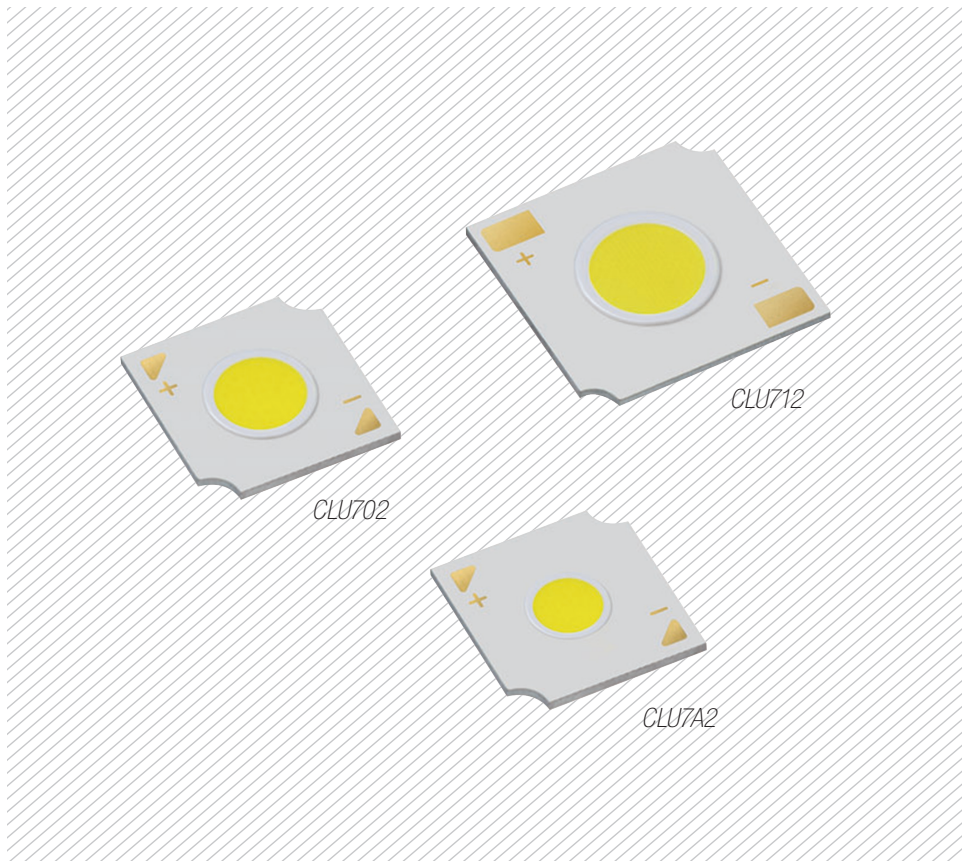


endrich news

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OUR PRODUCT OF THE MONTH: CITIZEN HIGH INTENSITY GENERATION 3



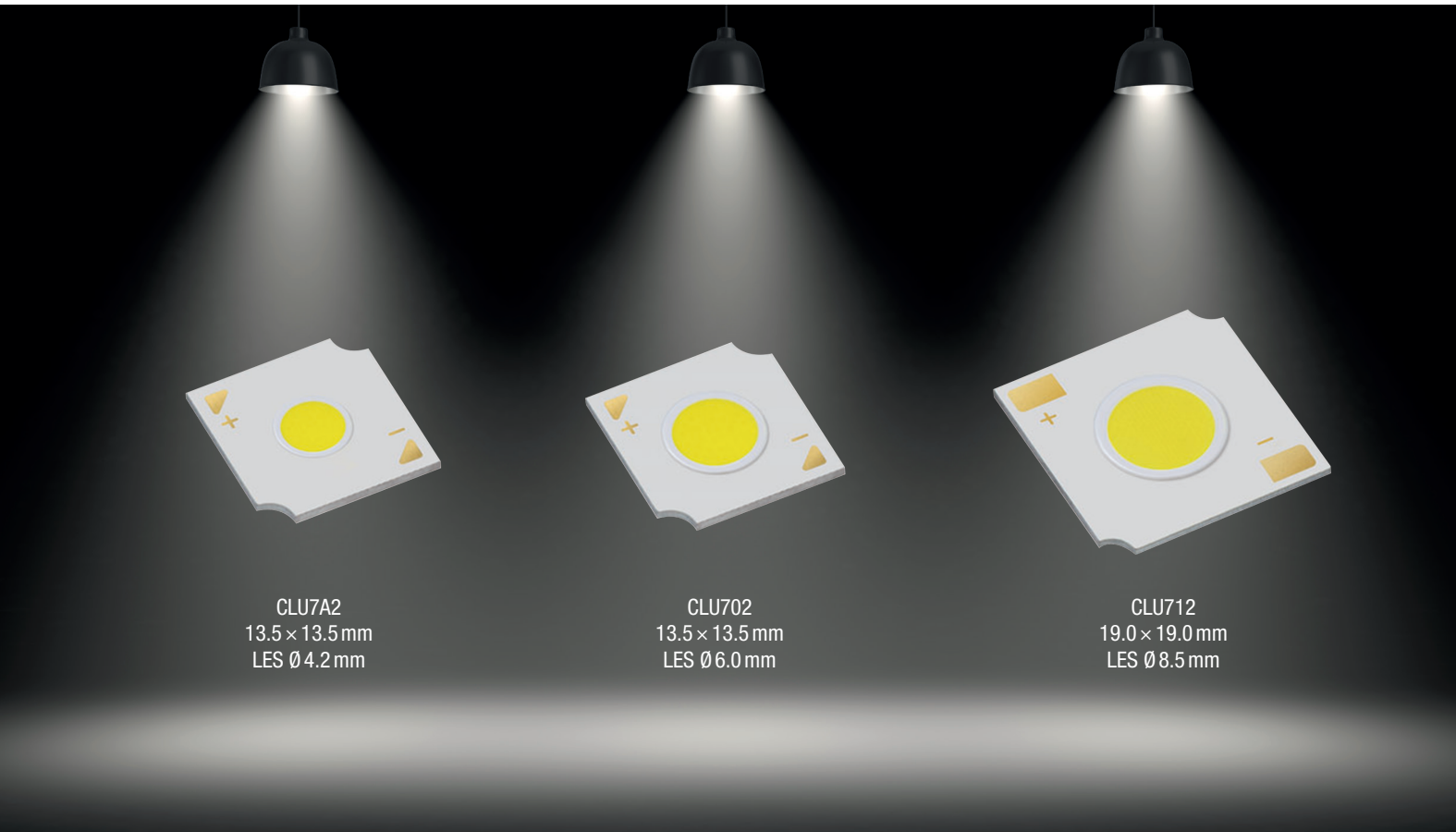
FEATURES

- World's smallest LES on the COB market (3.3 mm)
- High lumen density with narrow LES
- Possibility to downsize luminaires
- CCTs: 2700 K, 3000 K, 4000 K
- CRI 80 / 90
- NEW: Ra 97
- Mac Adam Step 3
- ENEC / UL certificates are available



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CITIZEN HIGH INTENSITY GENERATION 3



CLU7A2
13.5 × 13.5 mm
LES Ø4.2 mm

CLU702
13.5 × 13.5 mm
LES Ø6.0 mm

CLU712
19.0 × 19.0 mm
LES Ø8.5 mm

Our supplier Citizen Electronics developed a new COB generation CLU7x2 for high density application with narrow beam angle. With the new 4,2mm LES we are offering the smallest LES on the COB market. The high intensity COBs will be also available with CRI 97. All available holders which could be used for CLU7x1 can be also used for CLU7x2. Pad-layout size of CLU712 is changed that all holders for CLU038 and CLU711 could be also used for this type.

APPLICATIONS

- Spotlight with narrow beam angle
- Truck light
- Downlight

ADDITIONAL INFORMATION

- Ra 97 will be also added to the line-up
- 5 Years Warranty
- Samples are available
- UL certification available
- Mac Adam Step 3 Binning

