

EMC Components

TDK develops industry's first high-reliability chip beads for automotive

- Compatible with high durability soldering in 150 °C environments
- Designed for Automotive applications such as ECM, ABS, EPS, EV-EHV, inverters and LED headlights

September 28, 2021

TDK Corporation (TSE:6762) today announced the development and mass production of the MMZ1608-HE series of high-reliability chip beads for automotive use, compatible with high-durability solder in 150 °C environments. This series marks the industry's first* high-reliability chip bead specifically designed for automotive applications associated with engine control modules (ECM), anti-lock brake systems (ABS), electric power steering (EPS), electric and hybrid electric vehicles (EV/EHV), inverters and LED headlights.

In high-temperature automotive environments, such as engine compartments, high-durability solder is increasingly used to prevent solder cracks in the bonds between chip components and the mounting substrate. Since high-durability solders do not stretch easily and impart higher stress compared with conventional solders, they place a large load on chip components and do not meet the reliability requirements of existing chip beads. With improvements to the terminal electrode material and plating process, the MMZ1608-HE series improves the bonding strength between the terminal electrode and plating, making it ideal for use with high-durability solder in 150 °C environments.

The four products in the series have a rated current max ranging from 200 to 300 at 150 °C, DC resistance max between 0.15 to 0.5, and impedance from 120-1000, respectively.

TDK will continue to expand its lineup of compact sizes and various impedances to support a wide range of automotive specifications and designs.

* Source: TDK, as of September 2021

Main applications

- Automotive electrical control chips on which high-durability solder is expected to be used, including ECM, ABS, EPS, EV-EHV, inverters and LED headlights

Main features and benefits

- Compatible with high durability soldering in 150 °C environments

Key data

Type	Impedance [Ω] ± 25 %	DC resistance [Ω] max.	Rated current [mA] max. @ 125°C	Rated current [mA] max. @ 150°C
MMZ1608SHE121ATD25	120	0.15	500	300
MMZ1608SHE471ATD25	470	0.30	500	250
MMZ1608SHE601ATD25	600	0.35	500	200
MMZ1608SHE102ATD25	1000	0.50	400	200

About TDK Corporation

TDK Corporation is a world leader in electronic solutions for the smart society based in Tokyo, Japan. Built on a foundation of material sciences mastery, TDK welcomes societal transformation by resolutely remaining at the forefront of technological evolution and deliberately “Attracting Tomorrow.” It was established in 1935 to commercialize ferrite, a key material in electronic and magnetic products. TDK’s comprehensive, innovation-driven portfolio features passive components such as ceramic, aluminum electrolytic and film capacitors, as well as magnetics, high-frequency, and piezo and protection devices. The product spectrum also includes sensors and sensor systems such as temperature and pressure, magnetic, and MEMS sensors. In addition, TDK provides power supplies and energy devices, magnetic heads and more. These products are marketed under the product brands TDK, EPCOS, InvenSense, Micronas, Tronics and TDK-Lambda. TDK focuses on demanding markets in automotive, industrial and consumer electronics, and information and communication technology. The company has a network of design and manufacturing locations and sales offices in Asia, Europe, and in North and South America. In fiscal 2021, TDK posted total sales of USD 13.3 billion and employed about 129,000 people worldwide.

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