

Power Magnetics Component Roundup

by David G. Morrison, Editor, [How2Power.com](#)

The latest power inductors, transformers, chokes, and other magnetic components illustrate the ongoing efforts to provide greater performance in smaller packages. Among the many new power inductors, there are products leveraging innovative core materials, beneficial winding geometries, flat wire windings and new molding compounds. In addition to reducing device size, these components provide improvements such as lower winding and core losses, higher saturation currents, and lower cost.

Many of these inductors target power supply applications in consumer products, though automotive applications also remain a strong driver of inductor development. So there are many AEC-Q200-qualified parts among the new offerings, specifying wide operating temp ranges and in one case, low thermal aging. Shielding is more or less standard among automotive-qualified inductors and is common even among those for consumer products.

Chokes are another popular category for magnetic component introductions and some of the latest parts offer higher attenuation for high-power industrial apps, new packaging options to facilitate pick and place and application-specific components for automotive uses such as electric power steering and power over coax. Components in this category also offer smaller case sizes and higher current ratings.

Among the other interesting recent magnetic component introductions are a low-profile, high-creepage isolation transformer for gate drives, wireless charging coils with moisture resistance in a reduced footprint, and new sizes of core shapes. Some supplier news regarding expansions of magnetic component portfolios is also presented.

Covering power magnetics news released over the second half of this year, this article represents a follow-up to the Power Magnetics Component Roundup published in the June 2024 issue and earlier [magnetics articles](#) published in How2Power Today.

Power Inductors

- SMT Inductor Handles High Current (Sumida)
- Inductors Deliver Low Core And Winding Losses For DC-DC Converters (Würth Elektronik)
- Inductors Feature High Saturation Currents (Sumida)
- Low-Profile Automotive Inductors Minimize Thermal Aging (Würth Elektronik)
- Shielded Ferrite Inductors Are Offered In More Case Sizes (Vishay Intertechnology)
- Shielded Metal Inductors Balance Saturation And Thermal Characteristics (Sumida)
- Low-Profile Dual-Winding Inductors Benefit SEPIC Converters (Bourns)
- Shielded Flat Wire Inductors Offer Heights As Low As 0.7 mm (Bourns)
- Resin-Shielded Ferrite Inductors Are Alternative To Drum-Ring Types (Sumida)
- Metal Inductors Provide Low Inductance Values And High Current Ratings (Sumida)
- Metal Inductors Deliver Up to 100 μ H (Sumida)
- Two-In-One Metal Inductors For Class D Amplifiers And Other Automotive Circuits (Sumida)
- Automotive-Qualified SMD Alloy Powder Chokes Are Rated Up To 48 A (TDK)
- Thin-Film Power Inductors Measure 0.80 x 0.45 x 0.65 mm (TDK)

Transformers

- Low-Profile, High-Creepage Isolation Transformer For Gate Drives and BMSs (Bourns)
- Custom Planar Transformers Span 5 W To 20 kW (Payton Planar)
- Prototype Laboratory Opens For Customized Transformers (Würth Electronics Midcom)

Chokes And Filters

- Common-Mode Chokes Deliver Smaller Size For High-Power Industrial Applications (Schaffner)
- Wire-Wound Ferrites Support Filtering (Würth Elektronik)
- Tube Magazines Facilitate Pick And Place Of Ring Core Chokes (TDK)
- Compact Chokes Feature Current Ratings To 120 A (TDK)
- Choke Targets Electric Power Steering (Sumida)
- Multilayer Inductors For Automotive Power-Over-Coax (TDK)

Wireless Charging Coils

- Wireless Charging Coils Provide Moisture Resistance Up to 90% RH In A Reduced Footprint (Vishay Intertechnology)

Cores

- Sizes Added For Power Core Shapes (Magnetics)
- Updated Curve Fit Equation Tool For Powder Cores (Magnetics)

Other Magnetics News

- Supplier Announces Expansion of its Magnetic Component Portfolio (Signal Transformer)
- Expanded Inductor Line Includes More Sizes, Higher Inductances And Voltages (Vishay Intertechnology)

Power Inductors

SMT Power Inductor Handles High Current

[Sumida's](#) CDMT60D60 power inductor has a magnetically shielded structure which is made of a metal core and compound, which allows a large current to flow with low DCR and high magnetic flux density. A member of the CDMT series, the inductor measures 6.55 x 6.55 x 6.1 mm max. The device is available in inductance values ranging from 4.70 μ H to 33.0 μ H (see the table).

It operates over a temperature range of -40°C to 125°C (including coil's temperature rise). Applications include tablet PCs, LCD displays, servers, HDD and SSD modules, devices powered by batteries, dc-dc converters and POL converters used in distributed power supply systems.



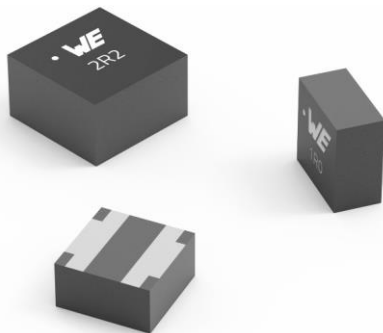
Table. The CDMT60D60 power inductor is available in a range of inductance values.

Part Name	Inductance [Within] (μH) $\times 1$	D.C.R. at 20°C [within] (A) ($\text{m}\Omega$)	Saturation Current (A) Max. (Typ.) $\times 2$	Temperature Rise Current (A) (Typ.) $\times 3$
CDMT60D60HF-4R7MC	4.70 \pm 20%	14.5 (12.6)	(9.60)	(9.90)
CDMT60D60HF-5R6MC	5.60 \pm 20%	15.7 (13.6)	(9.00)	(9.50)
CDMT60D60HF-6R8MC	6.80 \pm 30%	20.0 (17.4)	(8.10)	(9.00)
CDMT60D60HF-8R2MC	8.20 \pm 20%	27.6 (25.0)	(7.00)	(6.90)
CDMT60D60HF-100MC	10.0 \pm 20%	33.0 (28.7)	(6.40)	(6.50)
CDMT60D60HF-150MC	15.0 \pm 20%	48.5 (42.5)	(5.60)	(5.50)
CDMT60D60HF-220MC	22.0 \pm 20%	62.5 (53.5)	(5.10)	(5.00)
CDMT60D60HF-330MC	33.0 \pm 20%	90.0 (78.3)	(4.20)	(3.80)

The CDMT60D60 is available now in production. For more information see the CDMT60D60 [page](#).

