

MICROLITE[®] Toroidal Cores are manufactured with Metglas[®] amorphous alloy 2605SA1 ribbon. Their unique combination of high saturation flux density and low loss make them the first choice for all energy storage applications, enabling the designer to achieve both size and system cost reduction.



Applications

- SMPS output inductors
- Flyback transformers
- Differential input inductors
- PVC inductors
- VRM inductors

Benefits

- High saturated flux density
- Significant size reduction
- Low core loss
- Extended bias capability
- Fewer turns due to higher permeability

Physical Properties Metglas MICROLITE XP Cores

| | |
|-------------------------------------------|------|
| Ribbon Thickness (μm) | .23 |
| Density (g/cm ³) | 7.18 |
| Thermal Expansion (ppm/°C) | 7.6 |
| Crystallization Temperature (°C) | .508 |
| Curie Temperature (°C) | .399 |
| Continuous Service Temperature (°C) | .150 |

Magnetic Properties Metglas MICROLITE XP Cores

| | |
|---------------------------------------------|----------|
| Saturation Flux Density (T) | 1.56 |
| Permeability (depending on core size) | .245/270 |

Percent Permeability vs. DC Bias @ 25°C

MICROLITE $\mu = 245$



MICROLITE $\mu = 270$



Core Loss vs. Flux Density @ 25°C



Temperature Dependence of Inductance

MICROLITE $\mu = 245$



Permeability vs. Frequency





Ordering Information

Example:
MP1710XDGC

METGLAS Products
Outside Diameter (OD)
Height (HT) Distributed Gap Core

| Box Type (X) | DuPont Material | UL File No. | Flam. Rating UL 94 | Elec. Rel. Temp. Rec. Index (UL746B) | Temp. |
|--------------|-----------------|-------------|--------------------|--------------------------------------|------------|
| P | Zyrel® 7DG33L | E41938 | HB | 120 | |
| L | Zyrel® FR50 | E41938 | V-0 | 130 | |
| V | Rymite® FR530L | E68678 | V-0 | 150 | |
| M | Epoxy FR534SD | E206120 | — | — | Class B, F |

Encapsulated cores are available upon request.

