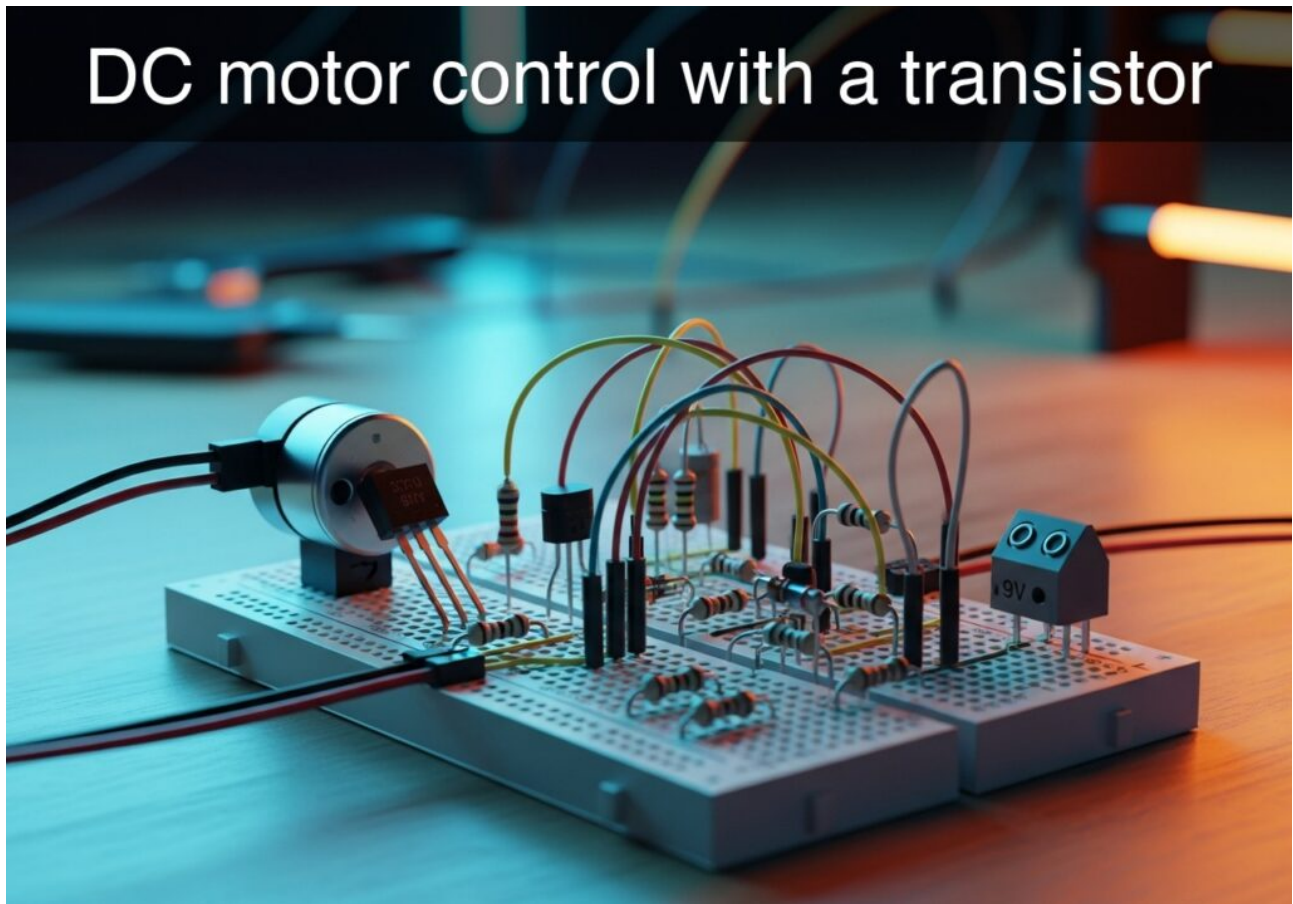


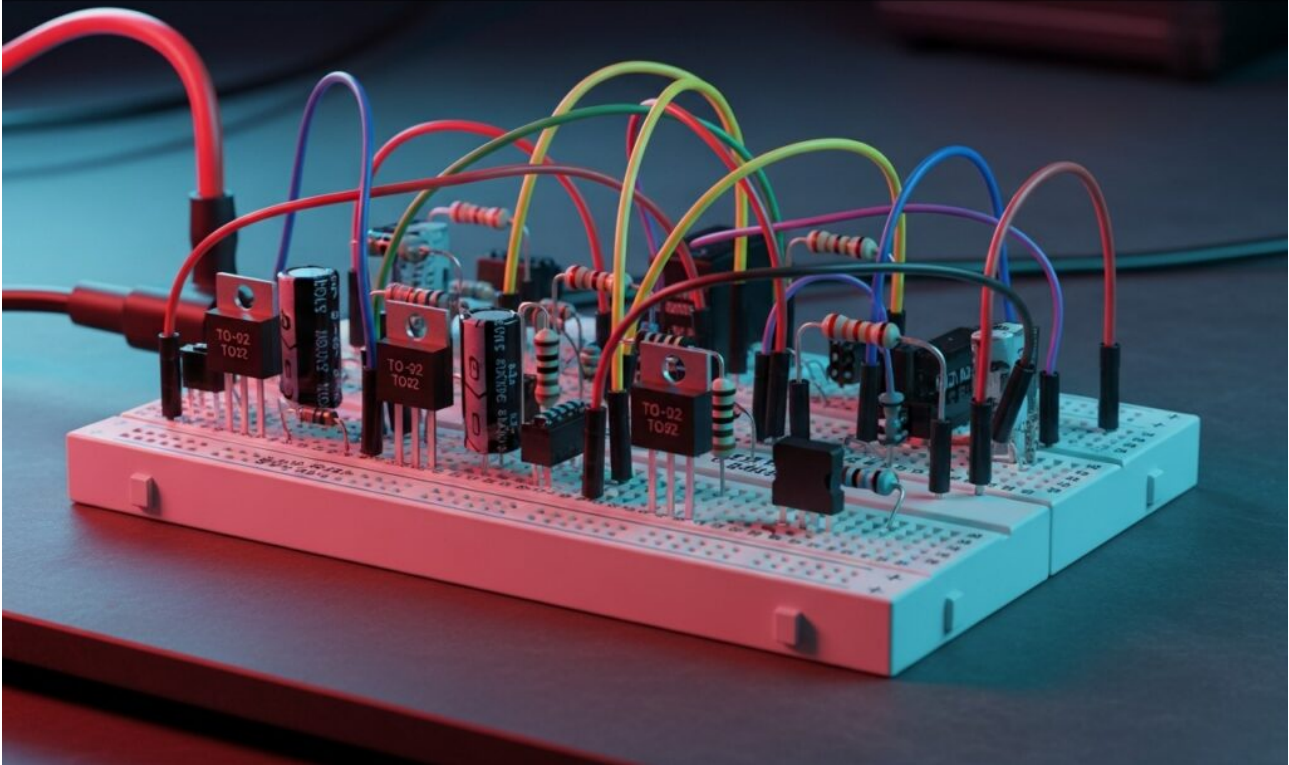
Practical case: DC motor control with a transistor



Level: Basic – Learn to use an NPN transistor as a switch to drive a DC motor, including the use of a flyback diode.

