

2. ROHM's new technologies

(1) Development of sensor IC with an internal amplifier
 Until now, operational amplifiers for analog outputs and their peripheral discrete components were mostly thought to be externally attached and were mounted on the back or on a PC board exclusively for peripheral circuits. However, mounting the components on an exclusive PC board or on the rear surface leaves the circuitry exposed and subject to damage from contact with other materials or static electricity. Not to mention, the number of parts required increases for more complicated manufacturing processes.

However, at ROHM, where IC engineers, sensor head engineers, and production engineers are all working together for the same goal, a method of placing the amplifier circuitry in the sensor IC was developed, solving these problems. This new IC design did not only solve these previously troublesome problems, it also runs on a single 5V drive to lead the industry towards support for the new USB interface.

Simple power supply design (for color types)

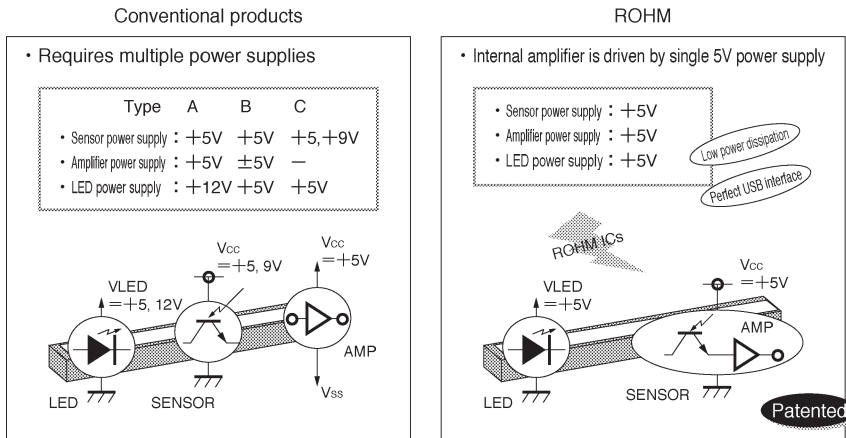


Fig.1

Contact image sensor heads

(2) ROHM's original prism design

In conventional methods, the sensor PC boards and light source PC boards are separated as shown in Fig. 2 below. Also, a connector was normally attached to the sensor PC board to connect the two boards with a lead. This type of construction made for complicated manufacturing procedures, poor operability, and hindered efforts to decrease sizes for more compact products.

However, with the use of ROHM's own LED bare chips and its own prism design, the LED bare chip can be

mounted on the sensor PC board. (See Fig. 2.) This design puts together the sensor PC board and illumination PC board making them only one board. The result is a reduction in the number of manufacturing processes, a decrease in the number of components, and a lighter and more compact product.

This is just another example of how ROHM uses its know-how as a semiconductor manufacturer to bring you closer to the future.

