

## EMC components and inductors

### First chip beads and inductors with robust soft termination

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- Effective protection against board flexure and solder cracks
- Suitable for high operating temperatures up to 150 °C
- Qualified to AEC-Q200

March 21, 2017

TDK Corporation presents the world's first multilayer chip beads and inductors with the innovative soft-termination technology that is already proven in TDK MLCCs. The external electrodes of the new KMZ1608 and KPZ1608 series of chip beads and the KLZ1608 and KLZ2012 series of inductors feature a conductive resin layer that offers effective protection against board flexure and solder cracks due to mechanical stress during mounting and thermal shock during operation. As a result, these soft-termination automotive-grade components offer high reliability under harsh conditions, even at high operating temperatures up to 150 °C. They are thus suitable for demanding automotive applications, such as engine control modules (ECMs) and various in-vehicle electronic control units (ECUs), and advanced driver assistance systems (ADAS), as well as in a variety of industrial equipment.

The demand for compact, lightweight and robust multilayer inductive components is steadily growing as the electronic functionality of vehicles continues to increase and as more and more ECUs are positioned closer to the engine. The new KMZ1608 and KPZ1608 series of chip beads are available in IEC 1608 case size with dimensions of 1.6 mm x 0.8 mm x 0.8 mm. The KLZ1608 and KLZ2012 series are available in IEC 1608 and 2012 case sizes and measure in at 1.6 mm x 0.8 mm x 0.8 mm and 2.0 mm x 1.25 mm x 1.25 mm, respectively. The lineup of multilayer chip beads and inductors with soft terminations will be continuously expanded to include smaller case sizes. Volume production of the AEC-Q200 qualified products began in March 2017.

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#### Glossary

- Soft termination: The terminal electrode of standard products consists of three layers: copper (Cu), nickel (Ni), and tin (Sn) on the base electrode of Ag. The terminal electrode of soft-termination components consists of two layers: Ni and Sn bonded to the Ag base electrode with an elastic resin.

#### Main applications

- Engine control modules (ECM) and various in-vehicle electronic control units (ECU)
- Advanced driver assistance systems (ADAS)
- Industrial equipment

#### Main features and benefits

- Effective protection against board flexure and solder cracks
- Suitable for high operating temperatures up to 150 °C

## Key data

### Chip beads

| Series                    | Impedance [ $\Omega$ ]<br>@ 100 MHz, $\pm 25\%$ | DC resistance [ $\Omega$ ] max. | Rated current [mA] max. |                 |             |
|---------------------------|---|---------------------------------|-------------------------|-----------------|-------------|
|                           |   |                                 | -55 to +125 °C          | +125 to +150 °C |             |
| KMZ1608<br>(signal lines) | 50 to 2500                                      | 0.1 to 0.8                      | 200 to 800              | 100 to 400      |             |
|                           |   |                                 | -55 to +85 °C           | +125 °C         | +150 °C     |
| KPZ1608<br>(power lines)  | 30 to 1000                                      | 0.015 to 0.3                    | 800 to 5000             | 500 to 2000     | 300 to 1000 |

### Inductors

| Series  | Inductance [ $\mu\text{H}$ ] $\pm 20\%$ | DC resistance [ $\Omega$ ] $\pm 30\%$ | Rated current [mA] max. |
|---------|---|---------------------------------------|-------------------------|
| KLZ1608 | 1.0 to 22                               | 0.15 to 2.4                           | 55 to 190               |
| KLZ2012 | 1.0 to 100                              | 0.10 to 3.7                           | 30 to 700               |

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## About TDK Corporation

TDK Corporation is a leading electronics company based in Tokyo, Japan. It was established in 1935 to commercialize ferrite, a key material in electronic and magnetic products. TDK's portfolio includes electronic components, modules and systems\* which are marketed under the product brands TDK and EPCOS, power supplies, magnetic application products as well as energy devices, flash memory application devices, and others. TDK focuses on demanding markets in the areas of information and communication technology and consumer, automotive and industrial electronics. The company has a network of design and manufacturing locations and sales offices in Asia, Europe, and in North and South America. In fiscal 2016, TDK posted total sales of USD 10.2 billion and employed about 92,000 people worldwide.

\* The product portfolio includes ceramic, aluminum electrolytic and film capacitors, ferrites, inductors, high-frequency components and modules, piezo and protection components, and sensors.

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## Contacts for regional media

| Region        | Contact  | Phone            | Mail   |
|---------------|--|------------------|--|
| Japan         | Mr. Sumio MARUKAWA<br>TDK Corporation<br>Tokyo, Japan                    | +813 6852-7102   | <a href="mailto:pr@jp.tdk.com">pr@jp.tdk.com</a>                         |
| ASEAN         | Ms. Jiang MAN<br>Ms. Pei Lu LEE<br>TDK Singapore (Pte) Ltd.<br>Singapore | +65 6273 5022    | <a href="mailto:asean.inquiry@sg.tdk.com">asean.inquiry@sg.tdk.com</a>   |
| Greater China | Ms. Clover XU<br>TDK China Co., Ltd.<br>Shanghai, China                  | +86 21 61962319  | <a href="mailto:pr@cn.tdk.com">pr@cn.tdk.com</a>                         |
| Europe        | Mr. Frank TRAMPNAU<br>TDK Europe GmbH<br>Duesseldorf, Germany            | +49 211 9077 127 | <a href="mailto:frank.trampnau@eu.tdk.com">frank.trampnau@eu.tdk.com</a> |
| America       | Ms. Sara M. LAMBETH<br>TDK Corporation of America<br>Irving, TX, USA     | +1 972-409-4519  | <a href="mailto:sara.lambeth@us.tdk.com">sara.lambeth@us.tdk.com</a>     |