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 specifically designed for the frequency range of 0.5 to 3 MHz.

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

Property	Symbol	Conditions	Value	Unit
Initial permeability	μ_i	25°C; 10 kHz	900±20%	
Maximum usable frequency (50% roll-off)	f		< 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	

Permeability

BASIC MATERIAL (EVALUATION TOROIDS - 25 MM)	μ_i = 900 ±20%
UNCOATED TOROIDS	μ_i = 900 ±25%
COATED TOROIDS	μ_i = 750 ±25%
SHAPES	A_L tolerance = ± 25%

Core Loss Limits

Cores up to 30 mm	1 MHz 30 mT (300 G), 100°C	3 MHz 10 mT (100 G), 100°C
UNCOATED TOROIDS	175 mW/cm³ Max	300 mW/cm³ Max
COATED TOROIDS	230 mW/cm³ Max	400 mW/cm³ Max
SHAPES	230 mW/cm³ Max	400 mW/cm³ Max (Ref Only)

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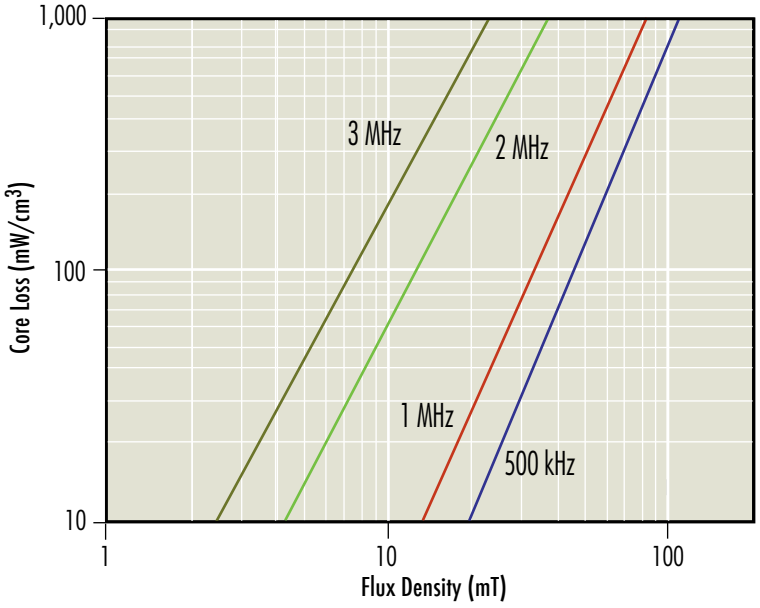
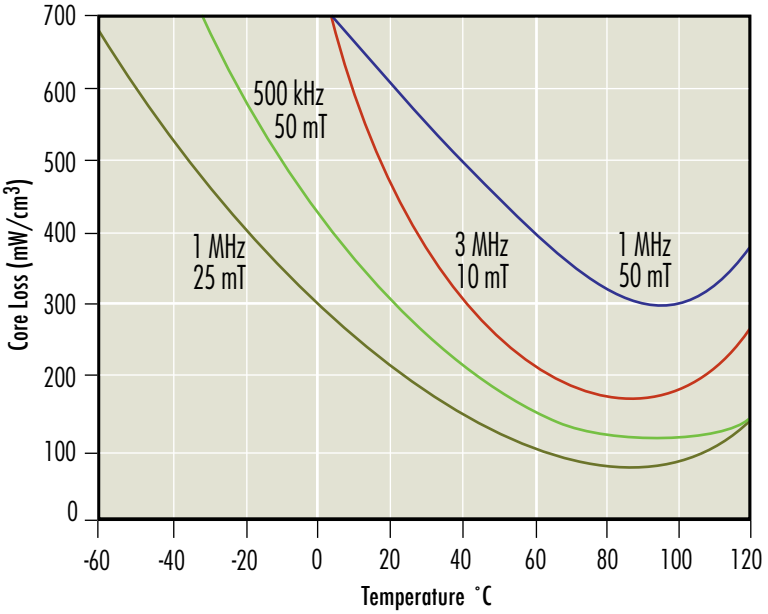
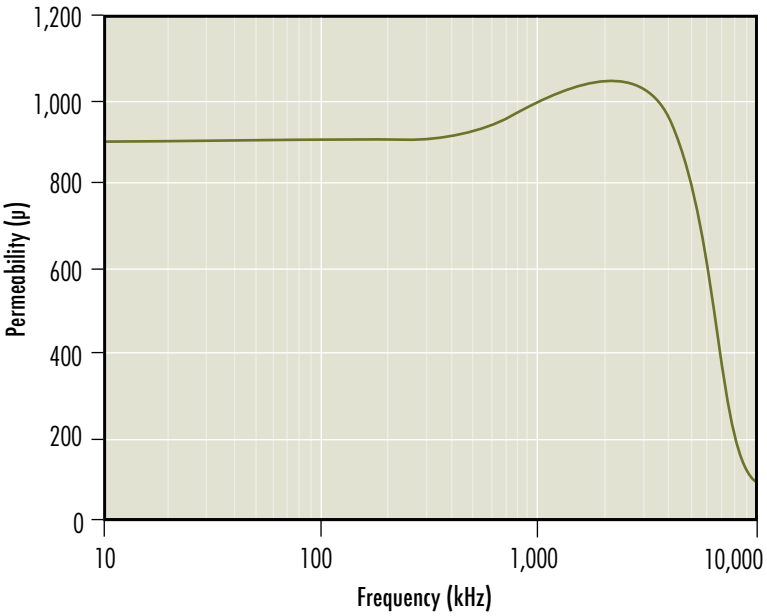
L Material Losses at 100˚C



