



**Part Number:** **MS-131090-2**  
 Revision 20160816 - Generated 2016-Aug-16



|                             |  |                        |                      |
|-----------------------------|--|------------------------|----------------------|
| <b>OD</b>                   | (nom. - bare core)<br>(max. - after coating)   | 33.02 mm<br>33.83 mm   | 1.300 in<br>1.332 in |
| <b>ID</b>                   | (nom. - bare core)<br>(min. - after coating)   | 19.94 mm<br>19.30 mm   | 0.785 in<br>0.760 in |
| <b>Ht</b>                   | (nom. - bare core)<br>(max. - after coating)   | 8.76 mm<br>9.70 mm     | 0.345 in<br>0.382 in |
| <b>Mass</b>                 | (approximate)  | 26 grams               |                      |
| <b>Magnetic Dimensions</b>  | A <sub>e</sub> - Eff. Mag. Cross Section   | 0.551 cm <sup>2</sup>  |                      |
|                             | L <sub>e</sub> - Eff. Mag. Path Length   | 8.15 cm                |                      |
|                             | V <sub>e</sub> - Eff. Core Volume  | 4.49 cm <sup>3</sup>   |                      |
|                             | WA - Min. Eff. Window Area   | 2.93 cm <sup>2</sup>   |                      |
|                             | sa - Surface Area  | 37.8 cm <sup>2</sup>   |                      |
|                             | mlt - mean length per turn   | 4.36 cm                |                      |
| <b>Inductance</b>           | μ <sub>i</sub> (reference)   | 90                     |                      |
|                             | A <sub>L</sub> value (nominal)   | 76.5 nH/N <sup>2</sup> |                      |
|                             | Test Winding   | N=70, #22 AWG          |                      |
|                             | Frequency  | 10 kHz                 |                      |
|                             | Voltage on Agilent 4284A   | 0.17 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=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   | 576 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  | 14    | 18    | 22     | 29     | 36      | 46      | 58      | 73      | 91      | 114     | 142   |
|                      |                     | Rdc(Ω) | 1.3 m | 2.6 m | 5.0 m  | 10.5 m | 20.6 m  | 41.9 m  | 84.1 m  | 168.3 m | 333.7 m | 664.9 m | 1.3   |
| <b>Full Winding</b>  | Turns               | 15     | 24    | 37    | 57     | 88     | 136     | 211     | 326     | 504     | 780     | 1,208   |       |
|                      | Rdc(Ω)              | 1.3 m  | 3.4 m | 8.4 m | 20.5 m | 50.4 m | 124.0 m | 305.9 m | 751.8 m | 1.8     | 4.5     | 11.2    |       |

