

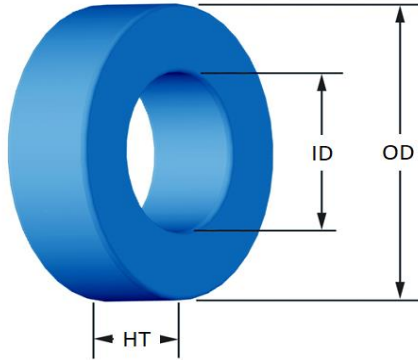


Part Number:

**MS-300125-2**

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) | 12.70 | 0.500 |
| (max.)             | 13.97 | 0.550 |

|                                 |               |                 |       |
|---------------------------------|---------------|-----------------|-------|
| <b>Mass</b>                     | (approximate) | 210             | grams |
| <b>Magnetic Dimensions</b>      |               |                 |       |
| $A_e$ - Eff. Mag. Cross Section | 1.77          | cm <sup>2</sup> |       |
| $L_e$ - Eff. Mag. Path Length   | 19.612        | cm              |       |
| $V_e$ - Eff. Core Volume        | 34.8          | cm <sup>3</sup> |       |
| $W_A$ - Min. Eff. Window Area   | 18.1          | cm <sup>2</sup> |       |
| $s_a$ - Surface Area            | 184           | cm <sup>2</sup> |       |
| $mlt$ - mean length per turn    | 8.29          | cm              |       |

|                          |           |                   |    |
|--------------------------|-----------|-------------------|----|
| <b>Inductance</b>        |           |                   |    |
| $\mu_i$ (reference)      | 125       |                   |    |
| $A_L$ value (nominal)    | 142       | nH/N <sup>2</sup> |    |
| Test Winding             | 120 Turns | AWG#              | 18 |
| Frequency                | 10k       | Hz                |    |
| Voltage on Agilent 4284A | 0.94      | 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:<br>$a=1.394E+10$ , $b=1.034E+09$ , $c=1.244E+07$ , $d=4.007E-14$         |      |                    |  |
| $B_{pk}$                                                                                                                                 | 1000 | G                  |  |
| frequency                                                                                                                                | 50 k | Hz                 |  |
| Core Loss (nominal)                                                                                                                      | 276  | mW/cm <sup>3</sup> |  |
| Core Loss (maximum)                                                                                                                      | 318  | 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>$a=1.000E-02$ , $b=7.884E-06$ , $c=1.883$ , $d=0.000$ |      |    |  |
| $H_{dc}$                                                                                     | 40   | Oe |  |
| Percent Initial Perm(nom.)                                                                   | 55.0 | %  |  |
| Percent Initial Perm(min.)                                                                   | 46.4 | %  |  |

|                          |            |         |  |
|--------------------------|------------|---------|--|
| <b>Coating/Pkg</b>       |            |         |  |
| Coating Type:            | Blue Epoxy |         |  |
| Voltage Breakdown (min.) | 1000       | Vrms    |  |
| Limit                    | 0.1        | mA, 5 s |  |
| Package Quantity         | 36         | 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  | 38     | 48     | 60     | 75      | 95      | 118     | 148     | 185     | 230   | 287   | 358   |
|                      | <b>Full Winding</b> | Turns  | 95     | 146    | 227    | 351     | 543     | 840     | 1,300   | 2,012   | 3,114 | 4,820 | 7,459 |
|                      |                     | Rdc(Ω) | 6.5 m  | 13.0 m | 25.9 m | 51.4 m  | 103.6 m | 204.6 m | 408.2 m | 811.5 m | 1.6   | 3.2   | 6.3   |
|                      |                     | Rdc(Ω) | 16.2 m | 39.6 m | 97.9 m | 240.7 m | 592.1 m | 1.5     | 3.6     | 8.8     | 21.7  | 53.5  | 131.6 |

