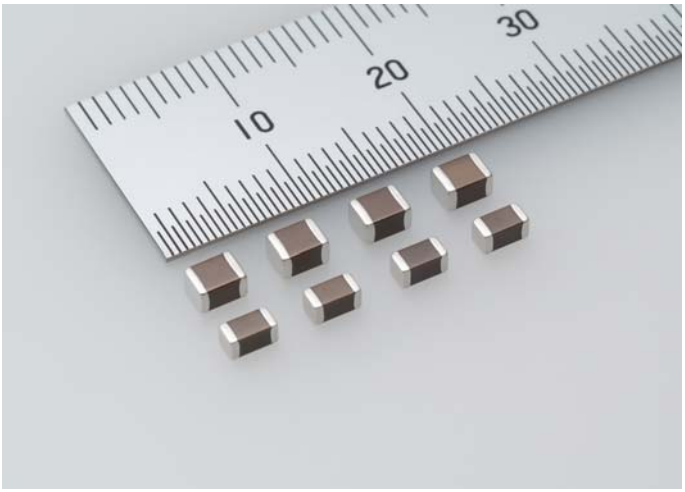
For immediate release

# Taiyo Yuden Presents a Solution to Multilayer Ceramic Capacitor Audible Ringing Problem

*Rated for Same 10 µF Capacitance, New Capacitors Reduce Physical Distortion to One Half Compared to Predecessor Products*




TOKYO, September 7, 2010 — TAIYO YUDEN CO., LTD. today announced details of the commercial release of the GMK325 LD106KN (3.2 x 2.5 x 1.9 mm) and the TMK316BLD106KL (3.2 x 1.6 x 1.6 mm) multilayer ceramic capacitors designed to combat the problem of audible ringing.

Audible ringing occurs when multilayer ceramic capacitors mounted on a circuit board exhibit physical distortion due to a reverse piezoelectric effect, which can cause the board to vibrate and therefore emit sound. Taiyo Yuden has developed a new low-distortion material that reduces distortion by one half when compared to earlier products. While offering the same 10 µF capacitance as the predecessor model the TMK316 BJ106KL, in-house measurements have shown that the new type reduces audible ringing to between one half and one third.

The GMK325 LD106KN and the TMK316BLD106KL are used extensively for current smoothing in power supply and display drive circuits of laptop computers, LCD TVs and monitors. Production will commence in September 2010 at Taiyo Yuden's subsidiary KOREA KYONG NAM TAIYO YUDEN CO., LTD. (in Sachon-City, Gyeongsangnam-do) at an output pace of 5 million units per month. The sample price for each product is 30 yen per unit.

## Technology Background

In order to increase the capacitance of multilayer ceramic capacitors, using a dielectric with high dielectric constant is preferable. However, such dielectrics typically exhibit a piezoelectric effect, which means that a large-capacitance multilayer ceramic capacitor will be physically distorted in a specific direction when a voltage is applied. In the power supply of laptop computers and LCD TVs, and in LCD drive circuitry of LCD monitors, the multilayer ceramic capacitors used for smoothing

tend to distort due to this piezoelectric effect, causing the circuit board the capacitors are mounted on to vibrate, thereby producing an undesired sound.

By reexamining various material characteristics, Taiyo Yuden was able to develop a low-distortion dielectric material. A successful blend of thin film technology and high-capacitance process technology resulted in a new capacitor that offers the same 10 µF capacitance while reducing distortion by a factor of 2. As a result, unwanted audible ringing is cut by a factor of 2 to 3.

Development of new multilayer ceramic capacitors that meet such demands of the market is slated to continue.

Characteristics of the GMK325 LD106KN and the TMK316BLD106KL capacitors are as follows.

| Ordering code | Capacitance | Temperature characteristics | Rated voltage [V] | Length (L) [mm] | Width (W) [mm] | Thickness (T) [mm] |
|---|---|---|---|---|---|---|
| GMK325 LD106KN | 10 µF | X5R | 35 | 3.2±0.3 | 2.5±0.2 | 1.9±0.2 |
| TMK316BLD106KL | 10 µF | X5R | 25 | 3.2±0.3 | 1.6±0.3 | 1.6±0.3 |