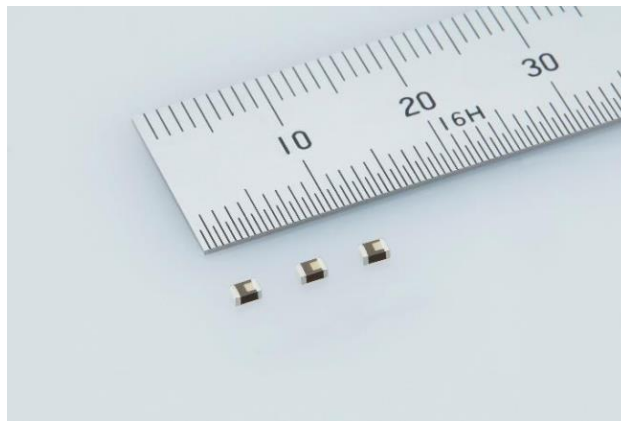


For immediate release

TAIYO YUDEN: World's First Multilayer Metal Power Inductor Capable of Withstanding Temperatures up to 165°C

Contributes to miniaturization and high performance with high-density mounting in high-temperature environments such as in automobiles



TOKYO, May 30, 2024 —TAIYO YUDEN CO., LTD. has commercialized four items, including the multilayer metal power inductor MCOIL™ "LACNF2012KKTR24MAB" (2.0 x 1.25 x 1.0 mm, maximum height value shown), which complies with the "AEC-Q200" reliability qualification test standard for passive automotive components. Through advancements made in our proprietary metal materials and multilayer construction methods, we have achieved an upper operating temperature limit of 165°C for a multilayer metal power inductor, a world's first*1.

These products are used as choke coils in DC-DC converters used in automotive engine ECUs, control systems such as BMS, safety systems such as ABS, body-related systems such as ADAS, and information systems such as instrument clusters.

By extending the upper operating temperature limit range of our conventional product "LCCNF2012KKTR24MAD" (operating temperature range: -55°C to +150°C) to 165°C, these new products are able to contribute to the miniaturization and performance enhancement of power supply circuits by enabling high-density mounting in high-temperature environments such as in automobiles.

Mass production of these products began at our subsidiary, WAKAYAMA TAIYO YUDEN CO., LTD. (Inami-cho, Hidaka-gun, Wakayama Prefecture, Japan), in April 2024. Samples are available for 50 yen per unit.

The advancements that we have seen in recent years in electronic controls in production vehicles, as typified by ADAS units, has led to a greater number of power supply circuits on vehicles, which in turn has led to growth in the demand for power inductors that are used in these circuits. Furthermore, performance also continues to improve through functional integration, such as in integrated cockpits that combine instrument clusters and infotainment devices. While the throughput of IC chips continues to grow as these devices become increasingly multifunctional and high-performance, there is also a growing need to make on-board electronic components smaller and thinner in order to arrange devices in highly dense configurations and integrate them into single modules. Components mounted at high densities become more susceptible to the effects of heat, as their reduced volumes makes it more difficult for the heat generated by the components to dissipate. Furthermore, since ECUs are increasingly being installed in engine compartments—a high temperature environment—on-board electronic components must be able to withstand high temperatures.

To address these challenges, TAIYO YUDEN further improved the reliability of the MCOIL™ LCCN series of multilayer metal power inductors, which had the advantage of being smaller and thinner, and launched the AEC-Q200 certified LACN series which provides an extended operating temperature range of -55°C to +165°C.

TAIYO YUDEN focuses on the development of products that meet market needs, and will continue to expand its power inductor product lineup.

*1 As of May 30, 2024, according to TAIYO YUDEN study.

■Application

Choke coils in DC-DC converters used in automotive engine ECUs, control systems such as BMS, safety systems such as ABS, body-related systems such as ADAS, and information systems such as instrument clusters.

■Characteristics

Part number	Size (LxW) [mm]	H [mm] max.	Nominal inductance [μH]	Inductance tolerance [%]	Rated current*4 [A] max.		DC resistance [mΩ] max.	Operating temp. range [°C]
					Saturation current Idc1*2	Temperature rise current Idc2*3		
LACNF2012KKTR24MAB	2.0x 1.25	1.0	0.24	±20%	4.8	5.4	20	-55~ +165
LACNF2012KKTR33MAB			0.33	±20%	4.4	4.5	30	
LACNF2012KKTR47MAB			0.47	±20%	3.8	3.8	41	
LACNF2012KKT1R0MAB			1.00	±20%	2.7	2.7	85	

*2 The saturation current value (Idc1) is the DC current value having inductance decrease down to 30%. (at 20°C)

*3 The temperature rise current value (Idc2) is the DC current value having temperature increase up to 40°C. (at 20°C)

*4 The rated current is the DC current value that satisfies both of current value saturation current value and temperature rise current value.

* Derating of rated current is necessary depending on the ambient temperature. Please see our website below for detailed specifications.

https://ds.yuden.co.jp/TYCOMPAS/ap/specificationSearcher?cid=L&u=M&Seri=LACN_A&SR2=LM%2CMP

* “MCOIL” is a registered trademark or a trademark of TAIYO YUDEN CO., LTD. in Japan and other countries.

* The names of series noted in the text are excerpted from part numbers that indicate the types and characteristics of the products, and therefore are neither product names nor trademarks.

Note: Products are tested based on the test conditions and methods defined in AEC-Q200. Please consult with TAIYO YUDEN for details of the product specifications and AEC-Q200 test results, etc., and please review and approve TAIYO YUDEN's product specifications before ordering.

TAIYO YUDEN CO., LTD. Product Inquiries: <https://www.yuden.co.jp/ap/contact/>