



**Part Number: MS-400090-2**  
Revision 20160816 - Generated 2016-Aug-16



|                             |  |                        |                      |
|-----------------------------|--|------------------------|----------------------|
| <b>OD</b>                   | (nom. - bare core)<br>(max. - after coating)   | 101.60 mm<br>102.87 mm | 4.000 in<br>4.050 in |
| <b>ID</b>                   | (nom. - bare core)<br>(min. - after coating)   | 57.15 mm<br>55.75 mm   | 2.250 in<br>2.195 in |
| <b>Ht</b>                   | (nom. - bare core)<br>(max. - after coating)   | 16.51 mm<br>17.78 mm   | 0.650 in<br>0.700 in |
| <b>Mass</b>                 | (approximate)  | 500 grams              |                      |
| <b>Magnetic Dimensions</b>  | A <sub>e</sub> - Eff. Mag. Cross Section   | 3.52 cm <sup>2</sup>   |                      |
|                             | L <sub>e</sub> - Eff. Mag. Path Length   | 24.271 cm              |                      |
|                             | V <sub>e</sub> - Eff. Core Volume  | 85.5 cm <sup>3</sup>   |                      |
|                             | WA - Min. Eff. Window Area   | 24.4 cm <sup>2</sup>   |                      |
|                             | sa - Surface Area  | 303 cm <sup>2</sup>    |                      |
|                             | mlt - mean length per turn   | 11.1 cm                |                      |
| <b>Inductance</b>           | μ <sub>i</sub> (reference)   | 90                     |                      |
|                             | A <sub>L</sub> value (nominal)   | 164 nH/N <sup>2</sup>  |                      |
|                             | Test Winding   | N=140, #18 AWG         |                      |
|                             | Frequency  | 10 kHz                 |                      |
|                             | Voltage on Agilent 4284A   | 2.2 V                  |                      |
| AL tolerance                | ±8%  |                        |                      |
| <b>Core Loss</b>            | Core Loss(mW/cm <sup>3</sup> )= $\frac{f}{\frac{a}{B_{pk}^3} + \frac{b}{B_{pk}^{2.3}} + \frac{c}{B_{pk}^{1.65}}} + d \cdot B_{pk}^2 \cdot f^2$ |                        |                      |
|                             | where B <sub>pk</sub> expressed in gauss, f expressed in hertz, and:<br>a=7.890E+09, b=7.111E+08, c=8.980E+06, d=2.846E-14                     |                        |                      |
|                             | B <sub>pk</sub>  | 1000 G                 |                      |
|                             | frequency  | 50 kHz                 |                      |
|                             | Core Loss (nominal)  | 323 mW/cm <sup>3</sup> |                      |
| Core Loss (maximum)         | 372 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=3.994E-06, c=1.883, d=0.000  |                        |                      |
|                             | H <sub>DC</sub>  | 50 Oe                  |                      |
|                             | Percent Initial Perm.(nom.)  | 61.3%                  |                      |
| Percent Initial Perm.(min.) | 52.9%  |                        |                      |
| <b>Coating/Pkg</b>          | Coating Type:  | Blue Epoxy             |                      |
|                             | Voltage Breakdown (min.)   | 1000 Vrms              |                      |
|                             | Limit  | 0.1 mA, 5 s            |                      |
|                             | Package Quantity   | 16 Pcs/Box             |                      |

|                      |                     |        |        |         |         |        |         |         |         |       |       |        |       |
|----------------------|---------------------|--------|--------|---------|---------|--------|---------|---------|---------|-------|-------|--------|-------|
| <b>Winding Table</b> | <b>Wire Size</b>    | AWG    | 8      | 10      | 12      | 14     | 16      | 18      | 20      | 22    | 24    | 26     | 28    |
|                      |                     | mm     | 3.150  | 2.500   | 2.000   | 1.600  | 1.250   | 1.000   | 0.800   | 0.630 | 0.500 | 0.400  | 0.315 |
|                      | <b>Single Layer</b> | Turns  | 44     | 56      | 70      | 88     | 110     | 138     | 172     | 215   | 268   | 335    | 417   |
|                      |                     | Rdc(Ω) | 10.0 m | 20.2 m  | 40.2 m  | 80.5 m | 160.0 m | 319.2 m | 632.7 m | 1.3   | 2.5   | 5.0    | 9.8   |
| <b>Full Winding</b>  | Turns               | 128    | 198    | 306     | 474     | 733    | 1,135   | 1,756   | 2,719   | 4,208 | 6,512 | 10,079 |       |
|                      | Rdc(Ω)              | 29.1 m | 71.6 m | 175.9 m | 433.4 m | 1.1    | 2.6     | 6.5     | 15.9    | 39.1  | 96.4  | 237.2  |       |

