



**BIRZEIT UNIVERSITY**

**Faculty of Engineering and Technology**

**Electrical and Computer Systems Engineering**

**ENEE3102**

**“Prelab Exp#5”**

**The Field –Effect Transistor**

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**Major: Physics minor electronics**

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**Eng: Amgad**

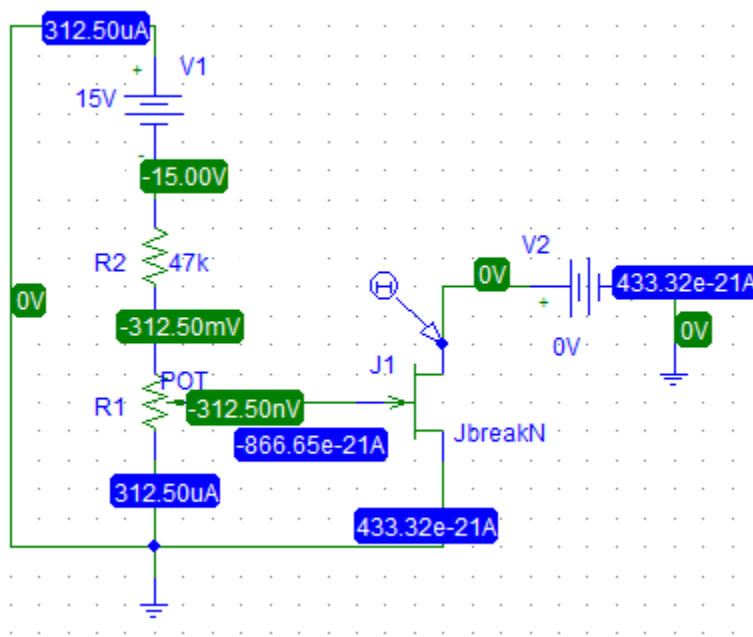
**11/11/2020**

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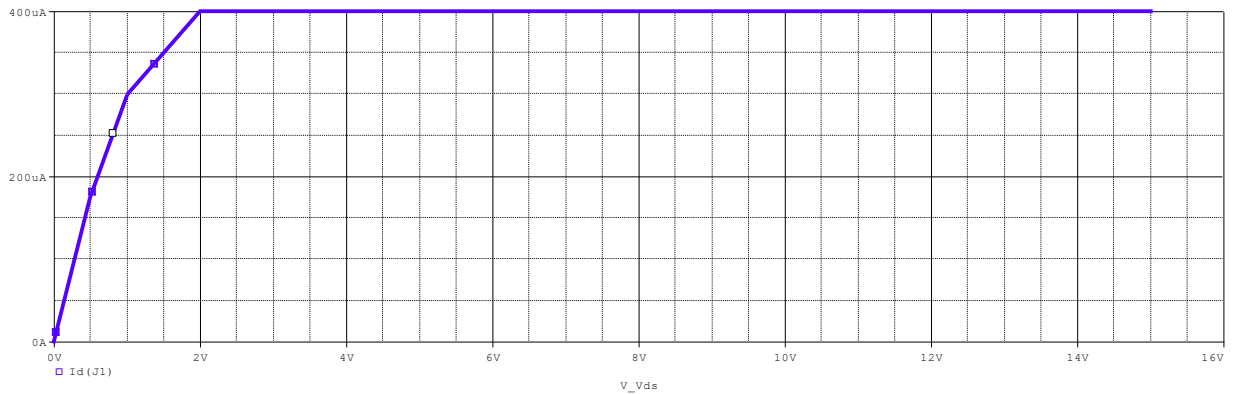
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## ➤ CHARACTERISTICS OF AN N-CANNEL JFET :

