

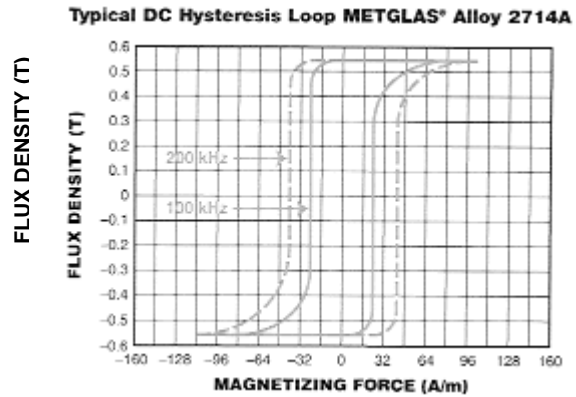
Square Loop Cores manufactured with cobalt-based METGLAS® amorphous alloy 2714A allow the design of mag amps that can operate at higher frequencies than previously possible. Their combination of magnetic properties enable magnetic amplifiers to provide unparalleled precision and efficiency in output regulation.

Mag amps are particularly well suited for outputs with currents of 1 amp to several tens of amps, although they are also used at lower currents where tight regulation and efficiency are extremely important.

Conventional regulated outputs are limited at higher frequencies and output currents. Linear regulators cannot handle output currents that exceed one or two amperes efficiently, and thus require heat sinking schemes, which increase the size of the power supply. Independent switched-mode sub-regulators avoid this inefficiency, but usually require circuitry which is more complex, expensive and less reliable than a mag amp.

Standard sizes are available from 9.6 mm to 34.1 mm OD and the possibility of manufacturing custom sizes also exists. Core coatings meeting UL94V-0 and temperature class F are available upon request.

Typical DC Hysteresis Loop METGLAS Alloy 2714A



METGLAS® Square Loop magnetic cores are specifically designed to exhibit an extremely square dc Hysteresis loop and high BSAT resulting in the following important benefits:

- Low saturated permeability
- Low coercive field – indicating a small reset current
- Low profile – enabling weight and volume reduction of up to 50%
- Low loss – resulting from micro-thin METGLAS® ribbon (18µm)

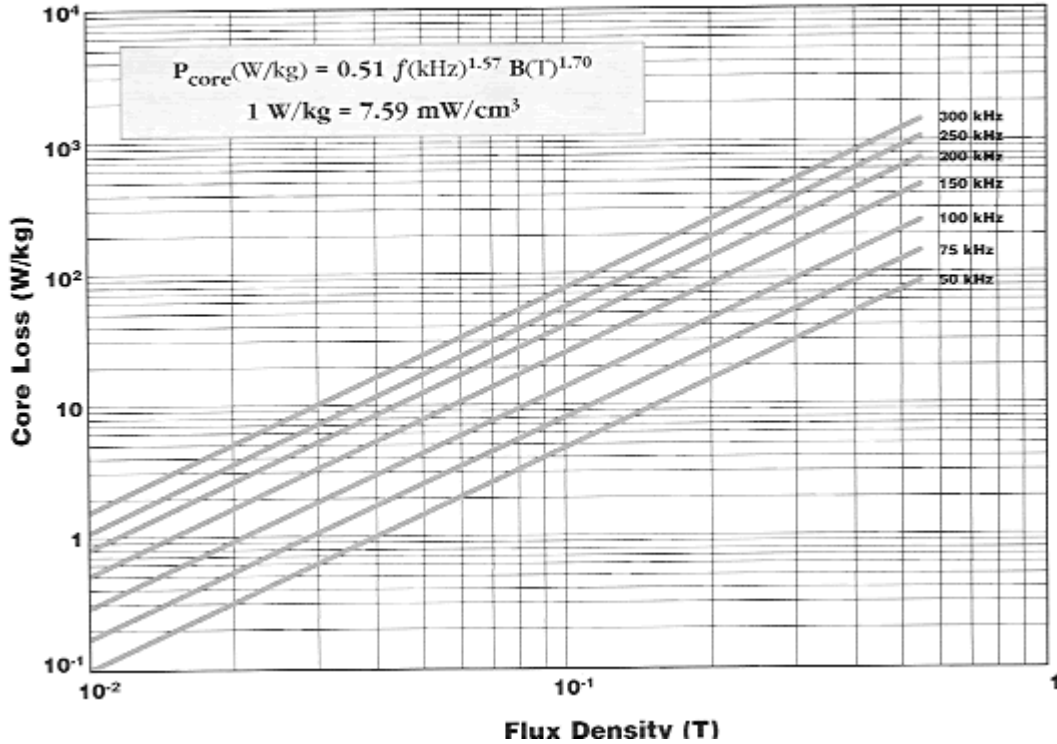
Physical Properties METGLAS® Alloy 2714A