Inductors Deliver Low Core And Winding Losses For DC-DC Converters

[Würth Elektronik's](#) WE-MXGI series power inductors for dc-dc converters are described as offering extremely low core losses, combined with the lowest winding resistance (RDC value) of all comparable products on the market to date. These capabilities were achieved by using an innovative core material and optimized winding geometry.



This makes the WE-MXGI magnetically shielded, compact SMT power inductor well suited for high-frequency dc-dc converters that use the latest GaN and SiC transistor technologies. Applications include dc-dc converters for FPGAs, POL-converters, portable power supplies such as PDAs or digital cameras, mainboards and graphics cards, battery-powered devices, wireless communication devices, power supplies for smartphones, tablet PCs and other mobile devices. The operating voltage is 80 V (dc) and the operating temperature ranges from -40°C to 125°C.

The power inductors are available in 4020 and 5030 packages with inductances ranging from 0.16 to 4.7 μH and 0.22 to 10 μH , respectively with a saturation current of up to 28 A. Further sizes and values are in

development.

The WE-MXGI series is available now. For more information see the WE-MXGI SMT Power Inductor [page](#).

Inductors Deliver High Saturation Currents

[Sumida's](#) CD****ME/DS series features alloy powder cores, designed to achieve high saturation currents. It allows low DCR, low losses, excellent shock resistance, and durability. The closed magnetic circuit design reduces leakage flux and EMI. The low DCR design helps reduce losses and contributes to space savings on PCBs, enabling a compact and slim design.

The series includes the CD252012ME/DS, which measures 2.7 x 2.2 x 1.2 mm max; the CD252010ME/DS, which is 2.7 x 2.2 x 1.0 mm max; and the CD201610ME/DS, which is 2.2 x 1.8 x 1.0 mm max.

It operates over a temperature range of -40°C to 125°C (including coil's temperature rise). Applications include smartphones; notebooks; personal navigation systems; personal multimedia devices; high-current POL converters; low-profile, high-current power supplies; battery-powered devices; and dc-dc converters in distributed power supply systems.

For more information, see the [CD252012ME/DS](#), [CD252010ME/DS](#), and [CD201610ME/DS](#) pages.



Low-Profile Automotive Inductors Minimize Thermal Aging



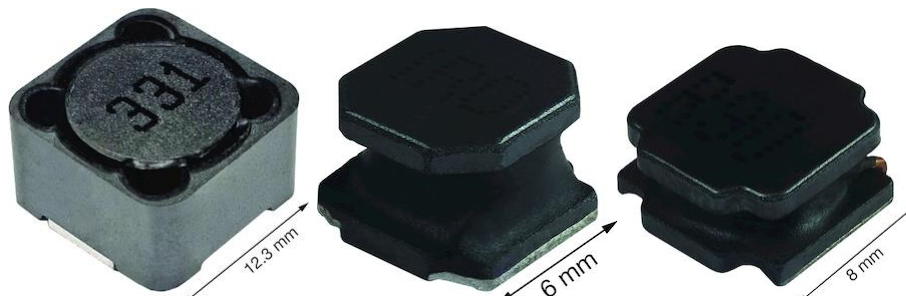
[Würth Elektronik's](#) WE-LHCA (low-profile high-current automotive inductor) is a particularly flat and temperature-tough inductor family offered in four sizes with different inductance values. The power inductors are designed for an extended temperature range of -55°C to +155°C and are constructed to avoid thermal degradation. The AEC-Q200-certified inductors are suitable for applications such as high-current power supplies, start-stop systems, power distribution modules, on-board chargers, infotainment or HVAC systems.

The WE-LHCA inductor family comprises the following sizes: 7030 (L = 0.47 to 22 μ H), 1040 (L = 1 to 68 μ H), 1365 (L = 1 to 47 μ H) and 1770 (L = 4.7 to 82 μ H). These components feature a low-profile shielded construction with a distributed air gap in iron alloy powder.

The high-current inductors are available from stock with free samples offered to developers. For more information, see the [website](#).

Shielded Ferrite Inductors Are Offered In More Case Sizes

[Vishay Intertechnology](#) has extended its shielded IFDC and semi-shielded IFSC series of wirewound, surface-mount ferrite inductors with three new devices in the 2020DE, 3232DB, and 5050HZ case sizes. Offering improved performance at a lower cost than previous-generation ferrite solutions, the Vishay Dale inductors combine higher inductance and current ratings with lower DCR for computer and consumer applications.



According to the vendor, the IFDC-5050HZ, IFSC-2020DE-01, and IFSC-3232DB-01 match the performance of previous-generation ferrite solutions—but with a 60% smaller size—while offering enhanced performance compared to similar-sized devices, including higher operating temperatures to +125°C and operating voltages of 120 V. Additionally, the IFSC-2020DE-01 and IFSC-3232DB-01 feature 40% lower DCR, while the IFDC-5050HZ supports higher saturation currents up to 14 A.

While other high-performance inductors typically offer a maximum inductance of 100 μ H, the new devices achieve significantly higher values of 470 μ H for the IFSC-2020DE-01 and IFSC-3232DB-01 and 1 mH for the

IFDC-5050HZ. Furthermore, by utilizing efficient manufacturing techniques and a simple bobbin-style wirewound construction, IFSC and IFDC series inductors provide a more cost-effective solution over IHLP inductor technology while still delivering high quality and reliability.

