

Centro Federal de Educação Tecnológica de Santa Catarina
Departamento Acadêmico de Eletrônica
Desenho Técnico



Explicação do Funcionamento do Circuito a Ser Montado

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Florianópolis, fevereiro de 2008.

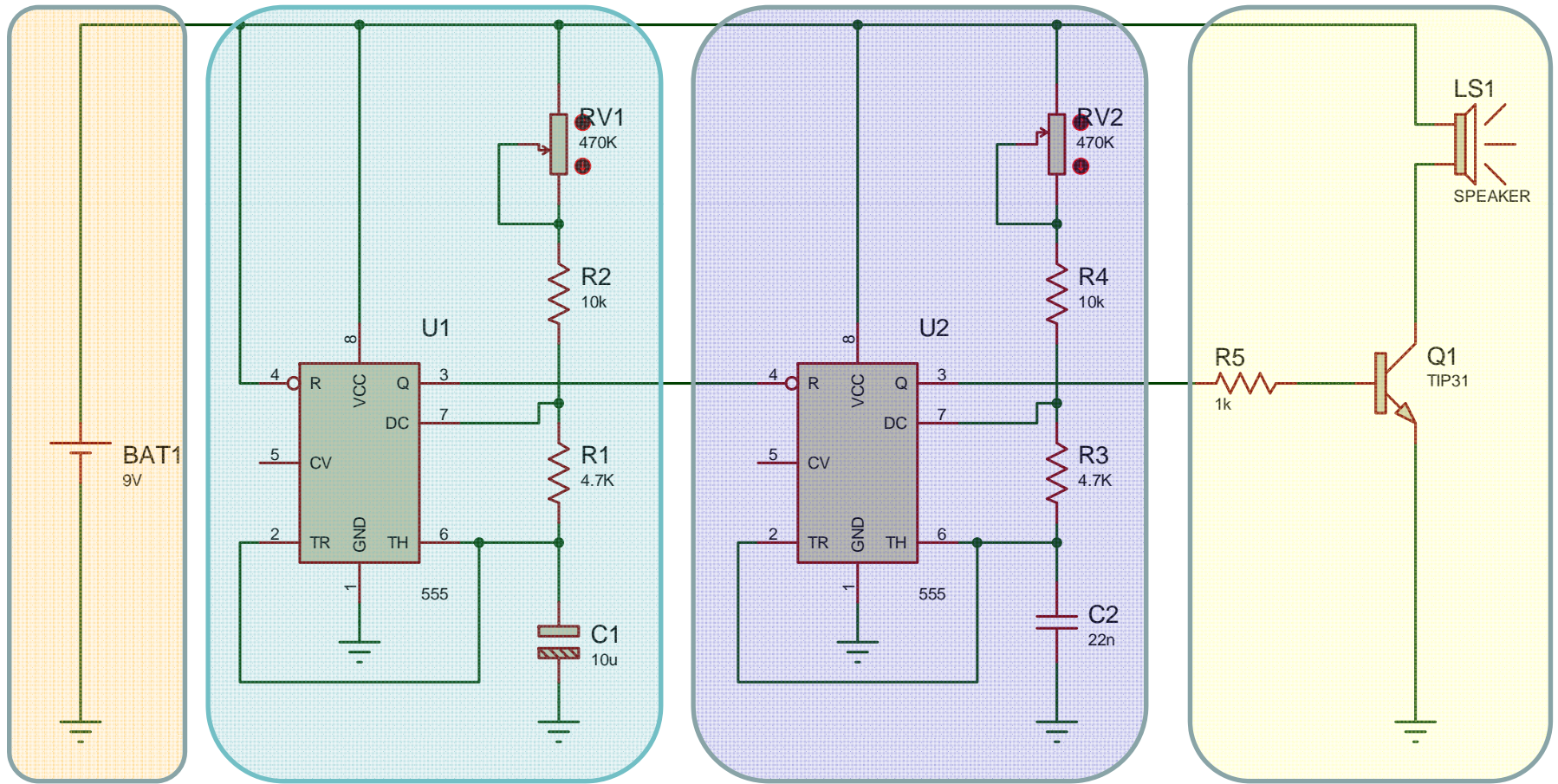
Nesta aula

Tópicos de estudo:

1. O circuito a ser montado;
2. Multivibrador 555;
3. Oscilador com o 555;
4. Modulando o sinal gerado pelo 555;
5. Amplificando o sinal;
6. O circuito completo.

