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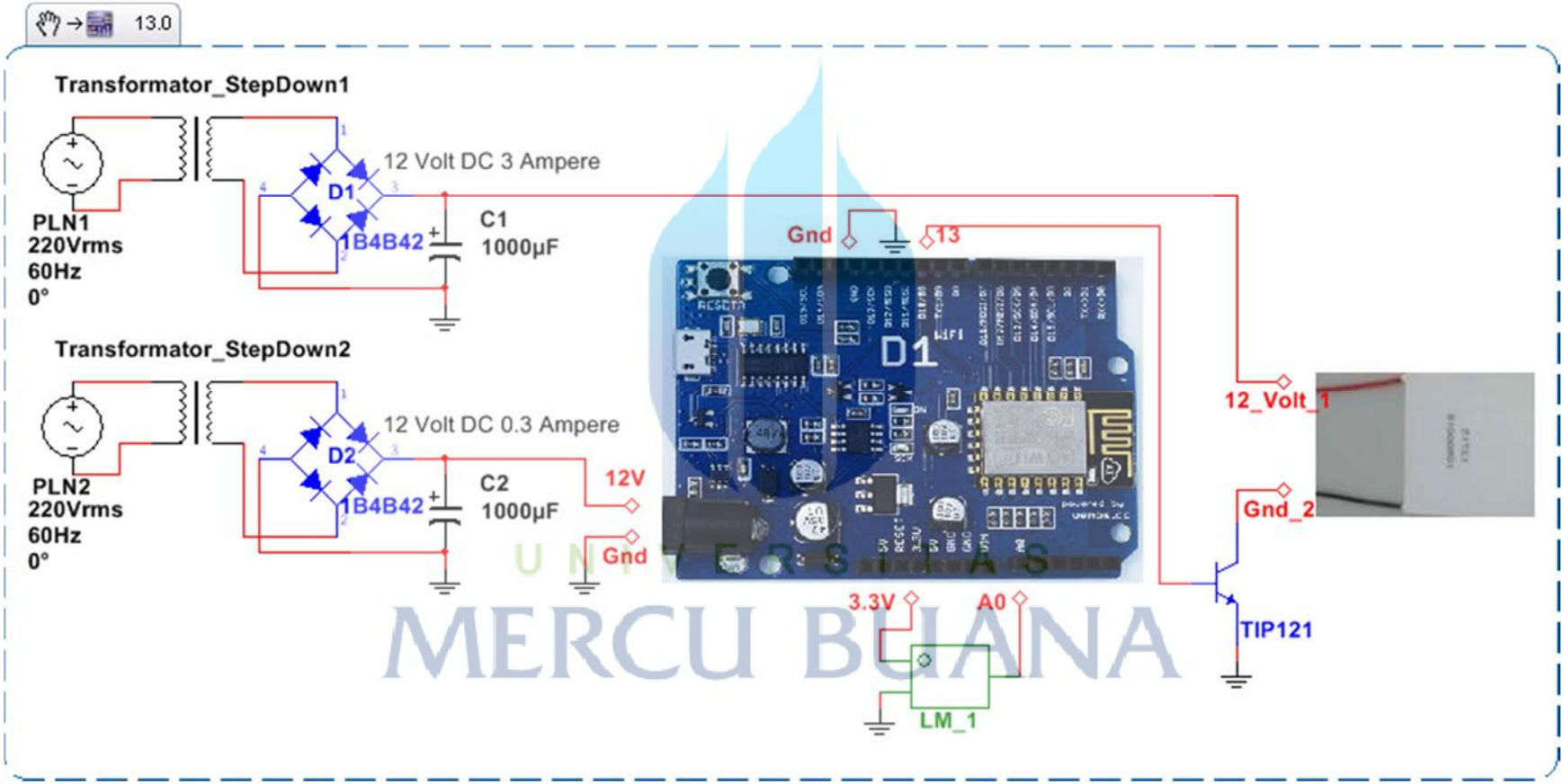
GAMBAR RANGKAIAN KOMPOR LISTRIK IOT



LISTING PROGRAM

```
#define BLYNK_PRINT Serial    // Comment this out to disable prints and save space
#include <ESP8266WiFi.h>
#include <BlynkSimpleEsp8266.h>
#include <SimpleTimer.h>

// You should get Auth Token in the Blynk App.
// Go to the Project Settings (nut icon).
char auth[] = " 07bcc4b9c66e4bc287ea114f972aad81";

// the timer object
SimpleTimer timer;

float temp;
int tempPin = 17; // ADC pin

// This function sends Arduino's up time every second to Virtual Pin (10).
// In the app, Widget's reading frequency should be set to PUSH. This means
// that you define how often to send data to Blynk App.
void sendUptime()
{
  // You can send any value at any time.
```