| MICROLITE® Toroidal Cores | | | | | | | | | | |
|---------------------------|----------------|--------------|--------------|------------------------|-----------------------------------|------------------------|-----------------------------------|--------------------------------------------------|--------------|---------------------------------------|
| Core No. | CORE DIMENSION | | | Performance Parameters | | | | | | |
| | O.D.Max (mm) | I.D.Min (mm) | Ht. Max (mm) | l _m (cm) | A _c (cm ²) | Vol (cm ³) | W _a (cm ²) | W _a A _c (cm ⁴) | Initial Perm | A _L * (nH/N ²) |
| MP1005MDGC | 11.32 | 4.47 | 6.12 | 2.40 | 0.10 | 0.25 | 0.16 | 0.016 | 270 | 144.1 |
| MP1105MDGC | 12.19 | 6.07 | 6.29 | 2.80 | 0.10 | 0.27 | 0.29 | 0.028 | 270 | 116.5 |
| MP1205MDGC | 13.66 | 7.46 | 6.29 | 3.22 | 0.09 | 0.30 | 0.44 | 0.041 | 270 | 97.7 |
| MP1306MDGC | 14.67 | 7.46 | 7.87 | 3.37 | 0.15 | 0.51 | 0.44 | 0.066 | 245 | 137.8 |
| MP1603MDGC | 17.03 | 8.99 | 4.70 | 3.98 | 0.09 | 0.34 | 0.63 | 0.055 | 270 | 73.9 |
| MP1710MDGC | 18.68 | 12.16 | 11.05 | 4.74 | 0.20 | 0.94 | 1.16 | 0.230 | 245 | 128.5 |
| MP2010MDGC | 21.25 | 12.16 | 11.05 | 5.13 | 0.30 | 1.54 | 1.16 | 0.348 | 245 | 180.1 |
| MP2310MDGC | 24.35 | 12.16 | 11.05 | 5.60 | 0.43 | 2.38 | 1.16 | 0.494 | 245 | 233.7 |
| MP2510MDGC | 26.84 | 18.51 | 11.05 | 7.01 | 0.27 | 1.89 | 2.69 | 0.725 | 245 | 118.4 |
| MP2610MDGC | 26.92 | 15.97 | 11.05 | 6.61 | 0.37 | 2.48 | 2.00 | 0.751 | 245 | 174.6 |
| MP3210MDGC | 33.57 | 21.69 | 11.05 | 8.54 | 0.41 | 3.52 | 3.69 | 1.520 | 245 | 148.3 |
| MP3310MDGC | 34.06 | 14.70 | 11.05 | 7.49 | 0.71 | 5.34 | 1.70 | 1.210 | 245 | 292.9 |
| MP3505MDGC | 36.40 | 21.69 | 6.29 | 8.97 | 0.26 | 2.35 | 3.69 | 0.968 | 245 | 90.0 |
| MP3510MDGC | 36.52 | 18.51 | 11.05 | 8.48 | 0.66 | 5.58 | 2.69 | 1.770 | 245 | 238.9 |
| MP3710MDGC | 38.50 | 21.69 | 11.05 | 9.29 | 0.61 | 5.66 | 3.69 | 2.251 | 245 | 201.9 |
| MP4010MDGC | 41.58 | 21.69 | 11.05 | 9.76 | 0.73 | 7.15 | 3.69 | 2.706 | 245 | 231.1 |
| MP4510MDGC | 46.73 | 21.69 | 11.05 | 10.55 | 0.94 | 9.91 | 3.69 | 3.472 | 245 | 274.4 |
| MP7050MDGC | 13.23 | 7.46 | 6.12 | 3.14 | 0.08 | 0.25 | 0.44 | 0.035 | 245 | 78.2 |
| MP7089MDGC | 46.55 | 28.95 | 15.72 | 11.65 | 0.94 | 10.92 | 6.58 | 6.170 | 245 | 247.7 |
| MP7109MDGC | 57.21 | 37.44 | 15.32 | 14.64 | 1.03 | 15.13 | 11.01 | 11.376 | 245 | 217.4 |
| MP7120MDGC | 17.31 | 10.46 | 7.87 | 4.24 | 0.14 | 0.59 | 0.86 | 0.119 | 245 | 100.3 |
| MP7195MDGC | 54.32 | 26.97 | 16.52 | 12.49 | 1.60 | 19.98 | 5.71 | 9.136 | 245 | 394.1 |
| MP7206MDGC | 21.41 | 13.46 | 7.87 | 5.35 | 0.17 | 0.89 | 1.42 | 0.238 | 245 | 96.2 |
| MP7254MDGC | 39.38 | 24.86 | 15.65 | 9.91 | 0.75 | 7.46 | 4.85 | 3.656 | 245 | 234.1 |
| MP7310MDGC | 23.49 | 13.46 | 7.87 | 5.66 | 0.22 | 1.25 | 1.42 | 0.315 | 245 | 120.7 |
| MP7324MDGC | 36.99 | 23.01 | 11.05 | 9.24 | 0.49 | 4.50 | 4.16 | 2.026 | 245 | 162.3 |
| MP7350MDGC | 23.53 | 14.22 | 9.91 | 5.79 | 0.27 | 1.55 | 1.59 | 0.425 | 245 | 142.3 |
| MP7380MDGC | 18.30 | 10.23 | 7.87 | 4.35 | 0.17 | 0.74 | 0.82 | 0.140 | 245 | 120.6 |
| MP7438MDGC | 46.61 | 25.22 | 18.99 | 11.05 | 1.43 | 15.80 | 4.99 | 7.141 | 245 | 398.4 |
| MP7548MDGC | 33.25 | 19.73 | 11.05 | 8.15 | 0.47 | 3.82 | 3.06 | 1.435 | 245 | 177.4 |
| MP7585MDGC | 34.87 | 23.95 | 9.91 | 9.08 | 0.32 | 2.93 | 4.50 | 1.452 | 245 | 109.3 |
| MP7715MDGC | 51.53 | 32.46 | 13.89 | 12.97 | 0.89 | 11.57 | 8.27 | 7.379 | 245 | 211.7 |
| MP7930MDGC | 27.18 | 13.46 | 11.05 | 6.21 | 0.48 | 2.97 | 1.42 | 0.681 | 245 | 237.3 |

