

Practical No.11: Prepare and Test the full wave rectifier on bread board using IC KBU808 with filter

I Practical Significance

The filter converts the pulsating DC into pure DC. The electronic reactive elements like capacitor and inductors are used for filtering. KBU808 are a single-phase bridge rectifier IC.

II Industry / Employer Expected Outcome

This practical is expected to develop the following skill: 'Use electronic components and circuits in electrical equipment and systems.'

III Course Level Learning Outcome

Use semiconductor transistors in different applications.

IV Laboratory Learning Outcomes

Prepare the circuit for full wave rectifier using IC KBU 808 with filter.

V Relevant Affective Domain related Outcomes

1. Handle components and equipment with care.
2. Work in team.

VI Minimum Theoretical Background

The KBU808 is a bridge rectifier integrated circuit that is commonly used in power supply applications to convert alternating current (AC) into direct current (DC).

Features of KBU808

- Surge overload rating 200 amperes peak.
- Ideal for printed circuit board.
- Reliable low-cost construction utilizing molded plastic technique.
- Plastic Passivated chip junctions.
- Lead-free parts meet RoHS requirements.
- UL recognized file # E321971.
- Suffix "-H" indicates Halogen-free part, ex.KBU8005-H.

VII Practical setup in Laboratory

(a) Sample



Figure 11.1: IC KBU808

(b) Actual Circuit Diagram used in Laboratory



(c) Actual practical set up used in Laboratory

VIII Required Resources/apparatus/equipment with specifications

Sr. No	Instruments/Components	Specification	Quantity
1.	Variable DC power supply	0-30V, 2A, SC protection, display for voltage and current	1
2.	Transformer	9-0-9VAC, 500mA	1
3.	Digital Multimeter	3 ½ -digit display with AC and DC voltage measurement and Current measurement facility and Diode testing facility.	1
4.	IC KBU 808	IF=8A, VF=1V	1
5.	Bread board	5.5 CM X 17CM	1
6.	Connecting wires	Single strand Teflon coating (0.6 mm diameter)	As per requirement

IX Precautions to be followed

1. Do not switch ON the power supply unless you have checked the circuit connections as per the circuit diagram.
2. While doing the practical do not exceed the input voltage of the diode beyond the rated voltage of diode as given in datasheet. This may lead to damaging of the diode.

X Procedure

1. Keep DMM on diode test mode.
2. Connect the positive terminal of DMM to pin no.4 and the negative terminal of DMM to pin no.3 of IC 808 observe the drop on DMM of IC 808 observe the drop on DMM.
3. Connect the negative terminal of DMM to pin no.4 of IC 808 DMM and connect the positive terminal of DMM to pin no.3 of IC 808 observe OL (no drop) on DMM.
4. Repeat above steps for pin no.1 and Pin no.2 of IC 808 note down the drop and no drop on DMM.
5. Connect the positive terminal of DMM to pin no.4 of IC and connect negative terminal of DMM to pin no.1 of IC note down the double diode drop on DMM.

XI Observation Table

Table 1

Sr. No.	Pin connection	Output on DMM
1.	Drop between pin no.3 and 4	2.3
2.	Reverse drop between pin no.4 and pin no.3	0.5
3.	Drop between pin no.2 and pin no.1	0.2
4.	Reverse drop between pin no.1 and pin no.2	0.1
5.	Drop between pin no.1 and 4	0.001
6.	Reverse drop between pin no.4 and pin no.1	0.54

XII Results

In this practical we use IC Kby 808 as a Full wave rectifier.

XIII Interpretation of results

In this practical we use Kby 806 as a Full wave rectifier.

XIV Conclusions and Recommendation

XV Practical related Questions

1. Repeat the above experiment for Schottky diode and comment on voltage drop.
2. List features of IC KBU 808.
3. List the applications of IC KBU 808

[Space for answers]

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→ The Schottky diode is a solid state semiconductor device. Forward by bonding the metal electrode with the N-type semiconductor. The metal semiconductor junction has low diffusion around it and this character of γ Schottky diode with fast switching response and reduce forward voltage drop.

XVI References / Suggestions for further Reading

1. <http://nptel.ac.in/courses/>
2. www.electronics-tutorials.ws > Diodes

XVII Assessment Scheme

Performance Indicators		Weightage
Process related (15 Marks)		60%
1	Proper connection of electrical circuit	20%
2	Handling of instrument	10%
3	Taking proper readings	20%
4	Working in team.	10%
Product related (10 Marks)		40%
1	Calculation of theoretical value	10%
2	Interpretation of Result	05%
3	Conclusions	05%
4	Practical related questions	15%
5	Completion and submission of experiment in time	05%
Total (25 Marks)		100%