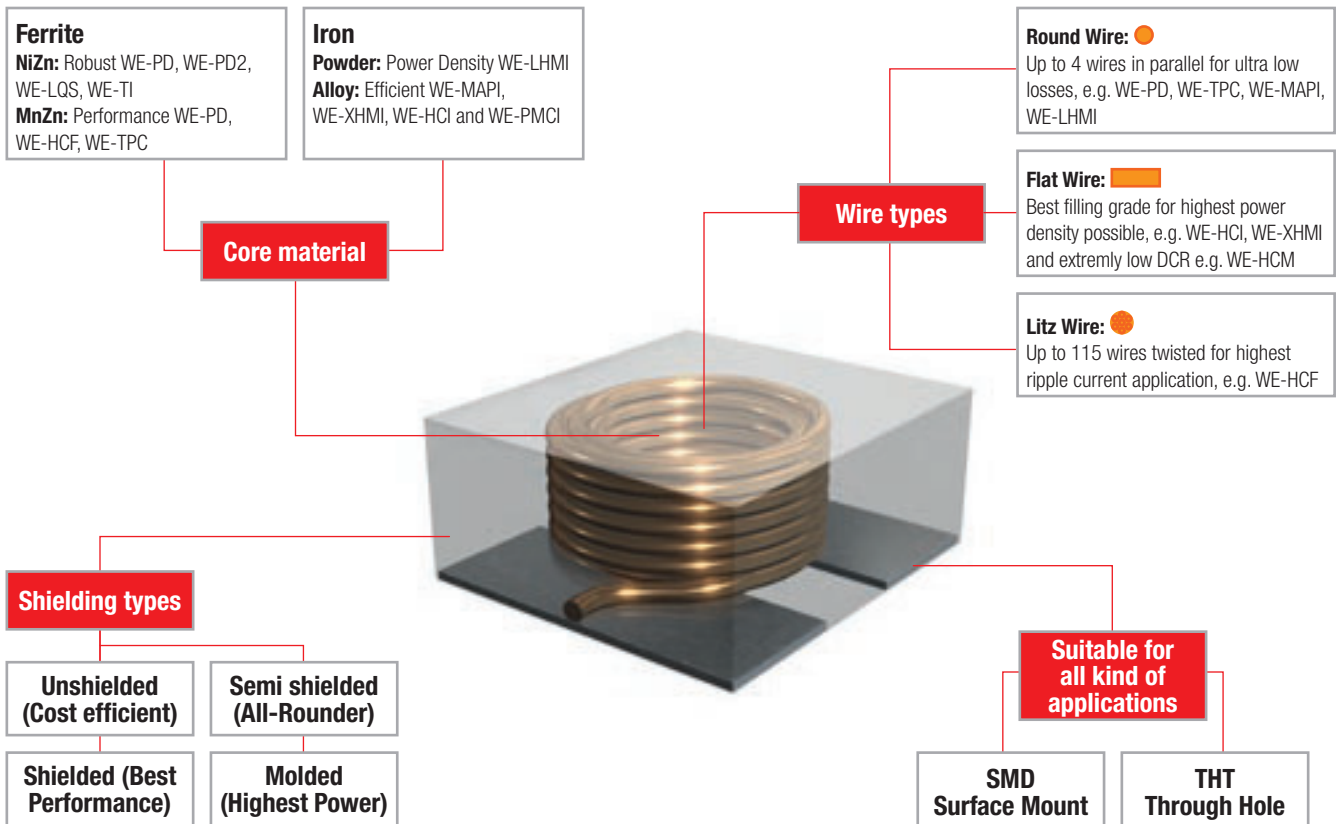
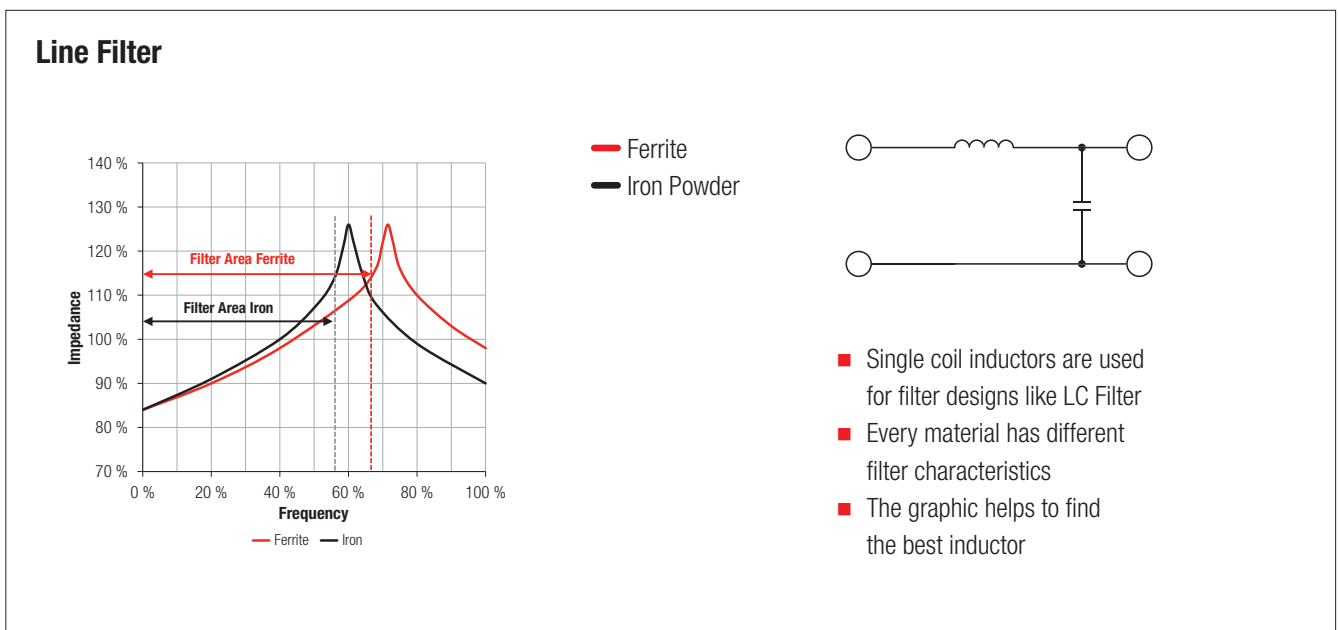
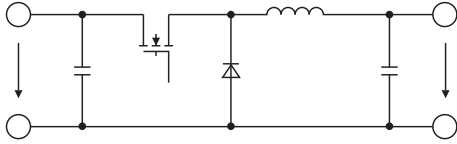


