



**Part Number:** **MP-031125-8**  
 Revision 20160816 - Generated 2016-Aug-16



|                             |  |                        |          |
|-----------------------------|--|------------------------|----------|
| <b>OD</b>                   | (nom. - bare core)   | 7.87 mm                | 0.310 in |
|                             | (max. - after coating)   | 8.51 mm                | 0.335 in |
| <b>ID</b>                   | (nom. - bare core)   | 3.96 mm                | 0.156 in |
|                             | (min. - after coating)   | 3.43 mm                | 0.135 in |
| <b>Ht</b>                   | (nom. - bare core)   | 3.18 mm                | 0.125 in |
|                             | (max. - after coating)   | 3.81 mm                | 0.150 in |
| <b>Mass</b>                 | (approximate)  | 0.85 grams             |          |
| <b>Magnetic Dimensions</b>  | A <sub>e</sub> - Eff. Mag. Cross Section   | 0.0615 cm <sup>2</sup> |          |
|                             | L <sub>e</sub> - Eff. Mag. Path Length   | 1.79 cm                |          |
|                             | V <sub>e</sub> - Eff. Core Volume  | 0.110 cm <sup>3</sup>  |          |
|                             | WA - Min. Eff. Window Area   | 0.0924 cm <sup>2</sup> |          |
|                             | sa - Surface Area  | 2.65 cm <sup>2</sup>   |          |
|                             | mlt - mean length per turn   | 1.44 cm                |          |
| <b>Inductance</b>           | μ <sub>i</sub> (reference)   | 125                    |          |
|                             | A <sub>L</sub> value (nominal)   | 52 nH/N <sup>2</sup>   |          |
|                             | Test Winding   | N=45, #32 AWG          |          |
|                             | Frequency  | 10 kHz                 |          |
|                             | Voltage on Agilent 4284A   | 0.012 V                |          |
| AL tolerance                | ±8%  |                        |          |
| <b>Core Loss</b>            | $\text{Core Loss (mW/cm}^3\text{)} = \frac{f}{\frac{a}{B_{pk}^3} + \frac{b}{B_{pk}^{2.3}} + \frac{c}{B_{pk}^{1.65}}} + d \cdot B_{pk}^2 \cdot f^2$ |                        |          |
|                             | where B <sub>pk</sub> expressed in gauss, f expressed in hertz, and:<br>a=2.193E+10, b=1.308E+09, c=9.301E+06, d=3.087E-14                         |                        |          |
|                             | B <sub>pk</sub>  | 1000 G                 |          |
|                             | frequency  | 50 kHz                 |          |
|                             | Core Loss (nominal)  | 249 mW/cm <sup>3</sup> |          |
| Core Loss (maximum)         | 286 mW/cm <sup>3</sup>   |                        |          |
| <b>DC Saturation</b>        | $\% \mu_i = \frac{1}{a + b \cdot H^c} + d$   |                        |          |
|                             | where H expressed in oersteds, and:<br>a=1.000E-02, b=7.875E-06, c=1.874, d=0.000  |                        |          |
|                             | H <sub>DC</sub>  | 40 Oe                  |          |
|                             | Percent Initial Perm.(nom.)  | 55.8%                  |          |
| Percent Initial Perm.(min.) | 47.3%  |                        |          |
| <b>Coating/Pkg</b>          | Coating Type:  | Parylene N             |          |
|                             | Voltage Breakdown (min.)   | 500 Vrms               |          |
|                             | Limit  | 0.1 mA, 5 s            |          |
|                             | Package Quantity   | 14,400 Pcs/Box         |          |

|                      |                     |        |        |        |         |         |         |         |         |       |       |       |       |
|----------------------|---------------------|--------|--------|--------|---------|---------|---------|---------|---------|-------|-------|-------|-------|
| <b>Winding Table</b> | <b>Wire Size</b>    | AWG    | 22     | 24     | 26      | 28      | 30      | 32      | 34      | 36    | 38    | 40    | 42    |
|                      |                     | mm     | 0.630  | 0.500  | 0.400   | 0.315   | 0.250   | 0.200   | 0.160   | 0.125 | 0.100 | 0.080 | 0.063 |
|                      | <b>Single Layer</b> | Turns  | 11     | 14     | 18      | 23      | 29      | 37      | 47      | 59    | 74    | 93    | 116   |
|                      |                     | Rdc(Ω) | 8.4 m  | 17.0 m | 34.7 m  | 70.6 m  | 141.5 m | 287.1 m | 580.1 m | 1.2   | 2.3   | 4.6   | 9.2   |
| <b>Full Winding</b>  | Turns               | 10     | 16     | 25     | 38      | 59      | 91      | 141     | 219     | 339   | 524   | 812   |       |
|                      | Rdc(Ω)              | 7.6 m  | 19.4 m | 48.2 m | 116.6 m | 287.9 m | 706.2 m | 1.7     | 4.3     | 10.6  | 26.0  | 64.1  |       |