Circuito a ser montado

Sirene modulada:



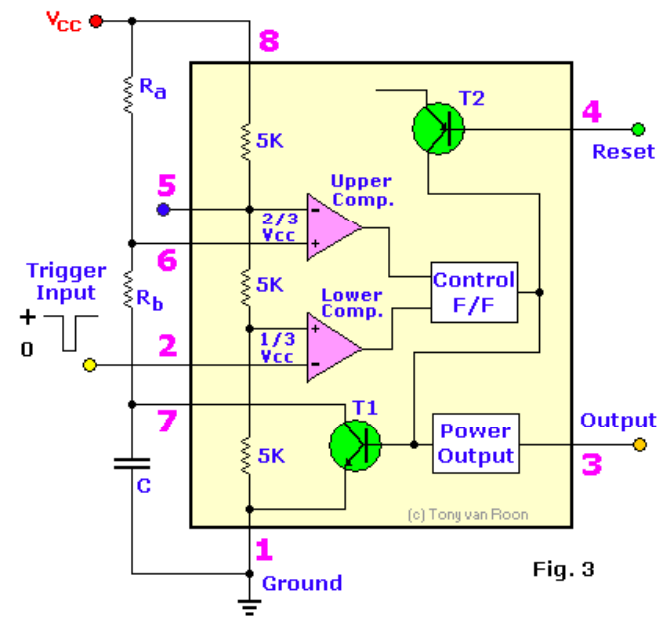
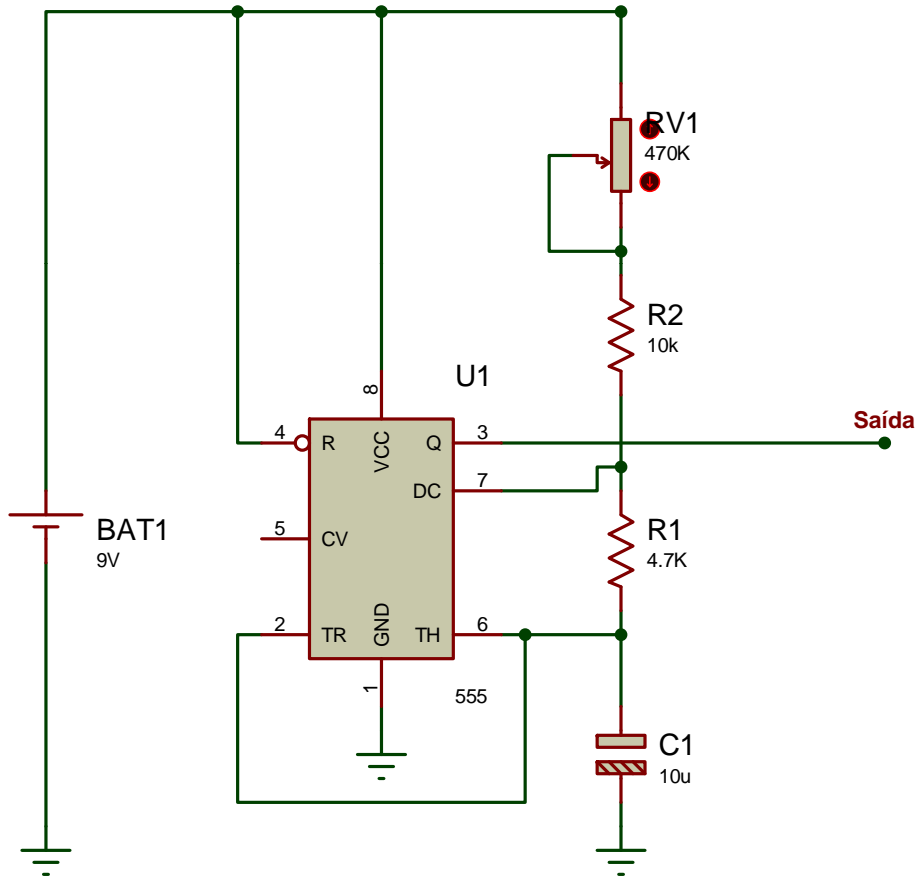
Fonte

