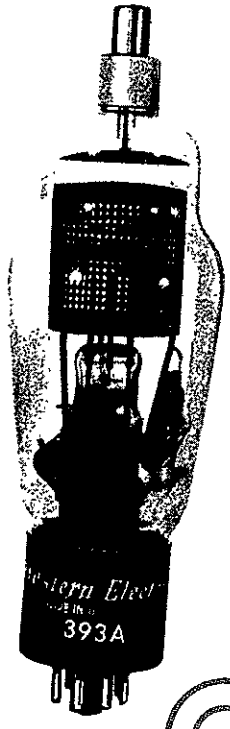
ELECTRON TUBE DATA SHEET

WESTERN ELECTRIC 393A ELECTRON TUBE



DESCRIPTION

The 393A is a three-electrode mercury-vapor and gas-filled thyratron with a negative control characteristic. This tube is designed for use in regulated or controlled rectifiers.

MAXIMUM RATINGS

Peak Anode Voltage	1250 volts
Average Cathode Current.	1.5 amperes

FILE:THYRATRON SECTION

MAXIMUM RATINGS, Absolute Values

Peak Anode Voltage	
Inverse	1250 volts
Forward	1250 volts
Cathode Current	
Peak	6 amperes
Average	1.5 amperes
Surge (maximum duration 0.1 second)	120 amperes
Averaging Time	5 seconds
Negative Grid Voltage	
Before Conduction	500 volts
During Conduction	10 volts
Positive Grid Current, Average	
(averaging time - one cycle)	.010 ampere
Condensed Mercury Temperature Limits[1]	-55 to +80 centigrade

ELECTRICAL DATA

	Min.	Bogey	Max.	
Filament Voltage	2.37	2.5	2.62	volts
Filament Current at 2.5 Volts	---	7.0	7.75	amperes
Filament Heating Time Required	15	---	---	seconds
Anode to Grid Capacitance	---	1.8	---	uuf
Grid to Filament Capacitance	---	5.0	---	uuf
Deionization Time, Approximate[2]				
E_{bb}=1250 volts;THg=80C;I_b=6 amperes;				
E_{cc}=-18 volts; R_g=20,000 ohms	---	1200	---	microseconds
Ionization Time, Approximate[3]				
E_{bb}=100 volts;THg=40C;grid overvoltage=5 volts	---	35	---	microseconds
E_{bb}=100 volts;THg=80C;grid overvoltage=25 volts.	---	0.5	---	microseconds
Anode Voltage Drop	---	15	---	volts
Critical Grid Current at 220 Anode Volts	---	---	5	microamperes
Change in Critical Grid Voltage at				
500 Anode Volts from +20 to +80THg	---	0.2	---	volt

MECHANICAL DATA

Type of Cooling	Convection
Equilibrium Condensed Mercury Temperature Rise Above Ambient, Approximate	
At Full Load	30 centigrade
At No Load	20 centigrade
Mounting Position	Vertical-base down
Net Weight, Approximate	3 ounces

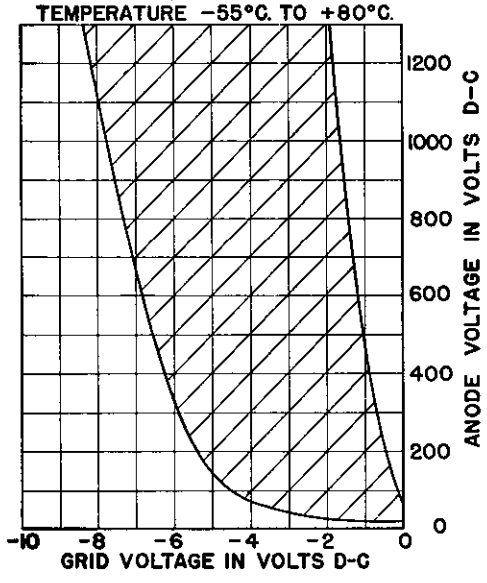
Dimensions and pin connections shown in outline drawing on Page 4.

1. For starting conditions only. Equilibrium operation is limited to +20C minimum condensed mercury temperature.

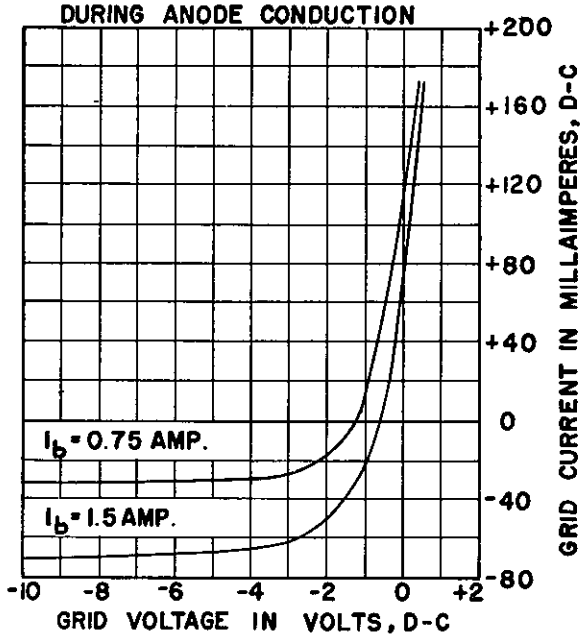
2. Deionization time decreases with an increase in negative grid voltage or with a decrease in (a) condensed mercury temperature (THg), (b) grid resistance or (c) anode current immediately preceding the end of conduction.

