What is a GaAs photovoltaic converter for high power laser diode?

GaAs converter for high power laser diode. Ultralong minority-carrier lifetime epitaxial GaAs by photon recycling. GaAs converters for high power densities of laser illumination. Prog. Photovolt.: Res. Appl. 2008; 16: 289-295 Design and optimization of GaAs photovoltaic converter for laser power beaming.

Can a GaAs photovoltaic converter be used for laser power beaming?

Design and optimization of GaAs photovoltaic converter for laser power beaming. Enhanced efficiency in 808 nm GaAs laser power converters via gradient doping. Limiting factors on the semiconductor structure of III-V multijunction solar cells for ultra-high concentration (1000-5000 suns). Prog. Photovolt.:

How effective are GaAs converters for high power densities of laser illumination?

GaAs converters for high power densities of laser illumination. Prog. Photovolt.: Res. Appl. 2008; 16: 289-295 Modification of photovoltaic laser power converters grown by LPE. 68.9%efficient GaAs based photonic power conversion enabled by photon recycling and optical resonance.

What is a GaAs photovoltaic array?

Photovoltaic array GaAs cells response driven by high power laser diodes. Optically powered and interrogated rotary position sensor for aircraft engine control applications. Monolithic, series connected GaAs photovoltaic power converters for optoelectronic component applications. Report number: SAND-92-1534.

What is a photovoltaic laser power converter (pvlpc)?

Photovoltaic laser power converters (PVLPCs) are the core element of power-by-light (PBL) systems,which are basically made up of a power laser,an optical fiber,and a PVLPC. PBL allows the safe transfer of power in situations where the direct use of electrical energy to power electronic equipment is either not possible or not recommendable.

Can GaAs-based solar cells be used for pvlpcs?

From then,the experience in developing GaAs-based solar cells has been directly applicableto the

PHOTOVOLTAIC LASER-POWER CONVERTER BASED ON ALGAAS GAAS HETEROSTRUCTURES

development of GaAs PVLPCs. However,the PVLPC has to be adapted and optimized in order to efficiently convert the monochromatic radiation emitted by a laser diode and exiting an optical fiber. This optimization includes the following aspects:

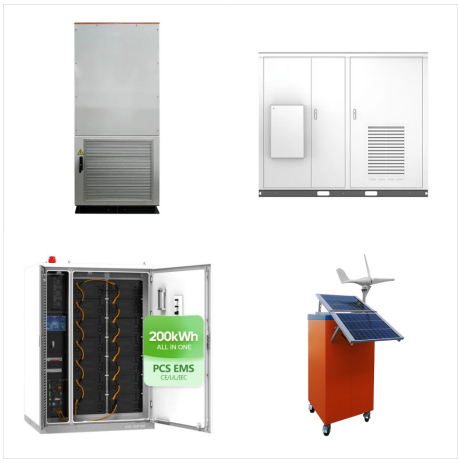
The photovoltaic module (PVM) was formed from 10 x 10 mm InGaAs/GaAs laser power converters. The heterostructures for the LPCs were developed and fabricated at the Ioffe Institute by metal-organic vapor-phase epitaxy on an AIXTRON 200/4 installation [].The heterostructures included a wide-gap optical window p-In y (Al 0.5 Ga 0.5) 1 ??? y As, a ???

Semantic Scholar extracted view of "AlGaAs gradient waveguides for vertical p/n junction GaAs laser power converters" by A. Panchak et al. High-photovoltage GaAs vertical epitaxial monolithic heterostructures with 20 thin p/n junctions and a conversion efficiency of 60%. AlGaAs/GaAs-based semiconductor photovoltaic converters (PVCs) of

PHOTOVOLTAIC LASER-POWER CONVERTER BASED ON ALGAAS GAAS HETEROSTRUCTURES

Abstract Photovoltaic converters of 520- to 540-nm laser radiation based on GaInP/GaAs heterostructures have been studied. It is established that a decrease in the degree of GaInP layer ordering by introduction of antimony (Sb) atoms leads to a short-wave shift of the absorption edge with simultaneous growth in the open-circuit voltage. An increase in the total ???