Primeiro oscilador

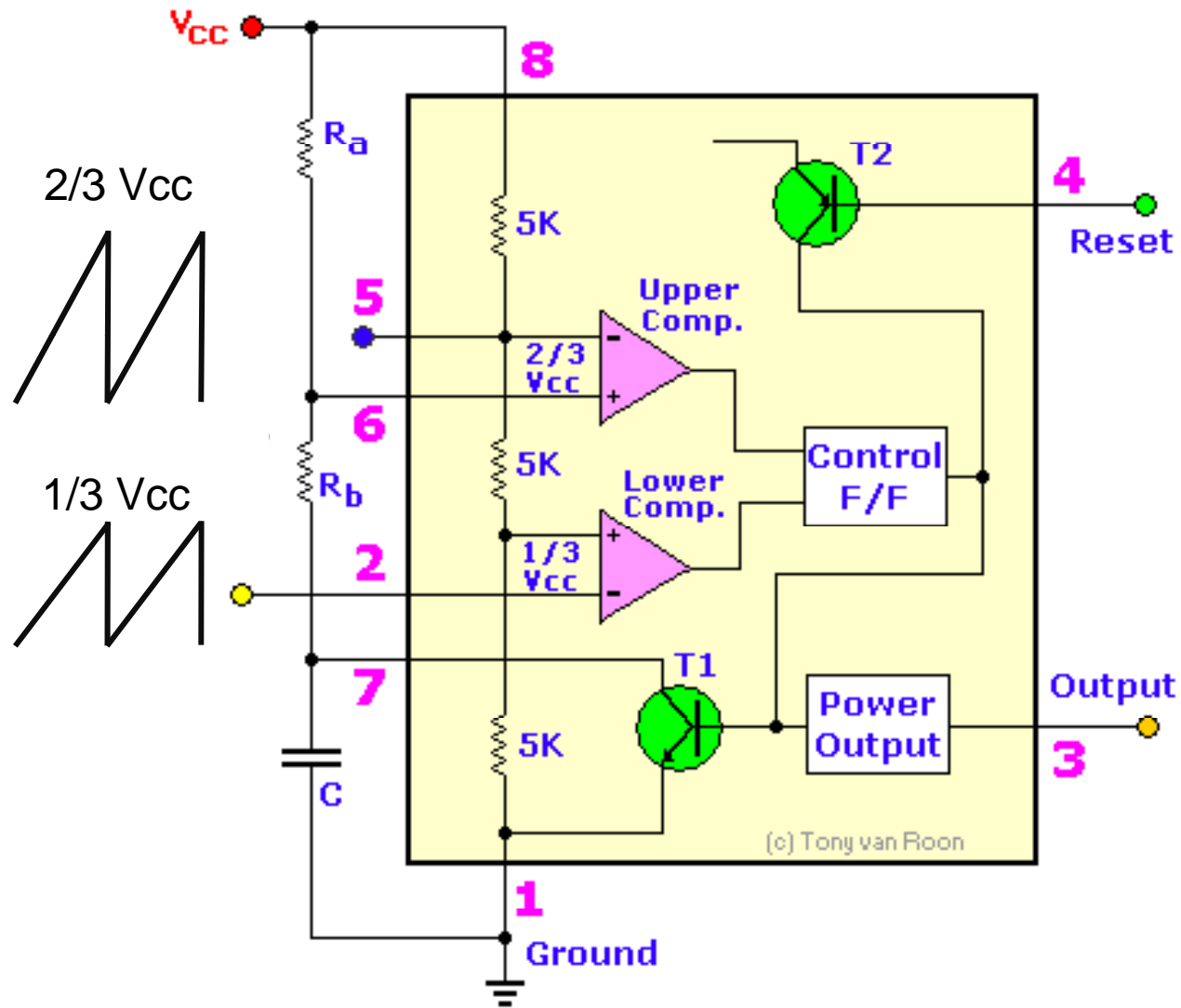
Segundo oscilador

Amplificador

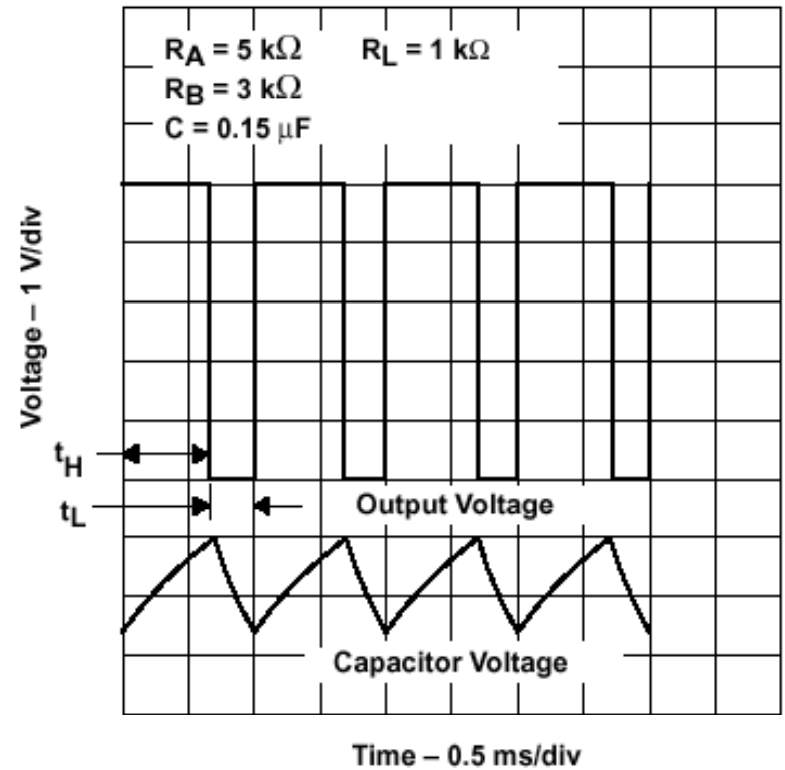
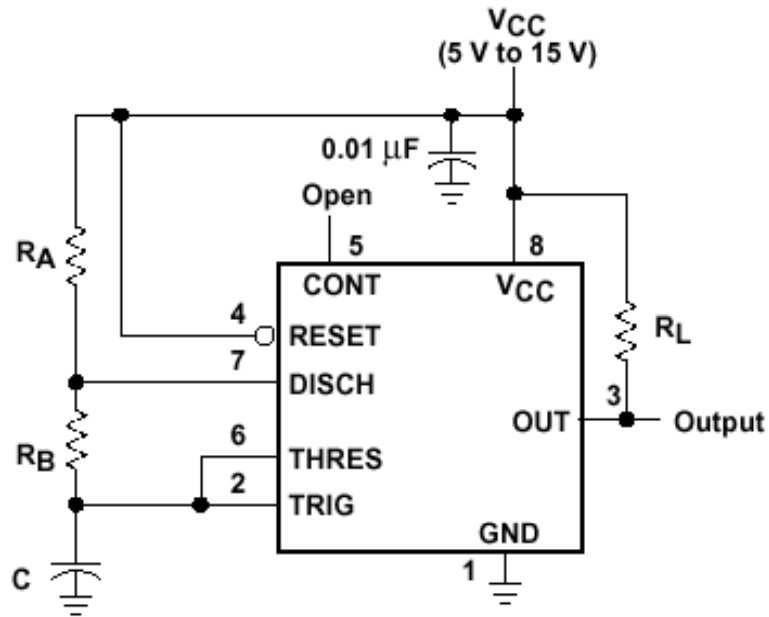
Multivibrador 555