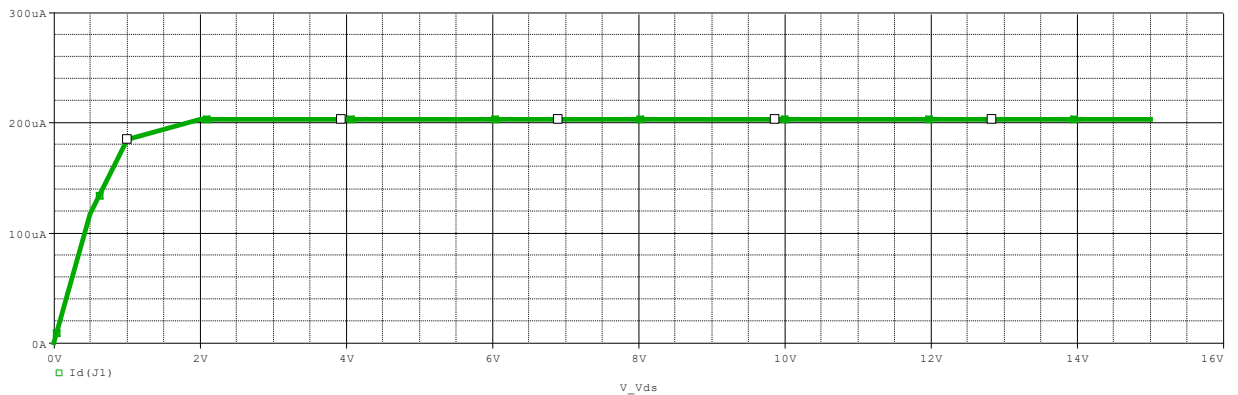
**A-**



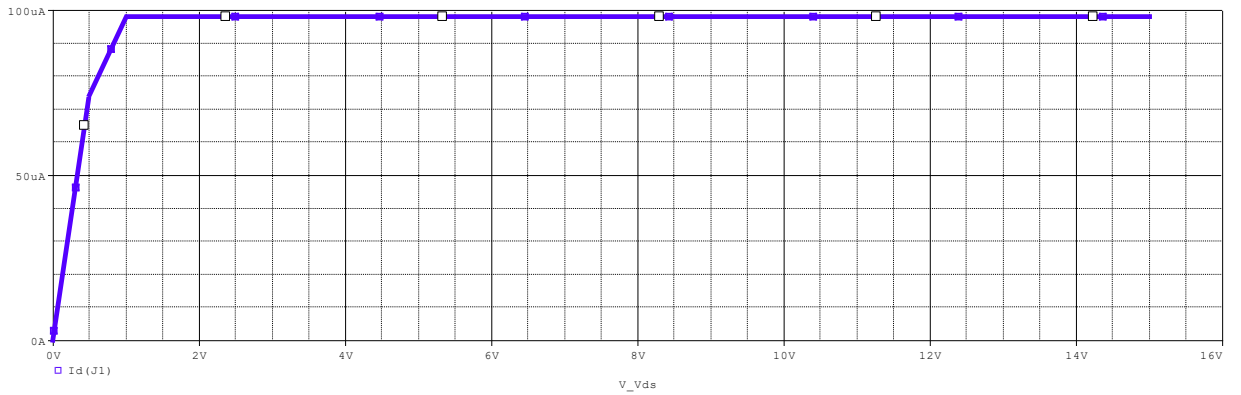
- When  $V_{gs} = 0$  :



