0.792
12	0.213	60	0.0196	18	0.109	119	0.147	24	0.0566	232	1.11
13	0.190	68	0.0274	19	0.098	134	0.206	25	0.0505	260	1.56
14	0.171	75	0.0381	20	0.0879	149	0.288	26	0.0452	290	2.21
15	0.153	85	0.0534	21	0.0785	167	0.404	27	0.0409	323	3.07

A_L vs NI Curve(60 μ , 125 μ)



306

OD 77.8mm / 3.063inch



ID 49.23mm
HT 15.88mm

Core Dimensions

	OD(max)	ID(min)	HT(max)
Before coating	3.063 inch 77.80 mm	1.938 inch 49.23 mm	0.625 inch 15.88 mm
After coating (Epoxy)	3.108 inch 78.94 mm	1.888 inch 47.96 mm	0.675 inch 17.15 mm

Electric Characteristics

Part Number				Perm. (μ)	$A_L \pm 8\%$ (nH/N ²)
NPF	PPF	NPS	PPM		
NPF306026	PPF306026	NPS306026	PPM306026	26	35
NPF306060	PPF306060	NPS306060	PPM306060	60	85
NPF306075	PPF306075	NPS306075	-	75	107
NPF306090	PPF306090	NPS306090	-	90	128
NPF306125	-	NPS306125	PPM306125	125	178
-	-	NPS306147	PPM306147	147	209
-	-	NPS306160	PPM306160	160	228
-	-	NPS306173	PPM306173	173	246
-	-	-	PPM306205	205	284

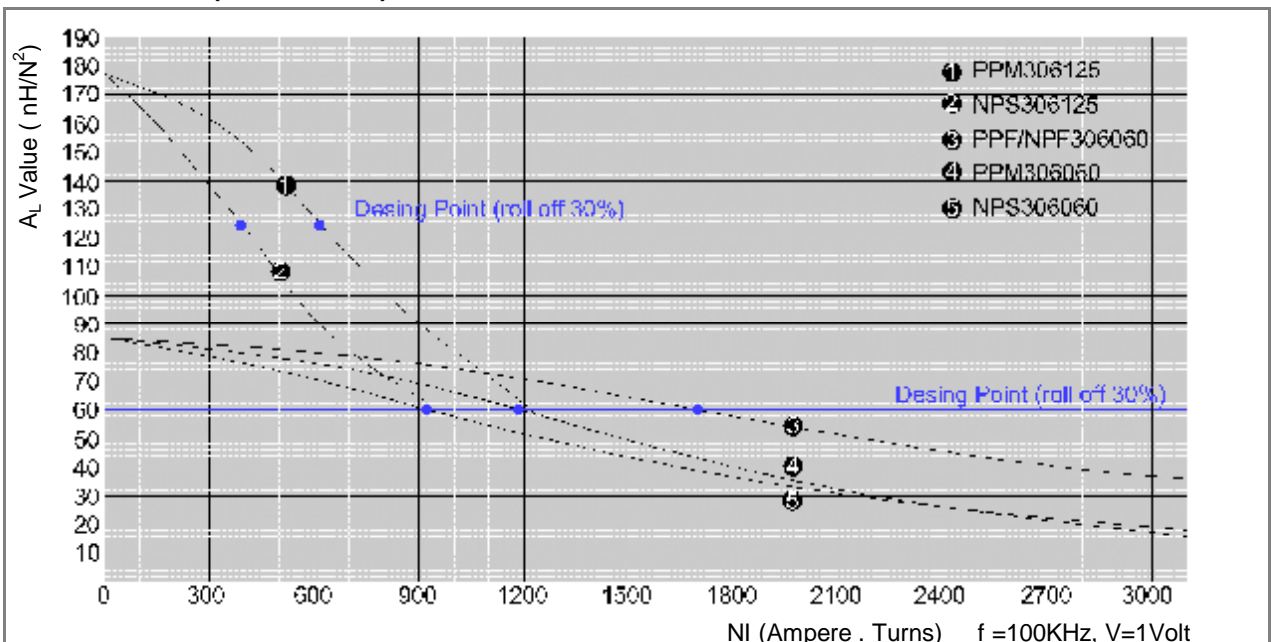
Physical Characteristics

Window Area (Wa)	Cross Section (A)	Path Length (l)	Volume (V)	Weight		
				PPM	NPS	NPF/PPF
3,564,544 cmil 18.06 cm ²	0.344 inch ² 2.219 cm ²	7.72 inch 19.61cm	2.656 inch ³ 43.523 cm ³	0.8138 lb 369 g	0.5977 lb 271 g	0.6680 lb 303 g