Multivibrador 555



Oscilador com o 555



Oscilador com o 555

ISIS Modulator - ISIS Professional (Animating)

File View Edit Tools Design Graph Source Debug Library Template System Help

INSTRUMENTS

- OSCILLOSCOPE
- LOGIC ANALYSER
- COUNTER TIMER
- VIRTUAL TERMINAL
- SPI DEBUGGER
- I2C DEBUGGER
- SIGNAL GENERATOR
- PATTERN GENERATOR
- DC VOLTMETER
- DC AMMETER
- AC VOLTMETER
- AC AMMETER

Digital Oscilloscope

RV1
470K
TEXT

Channel A
Channel B

Trigger

Level: -10, 0, 10

AC DC

Position: 50, 60, 70

AC DC GND OFF

Invert

Auto

One-Shot

Cursors

Source: A B C D

Channel A

Position: 50, 60, 70

AC DC GND OFF

Invert

Channel B

Position: -170, -180, -150

AC DC GND OFF

Invert

Channel C

Position: -50, -40, -30

AC DC GND OFF

Invert

Channel D

Position: -130, -120, -110

AC DC GND OFF

Invert

Horizontal

Source: A B C D

Position: 210, 200, 190

50m

200 mS

0.50 μ S

0°

2 Message(s)

ANIMATING: 00:00:04.650000 (CPU load 4%)