The most used in PBL systems are GaAs and AlGaAs-based broad-area laser diodes emitting at 808 nm with efficiencies around 40%. 31 Laser diodes emitting at around 900 nm and beyond (940???980 nm) reach efficiencies over 70% 32 although they do not match well with GaAs converters, as will be discussed further on.



Photovoltaic multijunction power-converting III???V semiconductor devices generate electrical power from the optical energy of laser beams. They exhibit conversion efficiencies reaching values greater than 60% and 50% for the GaAs and the InP material systems, respectively. The applications of optical wireless power transmission and power-over-fiber ???

PHOTOVOLTAIC LASER-POWER CONVERTER BASED ON ALGAAS GAAS HETEROSTRUCTURES

This study aims at improving the structure of the PV cell based on the AlGaAs/GaAs structure for converting high-power (up to 100 W/cm2) radiation with a wavelength ??=809 nm. AlGaAs/GaAs CELLS The GaAs-based laser power converters were fabricated by liquid phase epitaxy (LPE) and metalorganic chemical vapour deposition (MOCVD).

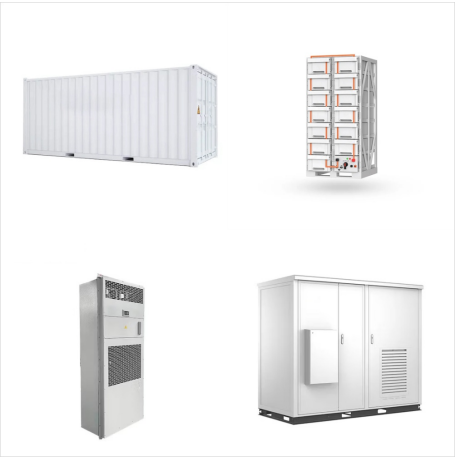
The photovoltaic power converting III-V semiconductor devices are designed with GaAs absorbing layers, here with 5 thin subcells (PT5), connected by transparent tunnel junctions. Unprecedented conversion efficiencies of up ???

With a band gap energy of 1.42 eV, GaAs-based PV cells are well suited for efficient conversion of laser light in the 808- to 850-nm range. 1 GaAs grown by metal organic vapor phase epitaxy For such integrated series connection in PV laser power converters, two architectures are state-of-the-art 3,

PHOTOVOLTAIC LASER-POWER CONVERTER BASED ON ALGAAS GAAS HETEROSTRUCTURES

Metamorphic Ga0.76In0.24As heterostructures for photovoltaic converters are grown by the MOCVD (metal???organic chemical vapor deposition) technique. Photovoltaic laser-power converter based on AlGaAs/GaAs heterostructures Photovoltaic laser-power converters for a wavelength of ?>> = 809 nm are developed and fabricated on the basis of

AlGaAs/GaAs- and GaSb-based laser power PV converters operating at output photocurrent densities up to 100 A/cm/sup 2/ were fabricated. Fill Factor values of 0.85-0.87 at laser power density P/sub ??? Expand



The core of a PBL system is the photovoltaic laser power converter (PVLPC), which transforms the laser light delivered through an optical fiber into electricity. Recently, a PVLPC has demonstrated the highest ???

PHOTOVOLTAIC LASER-POWER CONVERTER BASED ON ALGAAS GAAS HETEROSTRUCTURES

Stable and reliable optical power converting devices are obtained using vertical multi-junction laser power converters. They are based on the GaAs and the InP material systems and are used for power-over-fiber or power-beaming applications. This study demonstrates that, in addition to providing the overall best conversion efficiencies with output voltages ideal for ???