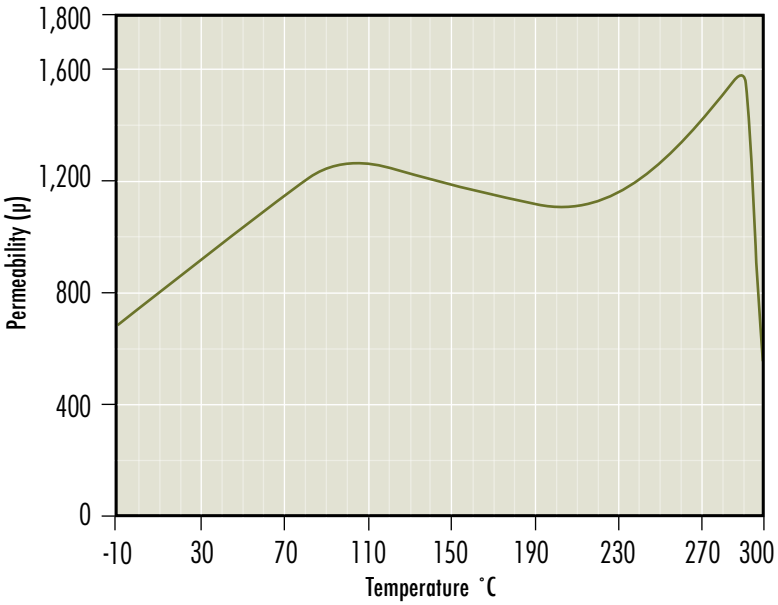
L Material Losses vs Temperature



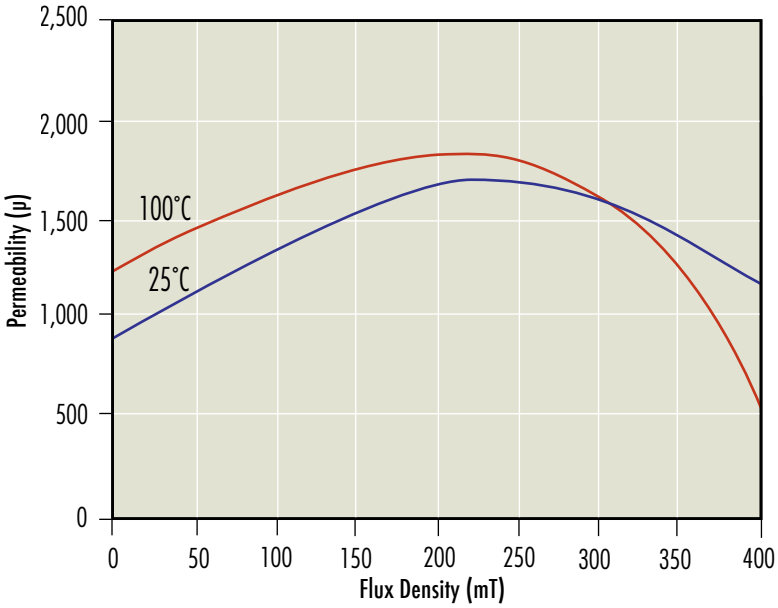
L Material Frequency Response



L Material Permeability vs Temperature



L Material Permeability vs. B



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