+600.0 -1800.0 th

Modulando o sinal gerado pelo 555

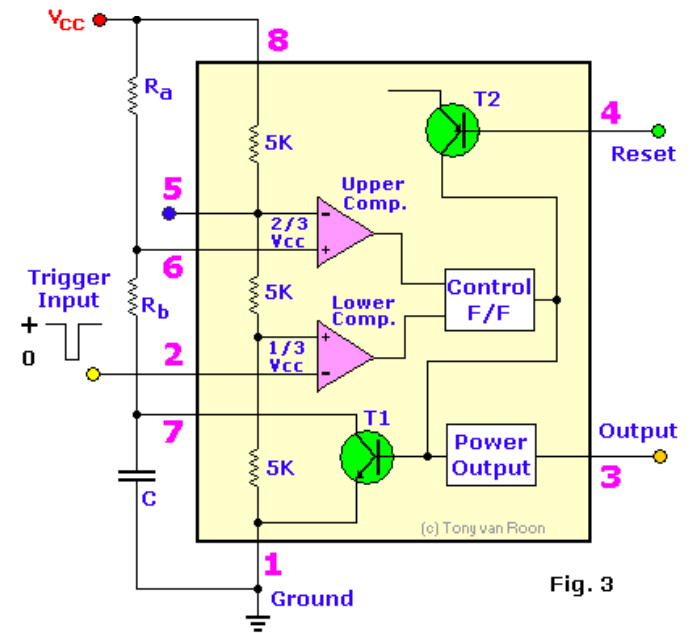
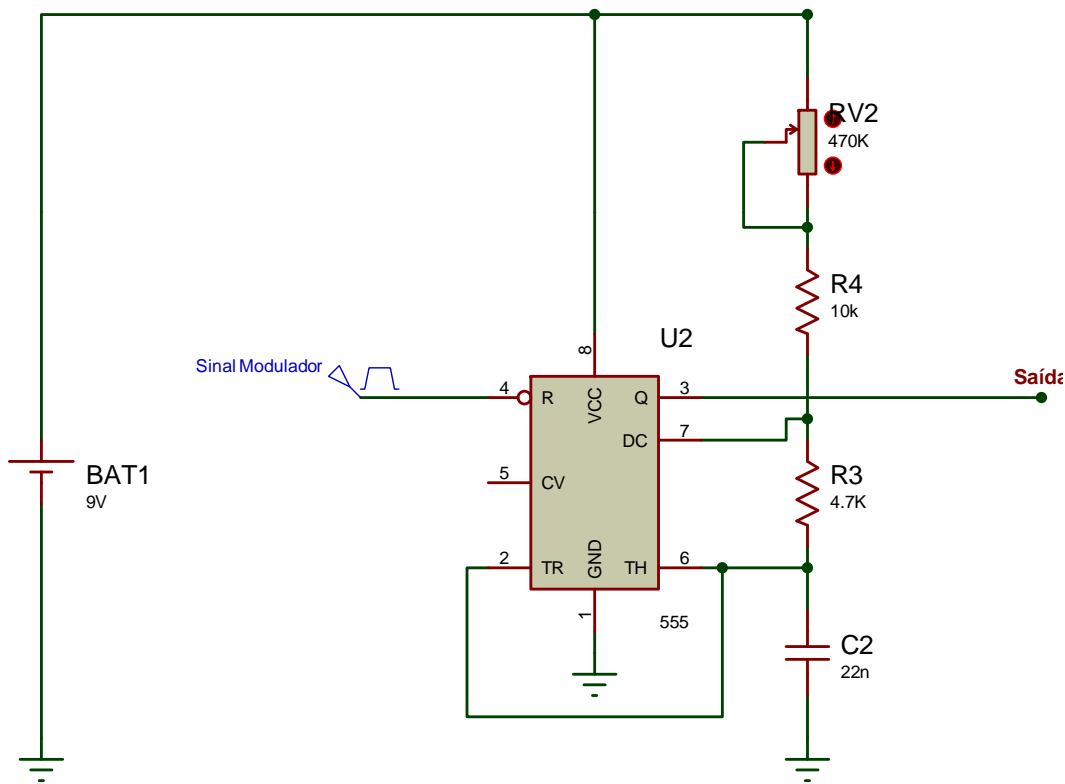