With the enhanced efficiency enabled by their low-loss ferrite-core construction and low DCR, the devices are well suited for use as energy storage inductors in a variety of dc-dc conversion topologies found in consumer electronics and battery-powered devices. Moreover, the IFSC and IFDC families make cost-effective solutions in differential LC filter topologies for noise suppression on power lines, says the vendor.

Focus markets include consumer entertainment devices such as televisions, sound bars, and audio and gaming systems; general computing equipment such as desktops, monitors, and scanners; as well as other household appliances. In these applications, the IFDC-5050HZ—which features a coil enclosed in an exterior magnetic material that contains stray flux—minimizes EMI and crosstalk to nearby components.

Table. Key specifications for the IFSC series in its new case sizes.

Part number	IFSC-2020DE-01	IFSC-3232DB-01	IFDC-5050HZ
Shielding	Semi-shielded	Semi-shielded	Shielded
Size (mm)	6.0 x 6.0 x 4.5	8.0 x 8.0 x 4.2	12.3 x 12.3 x 8.0
Inductance (mH)	1 to 470	0.9 to 100	3.3 to 1000
DCR typ. (mW)	14 to 2000	6 to 290	11 to 1640
Heat rating current (A)	0.35 to 4.2	1 to 7.8	0.9 to 10.3
Saturation current (A) ⁽¹⁾	0.4 to 8.5	1 to 11	0.9 to 14
SRF typ. (MHz)	2 to 110	6 to 85	1.3 to 35

⁽¹⁾ DC current (A) that will cause L_0 to drop approximately 30%.

Samples and production quantities of the IFSC and IFDC inductors are available now, with lead times of 10 to 12 weeks. For more information, see the [IFDC-5050HZ](#), [IFSC-2020DE-01](#), and [IFSC-3232DB-01](#) pages.

Shielded Metal Inductors Balance Saturation And Thermal Characteristics

[Sumida's](#) CYxxxxAT150/DS series AEC-Q200-qualified SMD metal inductors balance saturation and temperature rise characteristics. The inductors are available in sizes from 4 x 4 mm up to 17 x 17 mm. Members of this series include the CY1054AT150/DS, which measure 11.5 x 10.3 x 5.4 mm max.; the CY1265AT150/DS, which measure 14.3 x 13.1 x 6.5 mm max.; the CY1770AT150/DS, which measure 18.0 x 17.3 x 7.0 mm max.; and the CY2213AT125/DS, which measure 23.0 x 22.5 x 13.0 mm max. Applications include high-power dc-dc converters and LED headlights.

For more information, see the [CY1054AT150/DS](#), [CY1265AT150/DS](#), [CY1770AT150/DS](#) and [CY2213AT125/DS](#) pages.



Low-Profile Dual-Winding Inductors Benefit SEPIC Converters



[Bourns'](#) Model SRF3015 dual-winding shielded power inductor series is described as cost-effective and space saving, featuring a low profile of 1.4 mm. The inductors offer an extended operating temperature range of -40°C to +125°C, and are particularly well-suited for use in SEPIC (single-ended primary inductance converter) topologies and power supplies.

The SRF3015 series inductors are available now, and are RoHS compliant and halogen free. For more information, see the Common Mode Chokes [page](#).

Shielded Flat-Wire Inductors Offer Heights As Low As 0.7 mm

[Bourns'](#) Model SRP-F series shielded power inductors feature nine models with low DCR with flat-wire construction in a small, low-profile (0.7 to 1.0 mm) form factor.



According to the vendor, the flat-wire construction improves the efficiency of these power inductors by significantly reducing DCR compared to other similarly sized power inductor devices that use conventional wire.

The SRP-F series models are designed with a metal alloy powder core, flat-wire technology and advanced molding technology to achieve a higher saturation current and heating current level with low radiation in a small form factor. The series delivers a low buzz noise solution with an inductance range of 0.3 to 10 μH and an operating temperature range of -40°C to $+125^{\circ}\text{C}$. These features are required in a growing variety of space-constrained applications that require high current, but must also meet lower power consumption goals, such as in consumer, industrial, and telecom application dc-dc converters and power supplies.

The SRP-F series is available now and is RoHS compliant and halogen free. For more information, see the SMD High Current, Shielded Power Inductors [page](#).

Resin-Shielded Ferrite Inductors Are Alternative To Drum-Ring Types



[Sumida's](#) CYRSxxxxT150/DS series offers resin-shielded and AEC-Q200-qualified SMD ferrite inductors. They feature a simple component structure and are said to be cost competitive in comparison with legacy drum-ring ferrite inductors. This series specifies an operating temperature range of -40°C to 150°C (including self heating) and an absolute max voltage rating across the inductor of 50 V. Target applications include dc-dc converters for ECUs and other high-reliability automotive applications.

For more information, see the [CYRS4035T150/DS](#) and [CYRS6045T150/DS](#) product pages.

Metal Inductors Provide Low Inductance Values And High Current Ratings

[Sumida's](#) WMT0530T150/DS is an AEC-Q200-qualified SMD metal inductor series featuring a relatively low and limited range of inductance values (0.15 to 4.7 μH) with high rated current and low DCR characteristics (see the table). These magnetically shielded inductors operate over a temperature range of -40°C to 150°C (including self heating) and have an absolute max voltage rating across the inductor of 50 V. Target applications include dc-dc converters for ECUs and other high-reliability automotive applications.