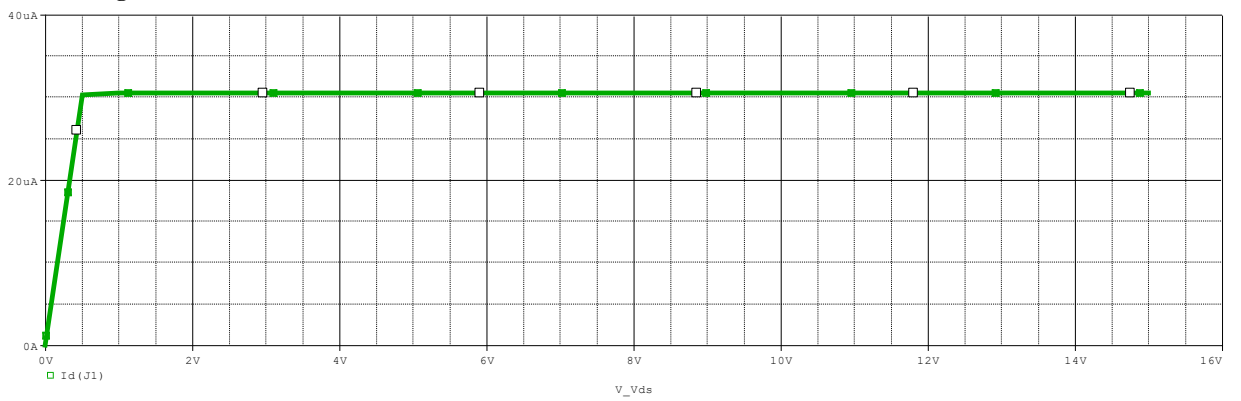
- When  $V_{gs} = -0.5$  V :



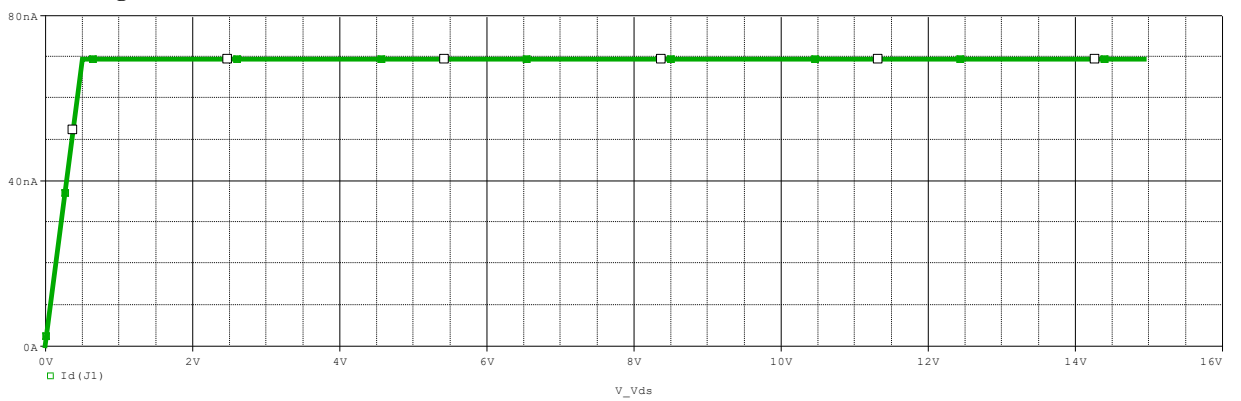
- When  $V_{gs} = -1 \text{ V}$  :



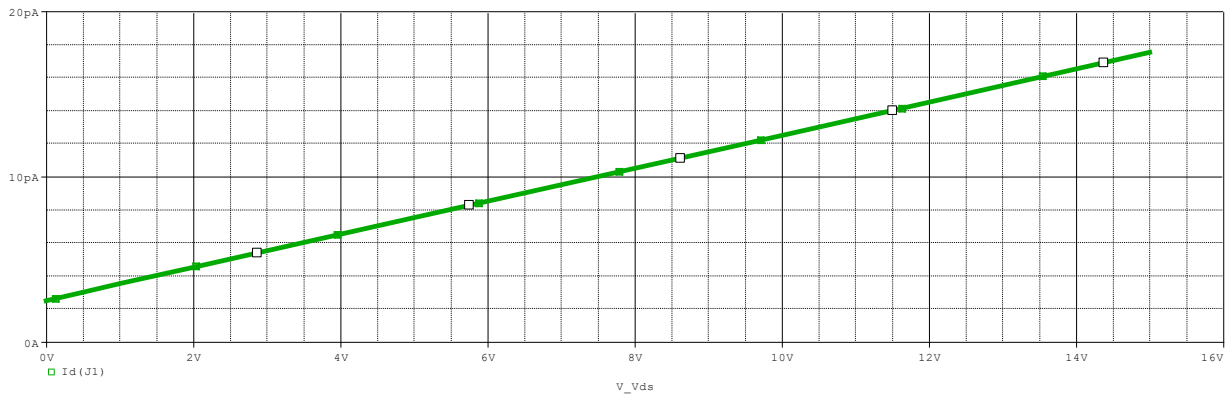
- When  $V_{gs} = -1.5 \text{ V}$  :



