

E I M A C
 Division of Varian
 SAN CARLOS
 CALIFORNIA

**575A
 673**
**MERCURY-VAPOR
 RECTIFIERS**

The EIMAC 575A and 673 are half-wave mercury vapor-rectifiers incorporating features which enable them to withstand high peak inverse voltages and to conduct at relatively low applied voltages. The tubes differ only in basing.

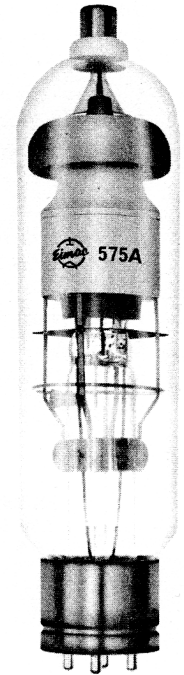
GENERAL CHARACTERISTICS

ELECTRICAL

Filament: Oxide-coated		
Voltage	- - - - -	5.0 volts
Current	- - - - -	9.0 to 11.5 amperes
Filament Heating Time	- - - - -	30 seconds
Anode Starting Voltage (approx.)	- - - - -	20 volts

MECHANICAL

Base	- - - - -	575A	50 watt, A4-29
		673	Industrial, A4-18
Recommended Socket	- - - - -	575A	E. F. Johnson #123-211
		673	E. F. Johnson #123-206
Maximum Overall Dimensions:			
Length	- - - - -	575A	11-1/8 inches
		673	11-7/16 inches
Diameter	- - - - -		2-9/16 inches
Net Weight	- - - - -		12 ounces



MAXIMUM RATINGS (per tube)

CONDENSED MERCURY TEMPERATURE LIMITS*	- - - - -	20-50	20-60	°C
PEAK INVERSE ANODE VOLTAGE	- - - - -	15	10	kV
PEAK ANODE CURRENT:				
Quadrature Filament Excitation**	- - - - -	10	10	Amps
In-Phase Filament Excitation	- - - - -	6	7	Amps
AVERAGE ANODE CURRENT: (Maximum averaging time - 20 seconds)				
Quadrature Filament Excitation**	- - - - -	2.5	2.5	Amps
In-Phase Filament Excitation	- - - - -	1.5	1.75	Amps
MAXIMUM AC SHORT CIRCUIT CURRENT***	- - - - -	100	100	Amps

*Condensed Mercury temperature rises approximately 18°C above ambient.
 **Quadrature excitation refers to filament voltage 90°±30° out of phase with anode voltage.
 ***Max. duration 100 milliseconds.

APPLICATION

MECHANICAL

Mounting: The 575A and 673 must be mounted vertically base down.

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°±5°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. The approximate condensed-mercury temperature rise above ambient is 18°C.

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 of 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 a transmitter or other similar equipment.

