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ECE101-1L – FUNDAMENTALS OF ELECTRONIC CIRCUITS (LAB)

Procedures:

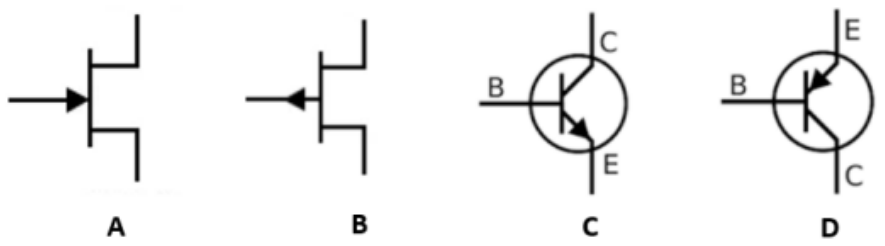
1. Search for Datasheet for 2N5459 on the Internet and Identify the PIN Name of the JFET

a. drain

b. source

c. gate

2. Identify the Specific Type of Transistor shown below (10 pts)



A. N-Channel JFET

B. P-Channel JFET

C.BJT P-N-P

D. BJT N-P-N

3. Open the Multisim Included Multisim Attachment and locate the transistor for this question

a. Is the transistor Q1 in good condition?

The Transistor Q1 is not in good condition

b. Show your test method(s) (ex. Using table and test of terminals)

BJT NPN TRANSISTOR		
PROBE (+)	**PROBE(-)**	**MULTIMETER READING**
B	C	0 ohms
B	E	49.385 MOhm

C	B	0 ohms
E	B	-r-

c. Explain your answer in 3.a

Because the transistor can operate on collector(+probe) and base(-Probe) configuration

4. On the Same File Attachment Locate the Schematic Diagram for this question

a. Is the transistor Q4 in good condition?

The Transistor Q4 is not in good condition

b. Show your test method(s) (ex. Using table and test of terminals)

BJT PNP TRANSISTOR		
PROBE (+)	**PROBE(-)**	**MULTIMETER READING**
B	C	-r-
B	E	0 ohms
C	B	47.618 MOhm
E	B	0 ohms

c. Explain your answer in 4.a

because the transistor operated on the Base(+ Probe) and Emitter(- Probe) Configuration

5. On the Same File Attachment Locate the Schematic Diagram for this question

a. Simulate and show the graph of V1 vs IDS (Use 0.5 Increments for V1)

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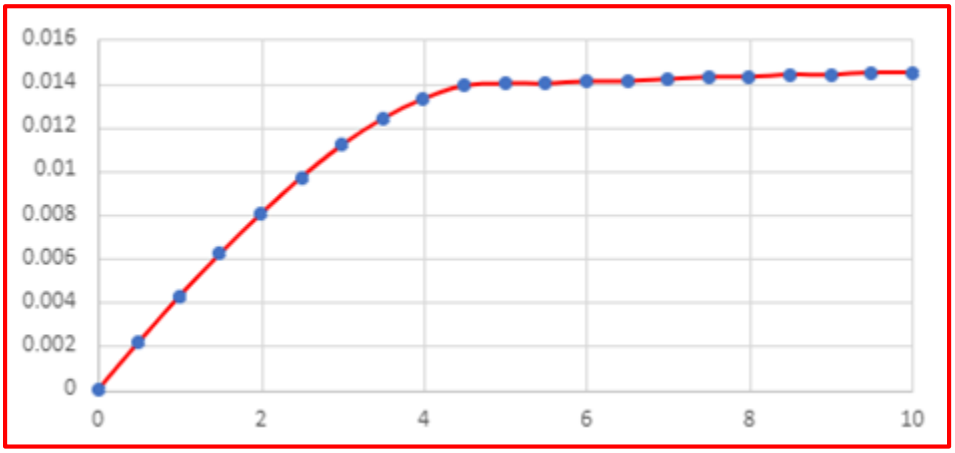
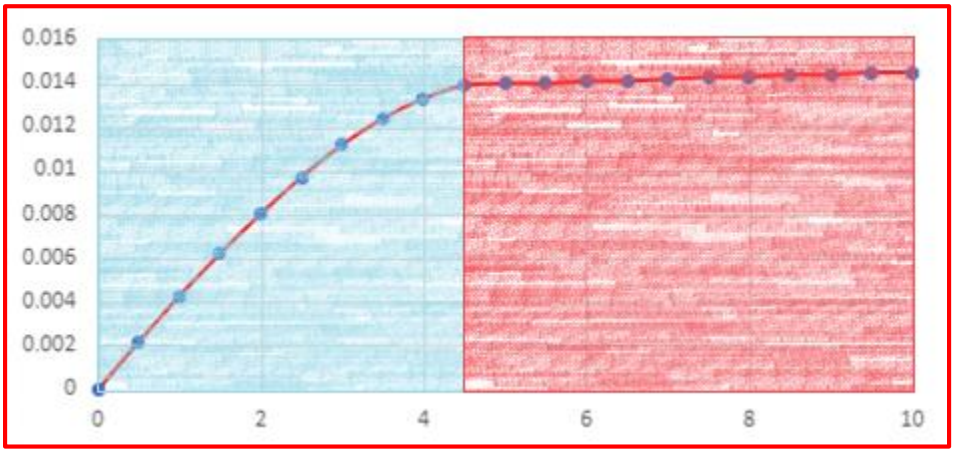


b. Identify the Ohmic Region and the Saturation Region



c. What is the Pinch-off Voltage?

Vp = 4.5V

6. On the Same File Attachment Locate the Schematic Diagram for this question

a. Complete the table below

	VGS= -0.5 V	VGS = -1 V	VGS = -1.5 V	VGS = -2 V
VDD	IDS(A)	IDS(A)	IDS(A)	IDS(A)
0.0	0.000000111	0.000000453	0.000000811	0.00000117
0.5	0.00233	0.00234	0.00235	0.00235
1.0	0.00456	0.00459	0.00460	0.00461
1.5	0.0067	0.00674	0.00676	0.00677
2.0	0.00872	0.00878	0.00881	0.00882

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2.5	0.0106	0.0107	0.0107	0.0108
3.0	0.0123	0.0125	0.0125	0.0125
3.5	0.0139	0.0141	0.0141	0.0141
4.0	0.0152	0.0154	0.0155	0.0155
4.5	0.0163	0.0166	0.0167	0.0167
5.0	0.0171	0.0174	0.0175	0.0176
6.0	0.0174	0.0178	0.018	0.0181
7.0	0.0176	0.0179	0.0181	0.0182
8.0	0.0177	0.0181	0.0182	0.0183
10.0	0.018	0.0184	0.0185	0.0186

a. Plot the graph of VDD vs IDS

a. Label each graph base on the VGS value