



SOLAR MPPT CHARGER

CESARE MURAT CİRİK EDA KARADAĞ NARİN EZGİ ERALTUĞ

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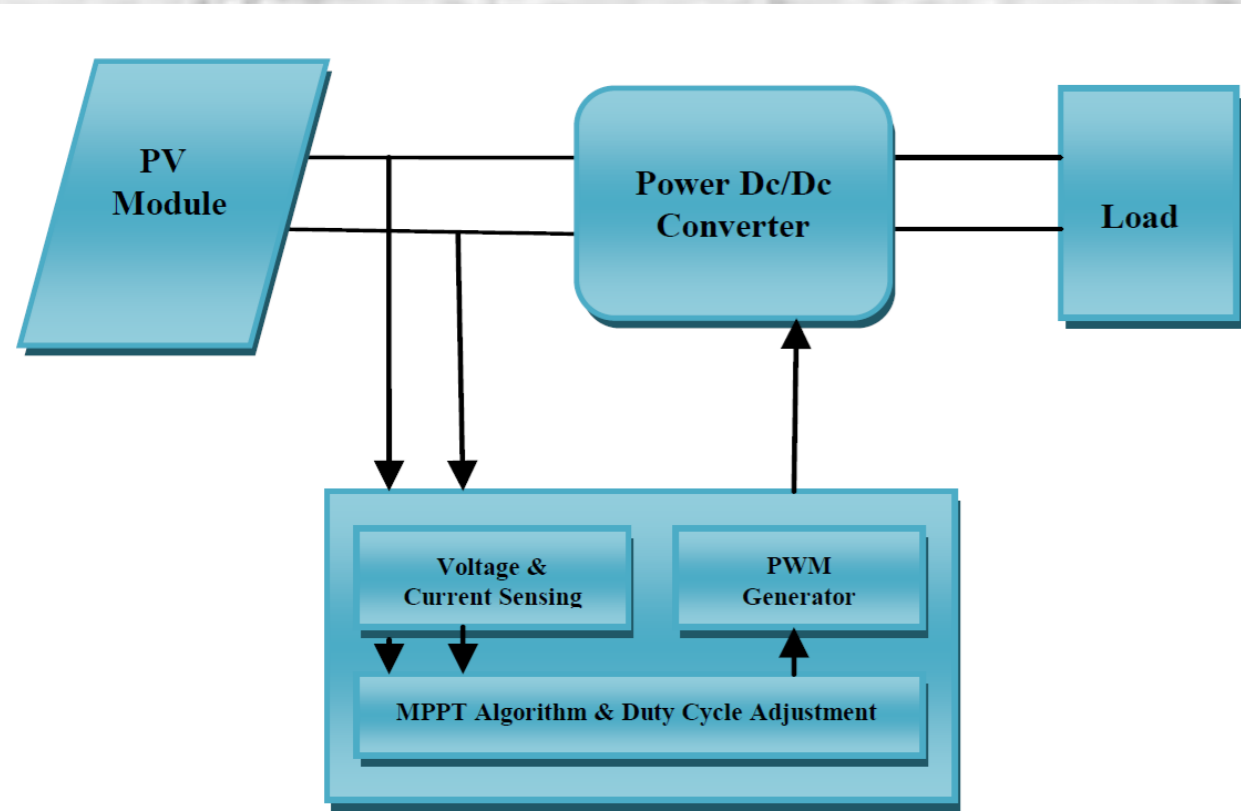
INTRODUCTION

In this thesis, solar mppt charger is presented to get high efficiency from solar panel. It provides theoretical studies of photovoltaics. It also researches in detail the maximum power point tracker (MPPT), DC-DC converter, microcontrollers and battery charging that increases the system efficiency.