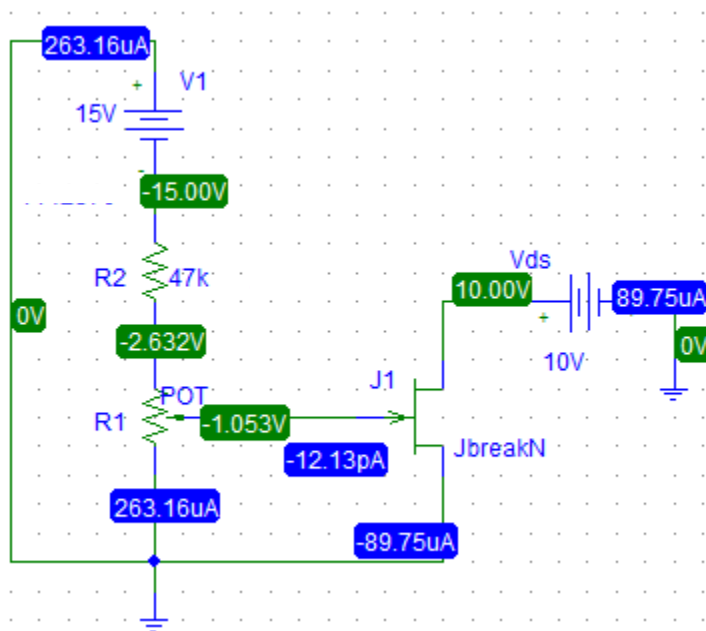
- When  $V_{gs} = -2 \text{ V}$  :



- When  $V_{gs} = -2.5 \text{ V}$  :



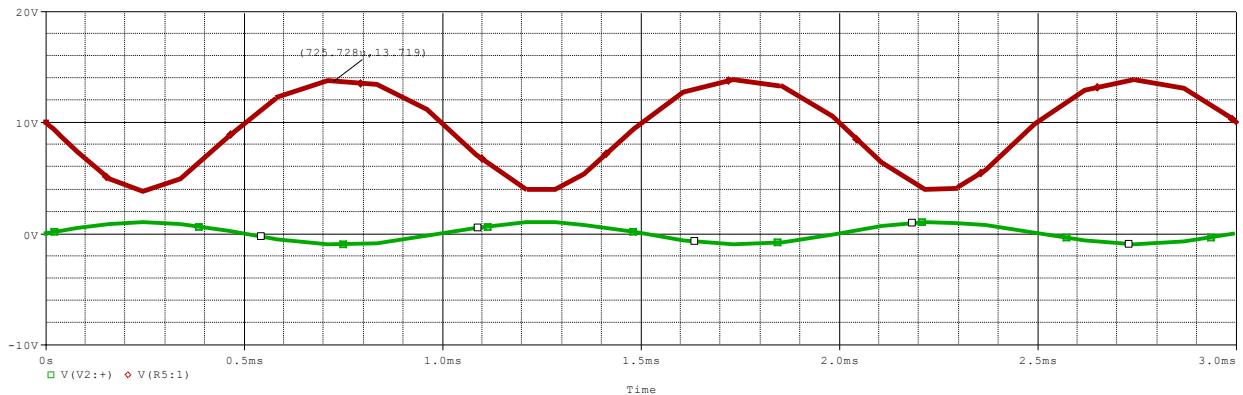
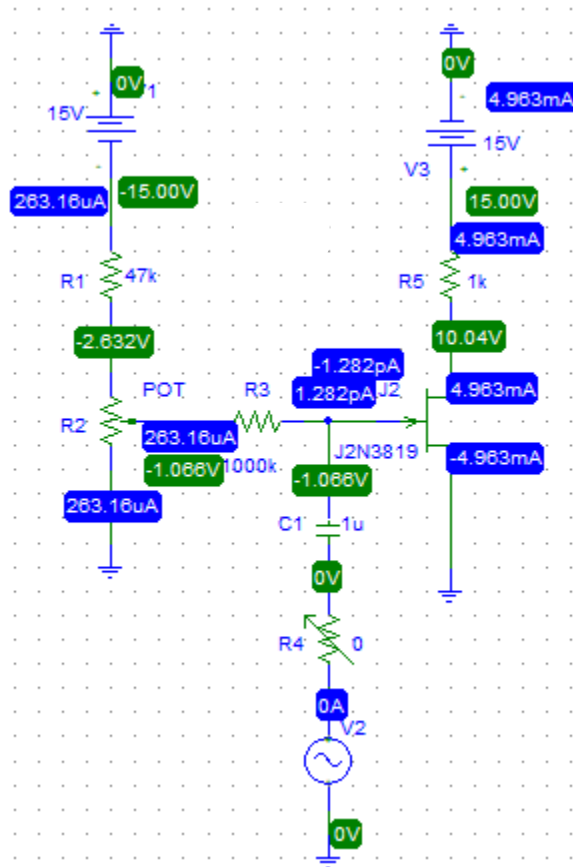
B-



