Linear Power Supply

1 Overview

A linear power supply is a type of power supply that uses a linear regulator to provide a stable output voltage. In this project, our main requirement would be to provide a constant power supply of 10V regardless of the load connected.

2 Description

- The device is a $10V$ fixed voltage regulator.
- DC Voltage supply is $15V$ rms and above.
- Can be directly used without any external components.
- The device includes an internal current limiting protection.

3 Absolute Maximums

- Input Voltage : 15 V rms
- Output Current : 10 A

4 Characteristic Parameter

Parameter	Min	Max	Unit
Input Voltage	12	30	V rms
Output Current		10	A

5 Characteristic Parameter

Parameter	Test Conditions	Min	Typical	Max	Unit
Input voltage		15			V
Output voltage	Input voltage : 13V to 25 V output current : 1 mA to 9.0A	9.9	10.0	10.1	V
Output Resistance : 13V to 25V	Input Voltage	1	1M		Ohm
Drop out Voltage	Output Current : 9.0A Input Voltage : 13V to 20V			9.5	V
Bias Current			40	1000	mA
Short Circuit Output Current				10	A
Peak Output Current				10	A
Efficiency	Output Current Output Current		46 38		%

6 Pinout

Pin	Signal
1	AC input
2	AC input
3	DC output : Positive
4	DC output : Negative

7 Schematic

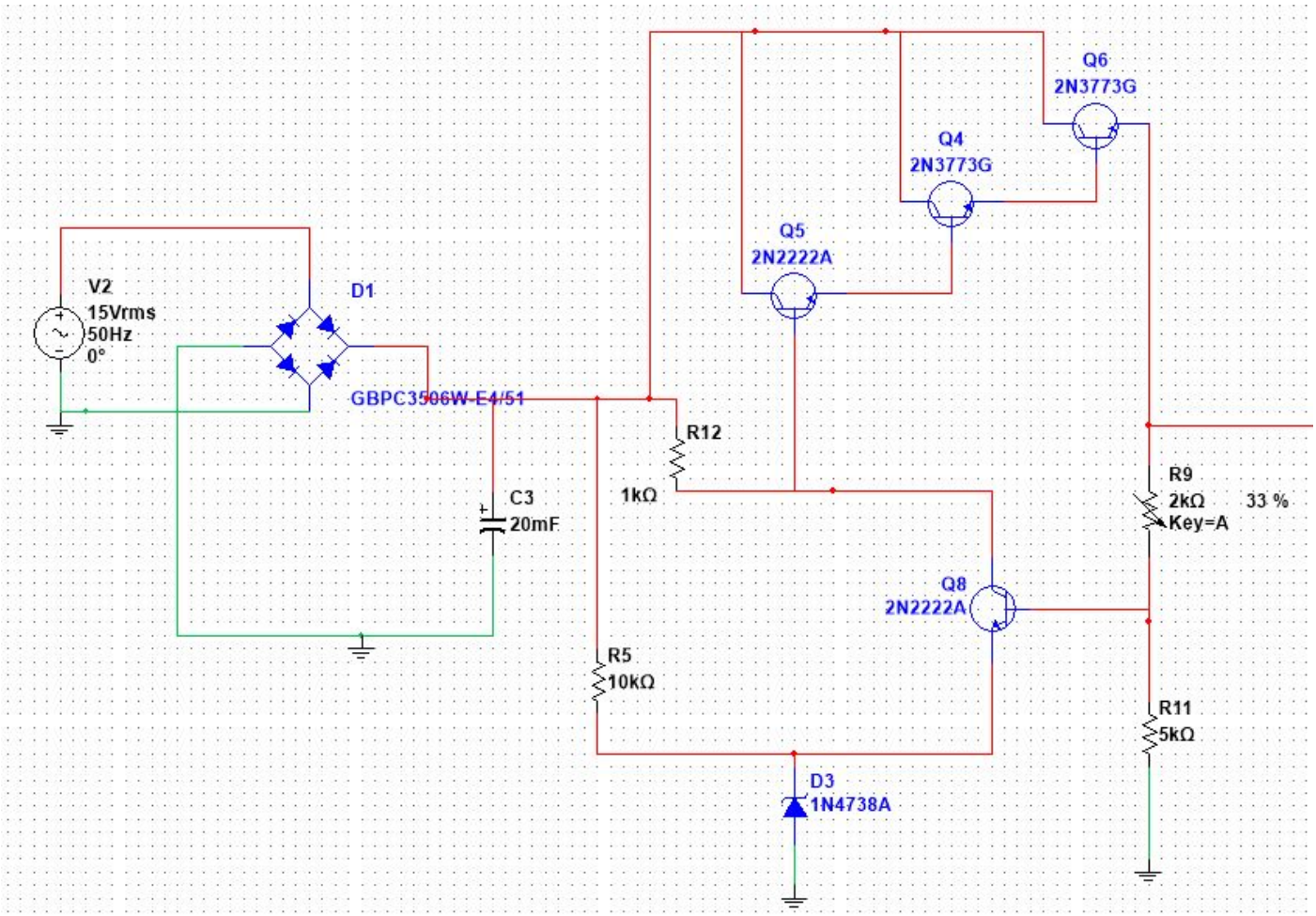


Figure 1: Regulator Schematic

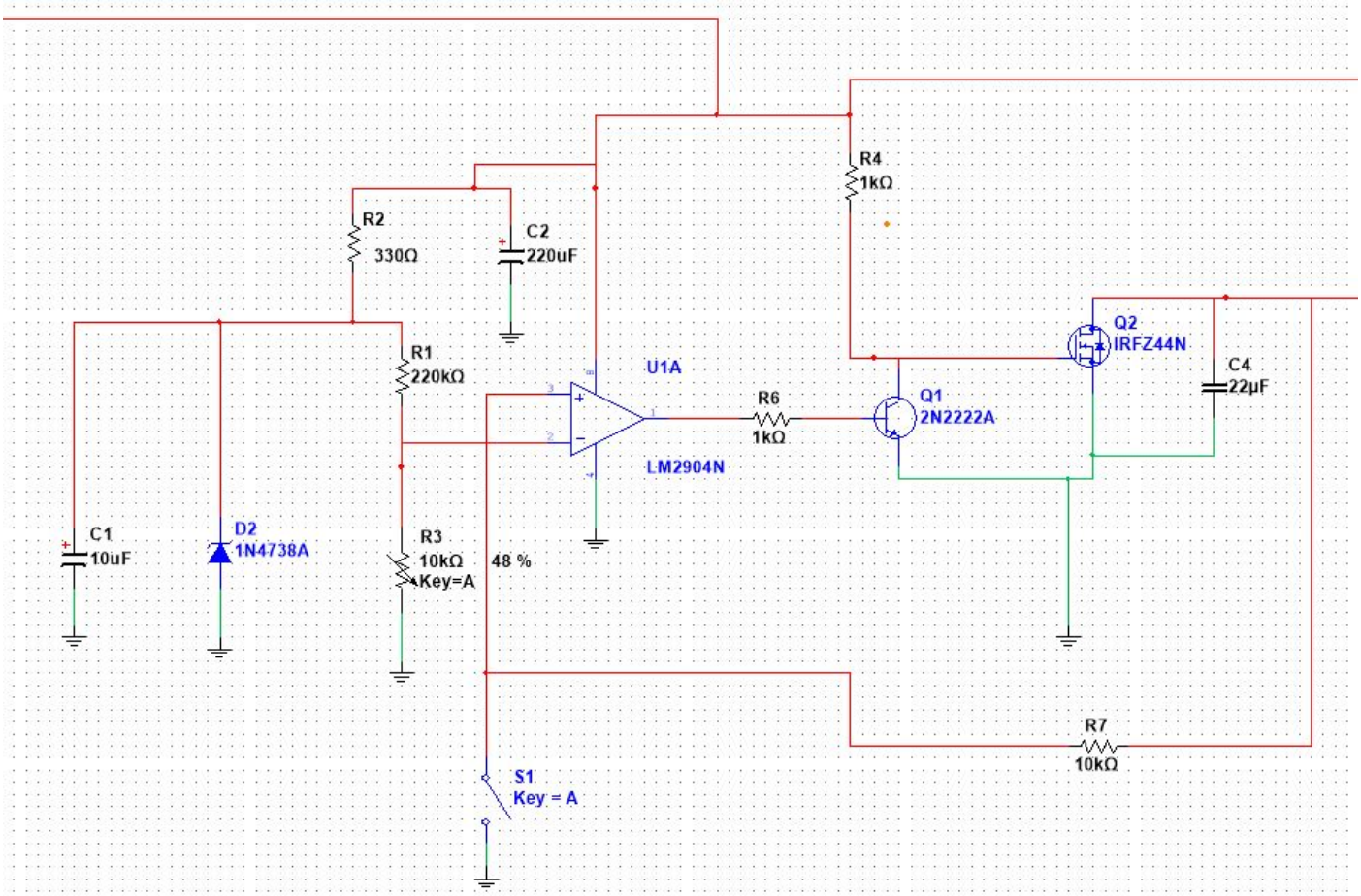
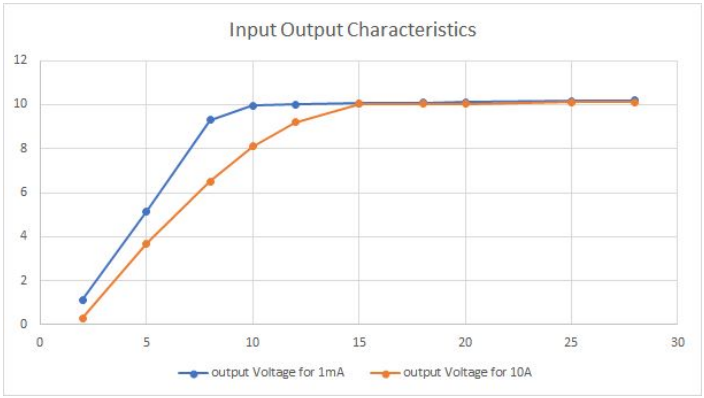


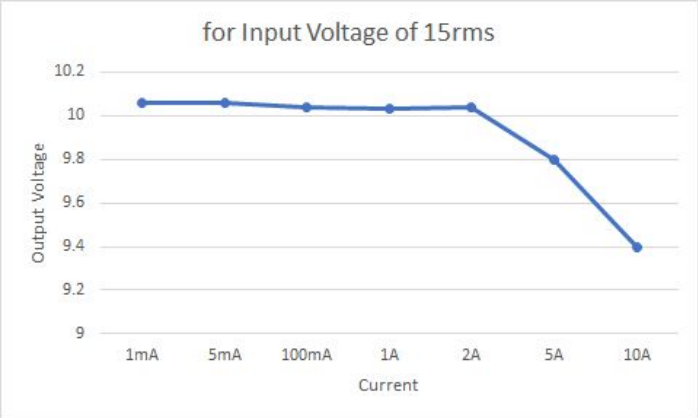
Figure 2: Over current protection Schematic

8 Characteristic Curve

8.1 Line Regulation: Input voltage Vs. Output voltage



8.2 Load Regulation: Output voltage vs. Output current



8.3 Efficiency vs. Output Load