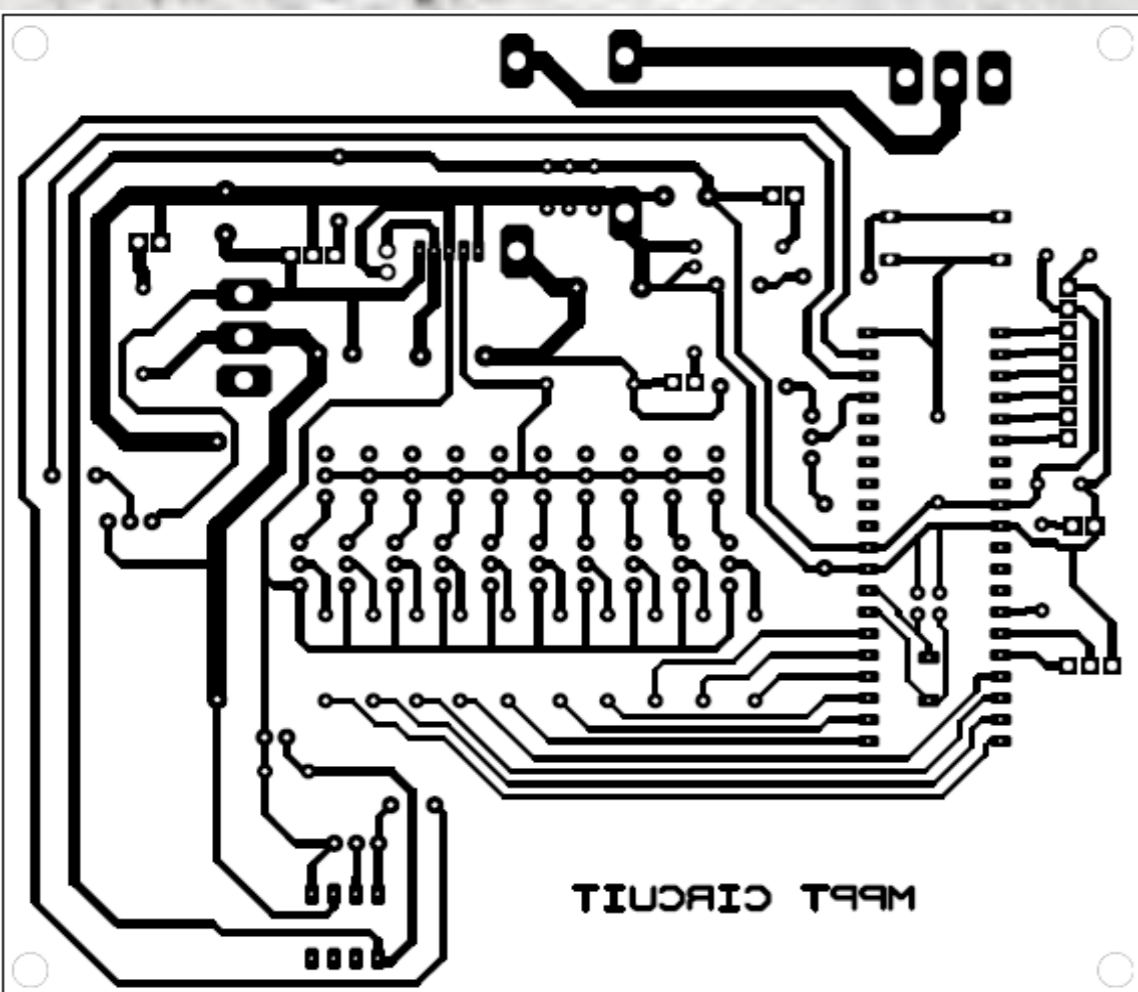
THE SYSTEM



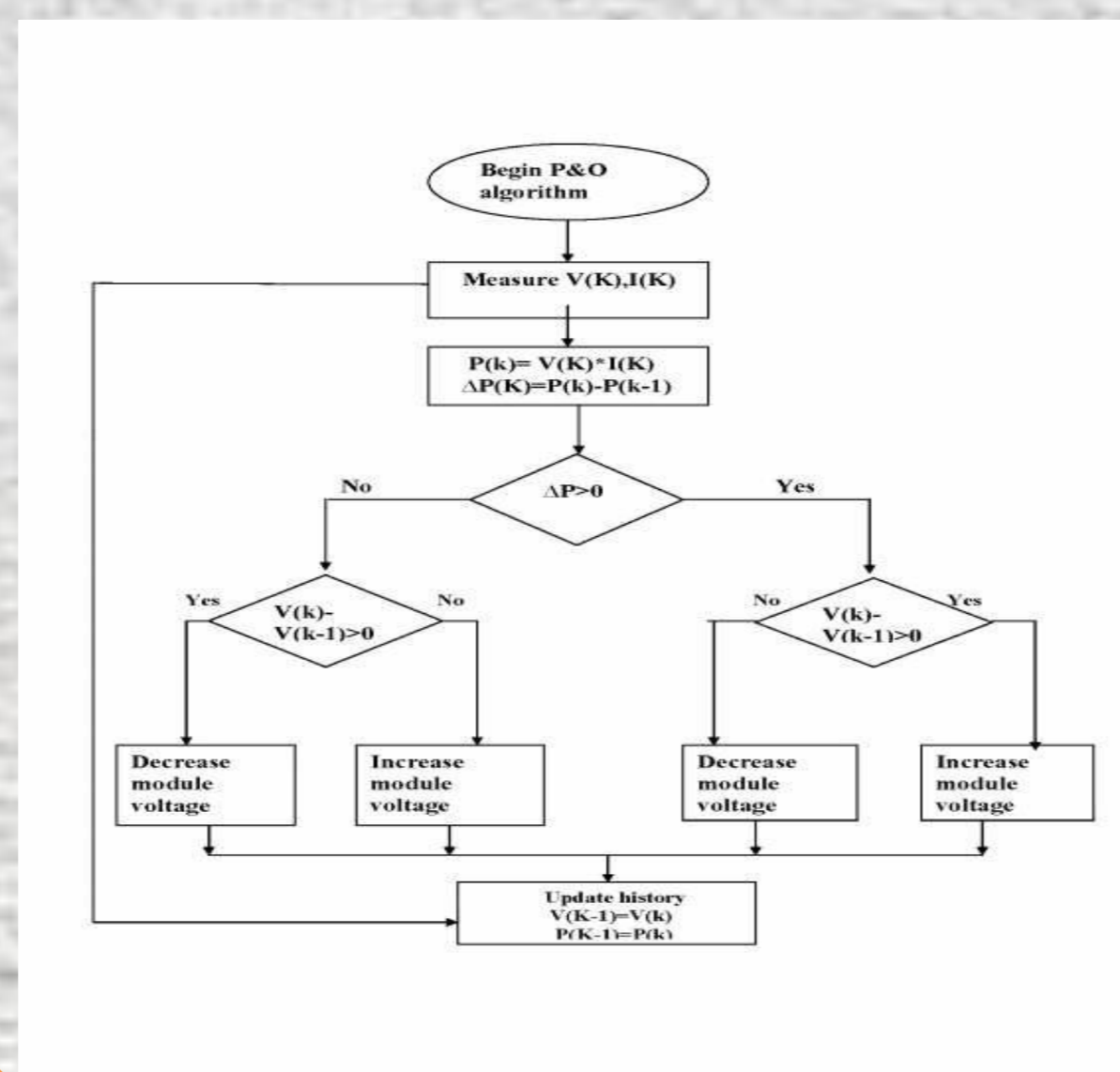
THE PROPOSED SYSTEM



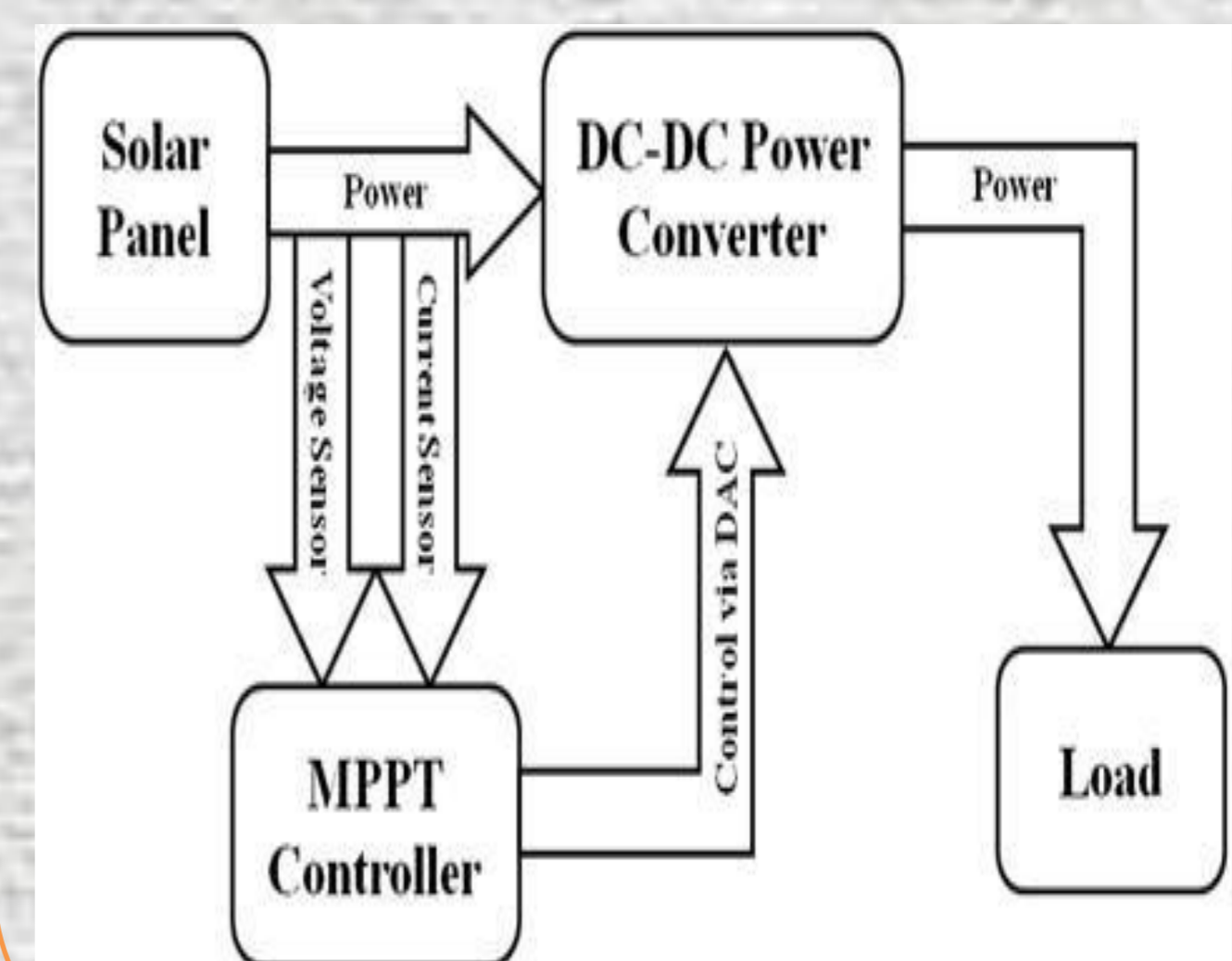
PCB DESIGN



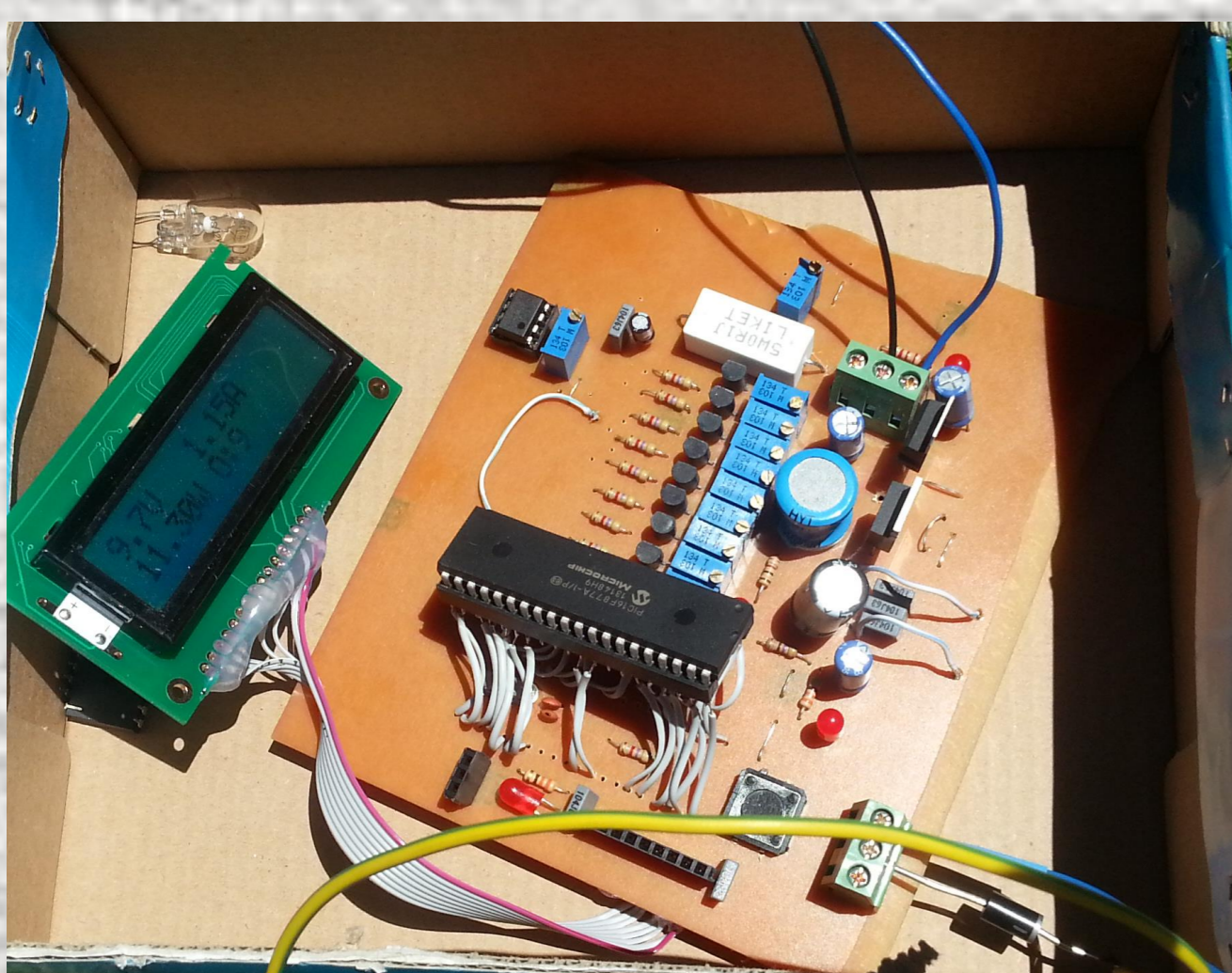
PERTURB AND OBSERVE ALGORITHM



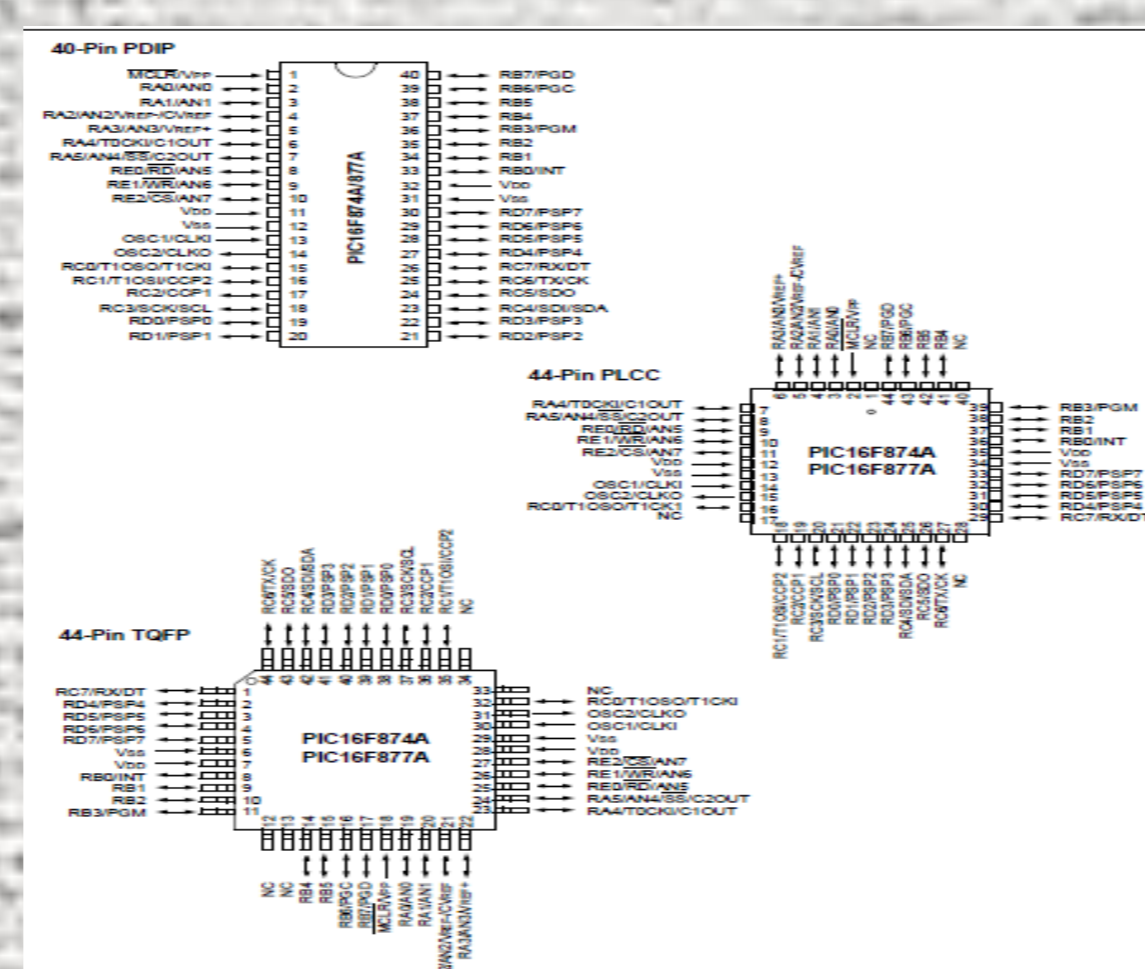
MPPT BLOCK DIAGRAM



CIRCUIT OF THE SYSTEM



PIC16F877A



LM2575

LM1575/LM2575/LM2575HV SIMPLE SWITCHER® 1A Step-Down Voltage Regulator

FEATURES

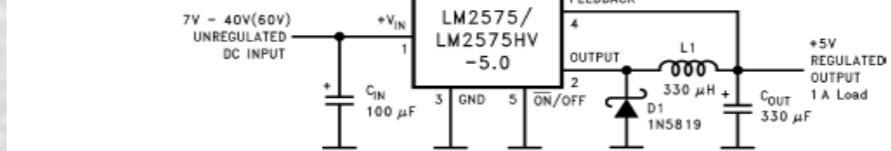