The simulated characteristics of In0.53Ga0.47As/InP photovoltaic converters are compared with those of GaAs-based photovoltaic converters for a wavelength of 809 nm. It is shown that efficiencies of 40% at a wavelength of 1.3 ? 1/4 m and nearly 50% at 1.55 ? 1/4 m can be attained at a laser power of about 2???6 W, but the efficiency noticeably

Photovoltaic laser-power converters for a wavelength of ?>> = 809 nm are developed and fabricated on the basis of single-junction AlGaAs/GaAs structures grown by metal-organic vapor-phase epitaxy. The parameters of the photovoltaic structure constituted by an optical "window" and a cladding layer are optimized by mathematical simulation. Photovoltaic converters with areas of ???

PHOTOVOLTAIC LASER-POWER CONVERTER BASED ON ALGAAS GAAS HETEROSTRUCTURES

For GaAs laser PV converters (?>> = 850) the waveguide can be implemented on the basis of Al x Ga (1???x) As solid solutions. Previously was proposed a design and a PV converter with end-face radiation input was manufactured by liquid-phase epitaxy [16].A schematic representation of the GaAs vertical junction PV cell with Al x Ga (1???x) As waveguide appears ???

Grown by metalorganic vapour phase epitaxy (MOVPE) In x Ga1???x As metamorphic laser power converters have been considered. Metamorphic buffer designs with high quality top layers have been developed. Photovoltaic converters with In0.24Ga0.76As photoactive area and optimised buffer have demonstrated efficiency 41.4% for 1064 nm monochromatic radiation ???

Laser-power converters with a wavelength of ?>> = 809 nm are fabricated on the basis of single-junction AlGaAs/GaAs heterostructures grown by the method of liquid-phase epitaxy (LPE). Photovoltaic modules with an operating voltage of 4 V for converting radiation of various densities are developed and tested. Two approaches???without the use of optical concentrating systems ???

PHOTOVOLTAIC LASER-POWER CONVERTER BASED ON ALGAAS GAAS HETEROSTRUCTURES

Photovoltaic converters of high-power (?>> = 800???860 nm, E LR = 150???550 W/cm 2) laser radiation (PhotoVoltaic Laser Power Converters ??? PVLPCs) based on AlGaAs/GaAs heterostructures grown by metalorganic vapor-phase epitaxy have been developed. To increase the output voltage, the space charge region of p-GaAs/n-Al ?? Ga 1-?? As heterojunction was ???

In recent years, photonic power converters (PPCs), also known as photovoltaic cells for monochromatic light, laser power converters, or sometimes phototransducers, have received increasing interest as they enable a growing ???

AlGaAs/GaAs photovoltaic converters of laser light (?>> = 809 nm), and the fabrication of a photovoltaic module with a working voltage of 4 V. 2. STRUCTURAL OPTIMIZATION OF A PHOTOVOLTAIC CONVERTER OF LASER LIGHT AlGaAs/GaAs heterostructures were grown by metal-organic vapor-phase epitaxy (MOVPE) on an AIX200/4 installation. The technological

PHOTOVOLTAIC LASER-POWER CONVERTER BASED ON ALGAAS GAAS HETEROSTRUCTURES

Photovoltaic laser power converters can generate electricity directly from laser light. The conversion efficiency under monochromatic laser light is much higher than that under the broad-solar spectrum. Photovoltaic laser-power converter based on AlGaAs/GaAs heterostructures. Semiconductors, 50 (2016), Heterostructures of metamorphic

Four-junction AlGaAs/GaAs laser power converters (LPCs) with n+-GaAs/p+-Al0.37Ga0.63As heterostructure tunnel junctions (TJs) have been designed and grown by metal-organic chemical vapor deposition (MOCVD) for converting the power of 808 nm lasers. A maximum conversion efficiency ??c of 56.9% ? 4% is obtained for cells with an aperture of 3.14 ???

The operating voltage at the maximum power point is 5.5???6.0 V, depending on the incident laser power, and an output electrical power output of 1.3 W can be extracted at a laser power of 2.9 W