

CXA2635AM

The DVD is no longer a new or unusual medium. We are now in an age when anyone who wants to can enjoy DVDs in their own home, and the market is moving from the stage where market penetration is an issue to a period where growth is an issue.

Sony has now developed a photodetector IC (PDIC) that can form a DVD player optical pickup with a minimal number of components.

- Supports two-wavelength (CD and DVD) laser diodes
- Supports ×8-speed CD and ×6-speed DVD playback
- Built-in media switch
- Miniature transparent 12-pin molded package

■ PDIC that Supports Two-Wavelength (CD and DVD) Laser Diodes

The CXA2635AM provides individual photodetector areas for CD and DVD on the same chip, and thus can support 110 μm beam pitch two-wavelength (CD/DVD) laser diodes. (See figure 1.) This allows a DVD player optical pickup to be implemented with the absolute minimum number of components.

The CD and DVD photodetector areas have a spacing on the chip of 112.5 μm, which is different from the laser diode beam pitch of 110 μm. This is because the refractive index of the half mirror is different for the CD laser wavelength (780 nm) and the DVD laser wavelength (650 nm). This 2.5 μm of displacement in the photodetector area positions allows the

CXA2635AM to form a CD/DVD system in conjunction with a two-wavelength laser diode with a 110 μm beam pitch.

■ Built-in Media Switch

In the CXA2635AM, the CD signal and the DVD signal are output from the same pin. This pin functions as a switch that allows the output to be selected. (A high level selects CD mode and a low level selects DVD mode.)

■ Improvements Over the Earlier CXA2635M

This new device provides the following improvements over the earlier CXA2635M and thus is an easy-to-use device that responds to customer needs.

- Reduced sample-to-sample variations in the offset voltage

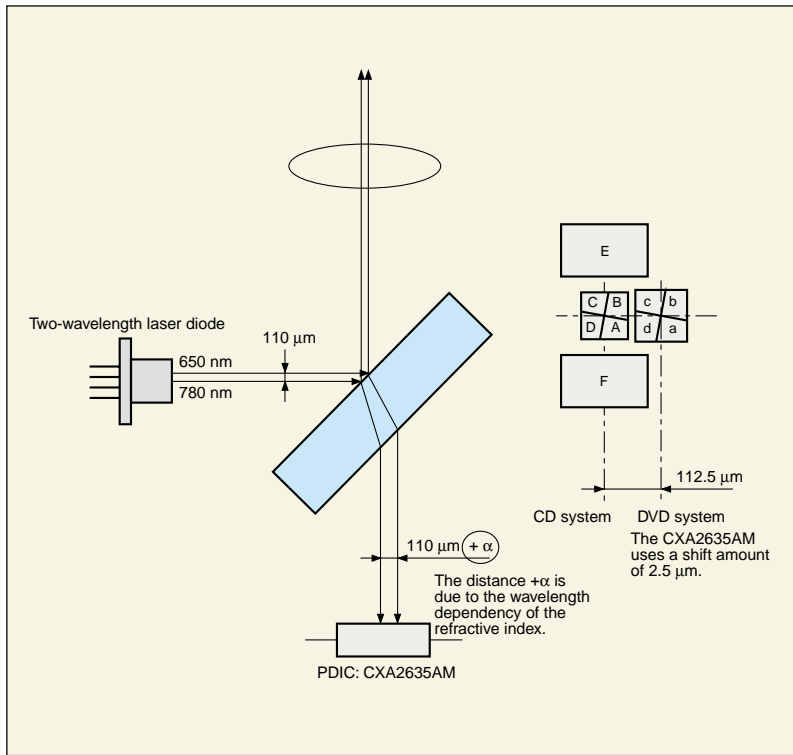
Sony has succeeded in reducing the actual value of the sample-to-sample variations to one half of previous levels. This can provide improved pickup performance and productivity for end product manufacturers.

