

CXA3600R

Increasing speeds in the latest laser printers and copiers have brought the laser diode into the multibeam era. The CXA3600R is a dual laser driver that supports the common cathode type multibeam laser.

This device uses the proven P42 process for the high-speed transistors in the output stage and provides switching speeds up to 200 MHz.

The CXA3600R also features auto power control and an auto bias control functions that optimize the bias current to eliminate the oscillation delay, which is a characteristic of lasers, thus allowing the laser to exhibit its maximum response characteristics.

- Auto power control function
- Autobias control function
- High-speed switching characteristics
- Low droop current
- Supports both LVDS and TTL level input
- Power monitor function

■ Auto Power Control

Since the optical power output from a laser diode varies widely with temperature, it is necessary to monitor the laser light with a photodiode and control the laser so that the photodiode output voltage, which equals the amount of light generated, is held constant. The CXA3600R provides an auto power control function and has a structure that can automatically control the drive current.

■ Auto Bias Control

The oscillation delay phenomenon is a unique characteristic of the common cathode type, which is by far the most commonly used multibeam laser type. To eliminate oscillation delay, the bias current must be set just below the lasing threshold level. However, this threshold level changes with the laser temperature and time. In the conventional approach, the bias current was set at a level that left some amount of margin with respect to these changes. The auto bias control function uses an internal calculation to determine the threshold value, and follows changes in the threshold value with temperature and time. This allows an optimal threshold value to be determined for each laser and allows the oscillation delay to be eliminated. (See figure 2.)

■ Supports both LVDS and TTL Level Input

The CXA3600R uses LVDS input for its data input to support even faster operation. It also allows TTL inputs to be used by holding one of the inputs at the reference voltage level.

■ Power Monitor Function

This function controls current levels so that currents in excess of the set levels do not occur in any of the states that occur in the power on and power down sequences.

■ Miniature Package

The CXA3600R is provided in a 48-pin LQFP (9 × 9 mm) miniature package and can contribute to reduced mounting areas.

■ Best Match for Sony Lasers

The CXA3600R allows the maximum performance to be acquired from the laser by using Sony multibeam laser (SLD26X Series) products.

V O I C E

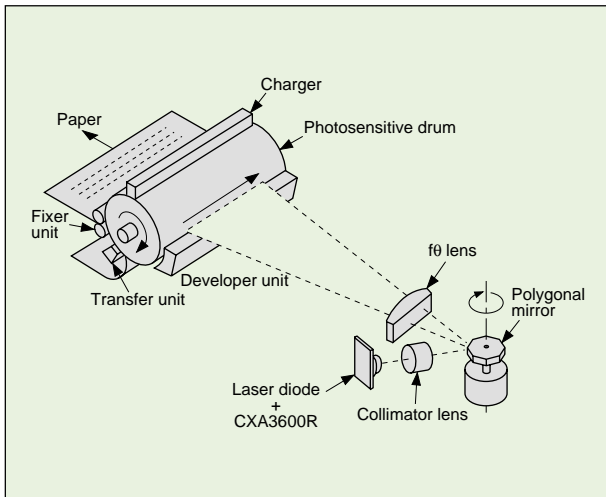
As laser printer and digital plain paper copier printing speeds continue to increase, the multi-beam laser is expected to become the mainstream light source in these products. This IC incorporates several new concepts, all for the first time in the industry, to get the best possible performance from the multi-beam laser used in these products. We also incorporated high-quality mechanisms that prevent damage to the laser under a wide range of conditions. We are confident that this new IC can deliver high performance and high quality.

■ High-Speed Switching Characteristics

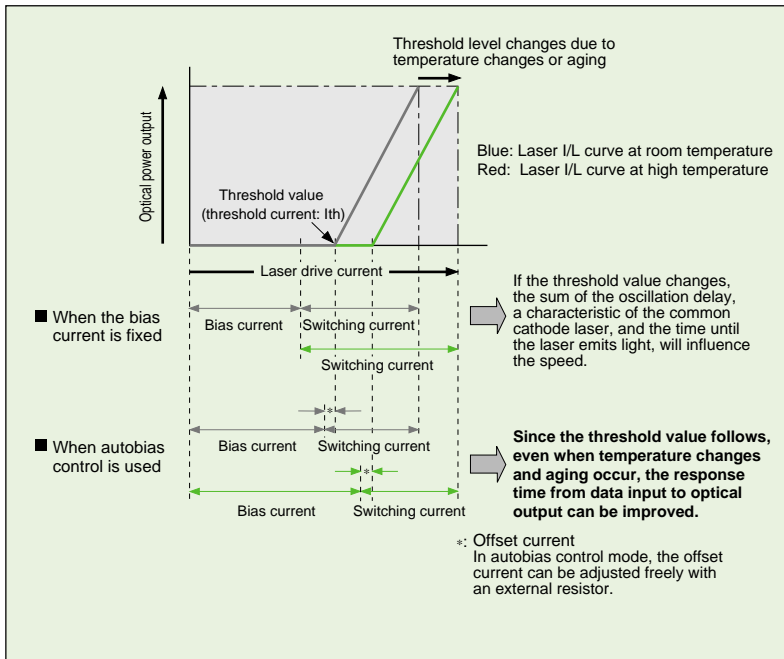
The CXA3600R's laser drive current output circuit uses a high-speed pnp transistor and can operate at switching frequencies up to 200 MHz. The rise time (tr) and fall time (tf) are both 1.3 ns (typical).

