CHATHAM ELECTRONICS

Division of Gera Corporation — LIVINGSTON, NEW JERSEY

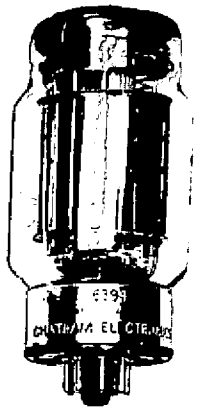
6394

LOW-MU TWIN POWER TRIODE

HIGH PERVEANCE - HIGH PLATE DISSIPATION

TENTATIVE DATA

Chatham 6394 is a low-mu, high perveance, twin power triode of the heater-cathode type intended for use as a regulator tube in dc power supply units. The 6394 features a plate current held within ±10% of bogie (Note 2) and absence of plate current drift. A hard glass envelope is used to withstand shock and high temperature. The 6394 employs a compact design in which special attention has been given to features which improve its strength both as to shock and vibration. This type utilizes a button stem which strengthens the mount structure and provides relatively wide inter-lead spacing. Because of this spacing between leads, susceptibility to electrolysis is reduced. These features all contribute to the dependability of the 6394.



GENERAL DATA

Heater, for Unipotential Cathodes:		
Voltage (AC or DC)	26.5±10%	volts
Current at 26.5 volts	1.2	amp
Direct Interelectrode Capacitances (Each Unit, without external shield):		
Grid to Plate	15.2	uuf
Input	13.7	uuf
Output	4.7	uuf
Heater to Cathode:		
Triode Unit No. 1	27.8	uuf
Triode Unit No. 2	26.8	uuf
Grid of Unit No. 1 to Grid of Unit No. 2	0.68	uuf
Plate of Unit No. 1 to Plate of Unit No. 2	1.5	uuf

Characteristics (Each Unit):

Plate-Supply Voltage	190	volts
Cathode-Bias Resistor	200	ohms
Amplification Factor	2.7	
Plate Resistance	200	ohms
Transconductance	13,500	umhos
Plate Current	185	ma

Mechanical:

Mounting Position	Any
Maximum Overall Length	4 3/4"
Maximum Seated Length	4 1/4"
Maximum Diameter	2"
Bulb	St-16 Nonex
Base	Short Jumbo-Shell Octal 8-Pin
Shock	30° Hammer angle or 500 G's
High Altitude	10,000 Ft.
Weight (net)	4.5 oz. Max.

DC AMPLIFIER

Values are for Each Unit

Maximum Ratings, *Absolute Values*

PLATE VOLTAGE	400 max.	volts
PLATE CURRENT	400 max.	ma
PLATE DISSIPATION	30 max.	watts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode	300 max.	volts
Heater positive with respect to cathode	300 max.	volts
BULB TEMPERATURE ⊕	250 max.	°C
MAXIMUM CIRCUIT VALUES:		
Grid-Circuit Resistance:	500 min. 500 K max.	ohms

Cathode Resistance: Minimum cathode resistance per cathode leg shall be 27 ohms or that resistance necessary to provide 10% of the grid bias voltage, whichever is the greater.

CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN

	Note	Min.	Max.	
Heater Current	1	1.15	1.25	amp
Grid-Plate Capacitance (Each Unit)	-	13.7	16.7	uuf
Input Capacitance (Each Unit)	-	11.2	16.2	uuf
Output Capacitance (Each Unit)	-	4.2	5.2	uuf
Heater-Cathode Capacitance:				
Triode Unit No. 1	-	23.8	31.8	uuf
Triode Unit No. 2	-	22.8	30.8	uuf
Amplification Factor (Each Unit)	1,2,4	2.0	3.4	
Plate Current (Each Unit)	1,2,4	165	200	ma
Transconductance (Each Unit)	1,2,4	11,000	16,000	umhos
Reverse Grid Current (Each Unit)	1,3,4		4.0	uamp

Note 1: With 26.5 volts ac or dc on heater.

Note 2: With plate-supply voltage of 190 volts, and cathode bias resistor of 200 ohms in each cathode (both triode units operating).

Note 3: With plate-supply voltage of 190 volts, and grid resistor of .5 megohm in each grid (both triode units operating).

Note 4: Readings to be taken after tube has been drawing current for at least 5 minutes.