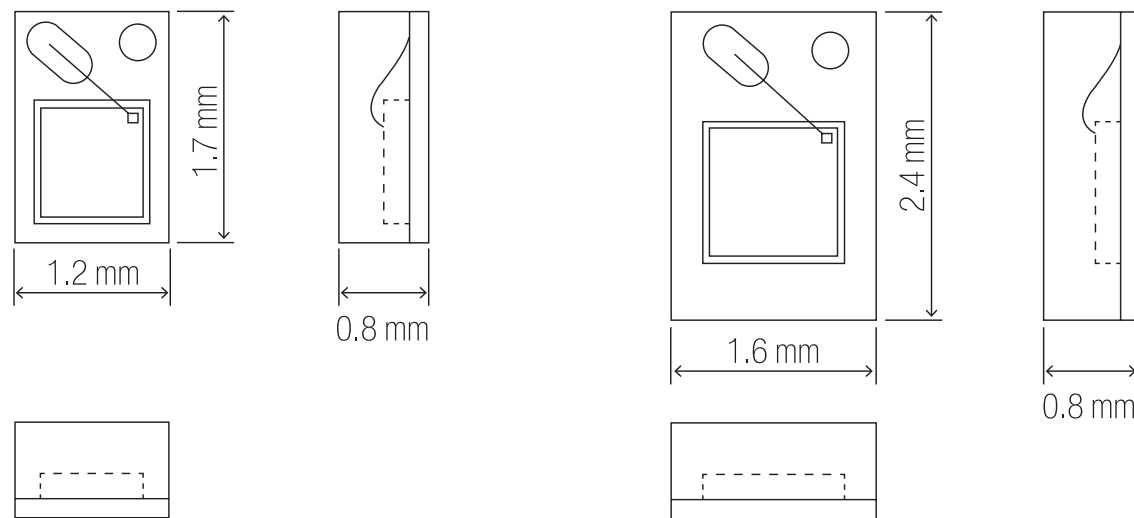
CITIZEN HIGH INTENSITY GENERATION 3

PRODUCT CODE	ELECTRO-OPTICAL CHARACTERISTICS								ABSOLUTE MAX. RATING
	Ra	CCT	FORWARD CURRENT	VOLTAGE TYP.	INPUT POWER TYP.	LUMINOUS FLUX TYP.	LUMINOUS EFFICACY TYP.	THERMAL RESISTANCE RJ-C	FORWARD CURRENT
CLU7A2-1201C9-273M2R1	80 Min.	2,700 K	175 mA	35.6 V	6.2 W	745 lm	120 lm/W	3.0 °C/W	300 mA
CLU7A2-1201C9-303M2R1	80 Min.	3,000 K	175 mA	35.6 V	6.2 W	771 lm	124 lm/W	3.0 °C/W	300 mA
CLU7A2-1201C9-403M2R1	80 Min.	4,000 K	175 mA	35.6 V	6.2 W	810 lm	130 lm/W	3.0 °C/W	300 mA
CLU7A2-1201C9-273H5R2	90 Min.	2,700 K	175 mA	35.6 V	6.2 W	625 lm	100 lm/W	3.0 °C/W	300 mA
CLU7A2-1201C9-303H5R2	90 Min.	3,000 K	175 mA	35.6 V	6.2 W	660 lm	106 lm/W	3.0 °C/W	300 mA
CLU7A2-1201C9-403H5R2	90 Min.	4,000 K	175 mA	35.6 V	6.2 W	716 lm	115 lm/W	3.0 °C/W	300 mA
CLU702-1202C9-273M2R1	80 Min.	2,700 K	350 mA	35.6 V	12.5 W	1,518 lm	122 lm/W	1.6 °C/W	600 mA
CLU702-1202C9-303M2R1	80 Min.	3,000 K	350 mA	35.6 V	12.5 W	1,576 lm	126 lm/W	1.6 °C/W	600 mA
CLU702-1202C9-403M2R1	80 Min.	4,000 K	350 mA	35.6 V	12.5 W	1,658 lm	133 lm/W	1.6 °C/W	600 mA
CLU702-1202C9-273H5R2	90 Min.	2,700 K	350 mA	35.6 V	12.5 W	1,246 lm	100 lm/W	1.6 °C/W	600 mA
CLU702-1202C9-303H5R2	90 Min.	3,000 K	350 mA	35.6 V	12.5 W	1,342 lm	108 lm/W	1.6 °C/W	600 mA
CLU702-1202C9-403H5R2	90 Min.	4,000 K	350 mA	35.6 V	12.5 W	1,424 lm	114 lm/W	1.6 °C/W	600 mA
CLU712-1204C9-273M2R1	80 Min.	2,700 K	700 mA	35.6 V	24.9 W	3,079 lm	124 lm/W	0.91 °C/W	1,200 mA
CLU712-1204C9-303M2R1	80 Min.	3,000 K	700 mA	35.6 V	24.9 W	3,196 lm	128 lm/W	0.91 °C/W	1,200 mA
CLU712-1204C9-403M2R1	80 Min.	4,000 K	700 mA	35.6 V	24.9 W	3,363 lm	135 lm/W	0.91 °C/W	1,200 mA
CLU712-1204C9-273H5R2	90 Min.	2,700 K	700 mA	35.6 V	24.9 W	2,535 lm	102 lm/W	0.91 °C/W	1,200 mA
CLU712-1204C9-303H5R2	90 Min.	3,000 K	700 mA	35.6 V	24.9 W	2,701 lm	108 lm/W	0.91 °C/W	1,200 mA
CLU712-1204C9-403H5R2	90 Min.	4,000 K	700 mA	35.6 V	24.9 W	2,891 lm	116 lm/W	0.91 °C/W	1,200 mA

BLUE TO INFRARED WAVE LENGTH PHOTO DIODE NJL6401R-3 / 6402R-2



The NJL6401R-3 / 6402R-2 are the high speed Si PIN photo diode sensor that is capable of detecting at a wide wavelength range from blue-violet light up to infrared light.



