BRIDGE RECTIFIER

A diode bridge is an arrangement of four (or more) diodes in a bridge circuit configuration that provides the same polarity of output for either polarity of input.

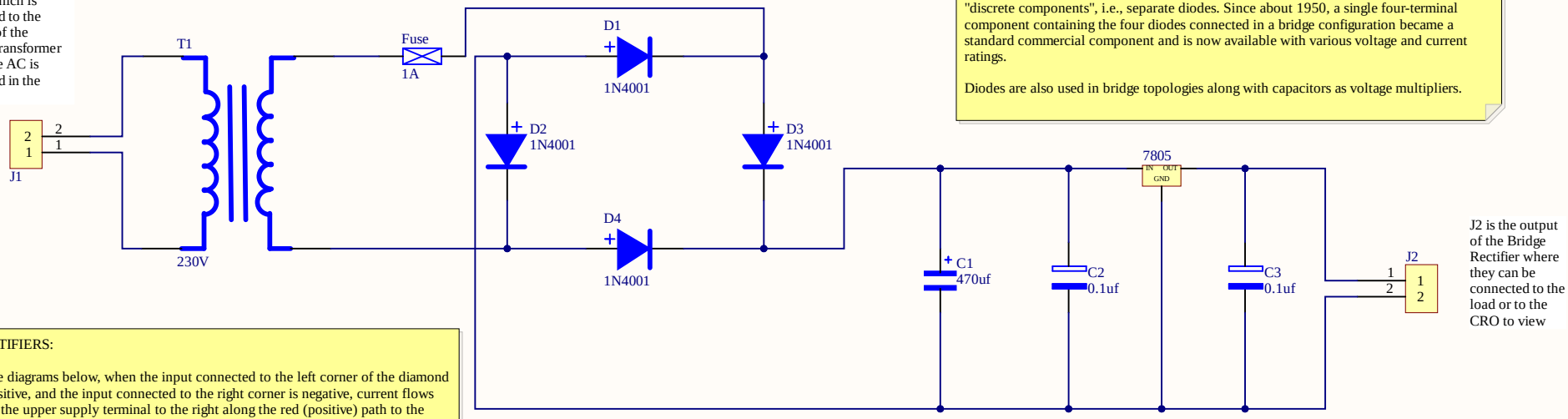
When used in its most common application, for conversion of an alternating-current (AC) input into a direct-current (DC) output, it is known as a bridge rectifier. A bridge rectifier provides full-wave rectification from a two-wire AC input, resulting in lower cost and weight as compared to a rectifier with a 3-wire input from a transformer with a center-tapped secondary winding.[1]

The essential feature of a diode bridge is that the polarity of the output is the same regardless of the polarity at the input. The diode bridge circuit was invented by Polish electrotechnician Karol Pollak and patented in December 1895 in Great Britain[2] and in January 1896 in Germany[3][4]. In 1897, the German physicist Leo Graetz independently invented and published a similar circuit.[5][6] Today the circuit is still referred to as a Graetz circuit or Graetz bridge.[7]

Prior to the availability of integrated circuits, a bridge rectifier was constructed from "discrete components", i.e., separate diodes. Since about 1950, a single four-terminal component containing the four diodes connected in a bridge configuration became a standard commercial component and is now available with various voltage and current ratings.

Diodes are also used in bridge topologies along with capacitors as voltage multipliers.

J1 is the jumper header which is connected to the primary of the AC-DC transformer where the AC is connected in the Header



J2 is the output of the Bridge Rectifier where they can be connected to the load or to the CRO to view

RECTIFIERS:

In the diagrams below, when the input connected to the left corner of the diamond is positive, and the input connected to the right corner is negative, current flows from the upper supply terminal to the right along the red (positive) path to the output and returns to the lower supply terminal through the blue (negative) path.

When the input connected to the left corner is negative, and the input connected to the right corner is positive, current flows from the lower supply terminal to the right along the red (positive) path to the output and returns to the upper supply terminal through the blue (negative) path.[9]

In each case, the upper right output remains positive[10], and lower right output negative. Since this is true whether the input is AC or DC, this circuit not only produces a DC output from an AC input, it can also provide what is sometimes called "reverse-polarity protection". That is, it permits normal functioning of DC-powered equipment when batteries have been installed backwards, or when the leads (wires) from a DC power source have been reversed, and protects the equipment from potential damage caused by reverse polarity.

Alternatives to the diode-bridge full-wave rectifiers are the center-tapped transformer and double-diode rectifier, and voltage doubler rectifier using two diodes and two capacitors in a bridge topology.

Title	BRIDGE RECTIFIER	
Size: A4	Number:	Revision:
Date: 9-29-2020		Sheet of
File: D:\Thirupathi Docs\..\Bridge.SchDoc		Drawn By: THIRUPATHI N

.Designation

.Designation

Board Stack Report