



# L Material

## Power Ferrite for Low Losses at High Frequency

Magnetics introduces L material, a new power ferrite. L material is a MnZn ferrite with a permeability of 900 and is specially designed for the frequency range of 0.5 to 3MHz.

L material is optimized for transformer and inductor applications from 500 kHz to 3 MHz. Within this range, AC core losses are minimized and the loss versus temperature curve exhibits its minimum at a suitable elevated temperature (70°C to 100°C). In addition, the Curie temperature is quite high (>300°C), so that saturation ( $B_{max}$ ) is good across a wide temperature range.

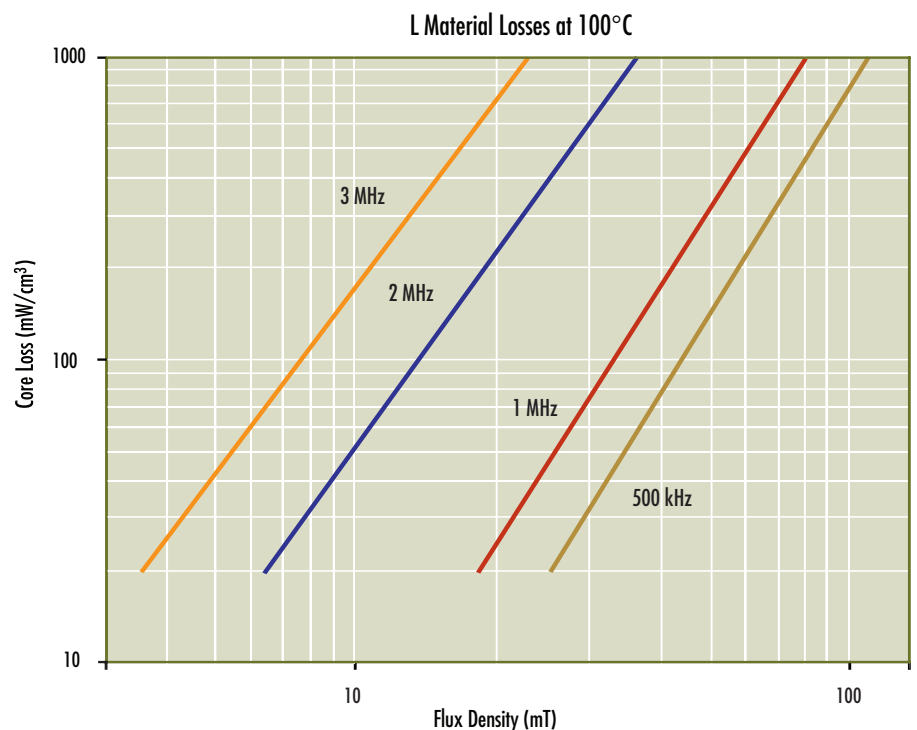
L material is an excellent solution for many circuit requirements, especially DC-DC converters and high frequency filters. L material is offered in a wide variety of core shapes and sizes up to 30 mm, including planars, PQs, toroids, and other shapes. Larger sizes are also available for special applications.

### Characteristics of L material

| Permeability   |  |
|--|--|
| <b>BASIC MATERIAL (EVALUATION TOROIDS - 25 MM)</b><br>$\mu_i = 900 \pm 20\%$ |  |
| <b>UNCOATED TOROIDS</b><br>$\mu_i = 900 \pm 25\%$                            |  |
| <b>COATED TOROIDS</b><br>$\mu_i = 750 \pm 25\%$                              |  |
| <b>SHAPES</b><br>$A_L$ tolerance = $\pm 25\%$                                |  |

| Property                                    | Symbol    | Conditions                                   | Value         | Unit |
|---|-----------|--|---------------|------|
| Initial permeability                        | $\mu_i$   | 25°C; $\leq 10\text{kHz}$ ; $< 0.5\text{mT}$ | 900 $\pm$ 20% |      |
| Maximum usable frequency<br>(50 % roll-off) | $f_{max}$ |  | < 6           | MHz  |
| Curie temperature                           | $T_c$     |  | >300          | °C   |
| Flux density                                | B         | 25°C   | 420           | mT   |
|   |           | 100°C  | 370           | mT   |
| Power loss minimum                          |           |  | 70°C to 100°C |      |

| Core Loss Limits<br>Cores up to 30 mm | 1 MHz,<br>30mT (300G),<br>100°C | 3 MHz,<br>10mT (100G),<br>100°C          |
|---------------------------------------|---------------------------------|--|
| <b>UNCOATED TOROIDS</b>               | 175 mW/cm <sup>3</sup> Max      | 300 mW/cm <sup>3</sup> Max<br>(Ref Only) |
| <b>COATED TOROIDS</b>                 | 230 mW/cm <sup>3</sup> Max      | 400 mW/cm <sup>3</sup> Max<br>(Ref Only) |
| <b>SHAPES</b>                         | 230 mW/cm <sup>3</sup> Max      | 400 mW/cm <sup>3</sup> Max<br>(Ref Only) |





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