| MICROLITE® Toroidal Cores | | | | | | | | | | |
|---------------------------|----------------|--------------|--------------|------------------------|-----------------------------------|------------------------|-----------------------------------|--------------------------------------------------|--------------|---------------------------------------|
| Core No. | CORE DIMENSION | | | Performance Parameters | | | | | | |
| | O.D.Max (mm) | I.D.Min (mm) | Ht. Max (mm) | l _m (cm) | A _c (cm ²) | Vol (cm ³) | W _g (cm ²) | W _g A _c (cm ⁴) | Initial Perm | A _L * (nH/N ²) |
| MP1306LDGC | 15.80 | 6.17 | 8.13 | 3.37 | 0.15 | 0.51 | 0.30 | 0.045 | 245 | 137.8 |
| MP1306PDGC | 15.80 | 6.17 | 8.13 | 3.37 | 0.15 | 0.51 | 0.30 | 0.045 | 245 | 137.8 |
| MP1306VDGC | 15.80 | 6.17 | 8.13 | 3.37 | 0.15 | 0.51 | 0.30 | 0.045 | 245 | 137.8 |
| MP1603LDGC | 18.24 | 7.87 | 4.70 | 3.98 | 0.09 | 0.34 | 0.49 | 0.042 | 270 | 73.9 |
| MP1603PDGC | 18.24 | 7.87 | 4.70 | 3.98 | 0.09 | 0.34 | 0.49 | 0.042 | 270 | 73.9 |
| MP1603VDGC | 18.24 | 7.87 | 4.70 | 3.98 | 0.09 | 0.34 | 0.49 | 0.042 | 270 | 73.9 |
| MP1710LDGC | 20.22 | 10.87 | 11.43 | 4.74 | 0.20 | 0.94 | 0.93 | 0.184 | 245 | 128.5 |
| MP1710PDGC | 20.22 | 10.87 | 11.43 | 4.74 | 0.20 | 0.94 | 0.93 | 0.184 | 245 | 128.5 |
| MP1710VDGC | 20.22 | 10.87 | 11.43 | 4.74 | 0.20 | 0.94 | 0.93 | 0.184 | 245 | 128.5 |
| MP2010LDGC | 22.78 | 10.87 | 11.43 | 5.13 | 0.30 | 1.54 | 0.93 | 0.278 | 245 | 180.1 |
| MP2010PDGC | 22.78 | 10.87 | 11.43 | 5.13 | 0.30 | 1.54 | 0.93 | 0.278 | 245 | 180.1 |
| MP2010VDGC | 22.78 | 10.87 | 11.43 | 5.13 | 0.30 | 1.54 | 0.93 | 0.278 | 245 | 180.1 |
| MP2310LDGC | 25.91 | 10.80 | 11.48 | 5.60 | 0.43 | 2.38 | 0.92 | 0.389 | 245 | 233.7 |
| MP2310PDGC | 25.91 | 10.80 | 11.48 | 5.60 | 0.43 | 2.38 | 0.92 | 0.389 | 245 | 233.7 |
| MP2310VDGC | 25.91 | 10.80 | 11.48 | 5.60 | 0.43 | 2.38 | 0.92 | 0.389 | 245 | 233.7 |
| MP2510LDGC | 27.79 | 17.27 | 11.48 | 7.01 | 0.27 | 1.89 | 2.34 | 0.631 | 245 | 118.4 |
| MP2510PDGC | 27.79 | 17.27 | 11.48 | 7.01 | 0.27 | 1.89 | 2.34 | 0.631 | 245 | 118.4 |
| MP2510VDGC | 27.79 | 17.27 | 11.48 | 7.01 | 0.27 | 1.89 | 2.34 | 0.631 | 245 | 118.4 |
| MP2610LDGC | 28.32 | 14.15 | 11.48 | 6.61 | 0.37 | 2.48 | 1.57 | 0.589 | 245 | 174.6 |
| MP2610PDGC | 28.32 | 14.15 | 11.48 | 6.61 | 0.37 | 2.48 | 1.57 | 0.589 | 245 | 174.6 |
| MP2610VDGC | 28.32 | 14.15 | 11.48 | 6.61 | 0.37 | 2.48 | 1.57 | 0.589 | 245 | 174.6 |
| MP3210LDGC | 34.95 | 19.86 | 11.48 | 8.54 | 0.41 | 3.52 | 3.10 | 1.275 | 245 | 148.3 |
| MP3210PDGC | 34.95 | 19.86 | 11.48 | 8.54 | 0.41 | 3.52 | 3.10 | 1.275 | 245 | 148.3 |
| MP3210VDGC | 34.95 | 19.86 | 11.48 | 8.54 | 0.41 | 3.52 | 3.10 | 1.275 | 245 | 148.3 |
| MP3310LDGC | 36.07 | 12.95 | 11.48 | 7.49 | 0.71 | 5.34 | 1.32 | 0.939 | 245 | 292.9 |
| MP3310PDGC | 36.07 | 12.95 | 11.48 | 7.49 | 0.71 | 5.34 | 1.32 | 0.939 | 245 | 292.9 |
| MP3310VDGC | 36.07 | 12.95 | 11.48 | 7.49 | 0.71 | 5.34 | 1.32 | 0.939 | 245 | 292.9 |
| MP3510LDGC | 38.10 | 16.69 | 11.48 | 8.48 | 0.66 | 5.58 | 2.19 | 1.439 | 245 | 238.9 |
| MP3510PDGC | 38.10 | 16.69 | 11.48 | 8.48 | 0.66 | 5.58 | 2.19 | 1.439 | 245 | 238.9 |
| MP3510VDGC | 38.10 | 16.69 | 11.48 | 8.48 | 0.66 | 5.58 | 2.19 | 1.439 | 245 | 238.9 |
| MP4010LDGC | 43.05 | 19.86 | 11.48 | 9.76 | 0.73 | 7.15 | 3.10 | 2.270 | 245 | 231.1 |
| MP4010PDGC | 43.05 | 19.86 | 11.48 | 9.76 | 0.73 | 7.15 | 3.10 | 2.270 | 245 | 231.1 |
| MP4010VDGC | 43.05 | 19.86 | 11.48 | 9.76 | 0.73 | 7.15 | 3.10 | 2.270 | 245 | 231.1 |
| MP4510LDGC | 48.13 | 19.86 | 11.48 | 10.55 | 0.94 | 9.91 | 3.10 | 2.912 | 245 | 274.4 |
| MP4510PDGC | 48.13 | 19.86 | 11.48 | 10.55 | 0.94 | 9.91 | 3.10 | 2.912 | 245 | 274.4 |
| MP4510VDGC | 48.13 | 19.86 | 11.48 | 10.55 | 0.94 | 9.91 | 3.10 | 2.912 | 245 | 274.4 |

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