

**Development of Three Types of Backlight Units
for Cellular Phones Featuring the World's Lowest Profile
through the Use of 0.4mm-Thick White LED and Light Guide Achieved by
Citizen Electronics' Super High Precision Processing Technology**

Electronic parts manufacturer, Citizen Electronics, (Fujiyoshida City, Yamanashi Prefecture; Capital: 1,988,550,000 yen; President: Takashi Masuzawa) has developed three types of super low-profile liquid crystal display backlight units for cellular phones.

In recent years, the development of LCDs has been remarkable. Since small, big and various kinds of LCDs for cellular phones, digital still cameras, PDAs (personal digital assistants), flat-panel televisions and PCs are in high demand, and the fast-growing segment of the market. LCDs require the use of backlight units to illuminate liquid crystal parts from behind. Backlighting processes typically use either white LEDs or cold cathode fluorescence lamps (CCFLs). In many cases, white LED backlight units suitable for downsized devices are used for small and low profile products like cellular phones, while PCs and big panel TVs are equipped with cost-advantage CCFLs. In these LCD displays, recently backlight units have become more important as one of the key components.

Citizen Electronics has introduced many products to both domestic and overseas cellular phone suppliers as a top manufacturer of backlight units for cellular phones. Conventionally, candy-bar type phones have had a dominant share in the overseas cellular phone market. Fold type phones are now becoming the mainstream internationally following the Japanese market. The need for low profile is constantly increasing worldwide as fold type cellular phones are prone to be thicker than the candy-bar type.

The new backlight units are offered by Citizen Electronics, which has the top share globally of the chip LED lamps used for light sources of backlighting. Development has been achieved through the use of the world's thinnest side view type super low profile and high efficiency white chip LED lamps and the development of the super low profile (0.4mm-thick) high efficiency light guides manufactured under original optical design, precision tool and injection molding technologies. In addition to the realization of the thinnest level, our backlight units are milestone-setting products with their brightness performance almost equivalent to that of the current 0.6mm-thick backlight unit.

The following three types are being released in response to the various market demands including display size, brightness and cost requirements:



World's lowest profile small backlight unit



Small thickness of 0.65mm through the use of 0.4mm-thick LED and light guide

These products are based on Citizen Electronics' original optical design technology, precision tool processing technology for light guide and small-thin molding technology, with outstanding performance as follows:

[Basic technology]

- Citizen Electronics' new 0.4mm-thick super low profile and high efficiency white LEDs are used.
- Citizen Electronics' 0.4mm-thick super low profile light guides manufactured by the original injection molding technology are used.
- To attain high luminous intensity and uniformity, these backlight units are original designs.

[New products]

The three types of new backlight units:

- 2.4-inch, four LEDs, single-sided emitting backlight unit
- 2.4-inch, four LEDs, double-sided emitting backlight unit
- 1.8-inch, one LED, single-sided emitting backlight unit

The specifications of the above three units are customized products. Samples will be shipped after mutual consultation.

[General features]

- Regarding single-sided emitting backlight units, new products are 0.65mm in thickness but our existing lowest profile type has a thickness of 0.85mm, which provides approx. 23% downsizing compared to the existing models. The thickness is the industry's lowest-profile for LED backlight units. Although the conventional units are designed only with the thickness of the light guide part reduced, it is the first time to succeed in the lowest-profile design with a decrease in LED thickness included.
- Other performance such as luminous intensity is almost equivalent to that of the conventional 0.6mm-thick type.

[Environmental performance]

Lower electrical consumption and longer operating life are achieved.

Even though CCFL light sources include mercury (Hg), which is a hazardous chemical substance, our LED light sources are Mercury (Hg)-free and Lead (Pb)-free. These backlight units are environmental friendly products compliant with EU RoHS Directive.

[Scheduled exhibition]

The actual products will be on display at CEATEC JAPAN 2005, Makuhari Messe, opening on October 4, 2005.

CEATEC JAPAN 2005

Exhibition date: October 4 (Tue) – 8 (Sat), 2005

Hall and booth: Hall 8, 8D25

[Future prospects]

Basic technical development has been completed. Mass production of the products will be started in January 2006 or later.

Start of mass production	January 2006 or later
Sales talk	Now available

[Contact Numbers]

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