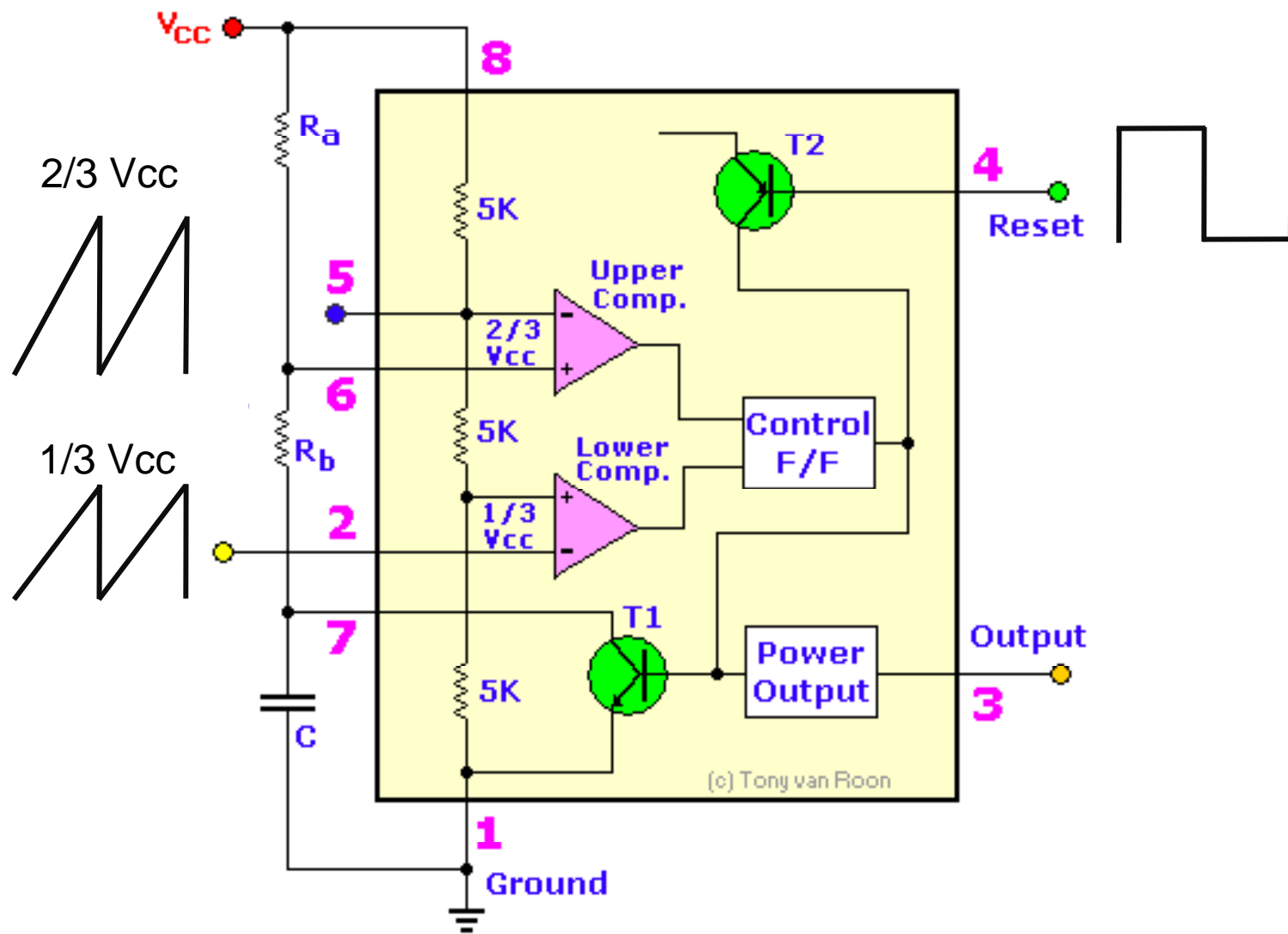
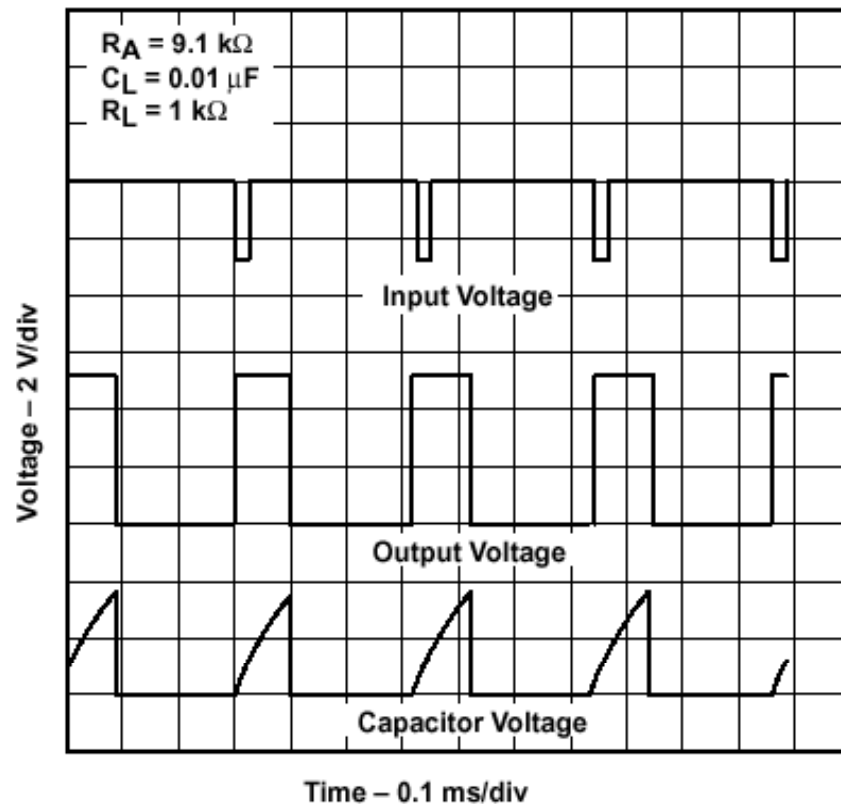
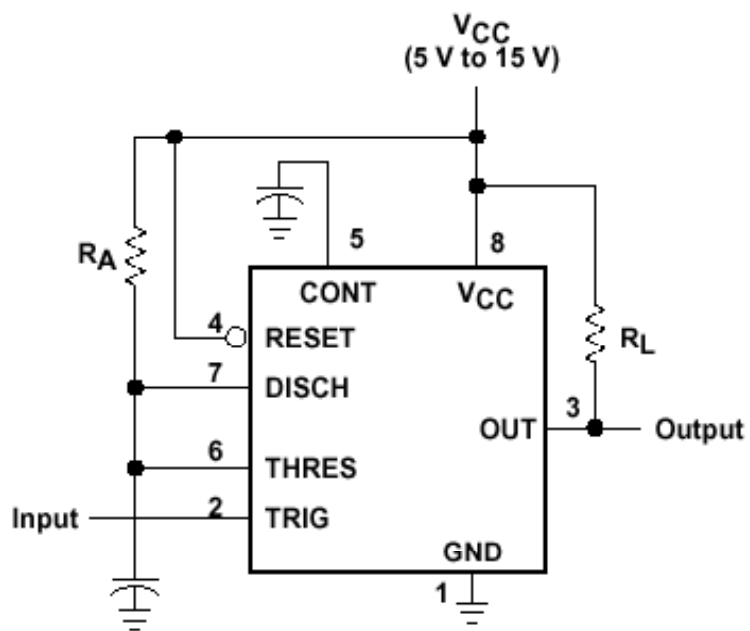


