

How does a photovoltaic device work?

In a photovoltaic device, there is a built-in asymmetry (due to doping) which pulls the excited electrons away before they can relax, and feeds them to an external circuit. The extra energy of the excited electrons generates a potential difference or electron motive force (e.m.f.).

How does a photovoltaic generator work?

Modules within arrays are similarly protected to form a photovoltaic generator that is designed to generate power at a certain current and a voltage which is a multiple of 12 V. Open circuit voltage V_{oc} : When light hits a solar cell, it develops a voltage, analogous to the e.m.f. of a battery in a circuit.

What is a push-pull topology inverter?

Abstract--This paper presents the prototype design of a push-pull topology inverter for photovoltaic (PV) portable lamp. The inverter is the main element that responsible in controlling the electricity flow between the PV module, battery and loads in any PV based system.

What is the efficiency of a push-pull inverter?

Equation (1) is used as a calculation measurement of several types of loads that have been connected to the push-pull inverter developed. (1)(1) As tabulate in Table I, the efficiency of the inverter with a 3W LED lamp connected load is 66.23%.

How a push-pull inverter is designed in LiveWire Software?

The circuit is designed by referring to the basic concept of push-pull topology circuit. The schematic diagram of the push-pull inverter is designed in Livewire software by using push-pull topology as shown in Figure 2. The push-pull topology is suitable for producing square and modified square wave inverter.

How does a 7805 voltage regulator work?

A 7805 voltage regulator (RG1) is used to fix the input voltage to 5V. Each of the input pin is connected to a 10kΩ multi-turn potentiometer (VR1 and VR2). These variable resistors act to adjust the reference voltage set at the two inputs. The output at pin 3 goes high in case of the voltage at pin 2 decreases below the reference voltage set.

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