

How does a silicon photocell convert laser pulse energy to electrical signal?

The laser pulse energy received by the silicon photocell was converted to an electrical signal. The signal energy is determined by the optical filter mode, laser spot and sweeping duration across the silicon photocell.

How is signal energy determined in a silicon photocell?

The signal energy is determined by the optical filter mode, laser spot and sweeping duration across the silicon photocell. As the receiving distance increases, the diameter of the laser spot expands, and both the sweeping duration across the silicon photocell and the laser energy received by the silicon photocell decrease.

What is a bare 2cr93 silicon photocell used for?

When the receiving distance was over 50 meters, the open circuit voltages of the silicon photocells were also approximately equal. The bare 2CR93 silicon photocell was used as direct photoelectric converting device. With a 100 mH external inductance, the photoelectric conversion signal was modulated into a sinusoidal signal.

What is a 2cr93 solar cell equivalent diode capacitance?

The 2CR93 silicon solar cell equivalent diode capacitance was 16 nF. The laser receiver receives the laser signal and other external noise, including the mechanical vibration noise, solar irradiance noise and various electrical noises.

Which photodetector is used in a photoelectric conversion array?

The photoelectric conversion array selected a silicon photodiode (Everlight Electronic, PD638C) as the photodetector (package size of 7.5 mm × 5.5 mm, a photosensitive surface size of 3 mm × 3 mm, response time: 50 ns, and wavelength of peak sensitivity: 940 nm).

What is a Trimble ls908 laser receiver?

The American Trimble company developed the LS908 laser receiver, and it selected a silicon photocell as the photodetector (photosensitive surface size of 5 mm × 20 mm). They also designed an efficient operational amplifier circuit and signal processing circuit, with an elevation detection accuracy of ±17.10 mm [23].

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<p>The laser technique based sensors and actuators can provide many superior properties as noncontact, high sensitivity, remote operation, and reliable performance in contrast to other mechanical and electrical techniques. In this paper, we design and fabricate a high-precision 360° laser receiver for leveling,

especially for agricultural and construction field. The laser receiver is ...

Silicon photocell acts as the detector and energy convertor in the VLC system. The system model was set up and simulated in Matlab/Simulink environment. A 10 Hz square wave was modulated on LED ...

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One example is the LR40 laser receiver that was developed by Trimble in the United States; it selected a small silicon photocell as the photodetector ... Ke, X.; Luo, X. ...

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The position value of the middle photocell (PA2) is set at 0; by considering the size and arrangement of the photocell units, the receiver can sense and output nine height levels: when the laser beam irradiates at any position in PA4, it indicates that the current height difference between the receiver and laser reference plane is level 77; when the laser beam ...

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