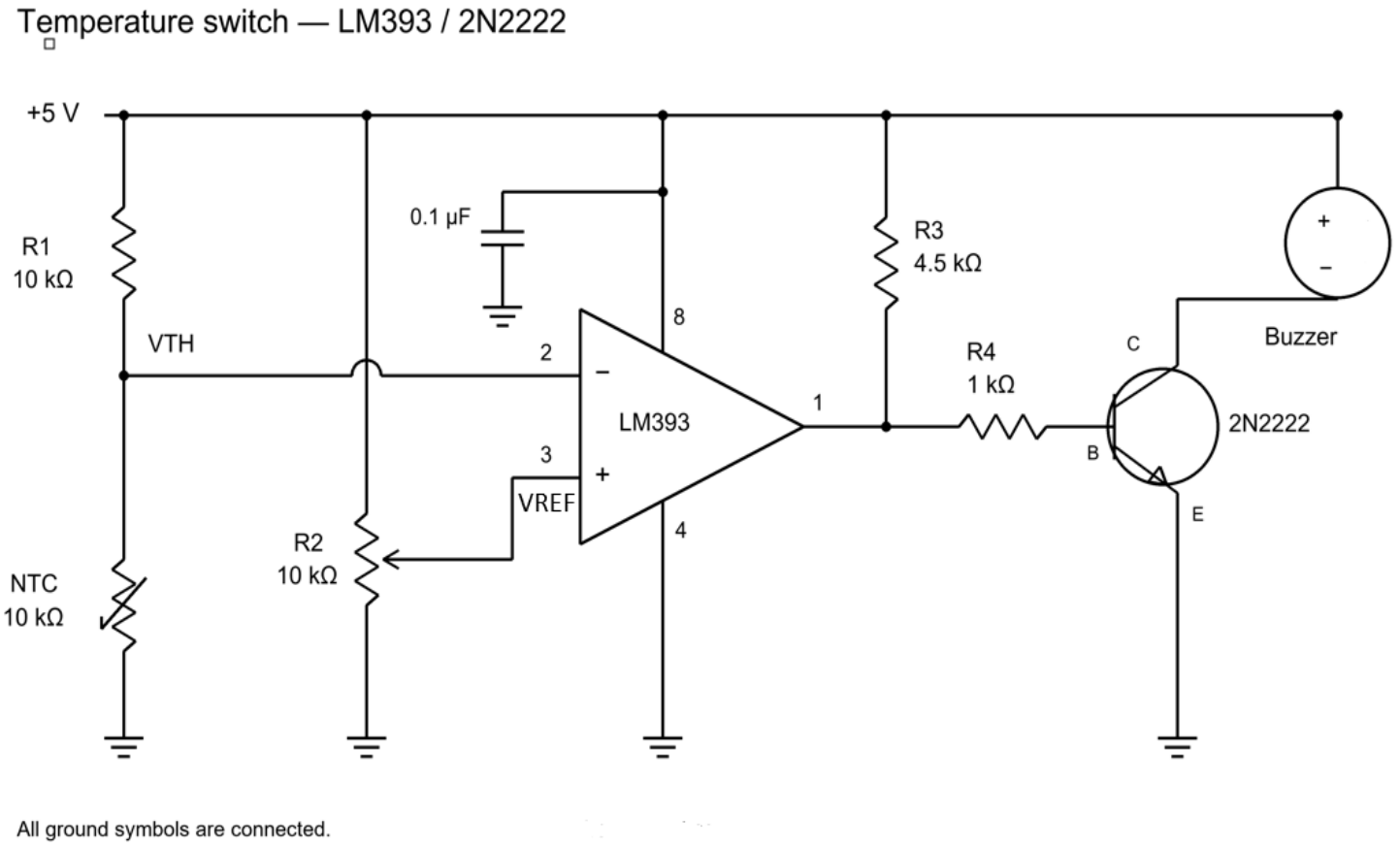
Thermal Detector Part 3 | Transistor & Buzzer Alarm



Transistor ON:

Base Current Calculation

1. LM393 Output Voltage PIN 1
VOUT = 1.48 V

2. Transistor Base Voltage
VB = 0.73 V

3. Voltage Across R4 — 1 kΩ Base Resistor
VR4 = VOUT − VB
VR4 = 1.48 V − 0.73 V
VR4 = 0.75 V

4. Use Ohm's Law
IB = VR4 / R4

5. Calculate Base Current
IB = 0.75 V / 1000 Ω
IB = 0.00075 A

6. Convert to Milliamps

IB = 0.75 mA