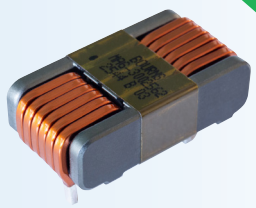
BOURNS®

SAMPLE PRODUCT

MAG-3002562

Coupled Inductor



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Features

- Compact design with height <10 mm
- High saturation current: 68 A at 100 °C
- Flat wire winding, low loss ferrite
- Low ESR construction
- Operating temperature: -40 °C to +125 °C

Applications

- 48 V_{in} – 12 V_{out} hybrid converters
- High frequency GaN converters
- Quarter-brick Intermediate Bus Converter (IBC) modules

Sustainability

- High pallet density for lower CO_2
- Eco-logistics-friendly packing
- High efficiency, low power loss
- ISO 14001, low-impact energy
- Responsibly sourced and produced
- Meets EU 94/62/EC standards

The information provided in this pre-production sample product data sheet is for reference only and is intended to accelerate initial design and prototyping phases. For a tailored, production-ready solution, contact Bourns for further discussion.

Product Overview

Bourns® Model MAG-3002562 is a high current coupled inductor optimized for high frequency 48 V to 12 V DC-DC conversion in hybrid and Intermediate Bus Converter (IBC) architectures. The device features a compact, low-profile, through-hole design (<10 mm height) supporting space-constrained power modules and quarter-brick form factors.

Designed for high efficiency GaN-based converter stages, the inductor incorporates flat wire winding and low-loss ferrite core material to minimize AC and DC losses at elevated switching frequencies. This coupled inductor is well suited for next-generation data center, telecom, and distributed power architectures.

Electrical Specifications

Bourns Part Number	Inductance (µH) @ 0 ADC 4-1 / 3-2	Leakage Inductance (µH) 4-2 (Short Pins 1,3)	Inductance Tolerance (%)	Isat (A) Typ. @ 30 % 25 °C	Isat (A) Typ. @ 30 % 100 °C	DCR (mΩ) 4-1	DCR (mΩ) 3-2	Hi-Pot 1 mA Max. N1-N2	Height (mm)
MAG-3002562	2.6	2.71	±15	86	70	1.77		300 VAC, 1 s	9.75

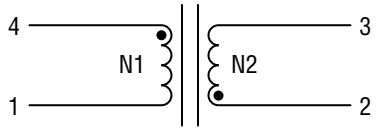
General Specifications

Specification	Value
Operating Temperature (Including Self-Temperature Rise)	-40 °C to +125 °C
Storage Temperature	-25 °C to +85 °C
Test Frequency / Voltage	200 kHz / 1 V
Moisture Sensitivity Level (MSL)	1
Weight per Part (Typical)	19.75 gm

Materials

Specification	Value
Core	Ferrite
Wire	Enameled Copper
Terminal Finish	Tin
Glue	Epoxy

Electrical Schematics



• RELATIVE POLARITY

How to Order

MAG-3002562

Model

Contact Information

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Asia-Pacific	+886-2 2562-4117	asiacus@bourns.com
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The Americas	+1-951 781-5500	americus@bourns.com

* RoHS Directive 2015/863, Mar 31, 2015 and Annex.
Specifications are subject to change without notice.
Users should verify actual device performance in their specific applications.

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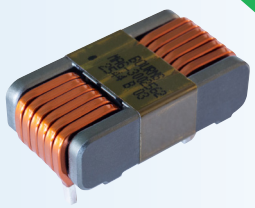