Practical case: Vault Lock with Delay and Power Drive

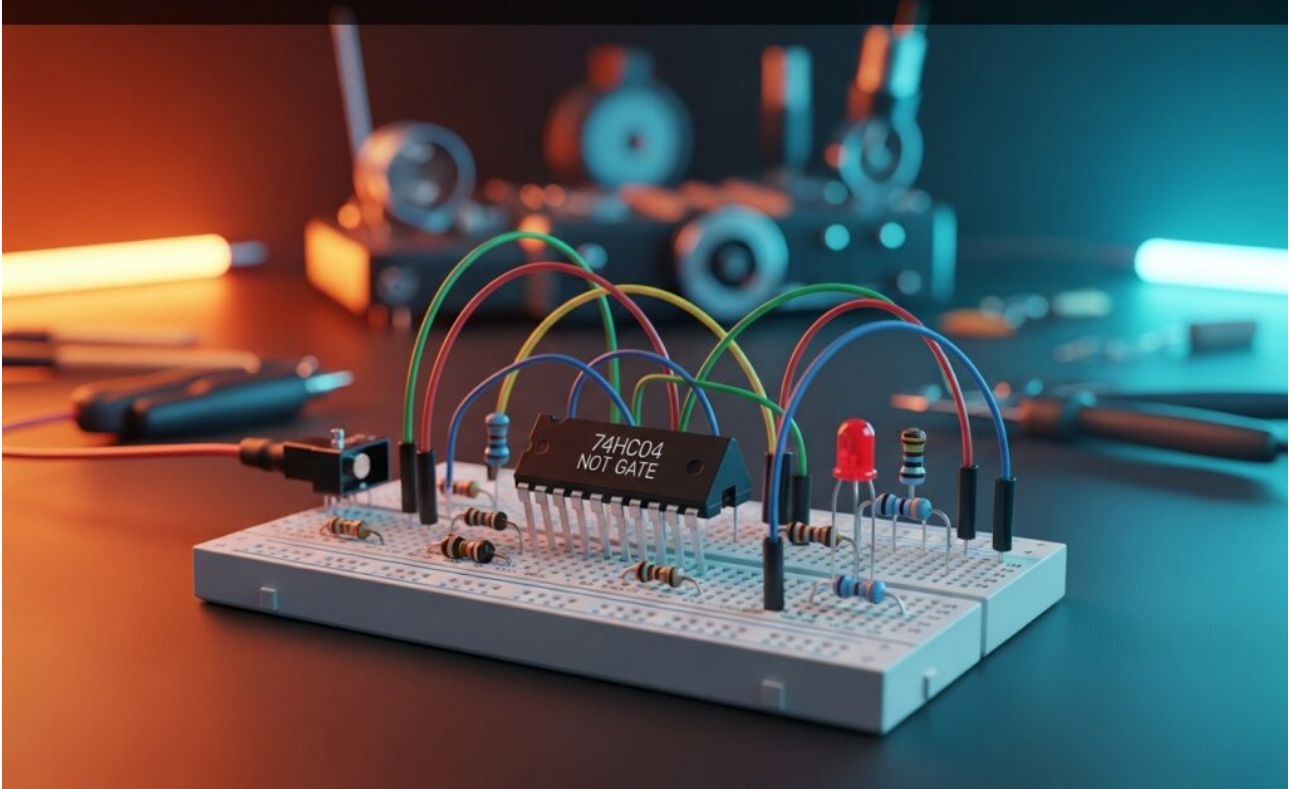
Vault Lock with Delay and Power Drive



Master Analog Electronics by building a secure lock. Use a Transistor circuit to trigger a solenoid only when two keys turn, holding the signal for 5 seconds.