⊕ At hottest point on bulb surface

OPERATING NOTES

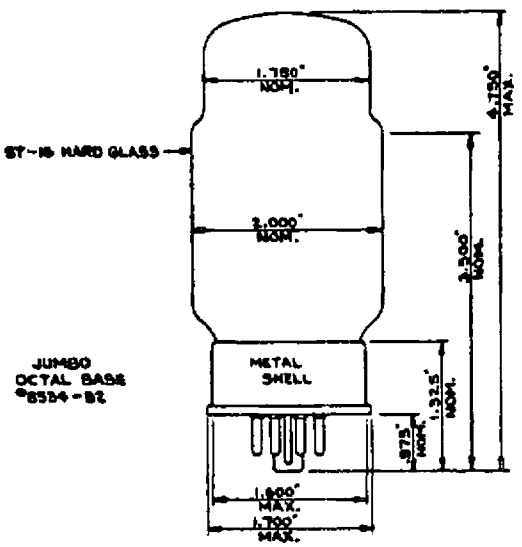
A minimum warm-up time of 30 seconds before application of plate voltage is recommended. This is especially necessary in regulator circuits where the plate of the amplifier tube ties back to the plate side of the passing tube. In such a circuit during warm-up, the passing tube grid is essentially at plate potential resulting in a momentary grid bias of several hundred volts positive. This will strip the barium from the surface of the cathode leaving the tube with little or no emission. Tubes that have been abused this way can be reaged by running them for several hours with filament voltage only applied, and with Ef=30.v.

(Continued)

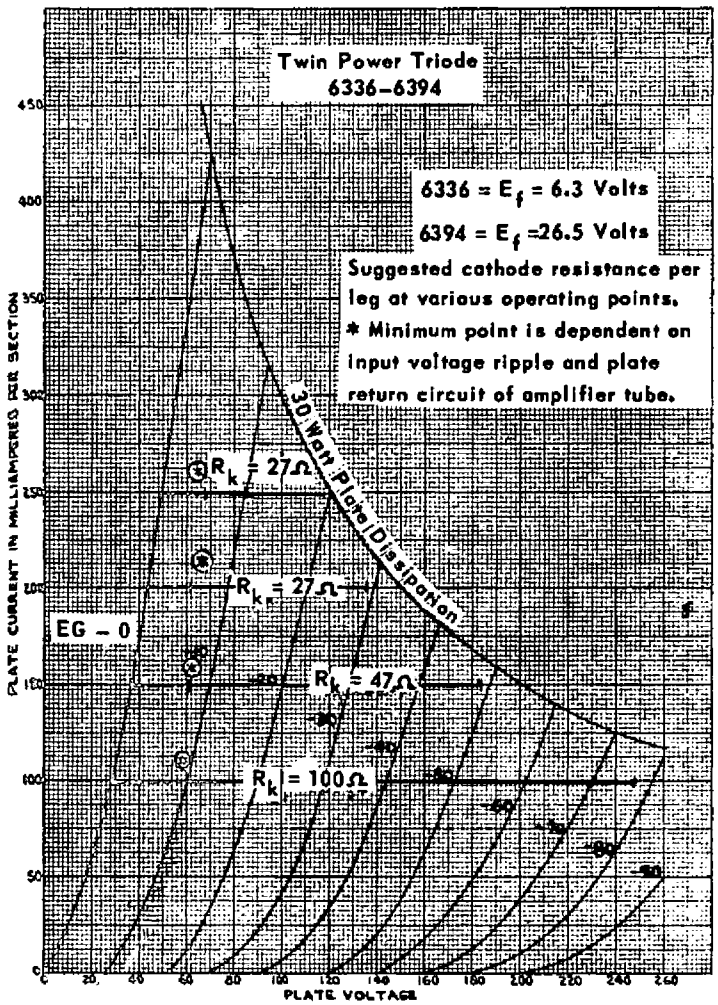
from JETEC release #1768, Oct. 29, 1956

The *maximum ratings* in the tabulated data for the 6394 are limiting values above which the serviceability of the 6394 may be impaired from the viewpoint of life and satisfactory performance. Therefore, in order not to exceed these absolute ratings, the equipment designer has the responsibility of determining an average design value for each rating below the absolute value of that rating by an amount such that the absolute values will never be exceeded under any usual condition of supply-voltage variation, load variation, or manufacturing variation in the equipment itself.

DIMENSIONAL OUTLINE

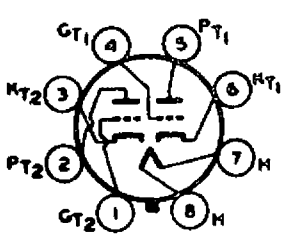


TUBE TYPE 6336 – 6394



Average Plate Characteristics For Each Triode Unit of Type 6394

SOCKET CONNECTIONS
Bottom View



8BD

PIN 1: GRID OF UNIT NO. 2
PIN 2: PLATE OF UNIT NO. 2
PIN 3: CATHODE OF UNIT NO. 2
PIN 4: GRID OF UNIT NO. 1
PIN 5: PLATE OF UNIT NO. 1
PIN 6: CATHODE OF UNIT NO. 1
PIN 7: HEATER
PIN 8: HEATER