

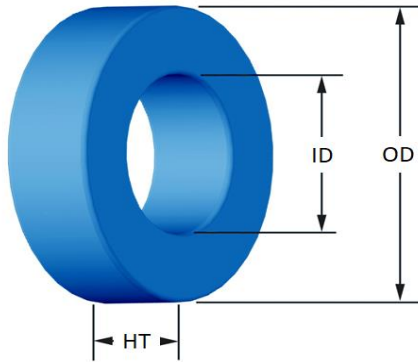


Part Number:

**MS-400147-2**

Revision:

2023-Dec-06



(If coated, Max./Min. includes coating)

|                            |                                                                                                                                          | mm          | in                 |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------------------|
| <b>OD</b>                  | (nom. - bare core)                                                                                                                       | 101.60      | 4.000              |
|                            | (max.)                                                                                                                                   | 102.87      | 4.050              |
| <b>ID</b>                  | (nom. - bare core)                                                                                                                       | 57.15       | 2.250              |
|                            | (min.)                                                                                                                                   | 55.75       | 2.195              |
| <b>HT</b>                  | (nom. - bare core)                                                                                                                       | 16.51       | 0.650              |
|                            | (max.)                                                                                                                                   | 17.78       | 0.700              |
| <b>Mass</b>                | (approximate)                                                                                                                            | 500         | grams              |
| <b>Magnetic Dimensions</b> | $A_e$ - Eff. Mag. Cross Section                                                                                                          | 3.52        | cm <sup>2</sup>    |
|                            | $L_e$ - Eff. Mag. Path Length                                                                                                            | 24.271      | cm                 |
|                            | $V_e$ - Eff. Core Volume                                                                                                                 | 85.5        | cm <sup>3</sup>    |
|                            | $W_A$ - Min. Eff. Window Area                                                                                                            | 24.4        | cm <sup>2</sup>    |
|                            | $s_a$ - Surface Area                                                                                                                     | 303         | cm <sup>2</sup>    |
|                            | $m_{lt}$ - mean length per turn                                                                                                          | 11.1        | cm                 |
| <b>Inductance</b>          | $\mu_i$ (reference)                                                                                                                      | 147         |                    |
|                            | $A_L$ value (nominal)                                                                                                                    | 268         | nH/N <sup>2</sup>  |
|                            | Test Winding                                                                                                                             | 140 Turns   | AWG# 18            |
|                            | Frequency                                                                                                                                | 10k         | Hz                 |
|                            | Voltage on Agilent 4284A                                                                                                                 | 2.2         | V                  |
|                            | AL tolerance                                                                                                                             | ±8%         |                    |
| <b>Core Loss</b>           | $\text{Core Loss (mW/cm}^3\text{)} = \frac{a}{B_{pk}^3} + \frac{b}{B_{pk}^{2.3}} + \frac{c}{B_{pk}^{1.65}} + d \cdot B_{pk}^2 \cdot f^2$ |             |                    |
|                            | where $B_{pk}$ expressed in gauss, $f$ expressed in hertz, and:                                                                          |             |                    |
|                            | $a=1.394E+10, b=1.034E+09, c=1.244E+07, d=4.007E-14$                                                                                     |             |                    |
|                            | $B_{pk}$                                                                                                                                 | 1000        | G                  |
|                            | frequency                                                                                                                                | 50 k        | Hz                 |
|                            | Core Loss (nominal)                                                                                                                      | 276         | 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:                                                                                                      |             |                    |
|                            | $a=1.000E-02, b=4.732E-05, c=1.539, d=0.000$                                                                                             |             |                    |
|                            | $H_{dc}$                                                                                                                                 | 40          | Oe                 |
|                            | Percent Initial Perm(nom.)                                                                                                               | 42.0        | %                  |
|                            | Percent Initial Perm(min.)                                                                                                               | 35.3        | %                  |
| <b>Coating/Pkg</b>         | Coating Type:                                                                                                                            | Blue Epoxy  |                    |
|                            | Voltage Breakdown (min.)                                                                                                                 | 1000 Vrms   |                    |
|                            | Limit                                                                                                                                    | 0.1 mA, 5 s |                    |
|                            | Package Quantity                                                                                                                         | 20 Pcs/Box  |                    |

| Winding Table | Wire Size    | 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  |
|               | Single Layer | Turns  | 44     | 56     | 70      | 88      | 110   | 138   | 172   | 215   | 268   | 335   | 417    |
|               | Full Winding | 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  |

