

## Developing two models of 'high-power infrared LEDs' that are the world's smallest class of size - for iris recognition on mobile terminals and face recognition on PCs -

Citizen Electronics Co., Ltd. (Head Office: Fujiyoshida City, Yamanashi Prefecture. President: Yoshihiro Gohta) has developed two models of 'high-power infrared LEDs' that are the world's smallest class of size\* and used for iris recognition on mobile terminals such as smartphones or tablets and face recognition on PCs. The products will be exhibited during the 'electronica China 2017' starting on March 14, 2017 in Shanghai.

### ■ Developed products:

#### 1. CL-1500-IRA

Size: 3.5 (width) mm × 3.5 mm (length) × 2.4 mm (height)

Wavelength: 810 nm

Applications: Light sources for iris recognition on smartphones, etc.

Launch date: Shipment of samples will start in April 2017.



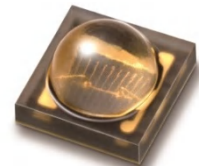
#### 2. CL-1520-IRC

Size: 3.5 mm (width) × 3.5 mm (length) × 2.3 mm (height)

Wavelength: 850 nm

Applications: Light sources for face recognition on PCs and security cameras

Launch date: Shipment of samples will start in April 2017.



### ■ Background of development

The use of mobile terminals such as smartphones or tablets has been increasing in internet banking and online shopping, and biometrics such as iris or face recognition is required as a highly accurate and very high-level security function. As the demand for security cameras that enable night photo or video shooting has increased in light of enhanced awareness of security and crime deterrent effects on a worldwide basis in recent years, the security market has been expanding year after year.

Citizen Electronics has developed high-sensitivity optical sensors such as infrared chip LEDs in which infrared light dice are used, and chip photo-transistors and photo-reflectors in which optical receiving dice are made use of through utilization of packaging technology cultivated by LED manufacture and these optical sensors have been adopted in many products.

As infrared light is invisible, it is most suitable for security applications such as biometrics, and applications using infrared light are expected to expand further. In response to these needs, Citizen Electronics has developed two models of 'high-power infrared LEDs' that are the world's smallest class of size.

## ■ Main features

### 1. Developing two models for iris and face recognition or security cameras

#### **CL-1500-IRA: illuminating with pinpoint of light and most suitable for iris recognition on mobile terminals**

This high-power infrared LED delivers light at a wavelength of 810 nm that is suitable for light sources for iris recognition. An individual is recognized by the system in which the CL-1500-IRA irradiates an eye with infrared light and a photo of the iris is taken by a mobile terminal equipped with a camera.

The adoption of iris recognition function, which identifies an individual by reading his/her iris, has been increasing as a very high-level security function in mobile terminals such as smartphones or tablets and is expected to become even more widely spread.



Image of iris recognition

#### **CL-1520-IRC: illuminating with wide-angle light and most suitable for face recognition for PCs and night photo or video shooting by security cameras**

This infrared LED, equipped with a wide-angle lens, has achieved 'high output and wide directivity' that are required for face recognition on PCs and night photo or video shooting for security cameras. As face recognition functions adopted on some high-priced PCs, which recognize an individual's characteristics using photography of the face irradiated with infrared light, enable very high-level security measures, their adoption is expected to expand mainly in laptop PCs.



Image of face recognition

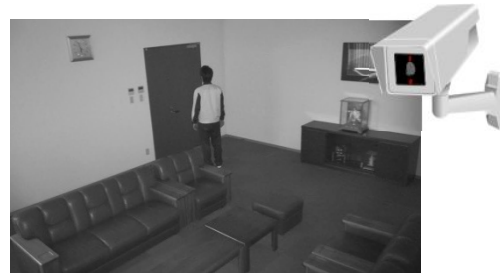


Image of security camera

### 2. The world's smallest class of package size

The world's smallest class of package size, 3.5 mm x 3.5 mm, has been achieved by small packaging technology cultivated through Citizen Electronics' longtime achievements. This smallness can decrease the size of the mounted space and contribute to miniaturization, thinness and higher performance of mobile terminals. The height of the 'CL-1520-IRC' is reduced to 2.3 mm and this reduction responds to the demand for laptop PCs with slimmer bezels that has been accelerating in recent years.

### 3. Achieving world top-class\* radiant intensity of infrared light and infrared light output

The 'CL-1500-IRA' has achieved a world top-class radiant intensity of infrared light, 2,900 mW/sr, through Citizen Electronics' original optical design technology and packaging technology, that enhances luminous efficacy, to ensure illumination of an object. The 'CL-1520-IRC' has achieved a world top-class infrared light output, 1,300 mW/1A, and is capable of illuminating over a long distance with infrared light.

## ■ Main specifications

Product name	CL-1500-IRA	CL-1520-IRC
Size	3.5 mm × 3.5 mm × 2.4 mm	3.5 mm × 3.5 mm × 2.3 mm
Wavelength	810 nm	850 nm
Directivity (angle)	±10°	±45°
Applications	Light sources for iris recognition to be used in smartphones, etc.	Light sources for face recognition to be used in PCs and security cameras

\* “world’s smallest class of size,” “world top-class radiant intensity of infrared light” and “world top-class infrared light output”: in high-power infrared LEDs according to the results of surveys conducted by Citizen Electronics as at March 2017

Information provided in this press release was accurate at the time of announcement.

### Contact Information:

North America -----	Marty Sugikawa	+1-847-619-6700
Europe -----	Andre Schmitz	+49-69-2992-4812
South China & Hong Kong -----	Clinton Lo	+852-2793-0613
East China -----	Zhao Xinkang	+86-21-6295-5510
South East Asia / India -----	Camble Kong	+852-2793-0613
Other areas -----	kazuhiko.kawai@ce.citizen.co.jp	