Fig. 3

Modulando o sinal gerado pelo 555



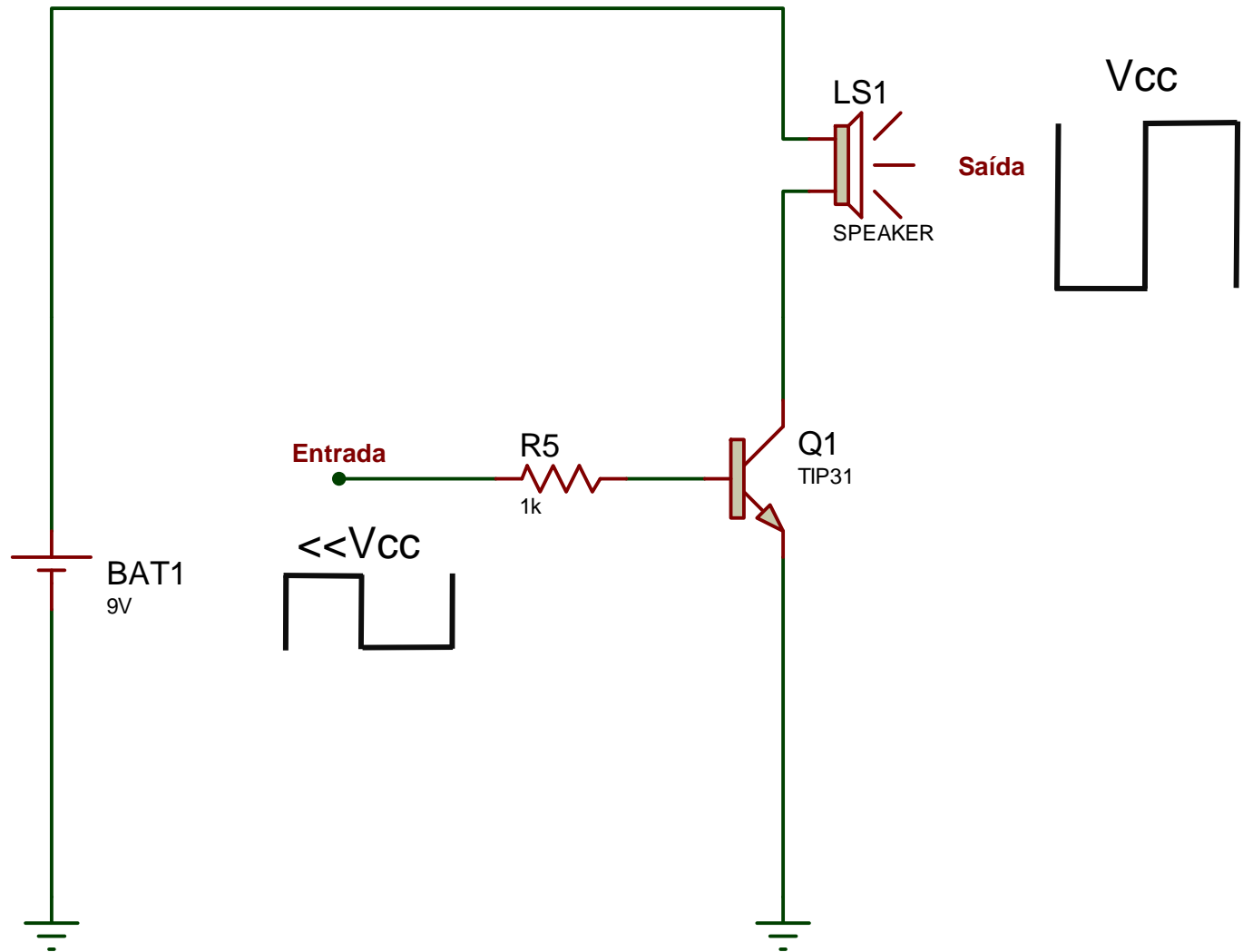
Modulando o sinal gerado pelo 555



Modulando o sinal gerado pelo 555

The screenshot displays the ISIS Professional (Animating) interface. The main workspace shows a circuit diagram with a 555 timer (U2) and a 10k resistor (R4). A digital oscilloscope window is overlaid on the circuit, showing four channels of waveforms: Channel A (yellow square wave), Channel B (blue sawtooth wave), Channel C (magenta square wave), and Channel D (green square wave). The oscilloscope controls include a Trigger section, Channel A and C settings (Level, Position, AC/DC, GND, Invert, Auto, One-Shot, Cursors, Source), and Channel B and D settings (Position, AC/DC, GND, Invert). The Horizontal section shows Source (A, B, C, D) and Position (210, 200, 190) settings. The status bar at the bottom indicates '2 Message(s)', 'ANIMATING: 00:00:04.550000 (CPU load 19%)', and '+2400.0 -2500.0 th'.

Amplificando o sinal



Amplificando o sinal

The screenshot shows the ISIS Professional software interface for simulating an amplifier circuit. The main window displays a circuit diagram on a grid. The circuit consists of a 9V battery connected to a resistor labeled R5, which is in series with a TIP31 transistor labeled Q1. The output of the transistor is connected to a speaker component labeled SPEAKER. A digital oscilloscope is overlaid on the circuit, showing two waveforms: a square wave input labeled 'Entrada' and a square wave output labeled 'Saída'. The oscilloscope has four channels (A, B, C, D) and various control knobs for level, position, AC/DC coupling, and source selection. The status bar at the bottom indicates 'Run the simulation' and shows a play button.

