



**E I M A C**  
 Division of Varian  
 SAN CARLOS  
 CALIFORNIA

**6894**  
**6895**  
**MERCURY-VAPOR**  
**RECTIFIERS**

The EIMAC 6894 and 6895 are half-wave mercury-vapor rectifiers especially designed for high voltage power rectifier applications. They are mercury filled for high efficiency, long life and the ability to operate at high peak inverse voltage.

## GENERAL CHARACTERISTICS

### ELECTRICAL

Filament: Oxide-coated		
Voltage - - - - -	5.0	V
Current - - - - -	9.0 to 11.0	A
Filament Heating Time - - - - -	30	Sec
Anode Starting Voltage (approx.) - - - - -	20	V

### MECHANICAL

Base - - - - -	6894	50 watt, A4-29
	6895	Industrial A4-18
Recommended Socket - - - - -	6894	E.F. Johnson #123-211
	6895	E.F. Johnson #123-206
Maximum Overall Dimensions:		
Length - - - - -	6894	10-17/32 in.
	6895	10-13/32 in.
Diameter - - - - -		2-9/16 in.
Net Weight - - - - -		4 oz.



### MAXIMUM RATINGS (per tube)

PEAK INVERSE ANODE VOLTAGE		
20° -50°C Condensed Mercury Temperature Range*	- - - - -	20 MAX KV
20° -55°C Condensed Mercury Temperature Range	- - - - -	15 MAX KV
20° -60°C Condensed Mercury Temperature Range	- - - - -	10 MAX KV
PEAK ANODE CURRENT:		
Quadrature Filament Excitation**	- - - - -	11.5 MAX AMPS
In-Phase Filament Excitation	- - - - -	8.3 MAX AMPS
AVERAGE ANODE CURRENT		
Quadrature Filament Excitation	- - - - -	2.5 MAX AMPS
In-Phase Filament Excitation	- - - - -	1.8 MAX AMPS
MAXIMUM AC SHORT CIRCUIT CURRENT***	- - - - -	100 MAX AMPS

\*Condensed Mercury Temperature rises approximately 20°C above ambient.

\*\*Quadrature Excitation refers to filament voltage 90°±30° out of phase with anode voltage.

\*\*\*Max. duration 100 milliseconds.

All data based on load return to center tap of filament transformer.

## APPLICATION

### MECHANICAL

**Mounting:** The 6894 and 6895 must be mounted vertically, base down. These two tubes differ only in their basing and socketry.

**Cooling:** Provisions should be made for adequate air circulation around the tube. The temperature of the condensed mercury should be kept within



the ranges given under "MAXIMUM RATINGS."

This temperature should be maintained at  $40^{\circ} \pm 5^{\circ}\text{C}$  for most satisfactory operation of the tube. To measure the condensed-mercury temperature a thermocouple or small thermometer may be attached to the glass near the tube base using a small amount of putty. A condensed-mercury temperature lower than the recommended value raises the voltage at which the tube becomes conducting and tends to reduce the life of the filament. A temperature higher than recommended lowers the voltage at which the tube becomes conducting and reduces the peak inverse voltage rating of the tube.

## ELECTRICAL

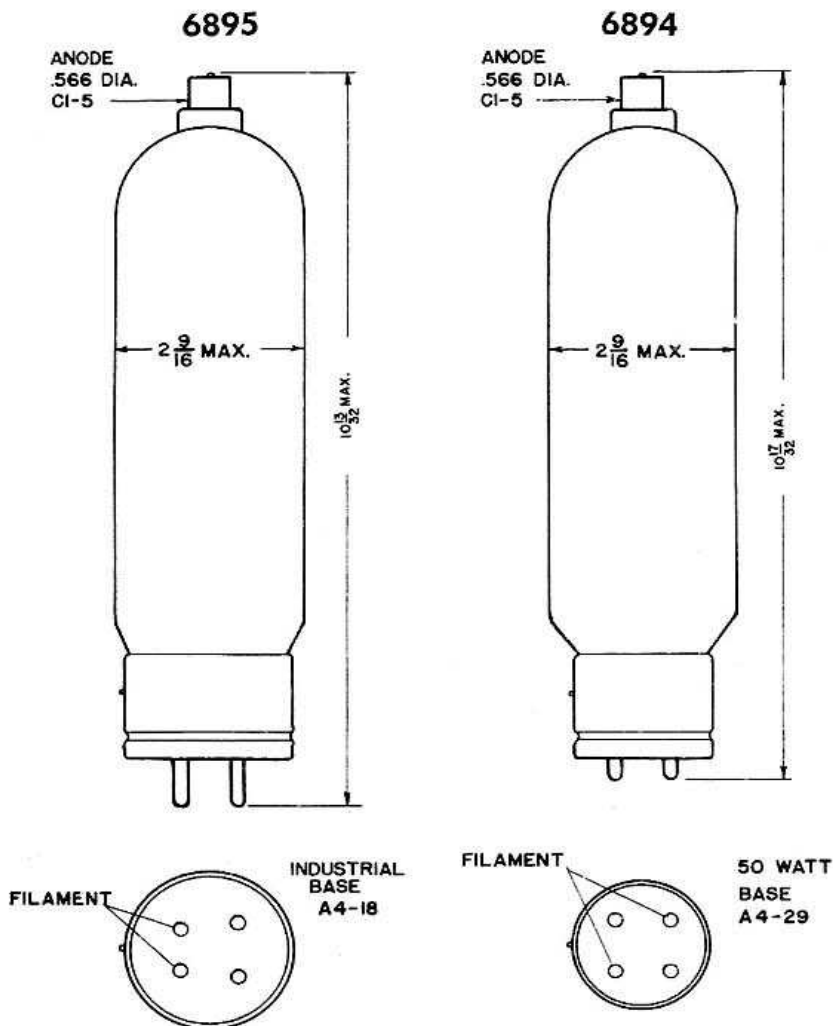
**Filament Voltage:** For maximum tube life, the filament voltage as measured directly at the filament pins, should be held at the rated value of 5.0 volts. Unavoidable variations in filament voltage must be kept within the range 4.8 to 5.2 volts. A filament voltage less than the minimum recommended value may cause a high tube voltage drop, with consequent bombardment of the filament and eventual loss of emission. A filament voltage higher than the recommended maximum value will also decrease the life of the filament.

Caution should be observed in measuring the filament voltage as the filament circuit may be at a high dc potential.

The filament should be allowed to reach operating temperature before the plate voltage is applied. Under normal conditions, a delay of approximately 30 seconds will be required. The delay time should be increased if there is any evidence of arc-back within the tube.

When it is necessary to use a shield around the tube care must be taken to insure adequate ventilation and maintenance of normal condensed-mercury temperature. When a mercury-vapor rectifier is first installed, the filament should be operated at normal voltage for approximately ten minutes with no plate voltage applied, in order that the mercury may be properly distributed.

**Shielding:** Electromagnetic and electrostatic fields tend to cause the mercury vapor to break down, are detrimental to tube life and make proper operation difficult. Consequently, the tube should be isolated from such fields as exist around transmitter or other similar equipment.



NOTE: These dimensions reflect standard manufacturing tolerances. They should not be made the basis for purchase specifications unless checked with EIMAC Division of Varian, 301 Industrial Way, San Carlos, Calif. 94070.