

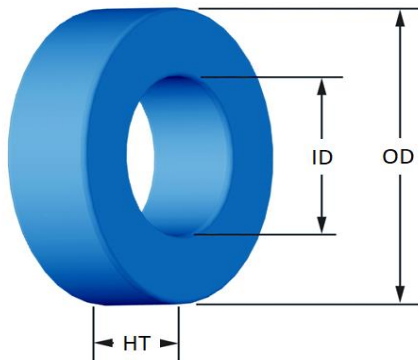


Part Number:

**MS-301040-2**

Revision:

2023-Dec-06



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

|                            |                                                                                                                                          | mm          | in                 |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------------------|
| <b>OD</b>                  | (nom. - bare core)                                                                                                                       | 77.80       | 3.063              |
|                            | (max.)                                                                                                                                   | 78.94       | 3.108              |
| <b>ID</b>                  | (nom. - bare core)                                                                                                                       | 49.23       | 1.938              |
|                            | (min.)                                                                                                                                   | 47.96       | 1.888              |
| <b>HT</b>                  | (nom. - bare core)                                                                                                                       | 15.88       | 0.625              |
|                            | (max.)                                                                                                                                   | 17.15       | 0.675              |
| <b>Mass</b>                | (approximate)                                                                                                                            | 240         | grams              |
| <b>Magnetic Dimensions</b> | $A_e$ - Eff. Mag. Cross Section                                                                                                          | 2.22        | cm <sup>2</sup>    |
|                            | $L_e$ - Eff. Mag. Path Length                                                                                                            | 19.612      | cm                 |
|                            | $V_e$ - Eff. Core Volume                                                                                                                 | 43.5        | cm <sup>3</sup>    |
|                            | $W_A$ - Min. Eff. Window Area                                                                                                            | 18.1        | cm <sup>2</sup>    |
|                            | $s_a$ - Surface Area                                                                                                                     | 193         | cm <sup>2</sup>    |
|                            | $m_{lt}$ - mean length per turn                                                                                                          | 8.93        | cm                 |
| <b>Inductance</b>          | $\mu_i$ (reference)                                                                                                                      | 40          |                    |
|                            | $A_L$ value (nominal)                                                                                                                    | 57          | nH/N <sup>2</sup>  |
|                            | Test Winding                                                                                                                             | 120 Turns   | AWG# 18            |
|                            | Frequency                                                                                                                                | 10k         | Hz                 |
|                            | Voltage on Agilent 4284A                                                                                                                 | 1.2         | 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:                                                                          |             |                    |
|                            | $a=1.000E+06$ , $b=6.961E+08$ , $c=5.397E+06$ , $d=4.127E-14$                                                                            |             |                    |
|                            | $B_{pk}$                                                                                                                                 | 1000        | G                  |
|                            | frequency                                                                                                                                | 50 k        | Hz                 |
|                            | Core Loss (nominal)                                                                                                                      | 441         | 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:                                                                                                      |             |                    |
|                            | $a=1.000E-02$ , $b=2.655E-06$ , $c=1.703$ , $d=0.000$                                                                                    |             |                    |
|                            | $H_{dc}$                                                                                                                                 | 100         | Oe                 |
| <b>Coating/Pkg</b>         | Coating Type:                                                                                                                            | Blue Epoxy  |                    |
|                            | Voltage Breakdown (min.)                                                                                                                 | 1000 Vrms   |                    |
|                            | Limit                                                                                                                                    | 0.1 mA, 5 s |                    |
|                            | Package Quantity                                                                                                                         | 30 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  | 38     | 48     | 60      | 75      | 95      | 118     | 148     | 185     | 230   | 287   | 358   |
|               | Full Winding | Turns  | 95     | 146    | 227     | 351     | 543     | 840     | 1,300   | 2,012   | 3,114 | 4,820 | 7,459 |
|               |              | Rdc(Ω) | 7.0 m  | 14.0 m | 27.9 m  | 55.4 m  | 111.5 m | 220.3 m | 439.5 m | 873.8 m | 1.7   | 3.4   | 6.8   |
|               |              | Rdc(Ω) | 17.4 m | 42.6 m | 105.4 m | 259.1 m | 637.6 m | 1.6     | 3.9     | 9.5     | 23.4  | 57.6  | 141.7 |