- 3.3V, 5V, 12V, 15V, and Adjustable Output Versions
- Adjustable Version Output Voltage Range, - 1.2V to 37V (57V for HV Version) ±1% Max Over
- Line and Load Conditions
- Specified 1A Output Current
- Wide Input Voltage Range, 40V up to 60V for HV Version
- Requires Only 4 External Components
- 52 kHz Fixed Frequency Internal Oscillator
- TTL Shutdown Capability, Low Power Standby Mode
- High Efficiency
- Uses Readily Available Standard Inductors
- Thermal Shutdown and Current Limit Protection
- P⁺ Product Enhancement Tested

APPLICATIONS

- Simple High-Efficiency Step-Down (Buck) Regulator
- Efficient Pre-Regulator for Linear Regulators
- On-Card Switching Regulators
- Positive to Negative Converter (Buck-Boost)

Typical Application

(Fixed Output Voltage Versions)



DESCRIPTION

The LM2575 series of regulators are monolithic integrated circuits that provide all the active functions for a step-down (buck) switching regulator, capable of driving a 1A load with excellent line and load regulation. These devices are available in fixed output voltages of 3.3V, 5V, 12V, 15V, and an adjustable output version.

Requiring a minimum number of external components, these regulators are simple to use and include internal frequency compensation and a fixed-frequency oscillator.

The LM2575 series offers a high-efficiency replacement for popular three-terminal linear regulators. It substantially reduces the size of the heat sink and in many cases no heat sink is required.

A standard series of inductors optimized for use with the LM2575 are available from several different manufacturers. This feature greatly simplifies the design of switch-mode power supplies.

Other features include a specified 24% tolerance on output voltage within specified input voltages and output load conditions, and 10% on the oscillator frequency. External shutdown is included, featuring 50 µA typical standby current. The output switch includes cycle-by-cycle current limiting, as well as thermal shutdown for full protection under fault conditions.