



5844

TWIN TRIODE

FOR COMPUTER APPLICATIONS
 SHARP-CUTOFF CHARACTERISTIC HIGH PERVEANCE

DESCRIPTION AND RATING

The 5844 is a miniature, medium-mu twin triode for service in electronic computers. The tube features relatively high zero-bias plate current and sharp cutoff. The heater-cathode construction is designed for dependable service under conditions of intermittent operation. When used in "on-off" control applications, the 5844 will maintain its emission capabilities after long periods of operation under cutoff conditions.

GENERAL

ELECTRICAL

Cathode—Coated Unipotential

Heater Voltage, AC or DC	6.3 ± 5%	Volts
Heater Current	0.3	Amperes
Direct Interelectrode Capacitances*		
Grid to Plate, Each Section	2.6	μμf
Input, Each Section	2.6	μμf
Output, Section 1	0.5	μμf
Output, Section 2	0.4	μμf
Heater to Cathode	6.0	μμf
Grid to Grid, maximum	0.15	μμf
Plate to Plate, maximum	1.0	μμf

*Without external shield.

MECHANICAL

Mounting Position

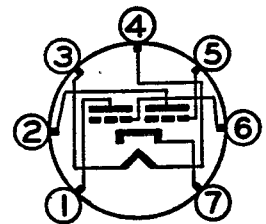
Preferred Orientation—Upright or with Plate Majors in Vertical Position

Permissible Orientation—Any

Envelope—T-5½, Glass

Base—E7-1, Miniature Button 7-Pin

BASING DIAGRAM

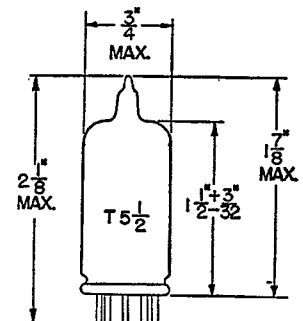


RETMA 7BF

TERMINAL CONNECTIONS

Pin 1—Plate (Section 2)
Pin 2—Plate (Section 1)
Pin 3—Heater
Pin 4—Heater
Pin 5—Grid (Section 1)
Pin 6—Grid (Section 2)
Pin 7—Cathode

PHYSICAL DIMENSIONS



RETMA 5-2

MAXIMUM RATINGS

ABSOLUTE MAXIMUM VALUES, Each Section

Plate Voltage.....	200	Volts
Positive DC Grid Voltage.....	0	Volts
Negative DC Grid Voltage.....	75	Volts
Peak Negative Grid Voltage.....	150	Volts
Plate Dissipation.....	1.0	Watts
DC Cathode Current.....	10	Milliamperes
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode		
DC Component.....	100	Volts
Total DC and Peak.....	200	Volts
Heater Negative with Respect to Cathode		
Total DC and Peak.....	200	Volts
Grid Circuit Resistance		
With Fixed Bias.....	0.05	Megohms
With Cathode Bias.....	0.1	Megohms
Bulb Temperature at Hottest Point.....	120	C

CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS†

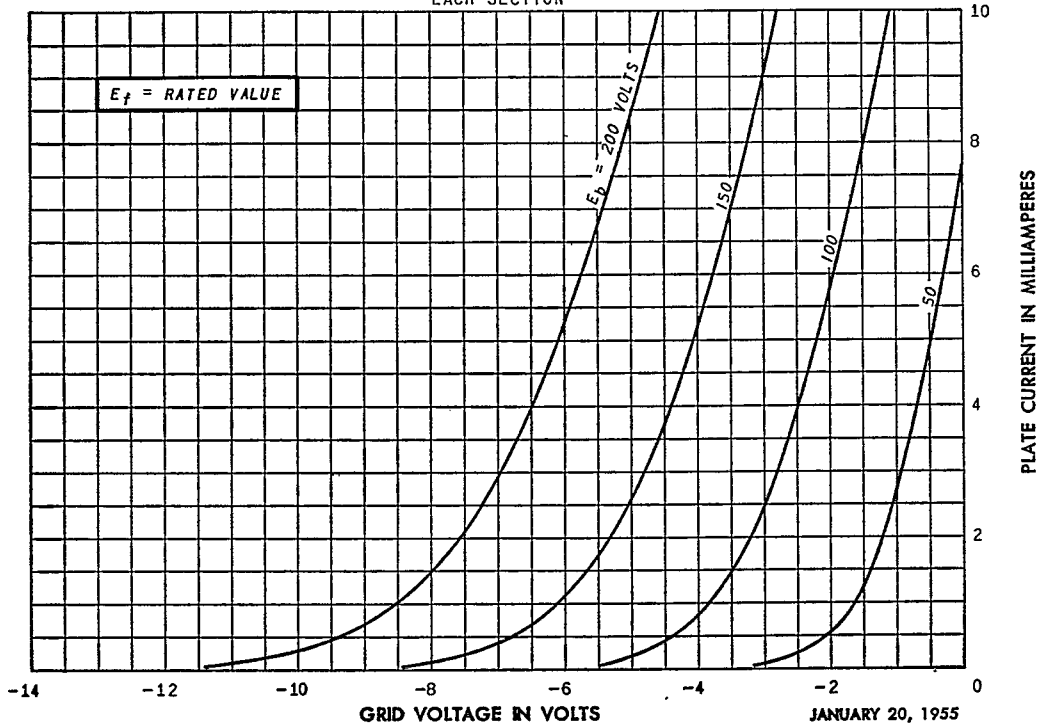
Plate Voltage.....	100	Volts
Cathode-Bias Resistor.....	470	Ohms
Amplification Factor.....	28	
Plate Resistance, approximate.....	7550	Ohms
Transconductance.....	3700	Micromhos
Plate Current.....	4.8	Milliamperes