- Improved resistance to ESD

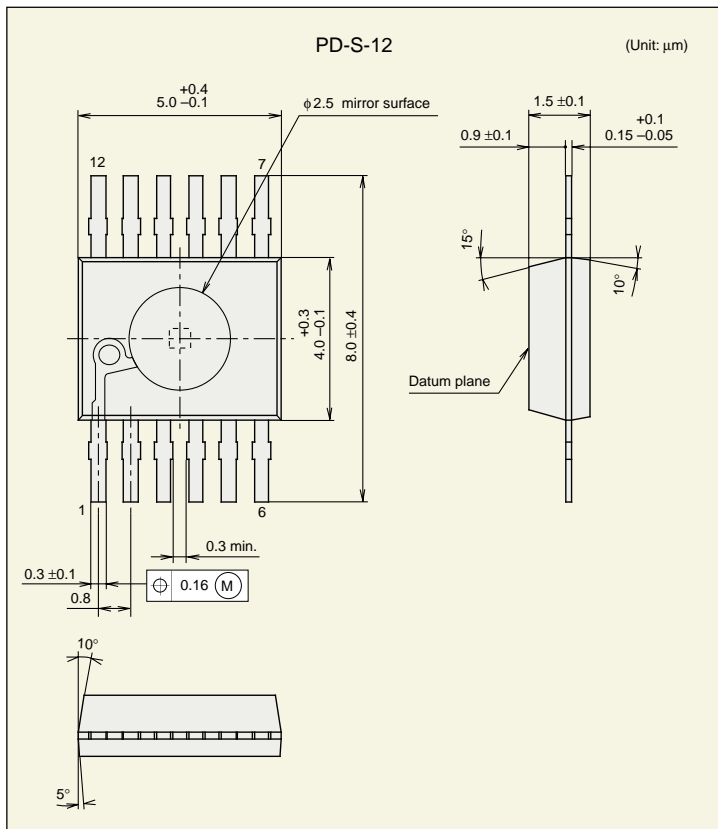
This device also features the ability to withstand electrostatic voltages of up to 200 V. This can contribute to a reduction in destruction of devices by electrostatic discharge during handling.

V O I C E

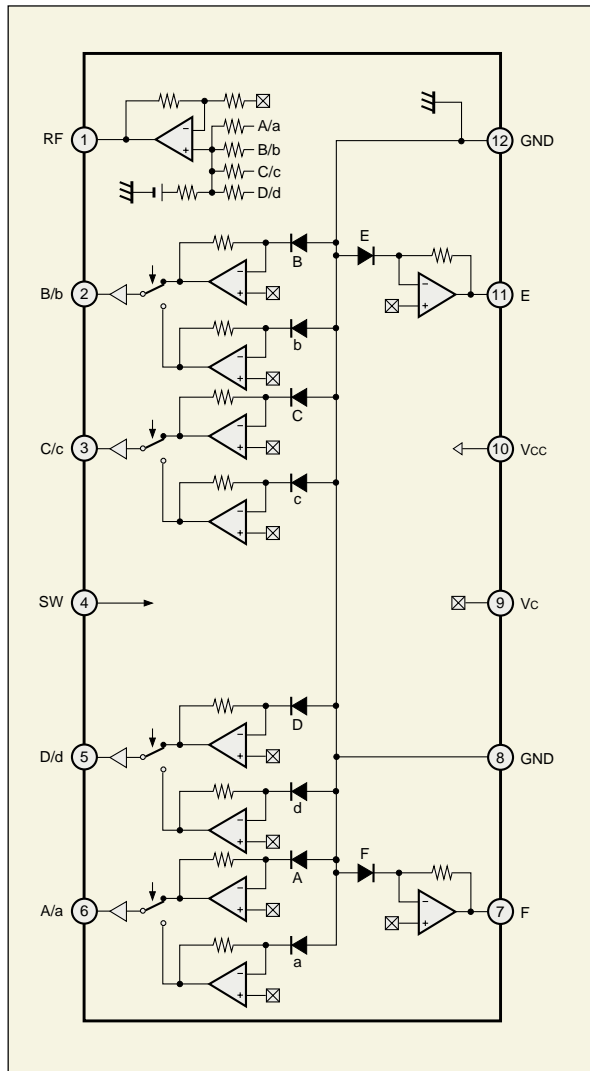
We developed this optical device for DVD players by taking the maximum possible advantage of the technologies created during Sony's work on CD and MD devices. Although I found this a challenging project, not only in the circuit design but also the chip internal device layout as well, I learned a lot and it forced me to grow as an engineer. This is an IC I won't forget.



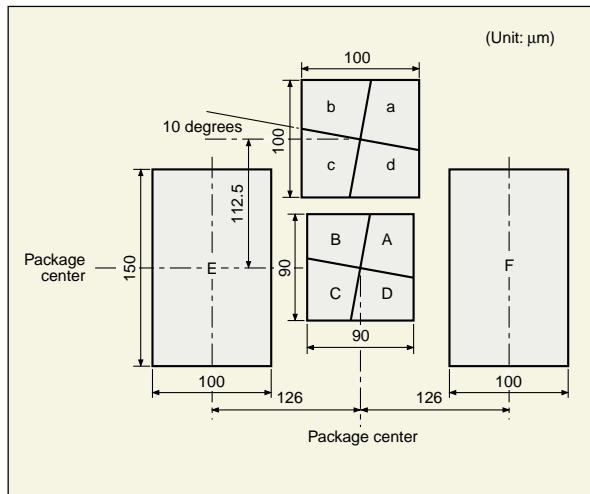
■ Figure 1 CD/DVD Beam Spacing



■ Figure 3 Package Dimensions



■ Figure 2 CXA2635AM Block Diagram



■ Figure 4 Photodetector Pattern Dimensions