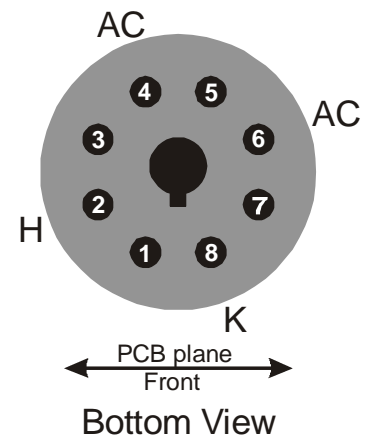
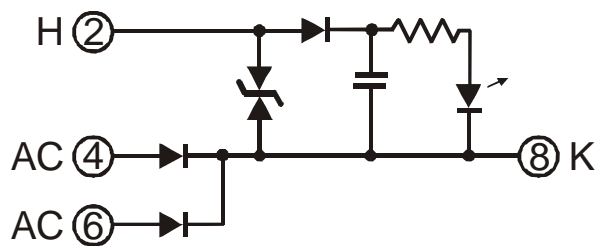




Solid-State Full-Wave Rectifier

- Convenient octal glass tube package
- Pinout compatible with standard vacuum full-wave rectifiers, such as the 5U4, 5AR4, 5Y3, etc.
- Uses 1200V SiC Schottky rectifiers
- LED indicates when filament power is supplied
- Applications:
 - B+ rectifiers
 - Bias rectifiers

Functional Block Diagram



Absolute Maximum Ratings

SYMBOL	PARAMETER	MIN	MAX	UNIT
V_{RRM}	Peak reverse voltage		1200	V
I_{FRM}	Repetitive peak current		10	A
I_{DC}	DC output current		2	A
V_H	"Heater" voltage	0	7	VAC
		0	9	VDC

Pin Connections

PIN	NAME	FUNCTION
1		No connection
2	H	Heater
3		No connection
4	AC	AC input
5		No connection
6	AC	AC input
7		No connection
8	K	Cathode (+ output)

Electrical Characteristics

SYMBOL	PARAMETER	CONDITIONS/COMMENTS	MIN	TYP	MAX	UNIT
V_F	Forward voltage (each diode)	$I_F = 2A, T = 25^\circ C$		1.4	1.8	V
I_R	Reverse leakage current (each diode)	$V_R = 1200V, T = 25^\circ C$		10	50	μA
C	Capacitance (each diode)	$V_R = 0V, T = 25^\circ C$		167		pF
		$V_R = 400V, T = 25^\circ C$		11		

Dimensions: Standard intermediate octal base - 33.5mm diameter.
Seated height 75mm, bulb diameter 29mm.

Description and Application

The SiTubes FWR is a full-wave rectifier, mounted in a glass octal tube envelope. It is pin-compatible with standard directly- and indirectly-heated full-wave rectifier tubes such as the 5U4, 5AR4, 5Y3, and other common rectifiers.

The FWR uses Silicon Carbide Schottky rectifiers rated at 1200V. These rectifiers have zero reverse recovery time, so are excellent for implementing low-noise B+ supplies.

Since SiC rectifiers have very low voltage drop as compared with vacuum rectifiers, care must be taken when the SiTubes FWR is used to replace them. The B+ voltage will be significantly higher, typically by 40-60 volts. This may be too high for the circuit, and can result in damage to filter capacitors in particular, and also tubes. **Confirm that the increased B+ voltage will cause no harm before using the FWR to replace tube rectifiers!**

An LED is connected to the heater/filament pin, that will illuminate when voltage (typically 5VAC) is applied between pins 2 and 8. Connection to the heater (pin 2) is not needed to operate as a rectifier. However, if there is no transformer winding connected between pins 2 and 8, it is *essential* that the rectified output voltage is taken from pin 8, not pin 2. If desired, pins 2 and 8 may be shorted together, but do not leave pin 8 open. The entire B+ current would flow through the transient suppressor between pins 2 and 8, resulting in a voltage drop and possible damage.