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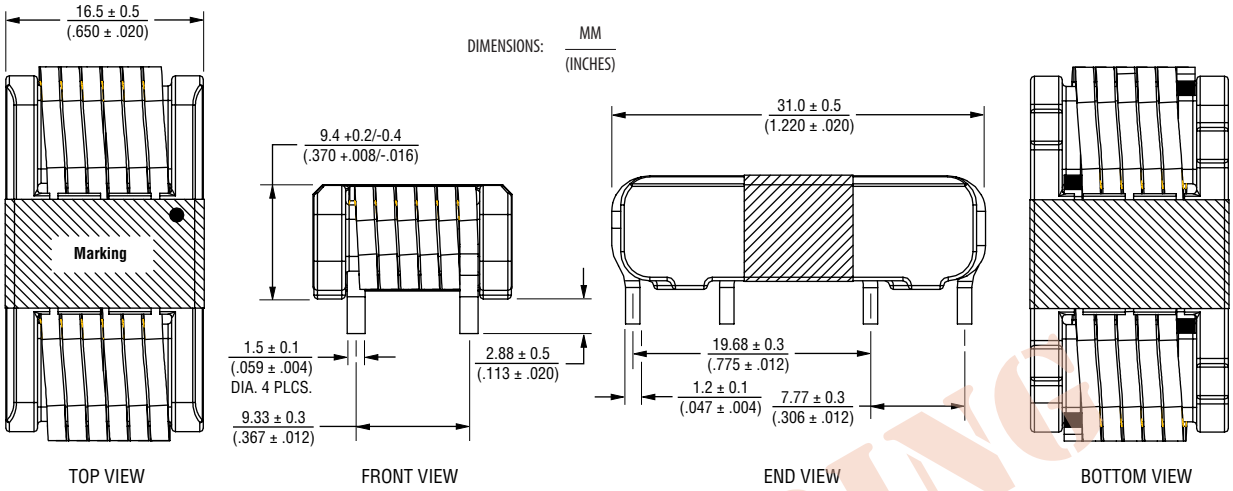
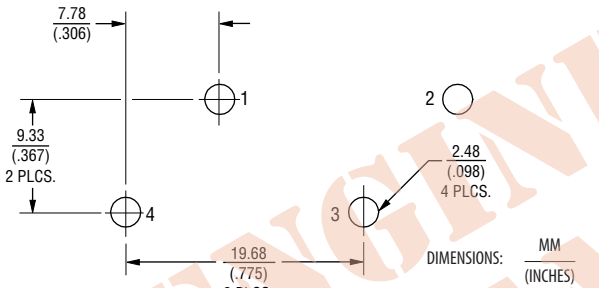
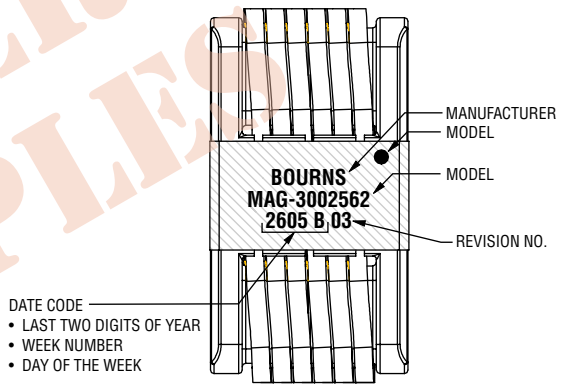
Product Dimensions



Recommended Layout

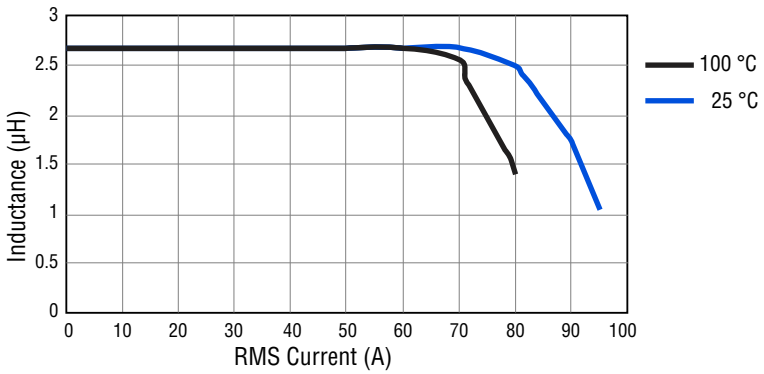


Typical Part Marking



Typical Inductance vs. Current Characteristics

Derived under defined electrical specifications.



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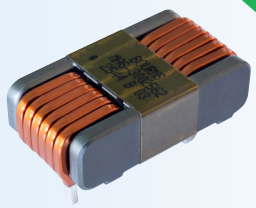

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Application Note

A coupled inductor can replace two separate inductors in multi-phase power converters, particularly interleaved topologies, to reduce ripple currents and shrink overall board area. By sharing magnetic paths, the device enables higher efficiency under dynamic load conditions.

For the electrical connection considerations, unlike single inductors which are non-polarized and relatively insensitive to pin orientation, a coupled inductor requires correct phasing between its winding terminals to achieve the intended magnetic coupling. Each winding pair should be mapped consistently to their respective circuit phases. The two input-side terminals (1&2) must connect to the same input side, and the corresponding output-side terminals (3&4) should tie to the same output side. Incorrect mapping may disturb the coupling coefficient and degrade performance.

For estimating saturation limits, each winding can be viewed as a standalone inductor with its leakage, which is half of the total leakage of a coupled inductor.

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