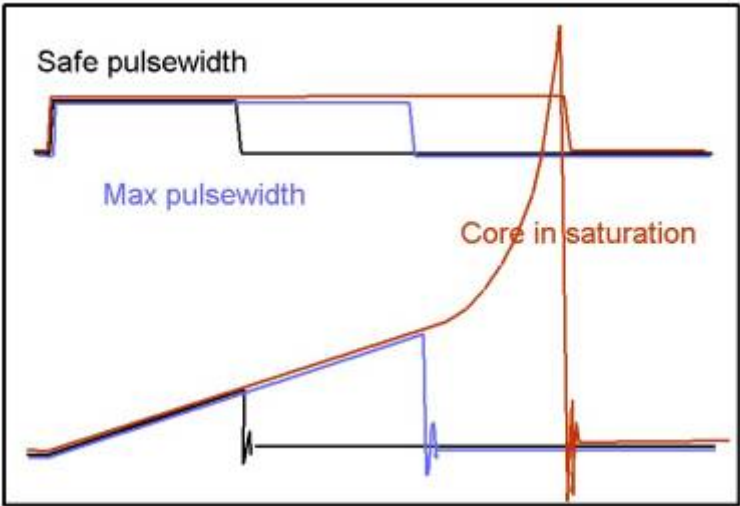


Inductance

High vs. Low Permeability Core Comparison

Feature	High Permeability (μ)	Low Permeability (μ)
Inductance per turn	High	Low
Saturation Current (I_{sat})	Low (saturates easily)	High (resists saturation)
Knee	Sharp and abrupt	Gradual and soft
Core Losses (AC/Ripple)	Higher (high AC flux density)	Lower (flatter magnetization slope)
Winding (Copper) Losses	Lower (requires fewer turns)	Higher (requires more turns)
Typical Materials	High-nickel alloys, MnZn ferrites	Powdered iron, gapped ferrites, Kool M μ



Saturation current

In the middle of the knee

Inductor value

Inductor value can be calculated as follows:

$$H = V * s / A$$

where H is Henry, V is voltage over inductor, s is time, A is current at time is s.

Formula

$$v = L * (di/dt)$$

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