

ON GRID POWER GENERATION USING NON CONVENTIONAL ENERGY SOURCES

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ABSTRACT

This paper presents a literature review above solar energy use for light the bulb, which will and we have a great scope in electrical technology. The solar energy which absorbs the sunlight energy has been fabricated on a single power system. The solar energy can be used where, the domestic household to light the area which is used to bright or lightening the dark area and its used can be extended to city streets lights. The study was started by investigating the availability solar energy in all over world; it is especially useful for the rural area because of the electricity problems.

Keyword:—Solar panel, Inverter, Charging controller, MOSFET N Channel Transformer, Pulse Generator SG3525(IC).

1. INTRODUCTION

Now days, it is possible that the world will face a global energy crisis due to a decline in the availability of cheap oil and recommendations to a decreasing dependency on fossil fuel. This has led us to find the alternative sources such as solar, wind, tidal, geothermal energies etc. A small solar energy offers several advantages over single system. Like renewable energy sources such as solar energy have been deemed clean dependence on unpredictable factors such as weather and climatic conditions. Fortunately, due to sources complementary nature some of these problems can be addressed by overcoming the weakness of one with the strengths of the other. This brings us to the solar energy and its resources.

2. COMPONENTS

The components of the solar energy for brightening the area are,

1. Solar panel.
2. Capacitor Bank.
3. Charging controller
4. Inverter
5. MOSFET N Channel.
6. Transformer.

2.1 Solar Panel -

A panel designed to absorb the sun's rays as a source of energy for generating electricity or heating. The Solar Panel is used in it is of (12v, 25 watt). The total area of the panel is (290*410*25mm). The quantity of the panel is 2.

Solar panel is made up of many solar cells. Solar cells are made up of silicon, like semiconductors. They are constructed with a positive layer and negative layer, which together create an electric field just like in a battery.



FIGURE: Solar Panal

2.2 Capacitor Bank –

A capacitor bank is a group of a several capacitors of the same rating that are connected in a series or parallel with each other to store electrical energy. The resulting bank is then use to counteract or correct a power factor lag or phase shift in an alternating Current (AC) power supply. The capacitor bank rating is a 2200micro farad. The capacitor bank is work as a voltage fluctuates. The quantity of the capacitor bank is 4.

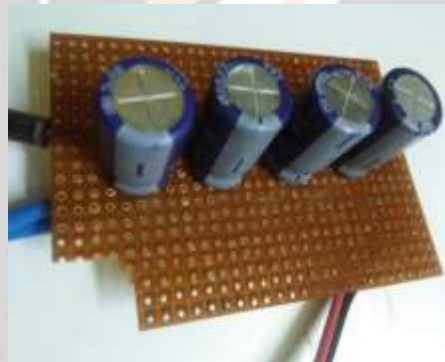


FIGURE: Capacitor Bank

2.3 Charging Controller –

The charging controller used to exist the power of the fully charged battery, to control the battery charging.

2.4 Inverter –

A power inverter or inverter , is an electronic device or circuitry that changes direct current (DC) to alternating current (AC) .The I /p voltage , o/p voltage and frequency , and overall power handling depend on the design of the specific device or circuitry . The inverter does not produce any power; the power is provided by the DC source.

A power inverter can be entirely electronic or may be a combination of mechanical effects and electronic circuitry. Static inverter does not use moving parts in the conversion process.

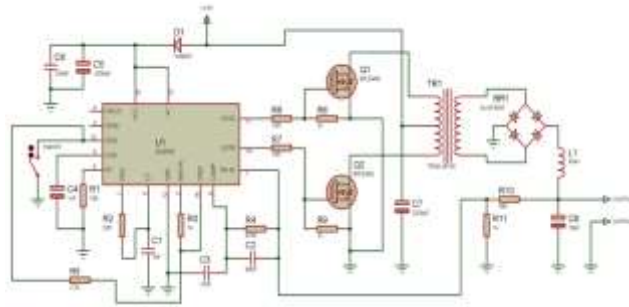


FIGURE: Layout Of Inverter

2.5 MOSFET N Channel -

Field Effect transistor (FET) is semiconductor device with four terminals. FET is a Unipolar device because current is produced by one type of charge carrier (Electron or Holes) depending on the type of FET (n-Channel or p-channel), unlike the Bipolar Junction Transistor (BJT), in which current is produced by both Electron and Holes. Metal Oxide Semiconductor FET (MOSFET) is a category of FET. The MOSFET schematic symbols, and the polarity of the p-n junction between the substrate and the channel. The following explanation focuses on the n-Channel Enhancement mode MOSFET.