SO IG = -12.13 PA

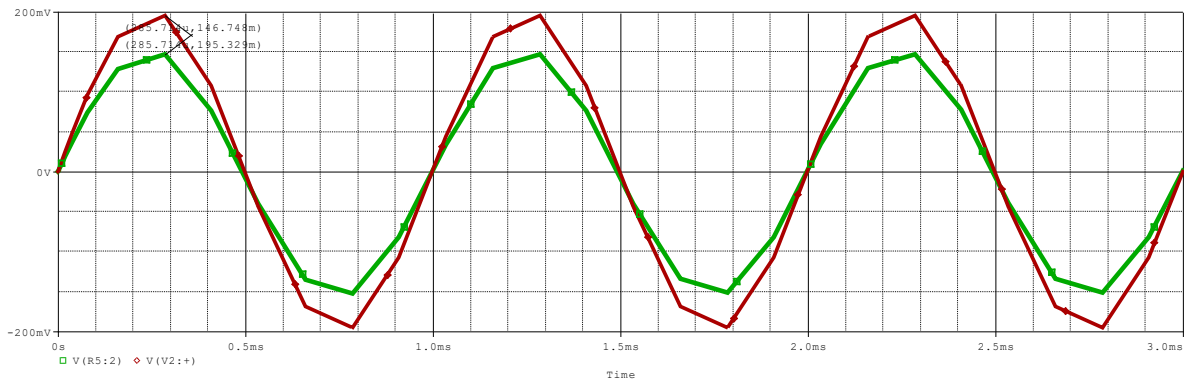
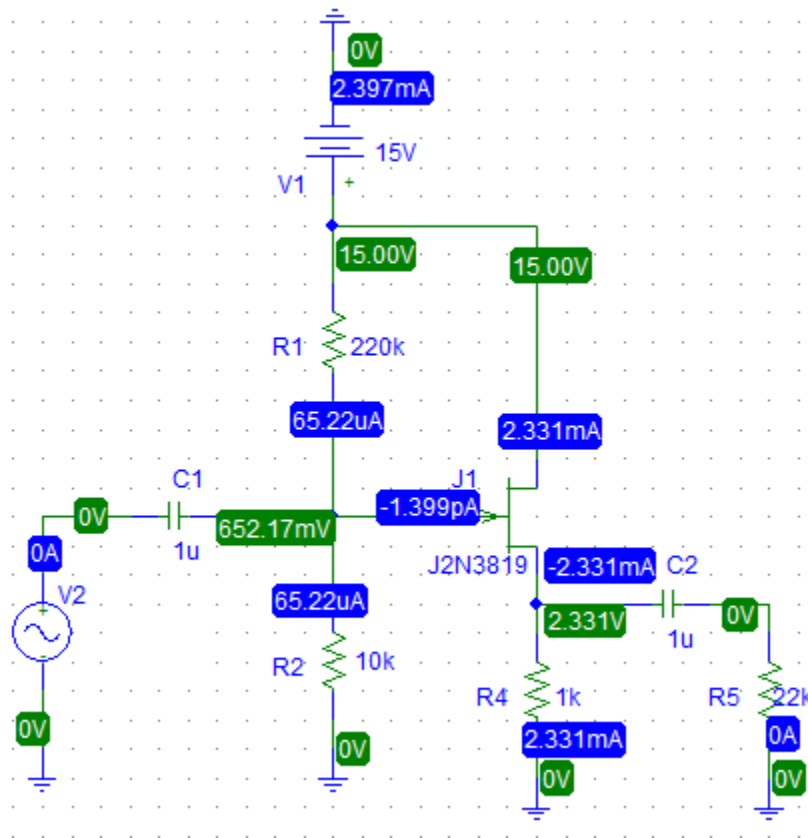
## ➤ A JFET AMPLIFIER :

