

# EE-363 POWER ELECTRONICS

## ASSIGNMENT #1

Assignment date: 16 March 2022  
Submission Deadline: 22 March 2022

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**Question #1:** please select components of your choice from the given list of categories below and make characteristics table for those components also include the link of the website where you can buy those components online as well as their prices, In the end you have to go to hall road and buy any 10 of those components and paste a picture of you/ your group while standing in front of a component shop in this assignment.  
List:

- 1) 3 Zener diodes.
- 2) 5 Diodes
- 3) 3 PnP transistors
- 4) 3 NpN transistors
- 5) 3 N-type Mosfets
- 6) 3 P-type Mosfets

## DIODE:

Model	Forward Voltage Drop	Reverse Voltage	Max operating Temp	Reverse Current	Forward Current	Maximum Current	Recovery Time	Cost/Price	Where to buy	URL
1N34A	1 V	65 V	75 C	500 mA	1 mA	200 mA	<2000 ms	Rs 17.00	Evelectronic.	<a href="https://www.evelectro.com/1n34a-germanium-diode-5096">https://www.evelectro.com/1n34a-germanium-diode-5096</a>
1N4007	1.1 V	1000V	+175 C	5 uA	1 A	30 A	2 us	Rs 1.0	Hallroad.org	<a href="https://hallroad.org/1n4007-rectifier-diode-in-pakistan.html">https://hallroad.org/1n4007-rectifier-diode-in-pakistan.html</a>
1N5404	1.2 V	400 V	+150 C	100 u A	3 A	200A	>500 ns	Rs 5.0	Hallroad.org	<a href="https://hallroad.org/1n5404-400v-3a-rectifier-diode-in-pakistan.html">https://hallroad.org/1n5404-400v-3a-rectifier-diode-in-pakistan.html</a>
1N4005	0.93-1.1 V	600 V	+150 C	5 us	1 A	30 A	2 us	Rs 5.0	Daraz.pk	<a href="https://www.daraz.pk/products/200pcs-10-values-rectifier-diode-orted-kit-1n4003-1n4004-1n4005-1n4006-j217612008.html">https://www.daraz.pk/products/200pcs-10-values-rectifier-diode-orted-kit-1n4003-1n4004-1n4005-1n4006-j217612008.html</a>
1N4003	1.1 V	200 V	+ 125 C	5 uA	1 A	30 A	5 us	Rs 5.0	Daraz.pk	<a href="https://www.daraz.pk/products/200pcs-10-values-rectifier-diode-orted-kit-1n4003-1n4004-1n4005-1n4006-j217612008.html">https://www.daraz.pk/products/200pcs-10-values-rectifier-diode-orted-kit-1n4003-1n4004-1n4005-1n4006-j217612008.html</a>

## ZENER DIODE:

Model	Forward Voltage Drop	Nominal Voltage	Max operating Temp	Reverse Current	Forward Current	Maximum Current	Recovery Time	Cost/Price	Where to buy	URL
1N751A	1.5 V	5.1 V	200 C	0.2 A	20 mA	70 mA	25 ns	Rs 2.0	Epro.pk	<a href="https://epro.pk/product/12v-1w-zener-diode/">https://epro.pk/product/12v-1w-zener-diode/</a>
1N4742A	1.2 V	12 V	150 C	5 uA	21 mA	76 mA	500 ns	Rs 17.0	Daraz.pk	<a href="https://www.daraz.pk/products/4-pieces-1n4742a-12v-1w-zener-diode-41-1102844046.html">https://www.daraz.pk/products/4-pieces-1n4742a-12v-1w-zener-diode-41-1102844046.html</a>
1N5333B	1.2 V	3.3 V	200 C	300 uA	NA	380 mA	NA	Rs 12.0	American Microsemi co-nductor chipsmall	<a href="https://store.americanmicrosemiconductor.com/1n5333b.html?mcid=7">https://store.americanmicrosemiconductor.com/1n5333b.html?mcid=7</a>
1N2810B	1.0 A	12	175 C	10 uA	10 SA	10 A	500 ns	Rs 5.0	chipsmall	<a href="https://af.chipsmall.com/Products/1N2810B-13509348.html">https://af.chipsmall.com/Products/1N2810B-13509348.html</a>

