TÉCNICO LISBOA

T1 - Introduction To Circuit Analysis

Integrated Master in Physics Engineering

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Contents

1 Introduction

The objective of this laboratory assignment is to study a circuit containing various resistors, two voltage sources and two current sources. The circuit can be seen in Figure 1.

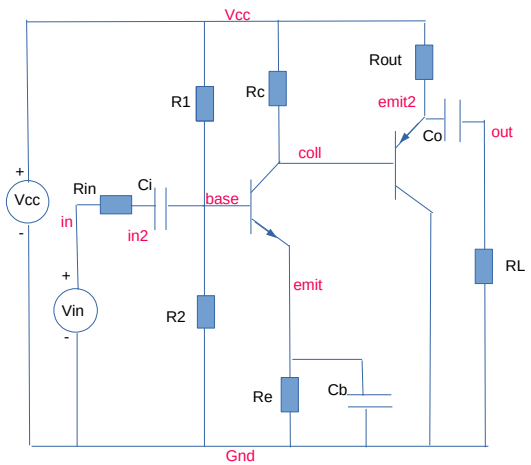

Figure 1: Circuito utilizado

In Section 2, a theoretical analysis is presented. In Section 3, the circuit is analysed by simulation, and the results are compared to the theoretical results obtained in Section 2. The conclusions of this study are outlined in Section 4.

2 Theoretical Analysis

VT	0.025000V
BFN	178.700000V
VAFN	69.700000V
RE1	0.000000V
RC1	1000.000000V
RB1	80000.000000V
RB2	20000.000000V
VBEON	0.700000V
VCC	12.000000V
RS	100.000000V

Table 1: Values used as parameters for the circuit studied.

3 Simulation Analysis

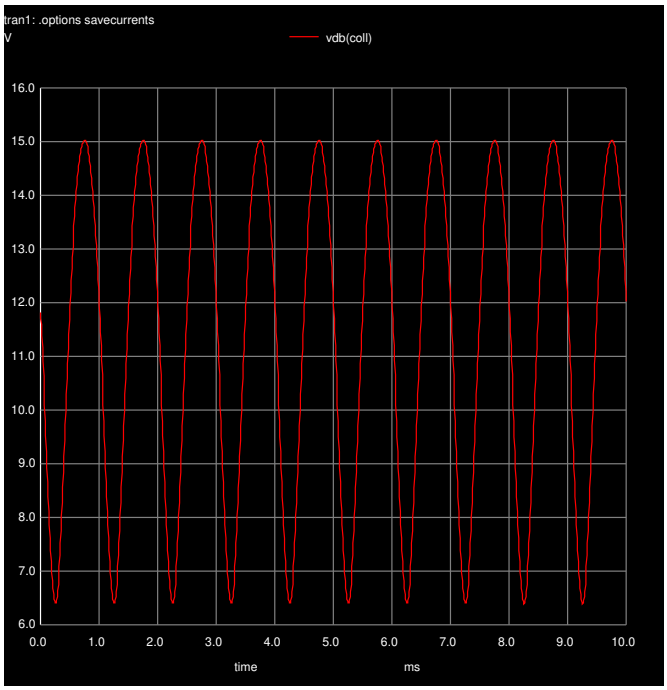

Figure 2: ———

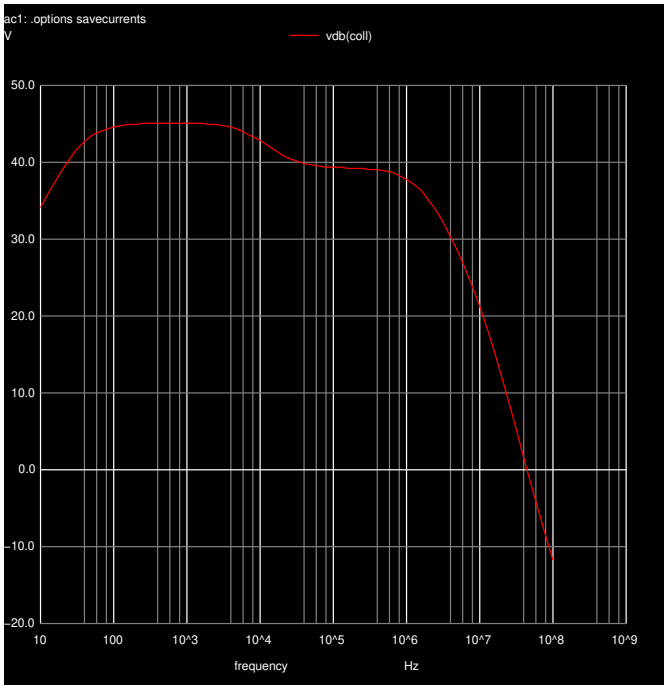
ac1: .options savecurrents
V
vdb(coll)
50.0
40.0
30.0
20.0
10.0
0.0
-10.0
-20.0
10
100
10^3
10^4
10^5
10^6
10^7
10^8
10^9
frequency
Hz

Figure 3: ————

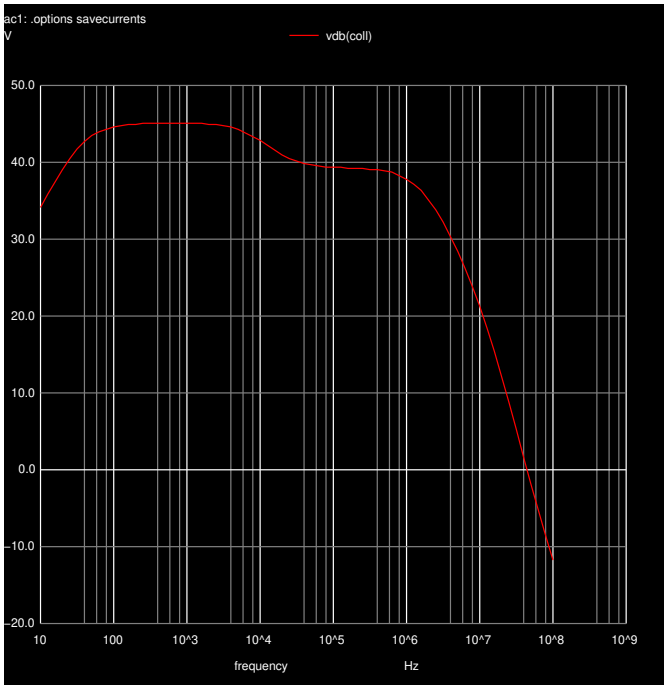

Figure 4: ————

4 Conclusion

In this laboratory assignment the objective of analysing a simple circuit has been achieved.