A-



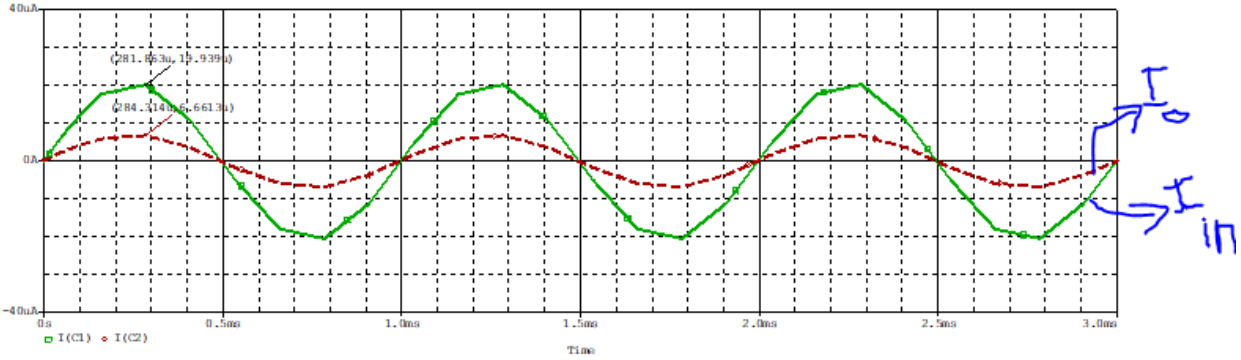
**Voltage gain = 5 / 1 = 5.**

➤ **COMMON DRAIN AMPLIFIER :**



**The gain voltage =  $146.748/195.329 = 0.751$**

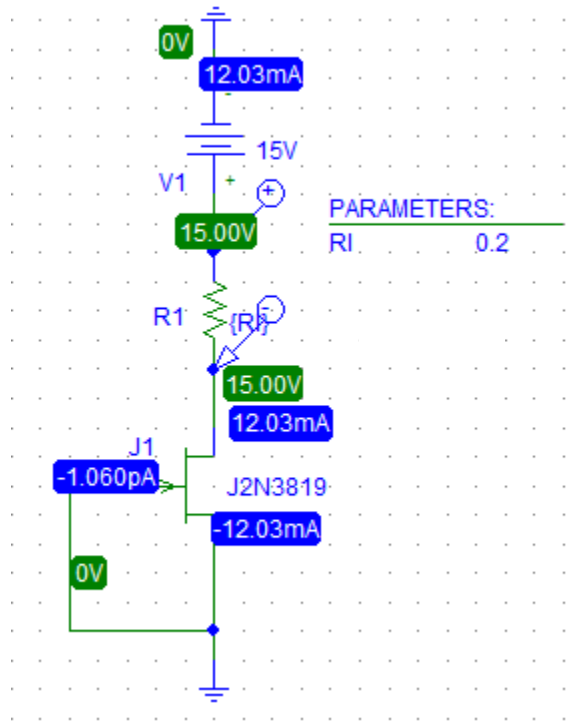
**The phase shift = 0**



$Z_{in} = V_{in} / I_{in} = 195.329m / 19.939u = 9.8k \text{ ohm.}$

