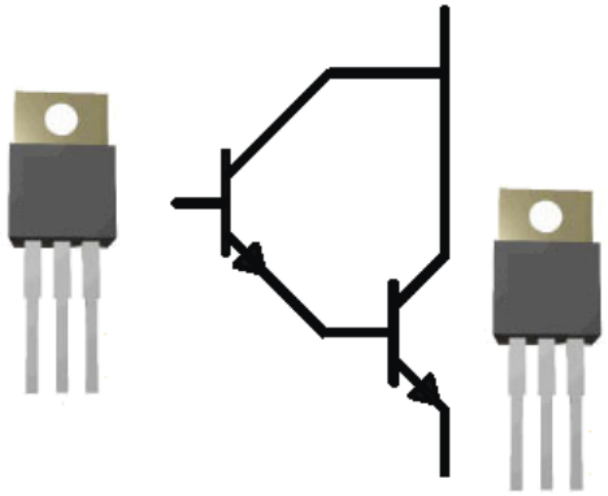
دارات الكترونية 1
المحاضرة /9/ - عملي

الدكتور السموءل صالح
المهندس جبران خليل
المهندسة ايه خيربك

Darlington circuit

A Darlington circuit consists of two transistors connected in series. The base of the second transistor is triggered by the emitter current of the first one



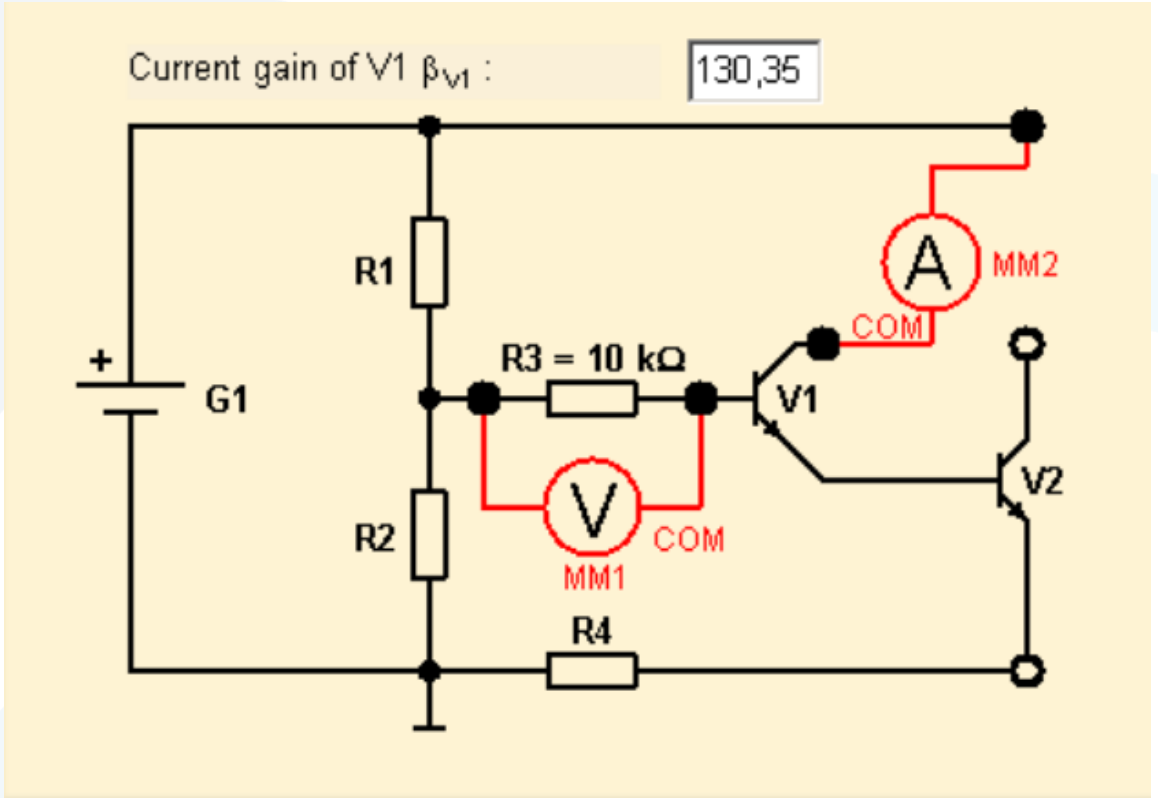
Darlington circuit

Current gain of V1

Measure the base current IB1 and the collector current IC1 of transistor stage V1.

From these values, calculate the current gain of V1.