Practical case: The Undefined Logic Level Danger

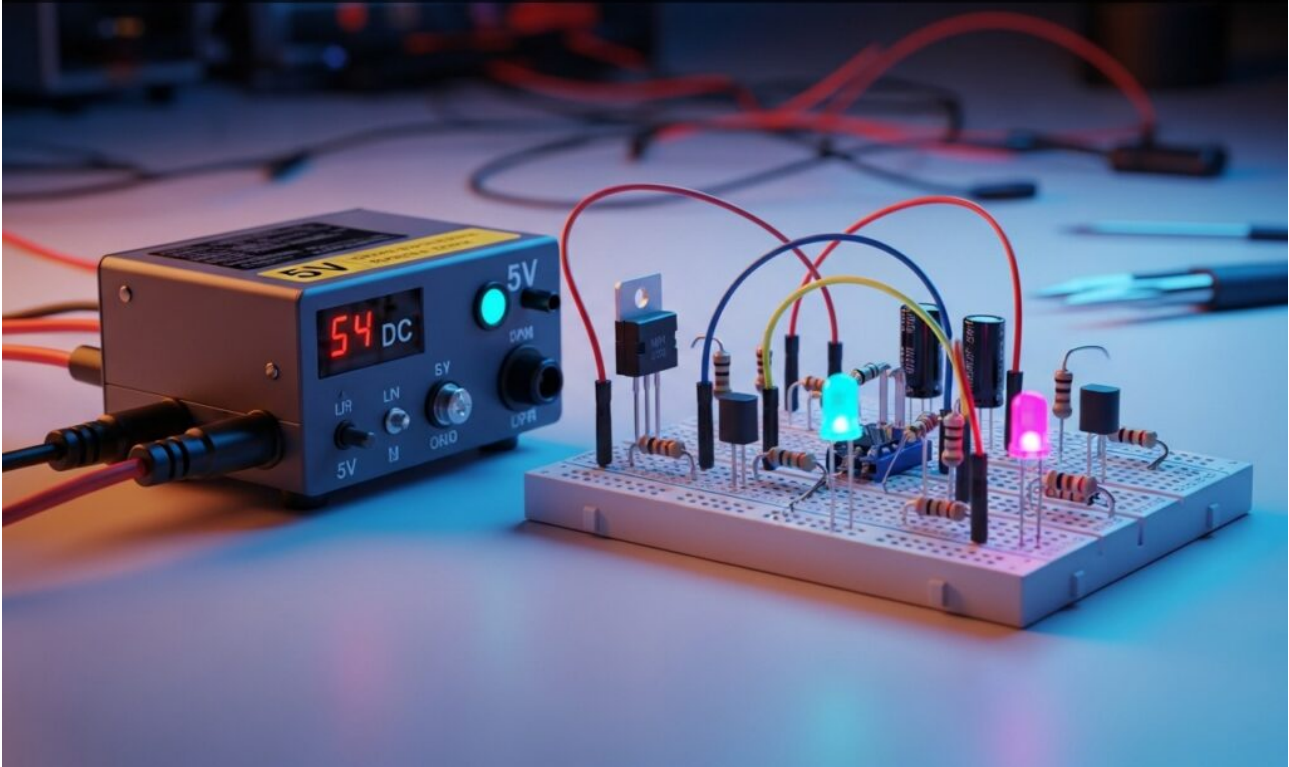
The Undefined Logic Level Danger



Master Analog Electronics by analyzing unstable logic states. Learn how internal Transistor behavior causes shoot-through current and flickering LED outputs.

Practical case: NPN Switch Saturation Troubleshooting

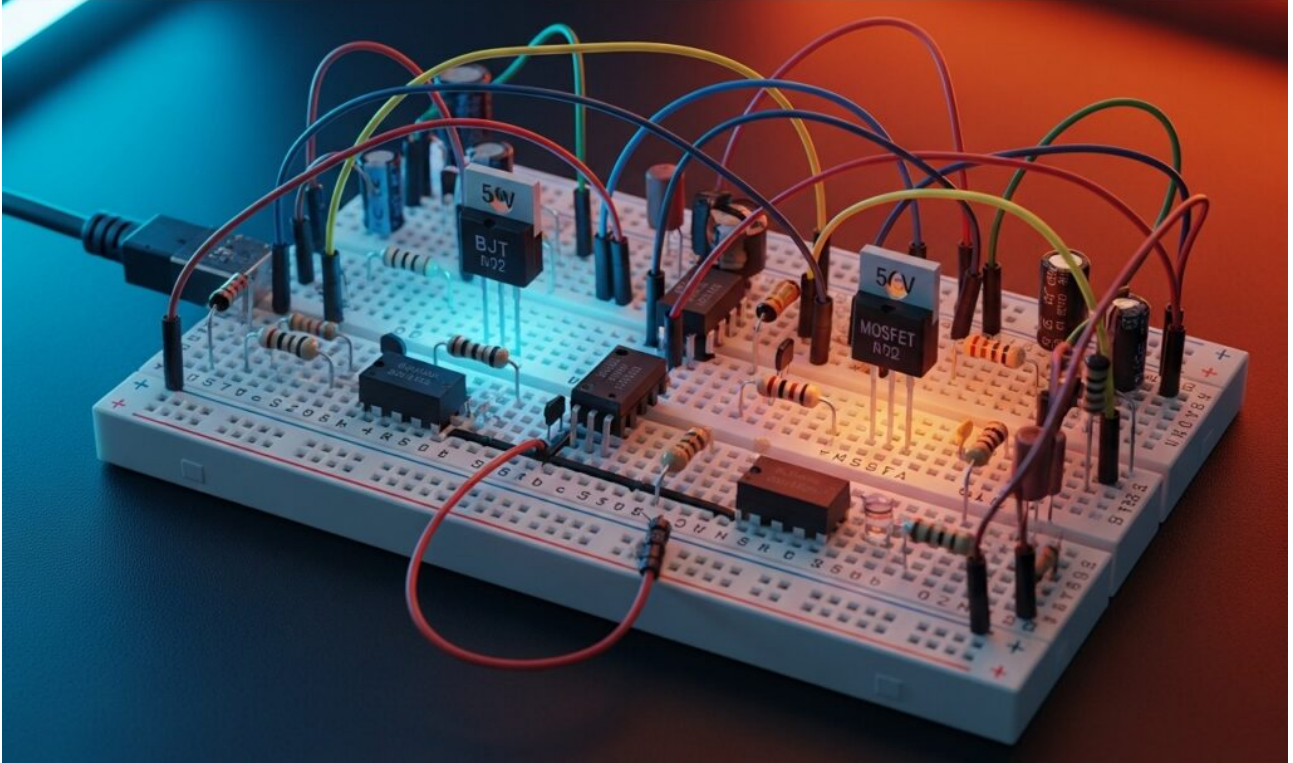
NPN Switch Saturation Troubleshooting



Master Analog Electronics by fixing a flawed NPN Transistor switch. Diagnose dim LEDs and high V_{ce} voltage, then correct bias to achieve full saturation.