## BJT – BIPOLAR JUNCTION TRANSISTOR:

Type	Models	Pd	V <sub>CB</sub> (V)	V <sub>CE</sub> (V)	V <sub>EB</sub> (V)
NPN	2N2222	500 mW	60	40	5
	2N3904	625 mW	60	40	6
	2N3859	30 V	30	30	4
PNP	2N3906	625 mW	40	40	6
	2N2904	60 V	60	40	5
	2N3634	140 V	140	140	5

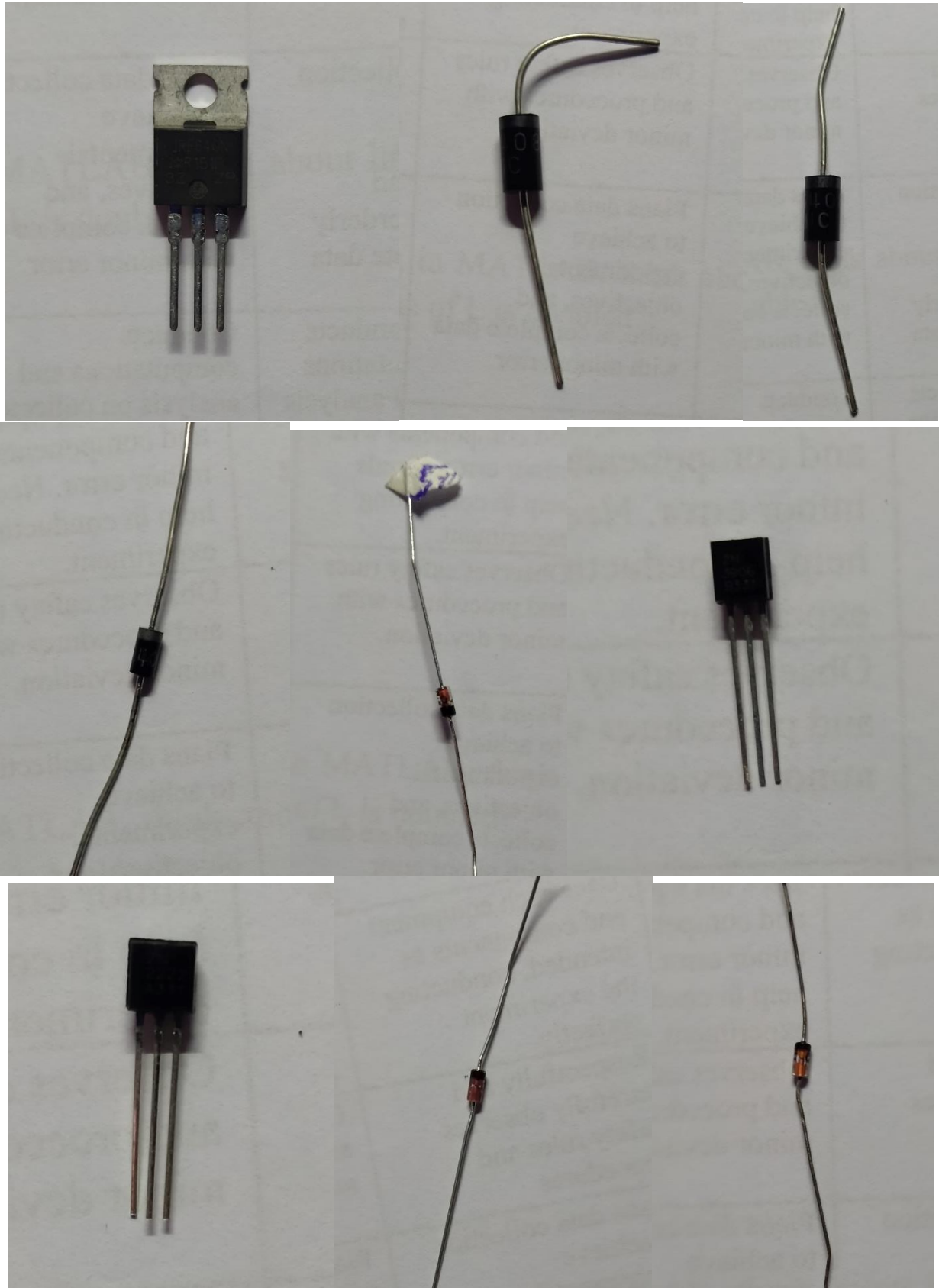
## MOSFETs:

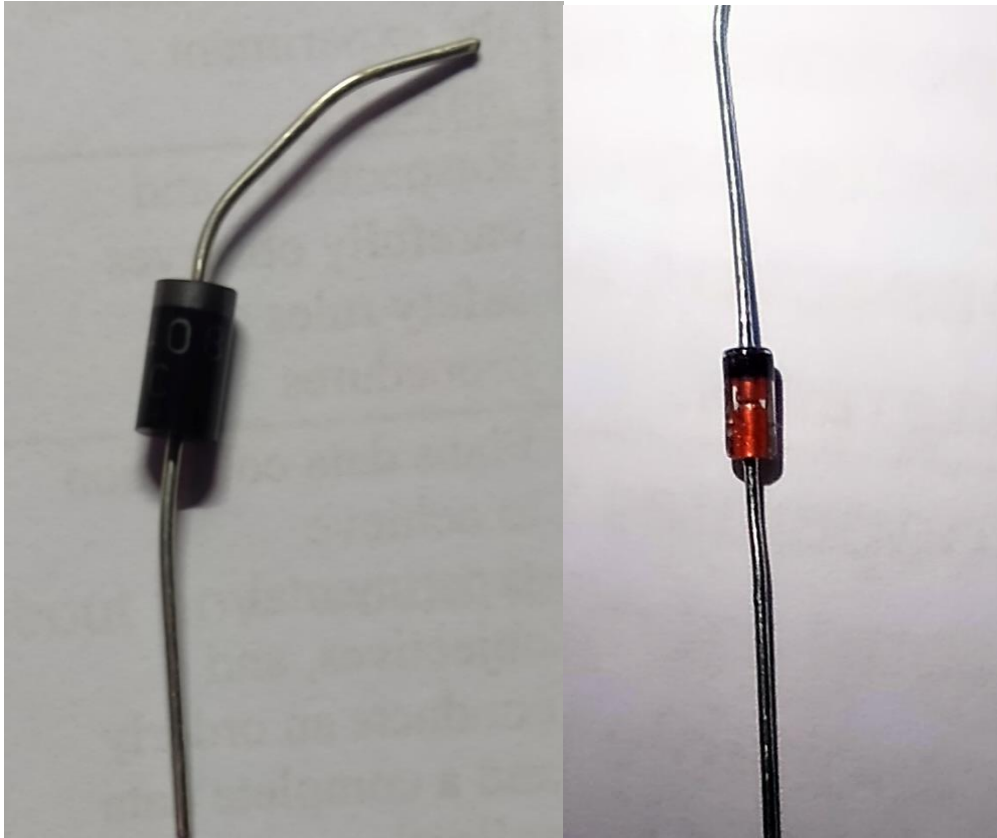
Type	Models	V <sub>DS</sub> (V)	V <sub>GS</sub> (V)	Rise Time
N-channel	IRF640	200	±20	60 ns
	2N6823	600	±20	100 ns
	2N7012	60	±20	13 ns
P-channel	2N6804	100	±20	140 ns
	IRF7329	-12	±8	8.6 ns
	IRFR9014	60	±20	63 ns

## VOLTAGE REGULATORS:

Model	V <sub>out</sub> (V)	I <sub>out</sub> (A)	V <sub>in</sub> (V)
UA78M33	3.3V	500m	25
L78L33C		100m	30
LM7805	5V	1	35
LM140LA-5.0		3m	35
LM7812K	12V	1.5	35
LM140LAH-12		3m	35

## PICTORIAL REPRESENTATION OF PURCHASED COMPONENTS:





**AN AWKWARD PICTURE WHILE PURCHASING FROM HALLROAD**