ROHM's optical technologies

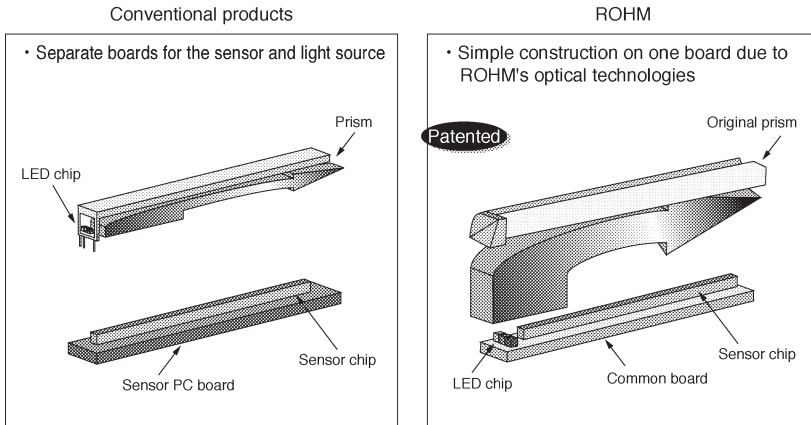


Fig.2

Remarkably compact and lightweight image sensor

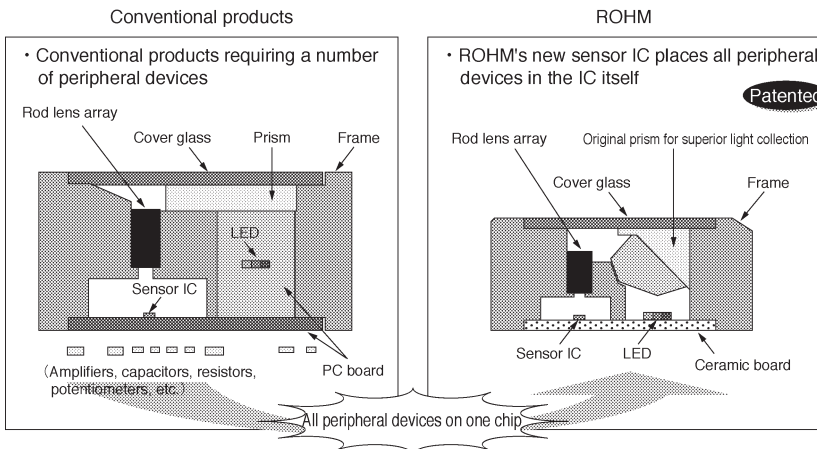


Fig.3

Contact image sensor heads

(3) ROHM uses ceramic base boards

ROHM is the only manufacturer in the industry to use ceramic boards for their thermal printheads and for the base boards on which the LED and sensor chips are

mounted. By the use of ceramic boards, fluctuations in the output caused by ambient temperature changes are greatly reduced from that with conventional PC boards.

Achieves stable temperature characteristics

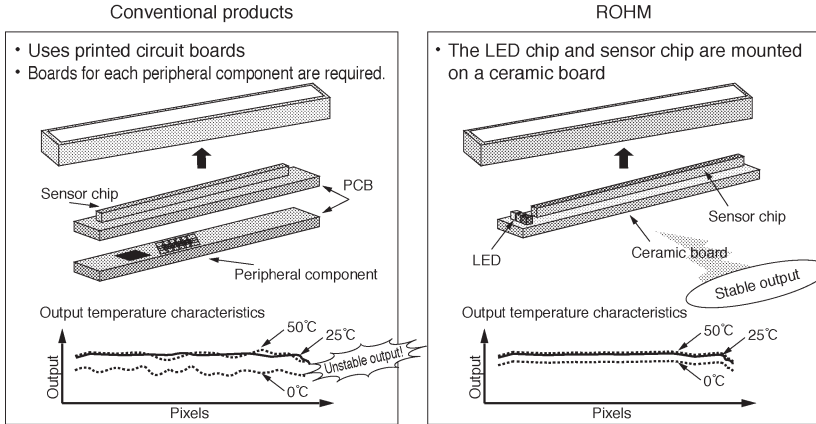


Fig.4

(4) The advent of a RGB color filter sensor IC that enables simultaneous scanning of three colors

ROHM has developed a RGB filter sensor IC that enables simultaneous scanning of three colors from white light and eliminates the need to switch between RGB source lights that is required by conventional methods.

Thanks to this, the scanning speed is the top in the industry and a CIS is realized with negligible color fluctuations compared to step-by-step scanning methods.

Color separation methods

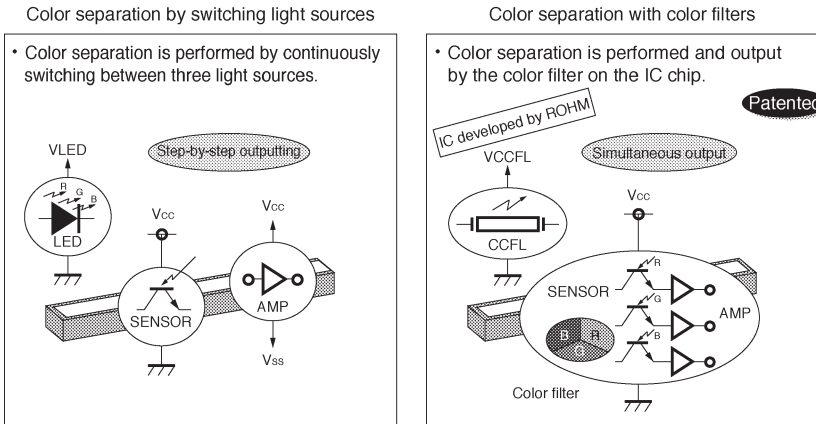


Fig.5

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