Ribbon Thickness (µm)	18
Density (g/cm ³)	7.59
Thermal Expansion (ppm/°C)	12.7
Crystallization Temperature (°C)	560
Curie Temperature (°C)	225
Continuous Service Temperature (°C)	<120
Tensile Strength (MN/m ²)	1k-1.7k
Elastic Modulus (GN/m ²)	100-110
Vicker's Hardness (50g load)	960

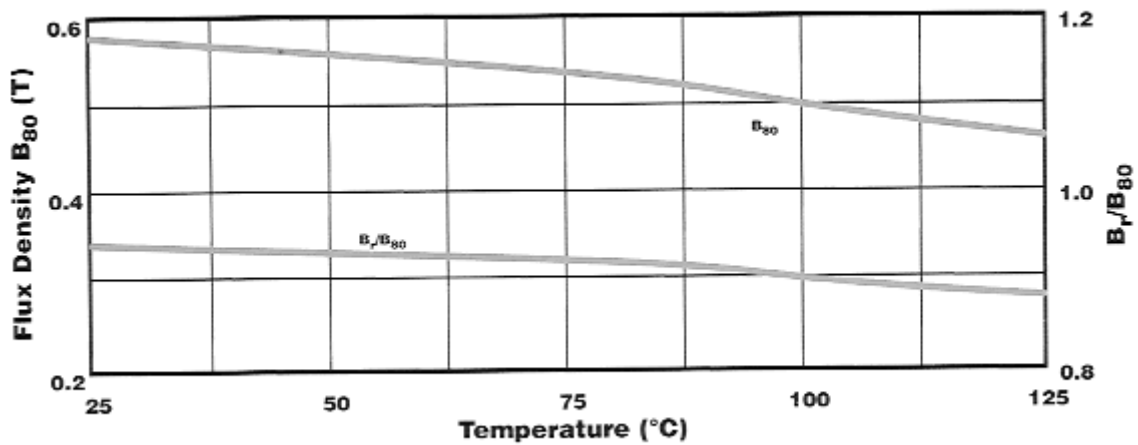
Magnetic Properties METGLAS® Square Loop Cores

Saturation Flux Density (Tesla)	0.57
Saturation Magnetostriction (ppm)	<<1
Electrical Resistivity (µ-Ω-cm)	142
Squareness Ratio (%)	>95