SPECIFICATIONS OF NJL6401R-3*

Corresponding to three wavelength	$\lambda = 405 \text{ nm} / 650 \text{ nm} / 780 \text{ nm}$
Short rise-time, fall-time	2ns typ. ($\lambda = 405 \text{ nm} / 650 \text{ nm} / 780 \text{ nm}$, VR = 2.5V, 10–90 %)
High speed	250 MHz ($\lambda = 780 \text{ nm}$), 300 MHz ($\lambda = 650 \text{ nm}$) 350 MHz ($\lambda = 405 \text{ nm}$)
Package	1.2 x 1.7 x 0.8 mm
Active area	0.7 x 0.7 mm

SPECIFICATIONS OF NJL6402R-2*

Corresponding to three wavelength	$\lambda = 405 \text{ nm} / 650 \text{ nm} / 780 \text{ nm}$
Short rise-time, fall-time	2ns typ. ($\lambda = 405 \text{ nm} / 650 \text{ nm} / 780 \text{ nm}$, VR = 2.5V, 10–90 %)
High speed	200 MHz ($\lambda = 780 \text{ nm}$), 220 MHz ($\lambda = 650 \text{ nm}$) 250 MHz ($\lambda = 405 \text{ nm}$)
Package	1.6 x 2.4 x 0.8 mm
Active area	1.0 x 1.0 mm

* Pb free solder reflowing permitted ■ Pb free, halogen free, conformity to RoHs directive ■ Low wavelength dependence and fast fall-time

BLUE TO INFRARED WAVE LENGTH PHOTO DIODE NJL6401R-3 / 6402R-2

Example: smoke detector

Optical smoke detectors are changing from std. single wavelength (near IR) to dual wavelength (Blue & near IR) type.

Key requirements for PDs used for dual wavelength smoke detectors are:

- High sensitivity characteristic at 470 nm (blue wavelength)
- No deterioration of the resin at high temperature and blue light

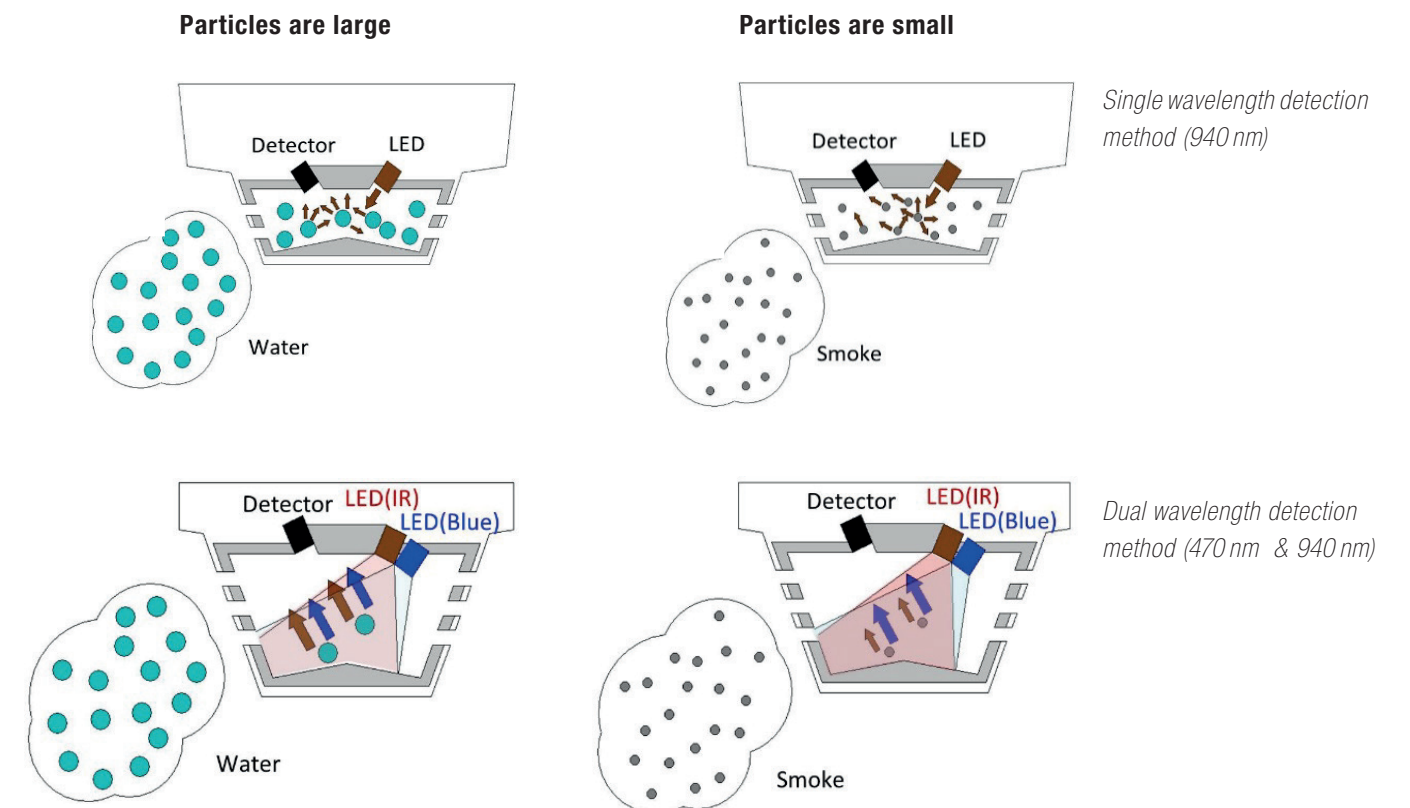
Challenge: How to distinguish between real smoke and steam to avoid false alarms?