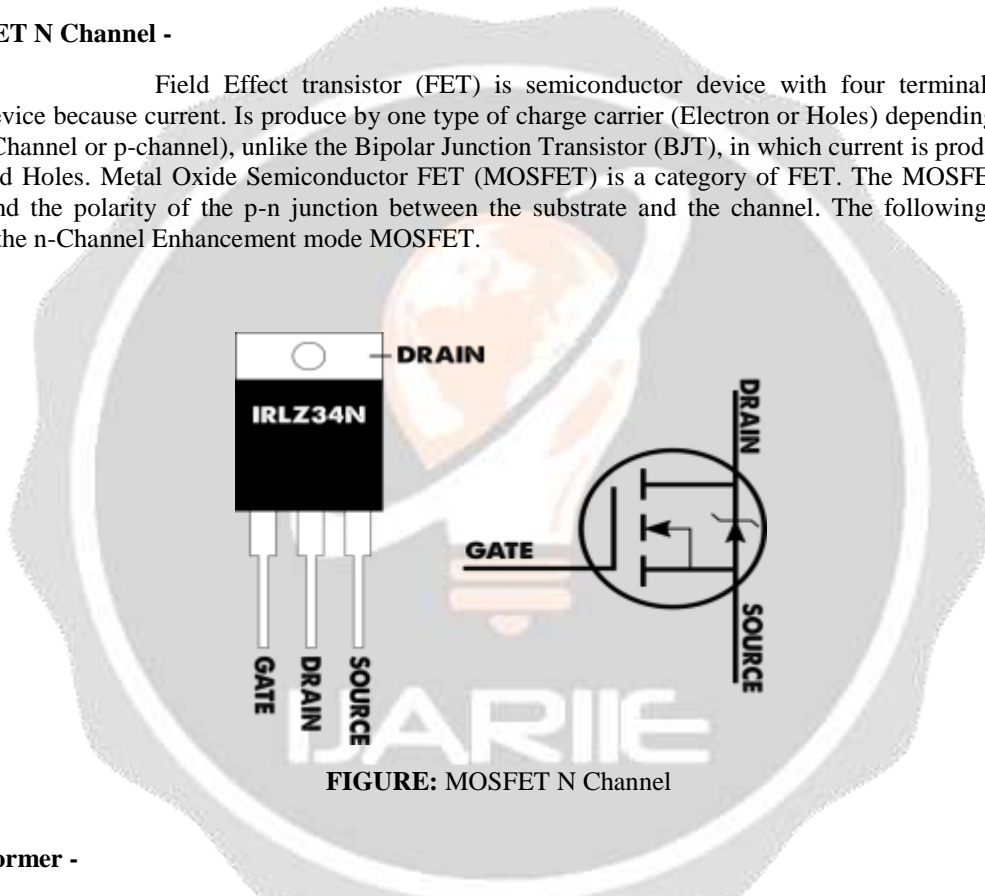


FIGURE: MOSFET N Channel

2.6 Transformer -

A transformer that increases voltage from primary to secondary (more secondary winding turns than primary winding turns) is called a step-up transformer.



FIGURE: Transformer

3. WORKING

The working of solar energy for brightening the light. For that we are using the solar panel of (12V, 25watt). For producing the electricity from sun rays. The solar panel is connected to capacitor bank. The capacitor bank is used to stabilize the voltage taken from the solar panel. After that this stabilized voltage passes to the Diode. The function of the Diode is to allow an electric current, which is which is passes from the voltage stabilizer and this current flows in one direction and blocking opposite or the reverse direction of the current. After that this electric current from Diode is going to the (LM317 IC). This IC then passes the output to the (SG3525 IC) for generating pulse. This pulse in the form of a square waves to shows the power supply of the current. Because the pins of the current rating is not high that's why, we are not directly supply to the equipment. It passes through the push-pull amplifier. The push pull amplifier is more efficient than the other amplifier. This is used for to strong the output. The push-pull amplifier is also called as MOSFET N channel is used the boost the power for the transformer and this transformer is step up transformer which is used to chop the signals of the SG3525 IC and it converts the dc signals into the ac signals and this ac signals or the current going to the load.

4. CONCLUSION

In this paper there is a summerize study of environmental friendly solar energy of the conversion of sun light into electrical power. This has become a major field of reaserch. When compared with energy store in common storage device, it has more improvement in term of sustainability, maintenance free and environmental friendly. Efficient ways to convert solar energy into electrical energy.

5. REFERENCES

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