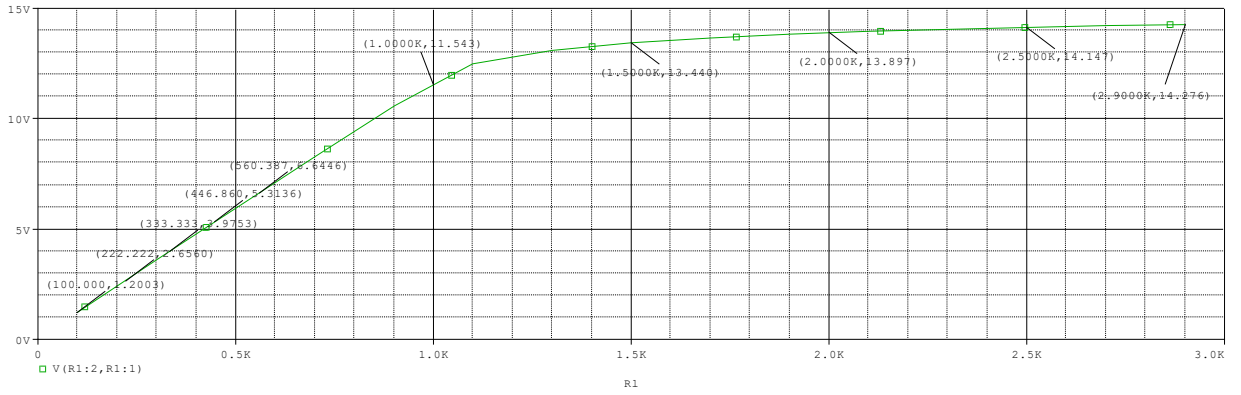
$Z_o = V_o / I_o = 146.748 / 6.661u = 22k \text{ ohm.}$

➤ *.CONSTANT CURRENT SOURCE.*

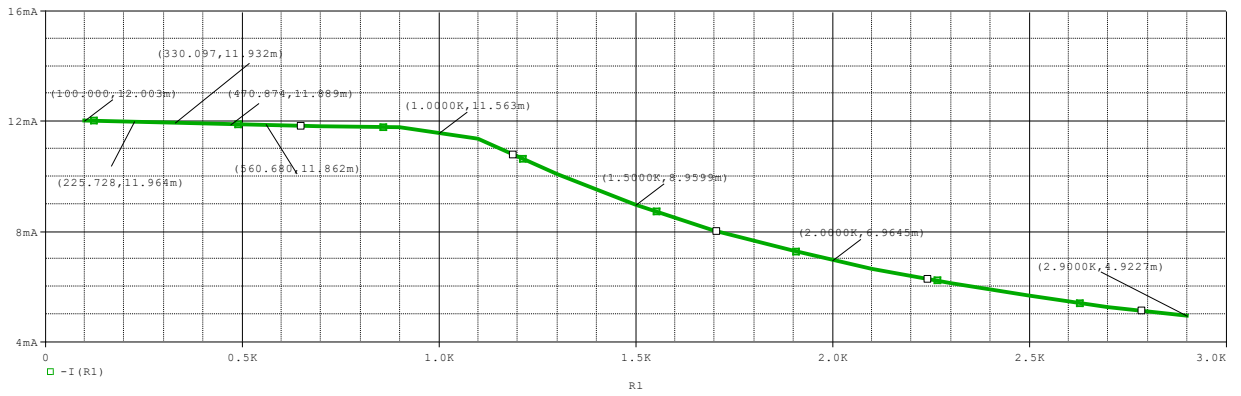




- **RL Vs VL :**



- **RL Vs IL :**



**THE END**

