

CXA2674EM

CXA2673EM

The age of the blue-violet laser diode has arrived making even higher recording densities possible. Sony has now developed a new photodiode semiconductor wafer process and a new package for photodetector IC for use with blue-violet laser diodes.

This article introduces a chipset for use with blue-violet laser diodes; a chipset that concentrates the industry's leading technologies in a unified system.

CXA2674EM

RF/Servo PDIC for blue-violet laser diodes

- Includes a high-sensitivity photodiode (0.3 A/W at 405 nm)
- Low-noise amplifier
- Standby mode function
- Cavity mold glass sealed small package

CXA2673EM

Laser front monitor PDIC for blue-violet laser diodes

- Two-channel structure (Vin1, Vin2)
- Standby mode function
- Cavity mold glass sealed small package

■ CXA2674EM

The CXA2674EM is a photodetector IC (PDIC) that detects both RF and servo signals and mounted in a record/playback optical pickup that supports the blue-violet laser diode used for Blu-ray and other optical discs. This device is fabricated in a leading-edge process that improves the optoelectronic conversion characteristics in the blue-violet wavelength range to almost the theoretical limits. It also achieves a high signal-to-noise ratio by including a low-noise amplifier. This device features a standby mode function that allows power consumption to be minimized when the device is not being

operated. (Operating mode: 30 mA, standby mode: 2 mA) This product is provided in a newly-developed package that is appropriate for photodetection in the wavelength range of the blue-violet laser.

■ CXA2673EM

The CXA2673EM is a photodetector IC (PDIC) developed for use as a laser power monitor and mounted in a record/playback optical pickup that uses the blue-violet laser diode used for Blu-ray and other optical discs. This device adopts the same leading-edge process used for the CXA2674EM and the same package. It provides excellent performance as a front monitor for blue-violet laser diodes.

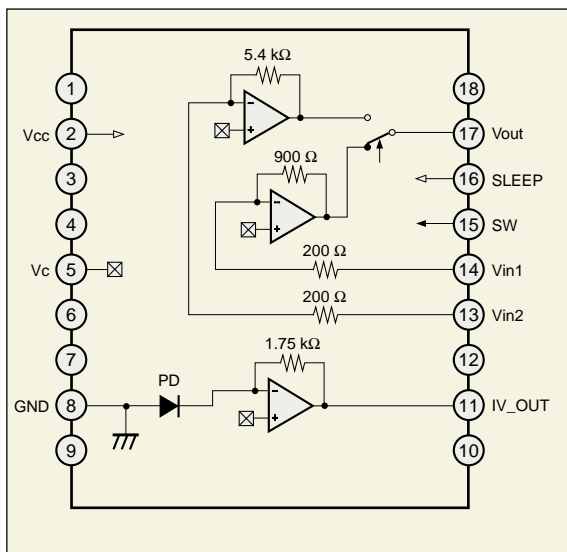
■ Newly-Developed Package for Blue-Violet Laser Diodes

Sony has developed a new cavity mold glass sealed package for blue-violet laser diodes. Conventional transparent plastic packages have low transparency in the wavelength range of the blue-violet laser diode, and furthermore, it has been shown that long-term exposure to blue-violet laser diode light degrades plastic package material. Therefore, Sony developed this new package that mounts the silicon chips in a molded cavity area and seals them in that area with glass that has antireflection coating on both sides, thus resolving both these problems.

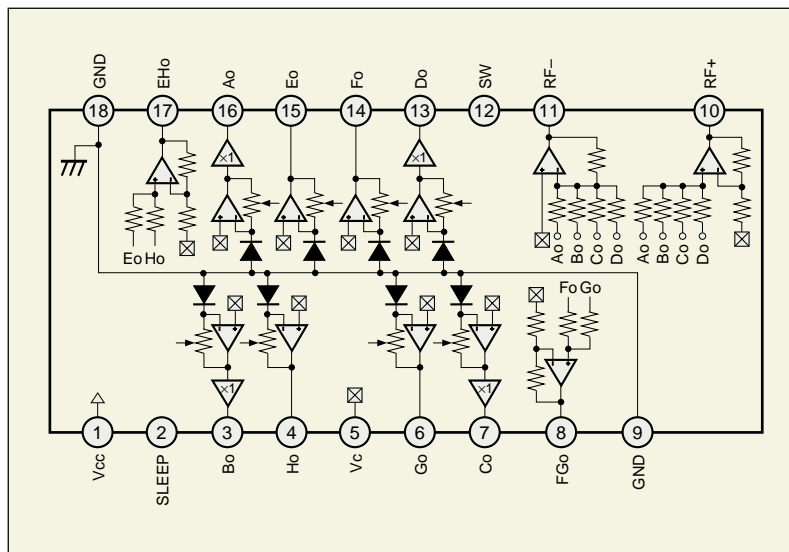
V O I C E

No rose without a thorn.