Practical case: Comparing BJT and MOSFET Switches

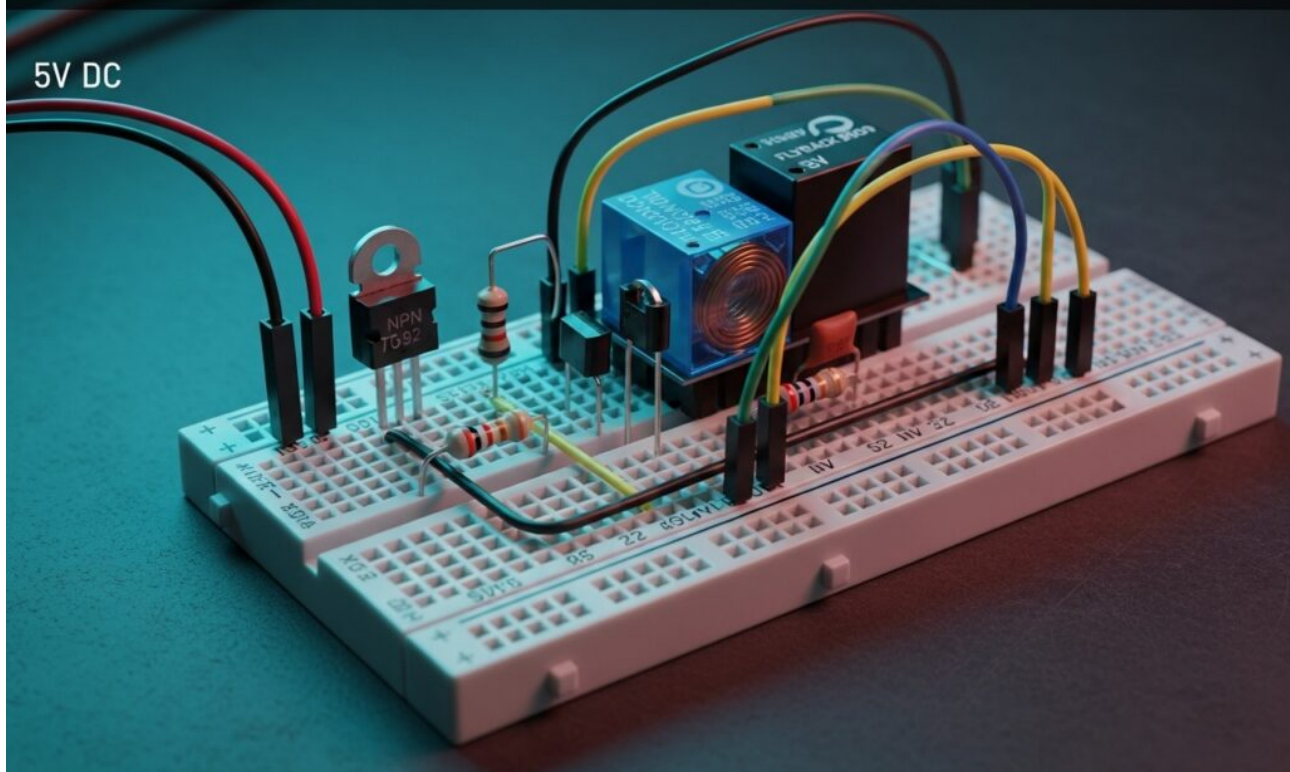
Comparing BJT and MOSFET Switches



Master Analog Electronics by building two Transistor switching circuits. Compare BJT and MOSFET efficiency by measuring real input currents and voltage drops.

Practical case: Low-Side Transistor Relay Switch

Low-Side Transistor Relay Switch



Master Analog Electronics by building a relay driver circuit. Use an NPN Transistor to safely switch high-voltage loads and protect logic chips from spikes.