Winding Information

AWG Wire		Single Layer		AWG Wire		Single Layer		AWG Wire		Single Layer	
No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω	No.	Dia.(cm)	Turns	Rdc, Ω
10	0.267	47	0.0110	16	0.137	95	0.0829	22	0.0701	187	0.634
11	0.238	53	0.0154	17	0.122	107	0.1160	23	0.0632	208	0.880
12	0.213	60	0.0216	18	0.109	119	0.163	24	0.0566	232	1.24
13	0.190	68	0.0302	19	0.098	134	0.228	25	0.0505	260	1.74
14	0.171	75	0.0420	20	0.0879	149	0.318	26	0.0452	290	2.45
15	0.153	85	0.0590	21	0.0785	167	0.449	27	0.0409	323	3.41

A_L vs NI Curve(60 μ , 125 μ)



Wire Parameter Table

Wire No. AWG	Bare Area		Resistivity $10^{-6} \Omega \text{ cm}$ At 20°C	Heavy Synthetics				
	$\text{cm}^2(\times 10^{-3})$	Cir-Mil		Area		Diameter		Weight g/cm
			$\text{cm}^2(\times 10^{-3})$	Cir-Mil	cm	inch		
10	53.6100	10384	32.70	55.9	11046	0.267	0.1051	0.468
11	41.6800	8226	41.37	44.5	8798	0.238	0.0937	0.375
12	33.1000	6529	52.09	35.64	7022	0.213	0.0839	0.2977
13	26.2600	5184	65.64	28.36	5610	0.190	0.0748	0.2367
14	20.8200	4109	82.80	22.95	4556	0.171	0.0673	0.1879
15	16.5100	3260	104.3	18.37	3624	0.153	0.0602	0.1492
16	13.0700	2581	131.8	14.73	2905	0.137	0.0539	0.1184
17	10.3900	2052	165.8	11.68	2323	0.122	0.0480	0.0943
18	8.2280	1624	209.5	9.326	1857	0.109	0.0429	0.07472
19	6.5310	1289	263.9	7.539	1490	0.0980	0.0386	0.05940
20	5.1880	1024	332.3	6.065	1197	0.0879	0.0346	0.04726
21	4.1160	812.3	418.9	4.837	954.8	0.0785	0.0309	0.03757
22	3.2430	640.1	531.4	3.857	761.7	0.0701	0.0276	0.02965
23	2.5880	510.8	666.0	3.135	620.0	0.0632	0.0249	0.02372
24	2.0470	404.0	842.1	2.514	497.3	0.0566	0.0223	0.01884
25	1.6230	320.4	1062.0	2.002	396.0	0.0505	0.0199	0.01498
26	1.2800	252.8	1345.0	1.603	316.8	0.0452	0.0178	0.01185
27	1.0210	201.6	1687.6	1.313	259.2	0.0409	0.0161	0.00945
28	0.8046	158.8	2142.7	1.0515	207.3	0.0366	0.0144	0.00747
29	0.6470	127.7	2664.3	0.8548	169.0	0.0330	0.0130	0.00602
30	0.5067	100.0	3402.2	0.6785	134.5	0.0294	0.0116	0.00472
31	0.4013	79.21	4294.6	0.5595	110.2	0.0267	0.0105	0.00372
32	0.3242	64.00	5314.9	0.4559	90.25	0.0241	0.0095	0.00305
33	0.2554	50.41	6748.6	0.3662	72.25	0.0216	0.0085	0.00214
34	0.2011	39.69	8572.8	0.2863	56.25	0.0191	0.0075	0.00189
35	0.1589	31.36	10849	0.2268	44.89	0.0170	0.0067	0.00150
36	0.1266	25.00	13608	0.1813	36.00	0.0152	0.0060	0.00119
37	0.1026	20.25	16801	0.1538	30.25	0.0140	0.0055	0.000977
38	0.0811	16.00	21266	0.1207	24.01	0.0124	0.0049	0.000773
39	0.0621	12.25	27775	0.0932	18.49	0.0109	0.0043	0.000593
40	0.0487	9.61	35400	0.0723	14.44	0.0096	0.0038	0.000464
41	0.0397	7.84	43405	0.0584	11.56	0.00863	0.0034	0.000379
42	0.0317	6.25	54429	0.04558	9.00	0.00762	0.0030	0.000299
43	0.0245	4.84	70308	0.03683	7.29	0.00685	0.0027	0.000233
44	0.0202	4.00	85072	0.03165	6.25	0.00635	0.0025	0.000195