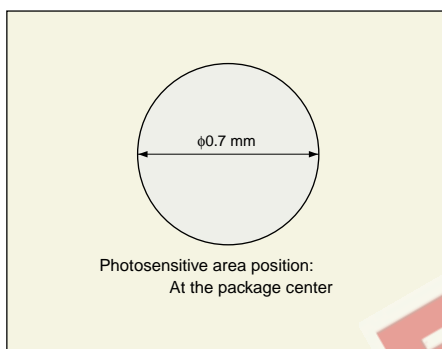
While the blue laser diode was a miraculous development, and it is an extremely attractive device, it was not easy to develop a PDIC that could receive that light. Revising the fabrication process was, of course, necessary, and we even developed a new package in creating this new product! This is a very friendly product and can be used by almost anyone. It's good to be able to relax again now that this project is done.



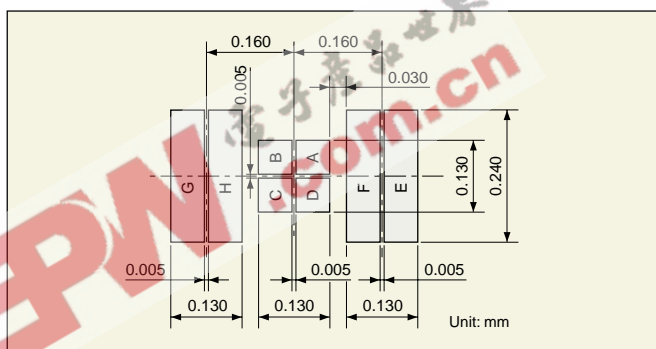
■ Figure 1 CXA2673EM Block Diagram



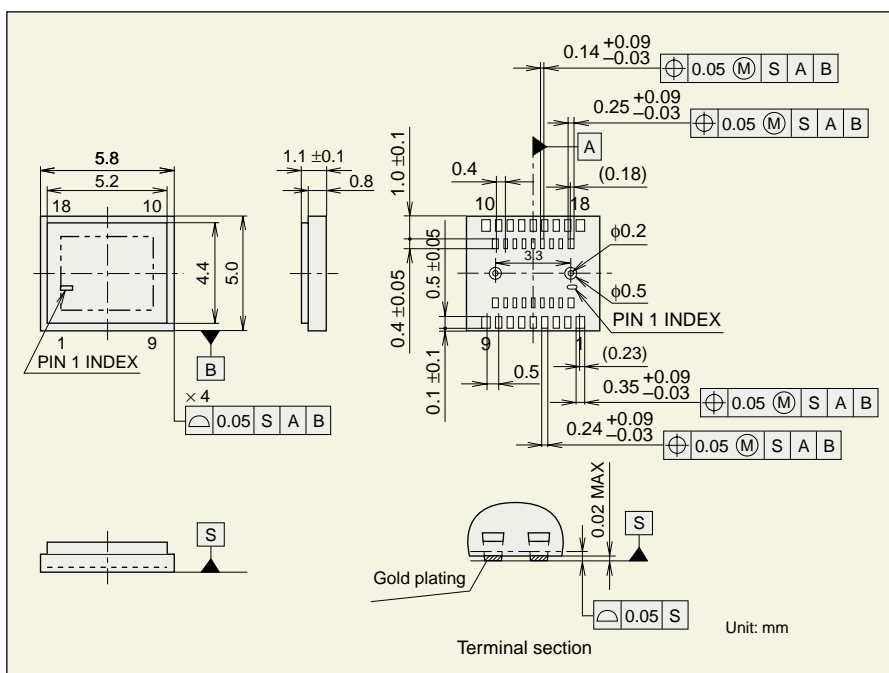
■ Figure 2 CXA2674EM Block Diagram



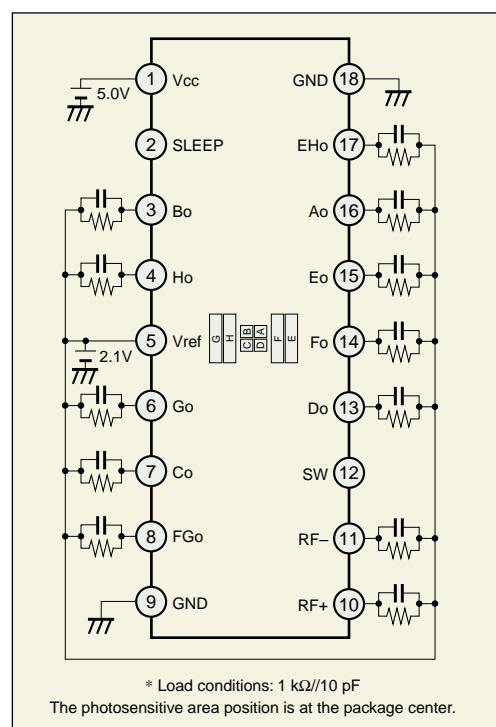
■ Figure 3 CXA2673EM Acceptance Pattern Dimensions



■ Figure 4 CXA2674EM Acceptance Pattern Dimensions



■ Figure 6 CXA2673/74EM Package Dimensions



■ Figure 5 CXA2674EM Pin Configuration