Solution: Usage of two LEDs with IR and Blue wavelengths

- In case of large size particles
 - Difference in optical scattering intensity of two wavelength is very small. ($I_{BL} / I_{IR} = 1$)
- In case of small size particles
 - Difference in optical scattering intensity of two wavelength is large blue scattering is bigger than IR. ($I_{BL} / I_{IR} > 1.4$)

MORE APPLICATIONS

- Front monitor for Blu-ray, DVD and CD
- Monitor for RGB wavelength
- Optical smoke detector
- Photoelectric switch, space light transmitting, etc.



MA510-GL SERIES – GLOBAL CERTIFIED NB-IOT MODULES

HAVE A
LOOK

Fibocom has developed the brand new LPWA module series named MA510-GL which will be available in several versions.

The derivatives enable your application to connect to the network types LTE Cat.M1, LTE Cat.NB2 and EGPRS. The triple-mode (LTE Cat.M1, LTE Cat.NB2 and EGPRS), the dual-mode (LTE Cat.M1 and LTE Cat.NB2), as well as the single-mode module (LTE Cat.M1) are all compatible.

The series is based on Qualcomm IC MDM9205, available with LCC and LGA footprint (22.2 x 20.2 x 2.1 mm), supports GNSS (GPS/GLONASS/BeiDou/Galileo), and has given all needed global certifications.

The series is characterized by low power consumption and robust accessibility even inside buildings. In addition, it is very cost effective and has an enormous range, which opens up new possibilities for applications in cities or agriculture.

The modules are primarily recommended for applications in which low data throughput rates have to be transmitted securely, like asset tracking, industrial monitoring and control, security systems, smart home, smart metering, etc.

FEATURES OF MA510-GL-00

- Dimension: 22.2 x 20.2 x 2.1 mm
- Package: LCC + LGA, 86 Pin
- Operating frequency band:
 - Cat.M1: B1/B2/B3/B4/B5/B8/B12/B13/B14/B18/B19/B20/B25/B26/B27/B28/B66/B85
 - Cat.NB2: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B28/B66/B71/B85
 - EGPRS: 850/900/1800/1900MHz
- GNSS: GPS/GLONASS/BeiDou/Galileo
- Power supply: 3.3V ~ 4.5V (typical 3.8V)
- Operating temperature: -40 °C ~ +85 °C
- Cat.M1 (kbps): 589 (DL) / 1119 (UL)
- Cat.NB2 (kbps): 136 (DL) / 150 (UL)
- GPRS (kbps): 107 (DL) / 85.6 (UL)
- EDGE (kbps): 296 (DL) / 236.8 (UL)
- Antenna: Main x 1, GNSS x 1
- Functional interfaces:
 - SIM 1.8V / USB 2.0 x 1 /
 - UART x 3, I2C, I2S, GPIO, SPI /
 - ADC / System Indicator /
 - ANT_TUNER
- Global certifications

APPLICATIONS

- Asset tracking
- Industrial monitoring and control
- Security systems
- Smart home
- Smart metering



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