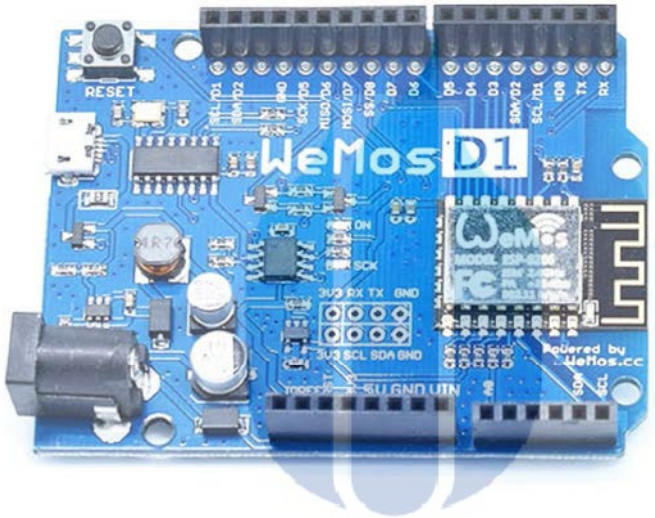
```
  // Please don't send more that 10 values per second.

  Blynk.virtualWrite(10, temp); // virtual pin 10
  Blynk.virtualWrite(9, temp); // virtual pin 10
}

void setup()
{
  Serial.begin(9600); // See the connection status in Serial Monitor
  Blynk.begin(auth, "Pangaribuan", "11021987"); //insert here your SSID and password

  // Setup a function to be called every second
  timer.setInterval(3000, sendUptime);
}

void loop()
{
  Blynk.run();// Initiates Blynk
  timer.run(); // Initiates SimpleTimer
  temp = analogRead(tempPin);
  temp = (temp / 1024.0)*320;
  Serial.print(temp);
  Serial.println("celcius");
}
```



(./images/r2_1.jpg)

Getting Started

Arduino

Getting Started in Arduino (/tutorial/get_started_in_arduino.html)

NodeMcu

Getting Started in NodeMCU (/tutorial/get_started_in_nodemcu.html)

Technical specs

Microcontroller	ESP-8266EX
Operating Voltage	3.3V
Digital I/O Pins	11
Analog Input Pins	1(Max input: 3.2V)
Clock Speed	80MHz/160MHz
Flash	4M bytes
Length	68.6mm
Width	53.4mm
Weight	25g

Documentation

Board size

d1_r2_size.png (./images/d1_r2_size.png)

Schematics

d1_r2.pdf (./images/d1_r2.pdf)

Pin

Pin	Function	ESP-8266 Pin
TX	TXD	TXD
RX	RXD	RXD
A0	Analog input, max 3.3V input	A0
D0	IO	GPIO16
D1	IO, SCL	GPIO5
D2	IO, SDA	GPIO4
D3	IO, 10k Pull-up	GPIO0
D4	IO, 10k Pull-up, BUILTIN_LED	GPIO2

D5	IO, SCK	GPIO14
D6	IO, MISO	GPIO12
D7	IO, MOSI	GPIO13
D8	IO, 10k Pull-down, SS	GPIO15
G	Ground	GND
5V	5V	-
3V3	3.3V	3.3V
RST	Reset	RST

All of the IO pins have interrupt/pwm/I2C/one-wire support except D0

Programming

The D1 R2 has a micro USB for auto programming.
You can also program it using OTA.

Warnings

All of the IO pins run at 3.3V.

Performance Specifications

Hot Side Temperature (°C)	25°C	50°C
Qmax (Watts)	50	57
Delta Tmax (°C)	66	75
Imax (Amps)	6.4	6.4
Vmax (Volts)	14.4	16.4
Module Resistance (Ohms)	1.98	2.30

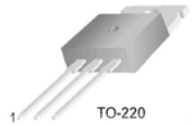
FAIRCHILD SEMICONDUCTOR®

October 2008

TIP120/TIP121/TIP122

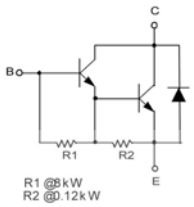
NPN Epitaxial Darlington Transistor

- Medium Power Linear Switching Applications
- Complementary to TIP125/126/127



1.Base 2.Collector 3.Emitter

Equivalent Circuit



R1 @8kW
R2 @0.12kW

Absolute Maximum Ratings* T_a = 25°C unless otherwise noted

Symbol	Parameter	Ratings	Units
V_{CBO}	Collector-Base Voltage : TIP120	60	V
	: TIP121	80	V
	: TIP122	100	V
V_{CEO}	Collector-Emitter Voltage : TIP120	60	V
	: TIP121	80	V
	: TIP122	100	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current (DC)	5	A
I_{CP}	Collector Current (Pulse)	8	A
I_B	Base Current (DC)	120	mA
P_C	Collector Dissipation (T_a=25°C)	2	W
	Collector Dissipation (T_C=25°C)	65	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	- 65 ~ 150	°C

* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

Electrical Characteristics* T_a=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
V_{CEO}(sus)	Collector-Emitter Sustaining Voltage					
	: TIP120	I_C = 100mA, I_B = 0	60			V
	: TIP121		80			V
	: TIP122		100			V
I_{CEO}	Collector Cut-off Current					
	: TIP120	V_{CE} = 30V, I_B = 0			0.5	mA
	: TIP121	V_{CE} = 40V, I_B = 0			0.5	mA
	: TIP122	V_{CE} = 50V, I_B = 0			0.5	mA
I_{CBO}	Collector Cut-off Current					
	: TIP120	V_{CB} = 60V, I_E = 0			0.2	mA
	: TIP121	V_{CB} = 80V, I_E = 0			0.2	mA
	: TIP122	V_{CB} = 100V, I_E = 0			0.2	mA
I_{EBO}	Emitter Cut-off Current	V_{BE} = 5V, I_C = 0			2	mA
h_{FE}	* DC Current Gain	V_{CE} = 3V,I_C = 0.5A	1000			
		V_{CE} = 3V, I_C = 3A	1000			
V_{CE}(sat)	* Collector-Emitter Saturation Voltage	I_C = 3A, I_B = 12mA			2.0	V
		I_C = 5A, I_B = 20mA			4.0	V
V_{BE}(on)	* Base-Emitter On Voltage	V_{CE} = 3V, I_C = 3A			2.5	V
C_{ob}	Output Capacitance	V_{CB} = 10V, I_E = 0, f = 0.1MHz			200	pF

* Pulse Test: Pulse Width£300ms, Duty Cycle£2%

LM35 Precision Centigrade Temperature Sensors

1 Features

- Calibrated Directly in Celsius (Centigrade)
- Linear + 10-mV/°C Scale Factor
- 0.5°C Ensured Accuracy (at 25°C)
- Rated for Full −55°C to 150°C Range
- Suitable for Remote Applications
- Low-Cost Due to Wafer-Level Trimming
- Operates from 4 V to 30 V
- Less than 60-µA Current Drain
- Low Self-Heating, 0.08°C in Still Air
- Non-Linearity Only ±¼°C Typical
- Low-Impedance Output, 0.1 Ω for 1-mA Load

2 Applications

- Power Supplies
- Battery Management
- HVAC
- Appliances

3 Description

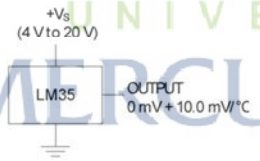
The LM35 series are precision integrated-circuit temperature devices with an output voltage linearly-proportional to the Centigrade temperature. The LM35 device has an advantage over linear temperature sensors calibrated in Kelvin, as the user is not required to subtract a large constant voltage from the output to obtain convenient Centigrade scaling. The LM35 device does not require any external calibration or trimming to provide typical accuracies of ±¼°C at room temperature and ±¾°C over a full −55°C to 150°C temperature range. Lower cost is assured by trimming and calibration at the wafer level. The low-output impedance, linear output, and precise inherent calibration of the LM35 device makes interfacing to readout or control circuitry especially easy. The device is used with single power supplies, or with plus and minus supplies. As the LM35 device draws only 60 µA from the supply, it has very low self-heating of less than 0.1°C in still air. The LM35 device is rated to operate over a −55°C to 150°C temperature range, while the LM35C device is rated for a −40°C to 110°C range (−10° with improved accuracy). The LM35-series devices are available packaged in hermetic TO transistor packages, while the LM35C, LM35CA, and LM35D devices are available in the plastic TO-92 transistor package. The LM35D device is available in an 8-lead surface-mount small-outline package and a plastic TO-220 package.

Device Information[1]

PART NUMBER	PACKAGE	BODY SIZE (NOM)
LM35	TO-CAN (3)	4.699 mm × 4.699 mm
	TO-92 (3)	4.30 mm × 4.30 mm
	SOIC (8)	4.90 mm × 3.91 mm
	TO-220 (3)	14.986 mm × 10.16 mm

(1) For all available packages, see the orderable addendum at the end of the datasheet.

Basic Centigrade Temperature Sensor (2°C to 150°C)



Full-Range Centigrade Temperature Sensor

Choose $R_1 = -V_S / 50\ \mu A$
$V_{OUT} = 1500$ mV at 150°C
$V_{OUT} = 250$ mV at 25°C
$V_{OUT} = -550$ mV at −55°C