Wire Data Table

Core Size	Window Area		Wire Length/Turn				Wound Dimension	
			100%		0%		ODxHT(Max)	
	Cir-Mils	cm ²	ft	cm	ft	cm	inch	mm
014	3,600	0.018	0.0229	0.70	0.0195	0.594	0.195x0.108	4.95x2.74
015	6,080	0.031	0.0344	1.05	0.0293	0.893	0.227x0.187	5.77x4.75
018	5,780	0.029	0.0375	1.14	0.0324	0.988	0.262x0.195	6.65x4.94
025	8,100	0.0412	0.0442	1.35	0.0379	1.155	0.347x0.212	8.81x5.38
026	8,100	0.0412	0.0435	1.33	0.0371	1.131	0.359x0.202	9.12x5.13
027	7,570	0.0384	0.0575	1.75	0.0531	1.618	0.361x0.292	9.17x7.42
028	18,496	0.09372	0.0586	1.79	0.0512	1.561	0.378x0.394	9.60x10.01
031	18,200	0.0922	0.0524	1.60	0.0417	1.271	0.433x0.265	11.0x6.73
037	28,200	0.1429	0.0588	1.79	0.0448	1.366	0.526x0.293	13.4x7.44
038	28,200	0.1429	0.0632	1.93	0.0498	1.518	0.526x0.323	13.4x8.20
040	32,400	0.164	0.0651	1.98	0.0504	1.536	0.554x0.333	14.1x8.46
044	53,800	0.273	0.0720	2.19	0.0507	1.545	0.618x0.353	15.7x9.0
050	75,600	0.383	0.0815	2.48	0.0574	1.750	0.717x0.451	18.2x11.5
065	140,625	0.713	0.1057	3.22	0.0721	2.198	0.932x0.599	23.7x15.2
068	126,000	0.638	0.1204	3.67	0.0763	2.326	0.980x0.641	24.9x16.3
080	225,600	1.14	0.1204	3.67	0.0763	2.326	1.148x0.684	29.2x17.4
090	277,700	1.41	0.1405	4.28	0.0886	2.701	1.283x0.778	32.6x19.8
092	293,800	1.49	0.1473	4.49	0.0982	2.993	1.319x0.843	33.5x21.4
106	308,000	1.56	0.1714	5.22	0.1233	3.758	1.468x0.944	37.3x24.0
130	577,600	2.93	0.1943	5.92	0.1238	3.773	1.840x1.103	46.7x28.0
135	788,500	4.01	0.1923	5.86	0.1059	3.228	1.974x1.142	50.1x29.0
141	719,100	3.64	0.204	6.22	0.1238	3.773	2.01x1.165	51.1x29.6
157	842,700	4.27	0.242	7.38	0.1578	4.810	2.22x1.385	56.4x35.2
184	842,700	4.27	0.284	8.66	0.204	6.218	2.51x1.525	63.8x38.7
185	1,206,000	6.11	0.273	8.32	0.1706	5.200	2.61x1.568	66.3x39.8
200	1,484,000	7.50	0.279	8.50	0.1623	4.947	2.85x1.600	72.4x40.6
225	1,871,000	9.48	0.306	9.33	0.1739	5.300	3.20x1.748	81.3x44.4
226	1,014,049	5.14	0.296	9.02	0.212	6.462	2.98x1.34	75.7x34.0
300	3,564,544	18.06	0.340	10.36	0.193	5.883	4.40x2.14	112.0x54.3
306	3,564,544	18.06	0.361	11.00	0.214	6.523	4.40x2.40	112.0x61.0