- Base current IB1 = UR3 / R3
- Current gain V = IC / IB



Darlington circuit

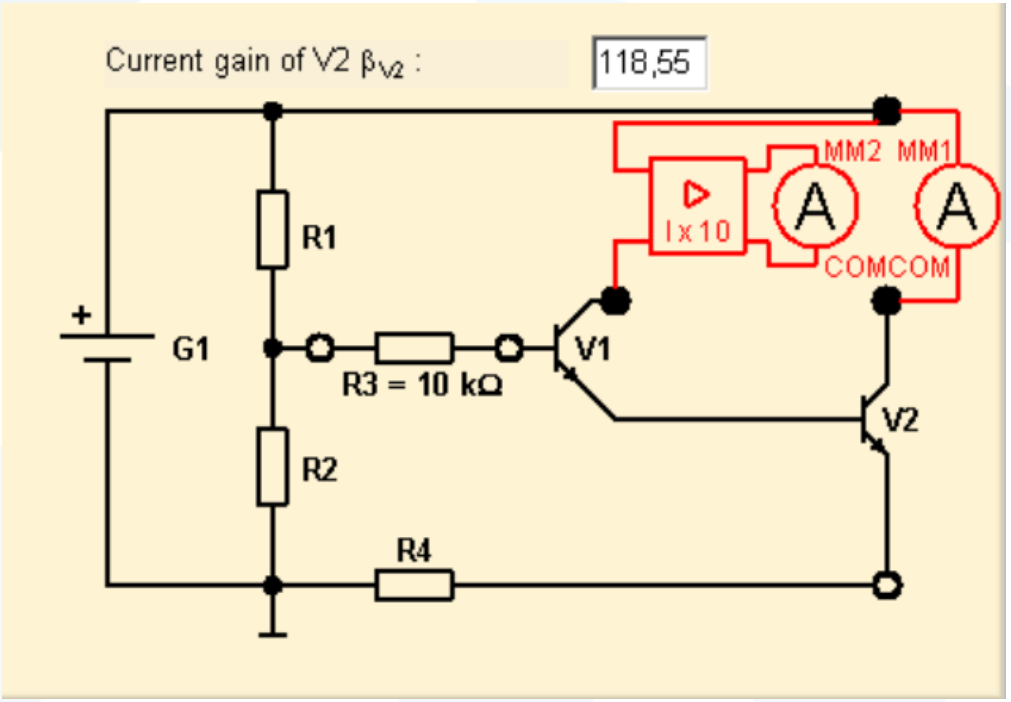
Current gain of V2

Measure the base current IB2 and the collector current IC2 of transistor stage V2.

The base current IB2 is measured indirectly by measuring the collector current IC1 of V1:

$$IC1 \approx IE1 = IB2$$

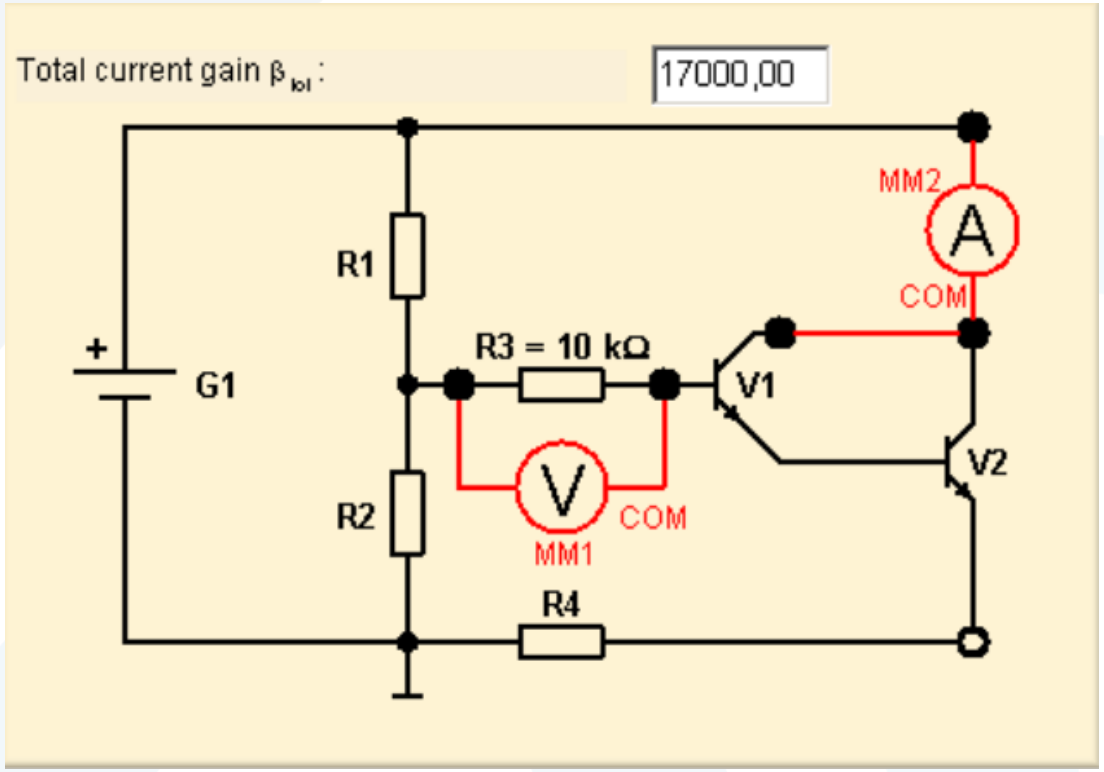
- Use IC1 and IC2 to calculate the approximate value of the current gain of V2



Darlington circuit

Total current gain

Measure the base current IB1 of transistor stage V1 and the collector current IC2 of transistor stage V2.
Use IB1 and IC2 to calculate the total current gain2 .
Current gain V = IC / IB
Base current IB1 = UR3 / R3



Darlington circuit

Summary of this chapter

- Darlington circuits are available as discreet configurations and as integrated modules.
- An integrated Darlington circuit is termed "Darlington transistor".
- A Darlington circuit consists of two transistors connected in series.
- The base of the second transistor is triggered by the emitter current of the first transistor.
- Consequently, the total gain is the product of the individual transistor gain factors.
- The special property of a Darlington circuit is thus its high current gain