■ Low Droop Current

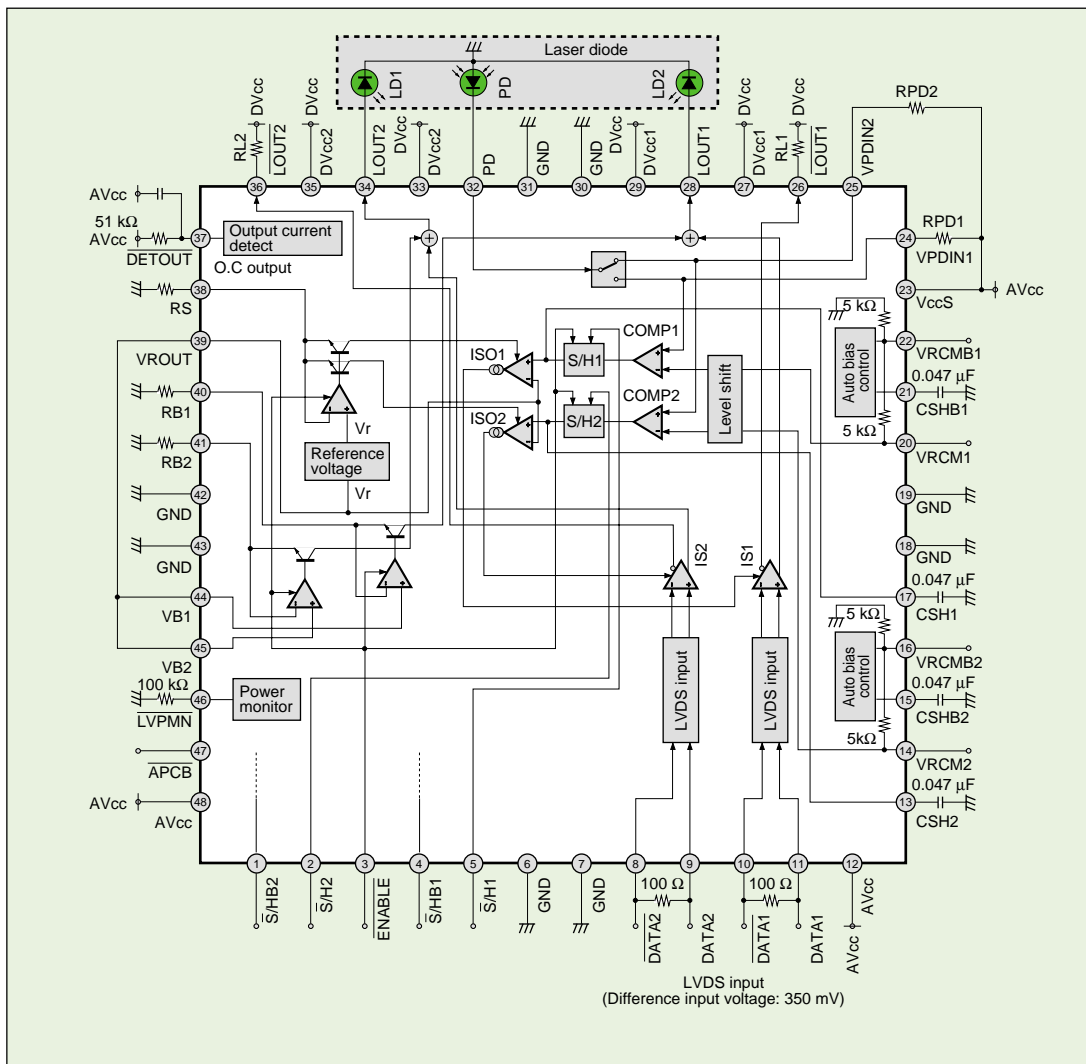
The CXA3600R achieves the extremely low leakage current value of 0.2 nA (typical) during the hold period. This allows a longer hold period to be used and is advantageous when using multiple lasers.



■ Figure 1 Laser Printer Basic Structure



■ Figure 2 Autobias Control Function



■ Figure 3 CXA3600R Block Diagram