POCO Special Products

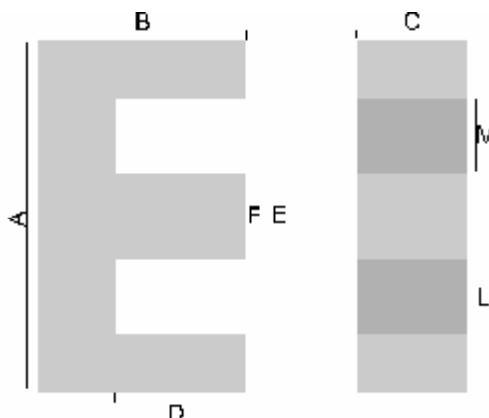
PPI Powder Cores

Part No.	A _L ±15% (nH/N ²)	Before Coating			After Coating			Weight (g)
		OD inch/ mm	ID inch/ mm	HT inch/ mm	OD inch/ mm	ID inch/ mm	HT inch/ mm	
PPI 106040	50	1.060/ 26.9	0.580/ 14.7	0.440/ 11.2	1.090/ 27.7	0.555/ 14.1	0.472/ 12.0	27.4
PPI 130040	41	1.300/ 33.0	0.785/ 19.9	0.420/ 10.7	1.332/ 33.8	0.760/ 19.3	0.457/ 11.6	36.0
PPI 135040	25	1.350/ 34.3	0.920/ 23.4	0.350/ 8.9	1.382/ 35.1	0.888/ 22.6	0.387/ 9.8	26.8
PPI 141040	37	1.410/ 35.8	0.880/ 22.4	0.412/10.5	1.445/ 36.7	0.848/ 21.5	0.444/ 11.3	40.1
PPI 157040	54	1.570/ 39.9	0.950/ 24.1	0.570/ 14.5	1.602/ 40.7	0.918/ 23.3	0.605/ 15.4	70.2
PPI 184040	90	1.840/ 46.7	0.950/ 24.1	0.710/ 18.0	1.875/ 47.6	0.918/ 23.3	0.745/ 18.9	141
PPI 185040	57	1.840/ 46.7	1.130/ 28.7	0.600/ 15.2	1.875/ 47.6	1.098/ 27.9	0.635/ 16.1	103
PPI 200040	49	2.000/ 50.8	1.250/ 31.8	0.530/ 13.46	2.035/ 51.7	1.218/ 30.9	0.565/ 14.4	105
PPI 225040	50	2.250/ 57.2	1.400/ 35.6	0.550/ 14.0	2.285/ 58.0	1.368/ 34.8	0.585/ 14.9	136
PPI 226040	92	2.250/ 57.2	1.039/ 26.4	0.600/ 15.2	2.285/ 58.0	1.007/ 25.6	0.635/ 16.1	188
PPI 300040	45	3.063/ 77.8	1.938/ 49.2	0.500/ 12.7	3.108/ 78.9	1.888/ 48.0	0.550/ 14.0	230
PPI 306040	57	3.063/ 77.8	1.938/ 49.2	0.625/ 15.9	3.108/ 78.9	1.888/ 48.0	0.675/ 17.2	287

PEE Cores

Part number for PEE cores constructed is shown as below:

PES **35** **15** **A** — **60**
 Material Length Width Height Permeability
 NPS E core 35mm 15mm of E core 60μ



PEF(NPF E core) and PEM(PPM E core) are also available.

Part No.	Dimensions(mm)								Weight (g)	Path length (cm)	Cross Section Area (cm ²)	A _L value (nH/N ²)			
	A	B	C	D	E	F	L	M				26 μ	40 μ	60 μ	90 μ
PES 1908A	19.3	8.1	4.8	5.5	13.9	4.8	2.3	4.7	2.7	4.01	0.228	26	35	48	69
PES 2510A	25.1	9.6	6.5	6.2	18.8	6.1	3.0	6.3	5.8	4.85	0.385	39	52	70	100
PES 3515A	34.5	14.1	9.3	9.6	25.3	9.3	4.4	7.9	17.5	6.94	0.840	56	75	102	146
PES 4117A	40.9	16.5	12.5	10.4	28.3	12.5	6.0	7.9	36.1	7.75	1.520	88	119	163	234
PES 4321A	42.8	21.1	10.8	15.0	30.4	11.7	5.9	9.5	37.8	9.84	1.280	56	76	105	151
PES 4321B	42.8	21.1	15.4	15.0	30.4	11.7	5.9	9.5	54.0	9.84	1.830	80	108	150	217
PES 4321C	42.8	21.1	20.0	15.0	30.4	11.7	5.9	9.5	70.0	9.84	2.370	104	140	194	281
PES 5528A	54.9	27.6	20.6	18.5	37.5	16.8	8.4	10.3	128.0	12.30	3.500	116	157	219	
PES 5528B	54.9	27.6	24.6	18.5	37.5	16.8	8.4	10.3	153.5	12.30	4.170	138	187	261	
PES 6533A	65.1	32.5	27.0	22.2	44.2	19.7	10.0	12.1	239.0	14.70	5.400	162			
PES 7228A	72.4	27.9	19.0	17.8	52.6	19.1	9.5	16.9	152.0	13.70	3.680	130			
PES 8038A	80.0	38.1	19.8	28.1	59.3	19.8	9.9	19.8	215.0	18.50	3.890	103	145	190	

ER type Powder Cores

Part No.	Nominal Inductance (nH/N ²)	Part Length (mm)	Cross Section Area(mm ²)	Volume (mm ³)	Dimensions WxLxH(mm)	L @ IDC
PRH 018125	97	13.6	18.2	247.5	12.8x9.5x3.6	0.6 μ H@30A
PRH 021125	84	14.8	18.2	269.3	12.8x9.5x4.2	1.0 μ H@30A
PRH 025125	81	16.4	18.2	298.5	12.8x9.5x5.0	1.0 μ H@30A

POCO provides special cores according to customer's requirements.

Let power more effective & quiet

 MAGNETIC POWDER CORES

- NPS
- PPF
- NPF
- PPM



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