Part Name	Inductance [Within] (μH) $\times 1$	D.C.R. at 20°C [within] (A) (m Ω)	Saturation Current (A) Max.(Typ.) $\times 2$	Temperature Rise Current (A) (Typ.) $\times 3$
WMT0530T150DS-R15MC	0.15 \pm 20%	2.50 (2.10)	32.50 (38.50)	20.00 (23.00)
WMT0530T150DS-R33MC	0.33 \pm 20%	3.50 (3.00)	26.00 (30.60)	15.60 (18.00)
WMT0530T150DS-R47MC	0.47 \pm 20%	4.10 (3.50)	24.00 (28.70)	15.00 (17.70)
WMT0530T150DS-R56MC	0.56 \pm 20%	4.50 (3.90)	18.90 (22.20)	14.00 (16.70)
WMT0530T150DS-R82MC	0.82 \pm 20%	6.00 (5.20)	16.80 (19.70)	12.80 (14.50)
WMT0530T150DS-1R0MC	1.00 \pm 20%	6.50 (5.50)	15.60 (18.40)	12.00 (14.00)
WMT0530T150DS-1R5MC	1.50 \pm 20%	10.00 (8.60)	12.00 (14.00)	9.50 (11.00)
WMT0530T150DS-2R2MC	2.20 \pm 20%	14.50 (12.10)	8.50 (10.00)	7.60 (8.60)
WMT0530T150DS-3R3MC	3.30 \pm 20%	23.10 (19.70)	8.10 (9.50)	6.10 (6.90)
WMT0530T150DS-4R7MC	4.70 \pm 20%	26.30 (22.80)	6.50 (7.60)	5.50 (6.20)

For more information, see the WMT0530T150/DS is [page](#).

Metal Inductors Deliver Up To 100 μH

[Sumida's](#) WMCxxxxBT150/DS series of AEC-Q200-qualified SMD metal inductors features a high inductance range of up to 100 μH . According to the vendor, these metal inductors offer higher current ratings versus same-sized ferrite inductors.

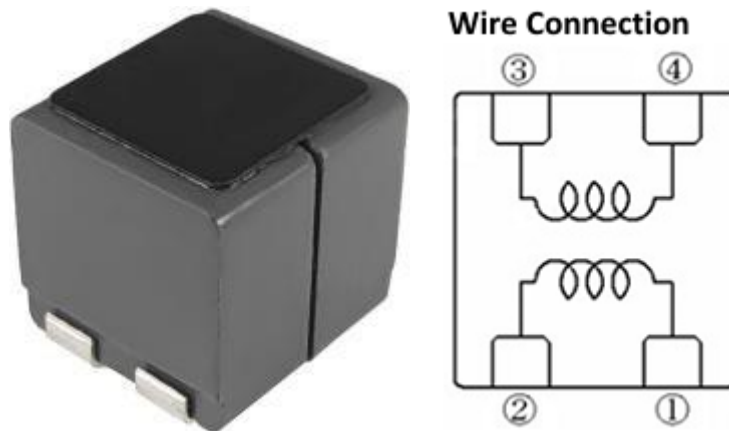


This series specifies an operating temperature range of -55°C to 150°C (including self heating) and an absolute max voltage rating across the inductor of 50 V. Target applications include dc-dc converters for ECUs and other high-reliability automotive applications.

For more information, see the [WMC0754BT150/DS](#) and [WMC1040BT150/DS](#) pages.

Two-In-One Metal Inductors For Class D Amplifiers And Other Automotive Circuits

[Sumida's](#) W2MCxxxx/DS series offers AEC-Q200-qualified two-in-one metal inductors designed for Class D audio amplifier applications. The series includes two types with different sizes—a 6 x 6 mm (W2MC6973/DS) and a 10 x 10 mm (W2MC1010/DS). These magnetically shielded inductors are said to save space versus ferrite core inductors.



Part Name	Inductance Within (μH)	D.C.R. at 20°C ($\text{m}\Omega$)		Saturation Current (A)		Temperature Rise Current (A)	
		Max.	(Typ.)	Max.	(Typ.)	Max.	(Typ.)
W2MC6973DS-3R3MC	$3.3 \pm 20\%$	19.2	(16)	11.1	(13)	5.1	(5.7)
W2MC6973DS-100MC	$10 \pm 20\%$	49	(45.8)	5.8	(6.8)	3.2	(3.5)
W2MC6973DS-150MC	$15 \pm 20\%$	90	(76.5)	5.1	(6)	2.4	(2.7)
W2MC6973DS-220MC	$22 \pm 20\%$	134	(120)	3.7	(4.3)	2	(2.2)

Part Name	Inductance Within (μH)	D.C.R. at 20°C (m Ω)		Saturation Current (A)		Temperature Rise Current (A)	
		Max.	(Typ.)	Max.	(Typ.)	Max.	(Typ.)
W2MC1010DS-3R3MC	3.3 \pm 20%	8.6	(7.5)	22	(26)	8	(9)
W2MC1010DS-8R2MC	8.2 \pm 20%	20.8	(18)	13	(15.5)	5.4	(6)
W2MC1010DS-100MC	10 \pm 20%	22	(18)	10	(13)	5.2	(5.8)
W2MC1010DS-150MC	15 \pm 20%	40.8	(34)	7.7	(9)	4	(4.5)
W2MC1010DS-220MC	22 \pm 20%	56	(48)	7.3	(8.5)	3.2	(3.6)
W2MC1010DS-330MC	33 \pm 20%	90	(74)	5.5	(6.5)	1.8	(2.4)

This series specifies an operating temperature range of -55°C to 125°C (including self heating) and an absolute max voltage rating across the inductor of 50 V. For more information, see the [W2MC6973/DS](#) and [W2MC1010/DS](#) pages.

Automotive-Qualified SMD Alloy Powder Chokes Are Rated Up To 48 A

TDK has extended its ERU27M series of SMD high-current flat-wire inductors consisting of an isolated alloy powder core and flat-wire helical winding. As power densities and currents in automotive and industrial applications continue to increase, this series meets these requirements by using an alloy powder core material that exhibits a softer saturation characteristic than the core material used previously.



