

Design of IGBT based sine wave inverter





Overview

What is IGBT in a power inverter?

The inverter consists of the control circuit and the power circuit where the control circuit is used to generate the gate pulses to trigger the IGBTs and the power circuit consists of IGBTs and according to the duty cycle of the gate pulses these IGBT's can be turn on and off. The pulse width modulation i. e. PWM technique has been used.

What is a sine wave inverter?

A sine-wave should be the desired output waveform with very low harmonic distortion. The advantages of pure sine wave inverters are such as inductive loads like motors and microwaves run faster, cooler and quieter. It reduces electrical and audible noise in fans, audio amplifiers, TV, fax, fluorescent lights and answering machines.

Can a sine wave inverter produce a square wave output?

Some of them produce a square-wave output, which is undesirable for inductive loads. Here we designed a simple sine wave inverter circuit that produces 50Hz quasi-sine wave output using a single IC CD4047 and some discrete components, which makes it a very cost-effective solution. The DIY sine wave inverter circuit using IC 4047 is given below.

What is a CIB IGBT module?

A CIB IGBT module has a diode based three phase rectifier front end, IGBT based three-phase inverter output stage and a brake chopper stage all integrated within a single module. The IGBT module part number used is the 1200-V, 25-A module 7MBR25VA120-50. Figure 4. Three-Phase Inverter



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