COMPUTER SERVICE†

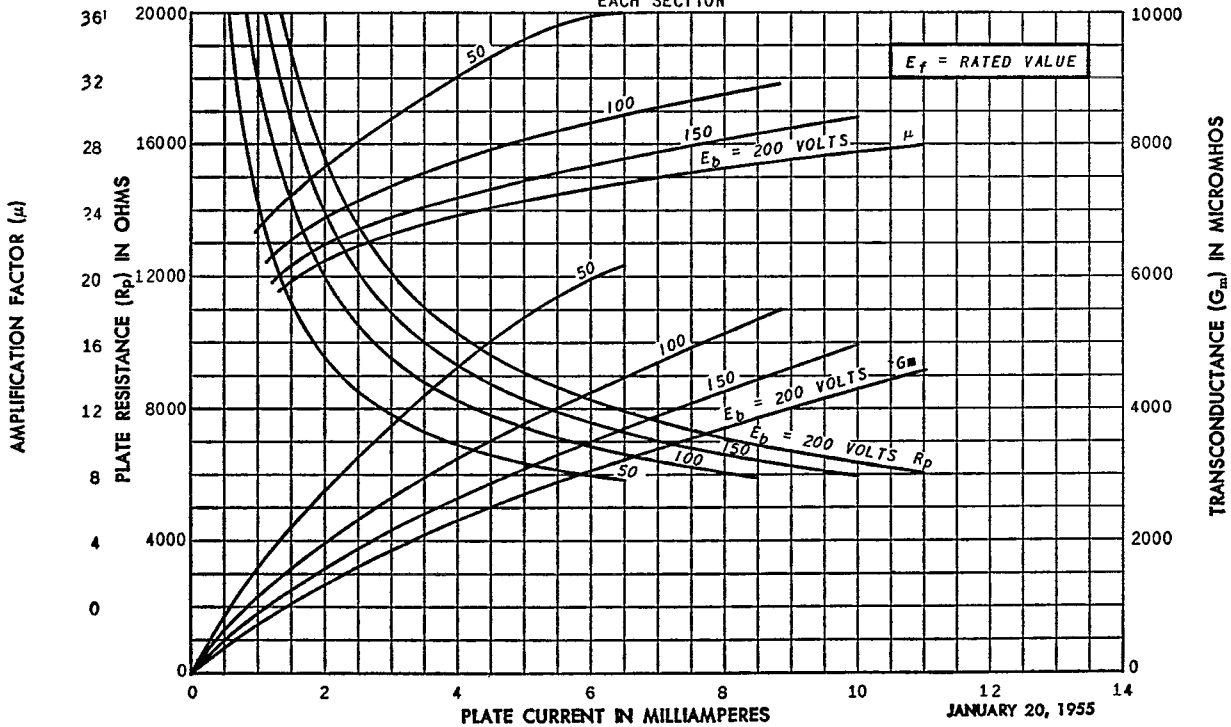
Plate-Supply Voltage.....	150	150	Volts
Plate Load Resistor.....	20000	20000	Ohms
Grid Resistor.....	47000	47000	Ohms
Grid-Supply Voltage.....	0	-10	Volts
Plate Current, minimum.....	4.8	...	Milliamperes
Plate Current, maximum.....	...	0.10	Milliamperes

† Each section separately with grid and plate of opposite section grounded.

AVERAGE TRANSFER CHARACTERISTICS
 EACH SECTION



AVERAGE CHARACTERISTICS
 EACH SECTION



ELECTRONIC COMPONENTS DIVISION



Schenectady 5, N. Y.