Designed for rated currents from 36 A to 48 A, these surface-mountable components cover a range of inductance values from 2.3 μH to 8.5 μH . Dc resistances are as low as 0.68 m Ω to 1.66 m Ω . Thanks to the flat-wire winding, the components have very compact dimensions of only 27.1 x 25.55 mm, and the height ranges from 14.1 mm to 16.4 mm (see the table). The

inductors are designed for operating temperatures from -40°C to +150°C.

With this magnetically shielded and robust construction with a third pin that is not electrically connected, these four new AEC-Q200-qualified energy storage chokes can be used in dc-dc converters, VRM modules, and POL converters especially in the automotive sector, but also in solar converters.

Besides the established and now enhanced standard portfolio, TDK Electronics can support customers in realizing space and cost-optimized solutions by changing certain production parameters. Additionally, fully customized designs are also possible.

Table. Key specifications for new models in ERU27M series of flat-wire inductors.

Ordering Code	Internal code	Rated inductance LR (μH)	Rated current Itemp (A)	DC resistance RDC (m Ω)	Height (mm)
ERU27M-2R3L	B82579A1232A027	2.3	48	0.68	14.1
ERU27M-3R9L	B82579A1392A027	3.9	46	0.88	15.5
ERU27M-6R2L	B82579A1622A027	6.2	37	1.39	15.2
ERU27M-8R5L	B82579A1852A027	8.5	36	1.66	16.4

To become familiar with the different models of this series, TDK provides a sample kit for the ERU27M chokes (B82579X0027). It contains four of each of the four variants. For more information, see the High Current Flat Wire Inductors [page](#).

Thin-Film Power Inductors Measure 0.80 x 0.45 x 0.65 mm

[TDK](#) describes its PLE856C series of compact thin-film power inductors for wearable devices as the “Industry's smallest inductor for power supply circuits”. Featuring inductances from 470 nH to 1.5 μ H, the devices in this series measure just 0.80 x 0.45 x 0.65 mm (length x width x thickness).



In comparison with the conventional PLEA67B series, whose inductors measure 1.0 x 0.6 x 0.8 mm, the PLE856C series boasts a 40% smaller mounted area and a 50% decrease in volume. The saturation currents are specified between 0.40 A and 0.72 A (typ.).

Despite their compact size, the PLE856C inductors feature precisely formed coil conductor patterns acting as internal electrodes, achieved using TDK's proprietary thin-film technology. Moreover, the use of low-loss magnetic material helps reduce power losses and increase the efficiency of power supply circuits.

Increasing functionality and performance of wearable devices, such as wireless earbuds and smartwatches, has led to a higher number of components per system. However, the space in these devices remains limited, driving the demand for smaller electronic components such as these inductors.

Mass production of the PLE856C components began this month, in December 2024. For more information, see the [datasheet](#).

Transformers

Low-Profile, High-Creepage Isolation Transformer For Gate Drives And BMSs

[Bourns'](#) AEC-Q200-compliant model HVMA03F4A-LP8S series flyback transformers are low-profile, high-creepage isolation transformers. They are designed to support high power density for greater efficiency in a compact form factor. These capabilities are required in gate-drive circuits and high-voltage battery management systems (BMSs) within automotive, industrial and energy storage applications.

This series operates from a typical 12-V supply with an extended input voltage range of 10 to 24 V, and features a new mechanical coil design that helps to increase system performance and safety. These features make the HVMA03F4A-LP8S series well suited for use with SiC, IGBT and GaN power switches in automotive, industrial, and energy storage applications.

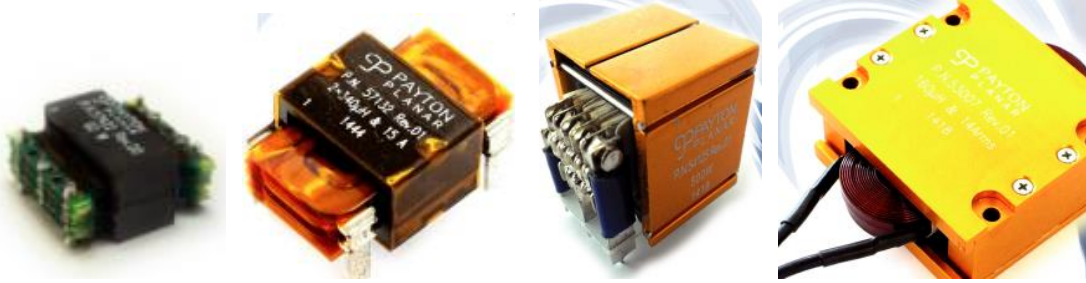
The HVMA03F4A-LP8S series is constructed with a center-tapped output to generate a ± 5 V supply to aid in biasing gate-drive turn-on and -off circuitry. This series uses a basic insulation layer that complies with the IEC 60664-1 standard with a working voltage up to 800 Vdc. It also features an 8-mm creepage and 2-mm clearance with a hi-pot isolation voltage up to 2750 Vac with an extended operating temperature range of -40°C to +125°C.



Available now, the HVMA03F4A-LP8S series is also RoHS compliant. For more information, see the Transformers BMS-AEC-Q200 Compliant [page](#) and the [datasheet](#).

Custom Planar Transformers Span 5 W To 20 kW

[Payton Planar](#) offers custom planar transformer designs from 5 W to 20 kW. These devices offer low-profile, high efficiency and excellent repeatability. Examples can be found on the [website](#).



Prototype Laboratory Opens For Customized Transformers

[Würth Electronics Midcom](#) has opened a laboratory for the production of transformer prototypes at the Hightech Innovation Center in Munich-Freiham. The company, which specializes in transformers for switch-mode power supplies and customized inductive components, is part of the Würth Elektronik eiSos Group. In Munich, they produce custom magnetics prototypes using first-class equipment and high-quality materials. On November 11, 2024, the new facility was presented to customers and partners including a tour of the test fields, EMC chambers and the office and meeting areas designed according to modern New Work aspects.

