500 µH / 50 A Energy Storage Flat-Wire Inductor

Product Design Reference | PMT-PR-2026-1112-10 | Rev A/0 | 2026-11-12

This reference reproduces published product information and its stated evidence status. Final project specifications require an approved drawing and sample acceptance record.

Published Parameters and Conditions

Parameter	Published value / interpretation
Nominal inductance	500 µH | 497.66 µH measured at 0 A
Rated current	50 A | Rated-current value stated on the supplied sheet
Average-current evaluation point	65 A | Separate test/design condition; not relabeled as rated current
L@65 A	130.25 µH | Published DC-bias result at H = 204.624 Oe
Peak-current evaluation point	91.92 A | Published peak-current condition
L@91.92 A	68.24 µH | Published DC-bias result at H = 289.370 Oe
Ripple current	18.38 A | Waveform convention should be confirmed for the target converter
DC resistance	15.79 mΩ | Conductor temperature and measurement method were not supplied separately
Reference frequency	10 kHz | Published test/design condition
Core structure	2 × NPC250060 | High-performance magnetic core, dual-toroid arrangement
Winding	T0.8 × 4 × 2P, 36 turns | Flat copper wire, two parallel conductors
Copper weight	337.23 g | Published winding value
Mounting	PCB mount | 72 × 62 × 69 mm overall envelope
Operating temperature	-40 °C to +125 °C | Final system qualification remains project-specific

Application and Validation

This product page records the values shown in the supplied design sheet. The inductor uses two NPC250060 magnetic cores and a two-parallel flat-copper winding on a PCB-mounted structure. It is presented as a custom design reference, not as an unconditional off-the-shelf specification for every converter.

50 A is the published rated-current value. The same source sheet lists 65 A as an average-current evaluation condition and 91.92 A as a peak-current point. This page keeps those labels separate and does not claim that the component maintains 500 µH at either high-current point.

At the 65 A evaluation condition, the supplied sheet reports 0.080 W core loss, 66.70 W copper loss and 66.78 W total loss. The copper-loss value is consistent with I²R using 65 A and 15.79 mΩ. Temperature rise, airflow, conductor hot

resistance and thermal equilibrium data are not included in the supplied material and must be validated on the project sample.

The published electrical and mechanical values are listed in the table above. Request the source drawing and sample test record for a new project review.

The published application scope includes energy-storage systems, battery-management power stages, DC/DC converters, inverters and industrial power electronics. For a new design, provide the exact topology, DC bus voltage, switching frequency, RMS and peak current, ripple definition, inductance target under DC bias, cooling condition, insulation requirement and installation envelope.

Conformal coating and potting are available as optional processes for outdoor energy storage, charging-station and industrial magnetic components. Selection depends on moisture exposure, insulation, thermal paths, material compatibility and serviceability. Project-specific environmental protection requires an agreed process and sample validation.

Project Review and Contact

Send voltage, topology, frequency, RMS and peak current, loaded inductance or turns ratio, thermal boundary, insulation and available mounting dimensions. Sample fees and delivery schedule are confirmed in the project quotation.

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Product page: https://www.promagtech.com/products/500uh-50a-energy-storage-flat-wire-inductor.html

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