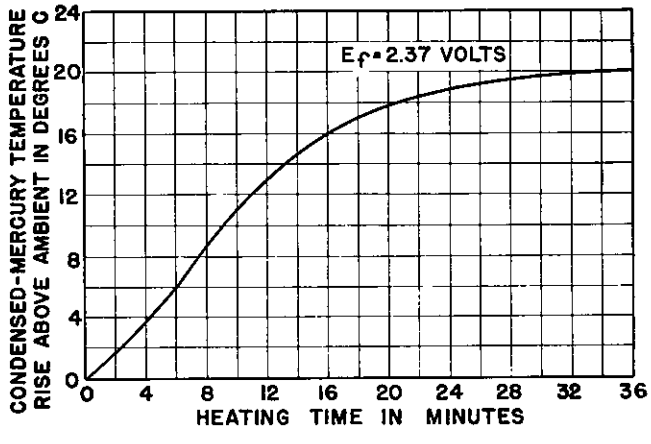
3. Ionization time decreases with an increase in (a) anode voltage, (b) condensed mercury temperature (THg) or (c) grid overvoltage. Grid overvoltage is defined as the magnitude by which the applied voltage exceeds, in a positive direction, the critical grid voltage value. Critical grid voltage is the instantaneous value of grid voltage at the time when anode current starts to flow.

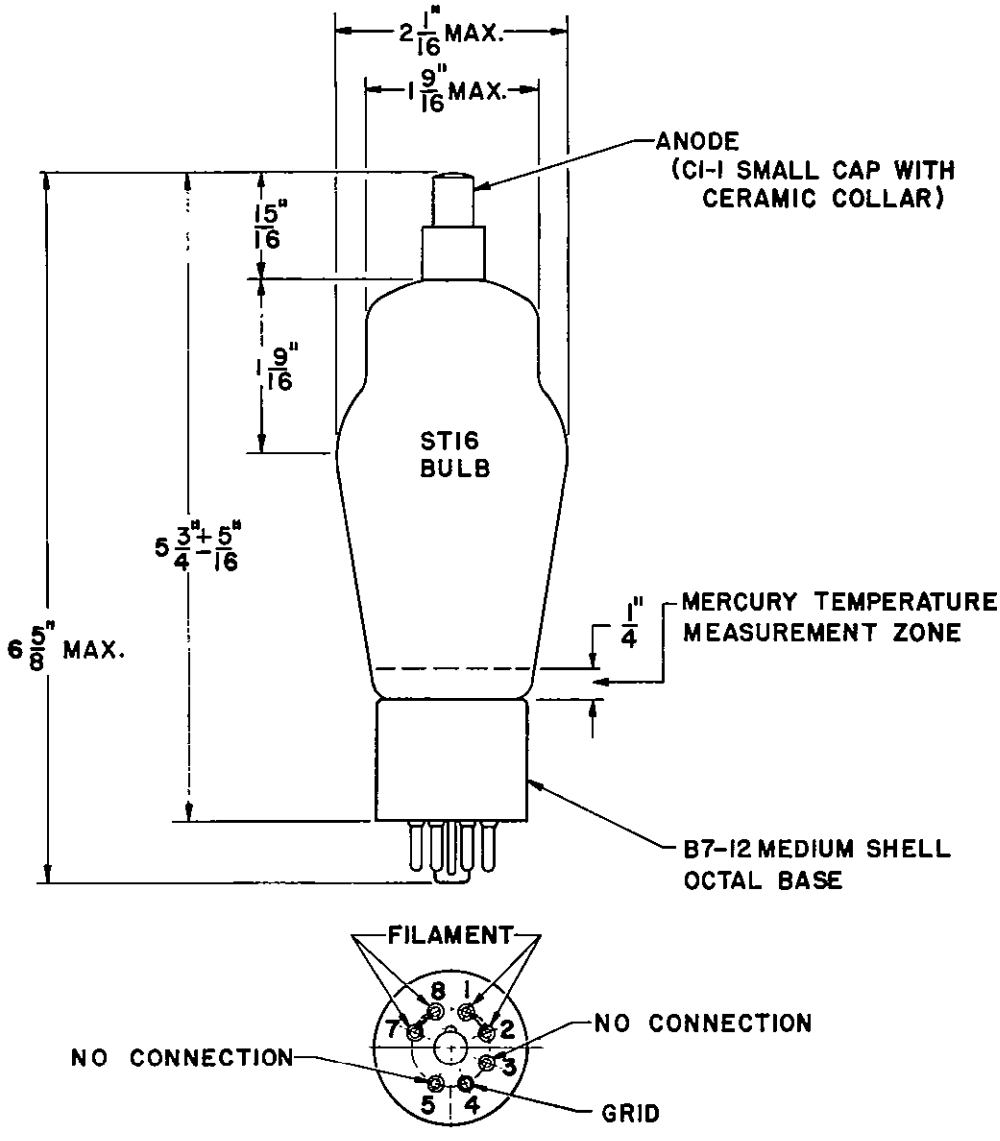
TYPICAL CONTROL CHARCTERISTICS. SHADED AREA SHOWS RANGE OF CHARACTERISTICS, CONDENSED MERCURY TEMPERATURE −55°C. TO +80°C.



TYPICAL GRID CURRENT CHARACTERISTICS DURING ANODE CONDUCTION







A development of Bell Telephone Laboratories, the research laboratories of the American Telephone and Telegraph Company and the Western Electric Company.

PRINTED IN U.S.A.