The main purpose of the new capacities is to promote intensive and transparent collaboration with customers. In-house prototype development and production enables the design engineers to also accompany their process in its implementation. All products are tested individually using advanced equipment and methods. The facility's technical equipment offers new opportunities for R&D projects and patent development. Students and young talents also benefit from the site's extensive equipment for research and final theses. In the future, prototypes of high-performance products and wireless power coils will also be produced here at the Hightech Innovation Center in Munich. For further information, contact the [company](#).

Chokes And Filters

Common-Mode Chokes Deliver Smaller Size For High-Power Industrial Applications

[Schaffner's](#) RT8121, RT8131, RT8521 and RT8531 common-mode chokes are additions to the company's popular RT series. Based on nanocrystalline core technology, the RT series N achieves up to 15-dB higher attenuation than its ferrite-based predecessor across relevant frequency bands of the electromagnetic compatibility (EMC) frequency spectrum.

By filtering electromagnetic common-mode noise on the grid side of an electrical device, the RT series N eliminates the problem of EMI directly on a PCB. The choke is the same 65 mm in diameter as Schaffner's existing series but will provide designers with more power while having to work within tight space restrictions and reduces the need to use an external EMC filter.



With rated currents from 25 A to 63 A at 60°C and operational voltages up to 600 Vac and 450 Vdc, the chokes are particularly suited for use at frequencies from 10 MHz to 30 MHz. Ensuring cost-effective PCB designs at up to 100 A with forced cooling, the choke is available in horizontal and vertical PCB mounting options to suit specific design requirements. Other features include a broad range of inductance ratings (3 mH to 13 mH), low magnetic leakage flux and superior winding insulation.

Offering a choice of two-wire and three-wire configurations for dc, two-line ac and three-phase applications, the common-mode chokes will be of particular interest to machine and electronics manufacturers that have power demand for their applications from 10 kW to 80 kW. Well suited for use in power supplies in EV charging stations and robotics, the high-quality chokes feature an approved UL insulation system which enables customizations to be achieved with ease.

Other typical applications include photovoltaic inverters, converters, uninterruptible power supplies (UPSs) and switch mode power supplies, LED lighting, communication devices and medical/laboratory equipment. While not

all applications will require the extra power provided by the RT series N, designers will be able to use the choke as a safety option to improve EMC levels should a measurement fail.

Felix Wedel, strategic product manager at Schaffner says, "As a global leader in power quality, we are excited to be offering our customers this new core technology option for the RT choke series. With new regulations in preparation for EMC compliance measured at 9 kHz, our new offering provides designers with a fallback solution with higher performance and same dimensions."

"The new chokes not only deliver excellent impedance throughout relevant parts of the EMC frequency band while retaining a compact footprint, but they also simplify the design process. They achieve this by offering different mounting options combined with much greater performance levels than have ever been possible before."

For more information or to request samples, see the RT series N [page](#).

Wire-Wound Ferrites Support Filtering

[Würth Elektronik's](#) WE-RFI inductors in 0402 and 0603 case sizes can be used as inductors for HF applications or as ferrites for interference suppression. Here the manufacturer responds to increasing miniaturization and complements the existing 0805 and 1008 case sizes. The components are suitable as low-pass filters (for filtering high-frequency noise), data line filters, supply voltage decoupling, low-frequency radio applications, and RFID.



As wire-wound ferrites, the WE-RFI inductors attain higher impedances than normal ferrites, even at high frequencies, and over a wider bandwidth. Unlike multilayer ferrites, they show no dc bias behavior.

As HF inductors, they offer high inductance values from 20 nH up to 47 μ H. They are characterized by low RDC and consequently a high rated current of up to 1.91 A at $\Delta T = 40K$. A design kit is available for this component group, which Würth Elektronik will always replenish free of charge, so developers always have inductances of different values on hand.

For more information, see the WE-RFI Ferrite SMT Inductor [page](#).

Tube Magazines Facilitate Pick And Place Of Ring Core Chokes

[TDK's](#) tube magazines for several ring core chokes series are offered as an alternative packaging to the blister tray in a cardboard box. Tube magazines provide a reliable, efficient, and automated way to handle and supply components in a production line, which is crucial for maintaining high throughput and quality in manufacturing processes. The table below shows which component series these are, and which are already available or coming soon.



Components within a tube magazine are typically aligned in a consistent orientation. This makes it easier for the automated pick-and-place machinery to identify and handle each component correctly, reducing the likelihood of errors during placement. Tube magazines can be easily integrated with automated feeders which can push components out of the tube one at a time, ensuring a steady supply of parts to the pick-and-place machine without manual intervention. Keeping components in a tube magazine protects them from physical damage that could occur during manual handling.

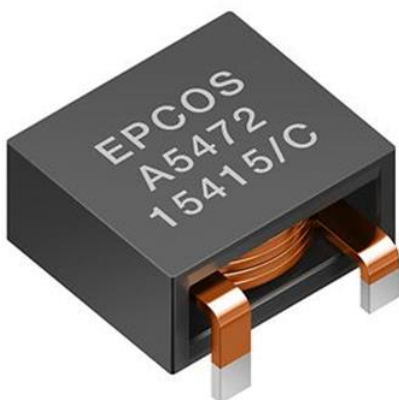
Table. Part numbers for ring core chokes available in tube magazines.

Ordering number	Type	Availability
B82720K	Power line chokes	Available
B82791H/K	Data and signal line chokes, power line chokes	Available
B82791H2*N010	Power line chokes	Available
B82721A	Power line chokes	Available
B82722J	Power line chokes	Available
B82720A	Power line chokes	Coming soon
B82791G	Data and signal line chokes, power line chokes	Coming soon
B82721J/K	Power line chokes	Coming soon
B82722A	Power line chokes	Coming soon
B82721K2*U	Power line chokes	Coming soon
B82723A/J	Power line chokes	Coming soon
B82724A/B/J	Power line chokes	Coming soon
B82724J2*U	Power line chokes	Coming soon
B82724J8*N	Power line chokes	Coming soon
B82725A	Power line chokes	Coming soon
B82725J	Power line chokes	Coming soon

Applications for the ring core chokes series include suppression of common-mode interference, switch-mode power supplies, and power inverters. For more information, see the power line chokes [page](#).