Amplificador - ISIS Professional (Animating)

File View Edit Tools Design Graph Source Debug Library Template System Help

COMPONENT

- PIN
- PORT
- MARKER
- ACTUATOR
- INDICATOR
- VPROBE
- IProbe
- TAPE
- GENERATOR
- TERMINAL
- SUBCIRCUIT
- 2D GRAPHIC
- WIRE DOT
- WIRE
- BUS WIRE
- BORDER
- TEMPLATE

9V

Entrada <TEXT>

R5

Q1 TIP31

SPEAKER <TEXT>

Saída

Digital Oscilloscope

Trigger

Level AC DC

Position AC DC

Channel A

Channel C

Channel B

Channel D

Horizontal

Source AC DC GND OFF

Position

Source A B C D

Position

210 200 190

200 1m 0.5 μS

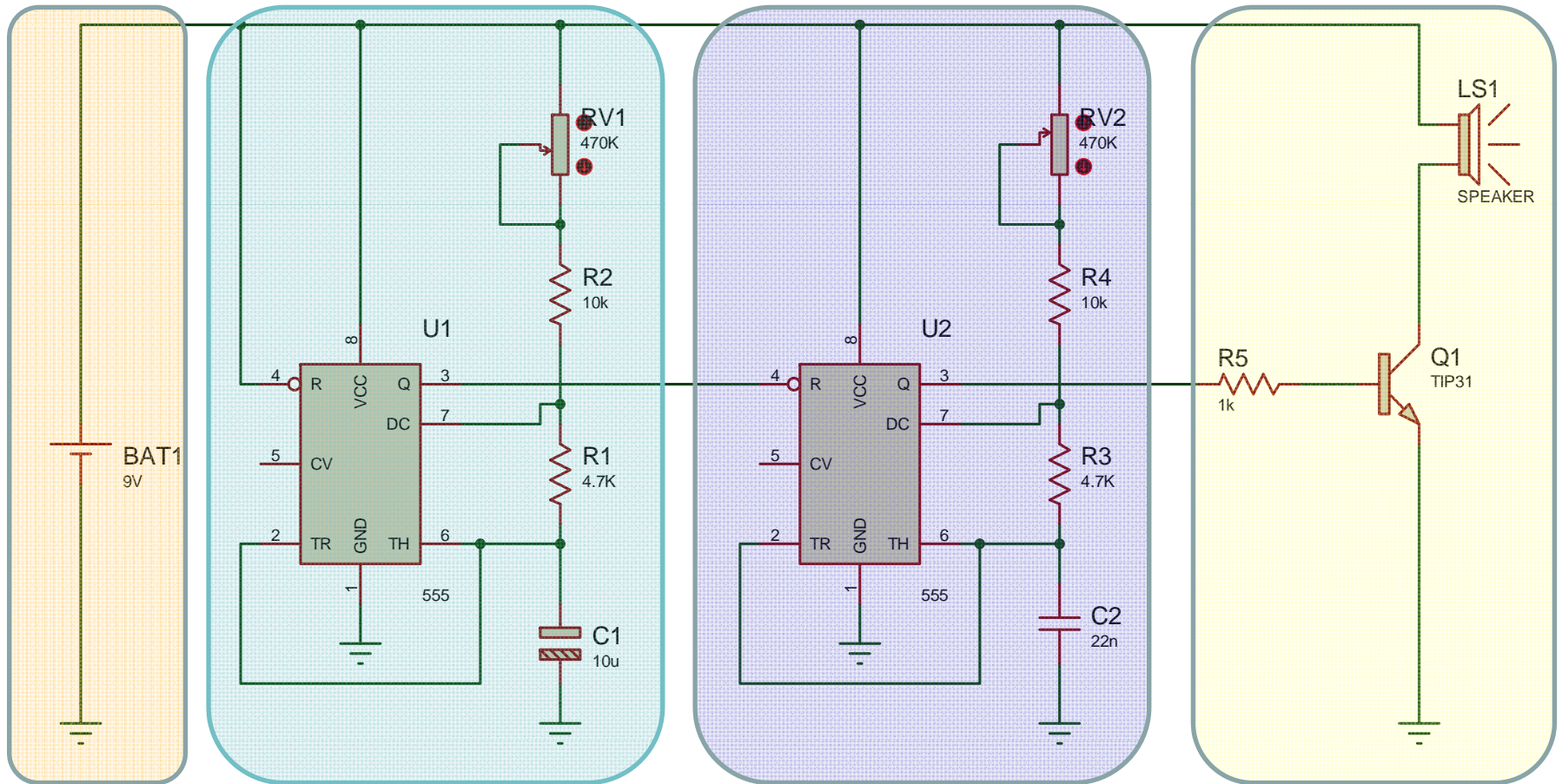
Play

2 Message(s)

Run the simulation

Circuito completo

Sirene modulada:



Fonte

Primeiro oscilador

Segundo oscilador

Amplificador

Próxima aula

Assunto:

1. Introdução ao Proteus.