# Single Coil Inductors



- AEC-Q200 qualified (certain series)
- Temperature Range -40 °C – 125 °C / 150 °C / 155 °C
- Outstanding saturation behavior
- Extreme low R<sub>DC</sub>
- Highest power density based in package volume
- Robust design for advanced applications
- Best filter characteristics
- Operating Voltage rating up to 400 V
- Size from 1.6 mm up to 41 mm
- Current rating up to >125 A
- Inductance value from 25 nH up to 22 mH
- Switching frequency from 10 kHz up to 10 MHz



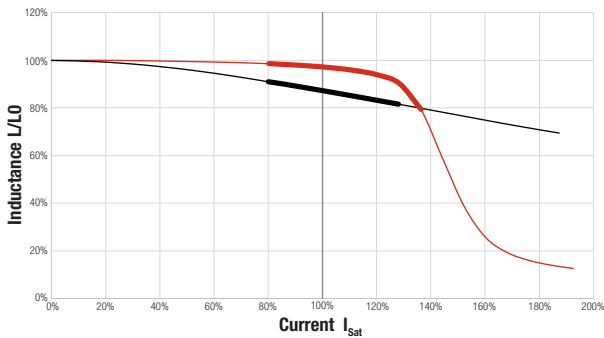


#### Usage of single coil inductors:

- Often used in DC/DC converter, e.g. buck converter.
- One of the most important factors of an inductor is its current capability

### Inductor in a DC/DC Converter

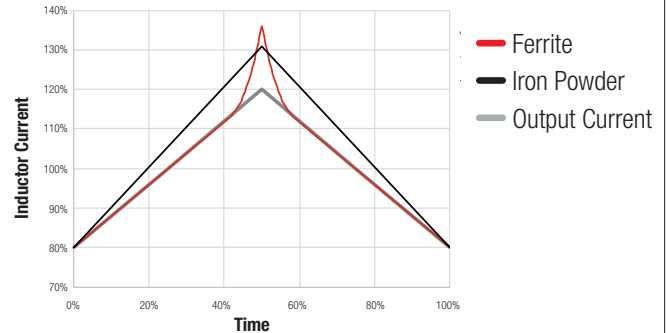
#### Hard vs. Soft Saturation



- Thick lines are showing the current load of the inductor with the duty cycle shown in the right graph
- The current load is depending on the switching frequency and the inductance value

### Ripple Current over Inductor

#### Saturation Scenario



- In this example the duty cycle is 50%
- Soft saturation leads to overall higher ripple
- Hard saturation may lead to ripple peaks when inductor is close to saturation



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