Compact Chokes Feature Saturation Current Ratings To 120 A

[TDK](#) has expanded the EPCOS ERU33 high-current chokes with the even higher-current ERU33M using a new alloy powder core material that exhibits a softer saturation characteristic than the core material used previously. The higher current capabilities of the chokes help address requirements for higher power densities and currents in automotive and industrial applications



These shielded, through-hole components are designed for saturation currents from 55 A to 120 A at +100°C. The three new types cover a range of inductance values from 1.4 μ H to 7.2 μ H and dc resistances as low as 0.46 m Ω to 1.2 m Ω . Thanks to the flat-wire winding, the chokes have very compact dimensions of only 33 x 33 mm and a height of 11 mm or 15.3 mm, respectively.


By thermally connecting the flat coils to the electrically insulated powder alloy core, the component can be attached to a heat sink to effectively dissipate the heat. In addition to these standard types, customized versions with other inductance values can also be realized.

The RoHS-compatible and AEC-Q200-qualified inductors are designed for operating temperatures from -40°C to +150°C. Typical automotive applications are buck-boost chokes for dc-dc converters (e.g., for 48-V on-board power supplies or differential-mode chokes in the input filter of onboard chargers) as well as medium- and high-current battery chargers and inverters. In industrial electronics, they can be used as storage and output chokes in high-current supplies, solar inverters for PV systems, and point-of-load converters.

TDK provides a sample kit for the ERU33M chokes (B82579X0033); it contains four of each of the three variants. For more information, see the [website](#).

Choke Targets Electric Power Steering

[Sumida's](#) DEP2517ME/T150 THT shielded metal inductor is a metal-core, normal-mode choke targeting electric power steering applications. The choke is AEC-Q200 qualified, specifies an absolute max voltage rating across the inductor of 500 V, and an operating temperature range of of -40°C to 150°C (including self heating). The inductor is offered in two inductance values, which are listed in the table along with current ratings.



Part Name	Inductance [Within] (µH) ※1	D.C.R. at 20°C [within] (A) (mΩ)	Saturation Current (A) Max.(Typ.) ※2		Temperature Rise Current (A) (Typ.) ※3
			20°C	150°C	
DEP2517MET150NP-1R2MC	1.20 ± 20%	0.44 (0.37)	110 (138)	96 (120)	52 (58)
DEP2517MET150NP-2R2MC	2.20 ± 20%	0.60 (0.50)	80 (100)	70 (88)	50 (55)

For information, see the DEP2517ME/T150 THT product [page](#).

Multilayer Inductors For Automotive Power-Over-Coax

[TDK](#) has expanded its MLJ1005-G series of multilayer inductors for automotive Power-over-Coax (PoC) circuits. These inductors suppress the deterioration of impedance when current flows and achieve high impedance at high frequencies. Measuring 1.0 x 0.5 x 0.5 mm, these components are said to offer the industry's smallest size in multilayer inductors for power-over-coax circuits.

PoC is a transmission technology whereby both data and power are simultaneously transmitted over the same coaxial cable. The main applications for PoC circuits are said to be automotive cameras.

The PoC system requires a filter incorporating multiple inductors to effectively separate power from the data signal before processing. TDK's new MLJ1005-G series offers advanced features tailored to meet these demands. By using proprietary materials and structural design innovations, TDK has minimized impedance deterioration, ensuring reliable and high-quality signal filtration.

Additionally, the MLJ1005-G series is optimized to support high-frequency performance, responding to recent increases in PoC data transmission speeds. At just 1.0 x 0.5 mm, this series is the smallest multilayer inductor for PoC circuits while supporting up to 480 mA of current.



Mass production of these components was scheduled to begin in November 2024. For further details see the MLJ1005-G type catalog [page](#).

Wireless Charging Coils

Wireless Charging Coils Provide Moisture Resistance Up to 90% RH In A Reduced Footprint

[Vishay Intertechnology's](#) Vishay Dale IWAS3222CZEB190JR1, IWTX4646DCEB240JR1, IWTX47R0DAEB6R3JR1, and IWTX47R0EBEB240JR1 are powdered-iron based wireless charging transmitter (Tx) and receiver (Rx) coils optimized for high humidity conditions up to 90% RH. Designed for industrial, medical, and consumer

electronics applications up to 30 W, the coils offer high-temperature operation to +105°C in 25% smaller footprints than previous-generation devices and competing solutions.



The high moisture resistance of the devices results from their specialized shield coating, which provides superior environmental protection. In addition, the coils' high-saturation powdered iron makes them immune to the temperature fluctuations and sharp inductance drop-off behavior observed in ferrite-based solutions. In addition, shield material selection is critical, as it is used to boost the inductance of the coil, contain any flux leakage, and maximize flux directivity.

Featuring a self-binding, enameled copper winding, the IWAS3222CZEB190JR1 Rx coil features an inductance of 19.6 μH , Q of 28.5 at 200 kHz, and DCR of 357 m Ω . The IWTX4646DCEB240JR1, IWTX47R0DAEB6R3JR1, and IWTX47R0EBEB240JR1 offer inductances from 6.3 μH to 24 μH . With DCR as low as 40 m Ω , Q up to 200, and a heat current rating to 7 A, the Tx coils maximize power transfer to the receiver element, while their high saturation currents up to 22 A ensure stable inductance and consistent performance across the operating current range.

For additional durability, the Tx coils feature a silk-covered litz wire that protects against scratching and wire deformation, provides improved insulation, and reduces the electrical skin effect and proximity losses. In addition, the IWTX4646DCEB240JR and IWTX47R0EBEB240JR1 are manufactured with an alpha winding technique that eliminates wire crossover and achieves the lowest profile possible.