INITIAL CHARACTERISTICS LIMITS

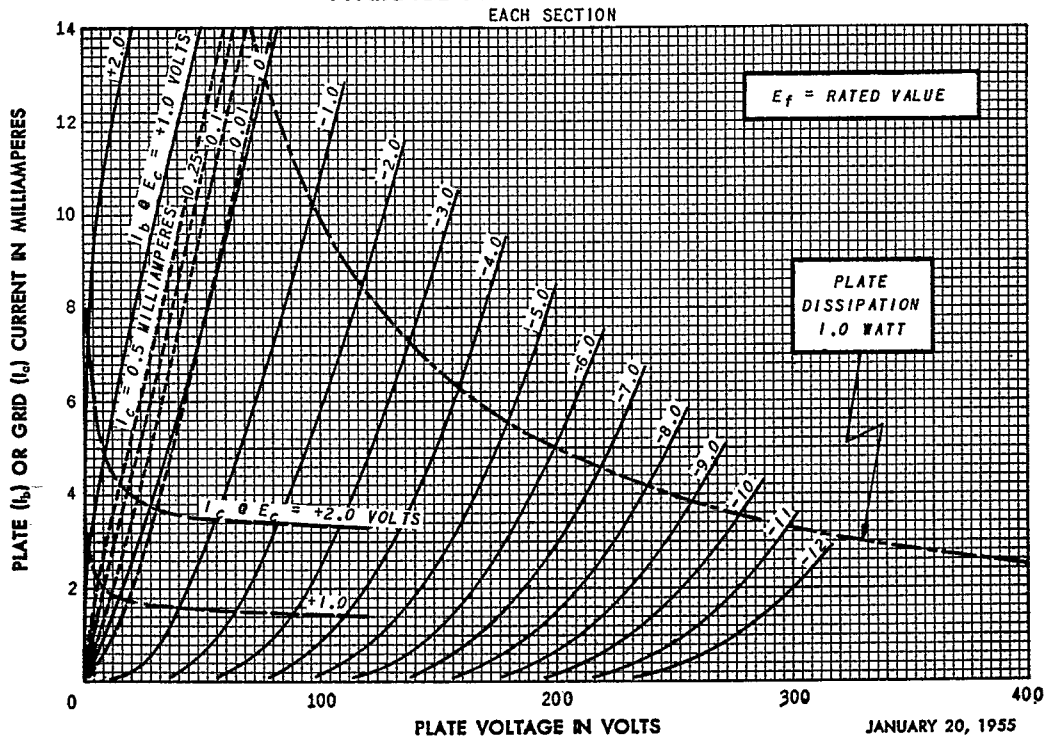
	Minimum	Maximum	
Heater Current			
E _f = 6.3 volts	275	325	Milliamperes
Zero-Bias Plate Current, Each Section			
E _f = 6.3 volts, E _{bb} = 150 volts, E _{cc} = 0 volts, R _L = 20,000 ohms, R _g = 47,000 ohms	4.8	...	Milliamperes
Plate Current, Each Section			
E _f = 6.3 volts, E _b = 100 volts, R _k = 470 ohms, C _k = 1000 μf	3.8	5.8	Milliamperes
Transconductance, Each Section			
E _f = 6.3 volts, E _b = 100 volts, R _k = 470 ohms, C _k = 1000 μf	2700	4700	Micromhos
Plate Current Cutoff, Each Section			
E _f = 6.3 volts, E _{bb} = 150 volts, E _{cc} = -10 volts, R _L = 20,000 ohms, R _g = 47,000 ohms	...	100	Microamperes
Grid Voltage Cutoff Difference between Sections			
Difference between cutoff voltages for each section at E _f = 6.3 volts, E _{bb} = 150 volts, R _L = 20,000 ohms, R _g = 47,000 ohms, I _b = 100 μa	...	2.0	Volts
Negative Grid Current, Each Section			
E _f = 6.3 volts, E _b = 100 volts, R _k = 470 ohms, C _k = 1000 μf, R _g = 0.5 meg	...	1.0	Microamperes
Heater-Cathode Leakage Current			
E _f = 6.3 volts, E _{hk} = 100 volts			
Heater Positive with Respect to Cathode	...	20	Microamperes
Heater Negative with Respect to Cathode	...	20	Microamperes
Interelectrode Leakage Resistance			
E _f = 6.3 volts. Polarity of applied d-c interelectrode voltage is such that no cathode emission results.			
Grid (Each Section) to All at 100 volts DC	100	...	Megohms
Plate (Each Section) to All at 300 volts DC	100	...	Megohms

SPECIAL TESTS AND RATINGS

Cathode-Interface Impedance Control

Cathode interface impedance is controlled by life-testing techniques to limits consistent with computer requirements.

AVERAGE PLATE CHARACTERISTICS



JANUARY 20, 1955