Core Loss vs. Flux Density† @ 25°C

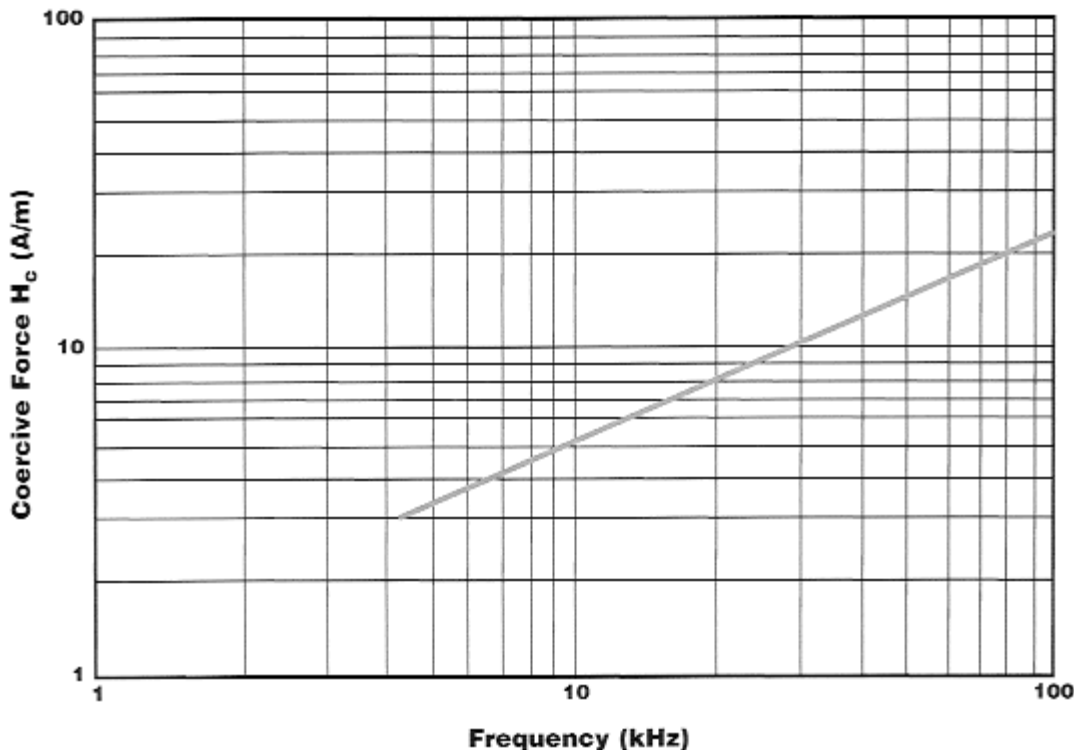


B₈₀, B_r/B₈₀ vs. Temperature§

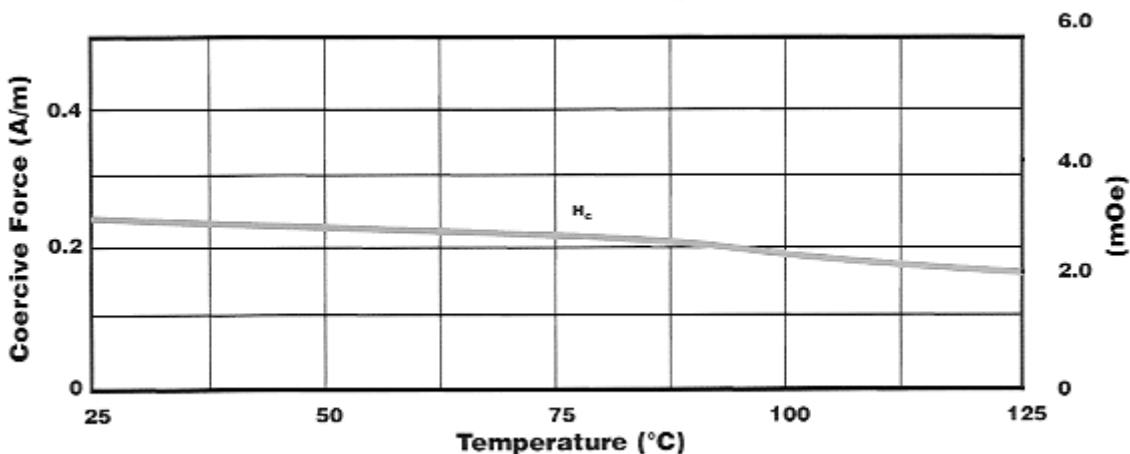


† B₈₀ - Flux Density @ 80 A/m

Coercive Force vs. Frequency @ 25°C



Coercive Force vs. Temperature††

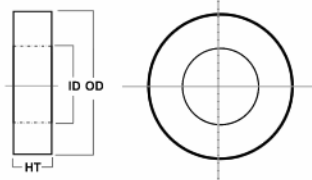


†† 1 Oe = 79.6 A/m

Core Ordering Specifications

MP1305X4AS

Metglas® Product
 Outside Diameter (OD)
 Height (HT)
 Square Loop Core
 Metglas® 2714A Alloy