Typical applications for the devices will include handheld, battery-powered tools and diagnostic and therapeutic instruments; drones; smartphones and tablets; gaming controllers; and wearable devices. RoHS-compliant, halogen-free, and Vishay Green, the wireless charging coils are available in rectangular, square, and round form factors.

Table. Device specifications for the wireless charging coils.

Part #	IWAS3222CZx	IWTX4646DCx	IWTX47R0DAx	IWTX47R0EBx
Inductance	19.6 μH	24 μH	6.3 μH	24 μH
Power rating	5 W	30 W	30 W	30 W
Q (typ.)	28.5	185	190	200
DCR (typ.)	357 m Ω	75 m Ω	40 m Ω	75 m Ω
IRMS (max.)	1.2 A	7 A	7 A	6 A
ISAT (max.)	2.4 A	20 A	22 A	20 A
Footprint	32 mm x 22 mm	46 mm x 46 mm	47 mm diameter	47 mm diameter
Thickness	3 mm	5.26 mm	5.3 mm	5.26 mm
Shield shape	Rectangular	Square	Round	Round
Function	Rx	Tx	Tx	Tx

Samples and production quantities of the IWAS3222CZEB190JR1, IWTX4646DCEB240JR1, IWTX47R0DAEB6R3JR1, and IWTX47R0EBEB240JR1 are available now, with lead times of 14 weeks. For more information, see the [IWAS3222CZEB190JR1](#), [IWTX47R0DAEB6R3JR1](#), [IWTX47R0EBEB240JR1](#), [IWTX4646DCEB240JR1](#) product pages.

Cores

Sizes Added For Power Core Shapes

[Magnetics](#) has added 5241 block and 6034 rounded block sizes to its extensive list of powder core shape offerings.

	OD (mm)	ID (mm)	HT (mm)	Radius (mm)	Ve (mm ³)
5241B	52.00	41.00	27.51		58700
6034R	60.00	34.00	10.00	17.00	17900

To search available 5241 blocks, see the [5241B](#) and [6034R](#) Advanced Part Number Finder pages.

Updated Curve Fit Equation Tool For Powder Cores

[Magnetics](#) is offering a new version of its Curve Fit Equation tool. It includes updates to the core loss equation for the 75- μ Edge EQ & LP powder cores, the 26 to 60- μ High Flux EQ & LP powder cores and the 60- μ Kool M μ EQ & LP powder cores.

The Curve Fit Equation Tool is an Excel file for design engineers to compare Magnetics' powder core performance including permeability vs. dc Bias, core loss density, normal magnetization, permeability vs. frequency, and permeability vs. temperature. To download the new version of this tool, click [here](#).

Other Magnetic Component News

Supplier Announces Expansion of its Magnetic Component Portfolio

[Signal Transformer](#), a Bel Fuse company, is strengthening its portfolio of magnetic solutions. Over the past three years, Signal has introduced more than 1,200 new products into the global market, including chokes, inductors, and custom or modified standard products. This milestone, says the vendor, underscores Signal's 50+ year legacy in transformer design and manufacturing, serving the world's critical markets such as medical, lighting, audio, and safety markets.

Based out of Lynbrook, New York on Long Island, Signal has strategically broadened its manufacturing operations to include facilities in the United States, the Dominican Republic, and Asia, to provide specialized solutions that are cost effective for customers worldwide. According to the vendor, Signal offers the broadest range of regulatory certifications including UL, CSA, TUV, VDE, IEC, and CE. The company's on-site CSA-certified ISL 17025 engineering laboratory enables rapid testing, evaluation, and certification of new custom transformer designs, reducing lead times from months to days. For more information, see the [website](#).

Expanded Inductor Line Includes More Sizes, Higher Inductances And Voltages

[Vishay Intertechnology](#) has expanded its inductor product lines, adding a broad array of products designed to provide customers with enhanced options for achieving specific cost/performance ratios in their designs. The broadened portfolio will simplify the sourcing process for Vishay's customers, offering a wider range of device options at various price points.

This expansion includes new product offerings that cater to applications requiring higher inductance—by an order of magnitude—and higher voltage inductors. Additionally, Vishay has introduced more size variations, ensuring that customers can find suitable inductors for any available PCB space, no matter how small, says the vendor.

The bolstered product line also features improved noise reduction capabilities with a wider range of common-mode products, broadening Vishay's inductor capabilities across telecom, industrial, and consumer markets. The devices being added include wireless charging inductors, shielded and semi-shielded drum core inductors, common-mode chokes, coupled inductors, trans-inductance voltage regulator inductors (TLVRs), high-current ferrite impedance beads, and more.

As part of this strategic expansion, Vishay is investing in capacity upgrades and extending its IHLP production capabilities in all facilities, including its recently inaugurated La Laguna plant in Gómez Palacio, Durango, Mexico, as well as China, and other areas of the Southeast Asia region. The capacity investment is continuing to position Vishay to better serve the global market.

"Our commitment to providing our customers with optimized cost vs. performance, capacity readiness with short lead times, and breadth of product is at the forefront of this expansion," said Mike Husman, senior vice president, Inductor Division, at Vishay. "This ambitious undertaking will result in the addition of 1800 additional SKUs across more than 70 series, further solidifying Vishay as the go-to source for inductor technology. With this product and capacity expansion, we are better positioned to meet the latest demand and continue delivering innovative solutions that support our customers' evolving design requirements."

These new inductors will be seamlessly integrated into Vishay's global distribution network, ensuring swift availability worldwide as each new series is launched. The company's commitment to rapid deployment of sample and production stock availability at distribution partners not only accelerates time-to-market for its customers, but also reinforces Vishay's dedication to supporting them in an increasingly fast-paced and competitive marketplace. For more information, see the [website](#).