Case Material:				
	Material:	UL File No.	Flam Rat. UL 94	Elec. Rel. Temp Rec. Index (UL746B) Temp.
P	Zytel® 70G33L	E41938	HB	120°C
L	Zytel® FR50	E41938	V-O	130°C
V	Rynite® FR530L	E69578	V-O	150°C
M	Epoxy EFB534SO	E206123	----	---- Class B,F

	O.D. Max (mm)	I.D. Min (mm)	H.T. Max (mm)	L _m (cm)	A _c (cm ²)	W _a (cm ²)	W _a A _c (cm ⁴)	Mass (g)	Bsat (T)
MP0703X4AS	8.14	4.47	4.70	1.880	0.025	0.157	0.004	0.36	0.57
MP0705X4AS	8.14	4.47	6.29	1.880	0.038	0.157	0.006	0.54	0.57
MP0803X4AS	9.44	4.47	4.70	2.080	0.041	0.157	0.006	0.65	0.57
MP0805X4AS	9.71	4.47	6.29	2.120	0.066	0.157	0.010	1.07	0.57
MP1005X4AS	11.09	6.07	6.12	2.590	0.060	0.289	0.017	1.17	0.57
MP1105X4AS	12.19	8.99	6.29	3.240	0.030	0.634	0.019	0.75	0.57
MP1205X4AS	12.98	7.97	6.29	3.140	0.057	0.499	0.028	1.36	0.57
MP1303X4AS	13.97	8.99	4.70	3.500	0.041	0.634	0.026	1.10	0.57
MP1305X4AS	13.72	8.99	6.29	3.460	0.057	0.634	0.036	1.50	0.57
MP1405X4AS	15.16	8.99	6.29	3.670	0.083	0.634	0.052	2.31	0.57
MP1505X4AS	16.46	8.99	6.29	3.870	0.106	0.634	0.067	3.11	0.57
MP1506X4AS	16.38	8.99	7.87	3.860	0.140	0.634	0.089	4.10	0.57
MP1603X4AS	17.14	12.16	4.70	4.500	0.041	1.162	0.048	1.40	0.57
MP1705X4AS	18.29	12.16	6.29	4.660	0.082	1.162	0.095	2.89	0.57
MP1706X4AS	18.27	12.16	7.87	4.680	0.112	1.162	0.130	3.99	0.57
MP1805X4AS	19.75	12.16	6.29	4.880	0.108	1.162	0.126	4.02	0.57
MP1903X4AS	20.71	12.16	4.70	5.000	0.082	1.162	0.095	3.11	0.57
MP1905X4AS	19.99	12.16	6.29	4.920	0.113	1.162	0.131	4.21	0.57
MP1906X4AS	20.46	12.16	7.87	4.990	0.161	1.162	0.187	6.11	0.57
MP2006X4AS	21.28	14.70	7.87	5.540	0.121	1.698	0.206	5.10	0.57
MP2008X4AS	21.32	12.16	9.91	5.150	0.248	1.162	0.288	9.69	0.57
MP2208X4AS	23.11	15.97	9.91	6.010	0.175	2.004	0.351	8.00	0.57
MP2303X4AS	24.29	15.97	4.70	6.190	0.081	2.004	0.162	3.80	0.57
MP2306X4AS	24.51	15.97	7.87	6.230	0.169	2.004	0.339	8.00	0.57
MP2410X4AS	25.66	18.51	11.05	6.830	0.206	2.692	0.555	10.69	0.57
MP2505X4AS	26.76	18.51	6.29	7.010	0.124	2.692	0.335	6.62	0.57
MP2510X4AS	26.80	18.51	11.05	7.010	0.249	2.692	0.669	13.23	0.57
MP2705X4AS	28.38	15.97	6.29	6.890	0.207	2.004	0.414	10.81	0.57
MP3005X4AS	31.23	18.51	6.29	7.690	0.207	2.692	0.556	12.06	0.57
MP3210X4AS	33.86	21.69	11.05	8.580	0.388	3.694	1.433	25.28	0.57
MP3506X4AS	36.51	24.86	7.87	9.520	0.249	4.855	1.209	17.99	0.57

A_c = effective cross-section area L_m = mean magnetic path length W_a = Core window area

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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.*

