



**GL-6202**  
**TWIN DIODE**  
 Five-Star Tube  
 ★ ★ ★ ★ ★

**FOR FULL-WAVE POWER-RECTIFIER APPLICATIONS**

**RATED OUTPUT—50 MILLIAMPERES**  
**7-PIN MINIATURE**  
**CATHODE-TYPE RECTIFIER**

**SHOCK, VIBRATION RATINGS**  
**HEATER-CYCLING RATING**  
**PROTOTYPE—6X4**

**DESCRIPTION AND RATING**

The GL-6202 is a miniature full-wave high-vacuum rectifier intended for use in power supplies which have low d-c output-current requirements. Analysis of the electrical characteristics of this tube with those of the 6X4 will indicate that the GL-6202 is essentially similar.

The GL-6202 is a special-quality tube intended for use in critical industrial and military applications in which operational dependability is of primary importance. Features of the tube include a high degree of mechanical strength and a heater-cathode construction capable of withstanding many-thousand cycles of intermittent operation. This tube may be used in applications which are subjected to altitudes as high as 60,000 feet.

**GENERAL**

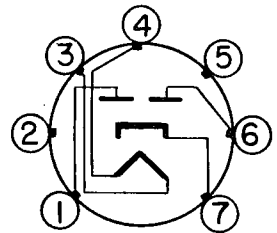
**ELECTRICAL**

Cathode—Coated Unipotential  
 Heater Voltage, AC or DC . . . . .  $6.3 \pm 10\%$  Volts  
 Heater Current . . . . . 0.6 Amperes

**MECHANICAL**

Mounting Position—Any  
 Envelope—T-5½, Glass  
 Base—E7-1, Miniature Button 7-Pin

**BASING DIAGRAM**

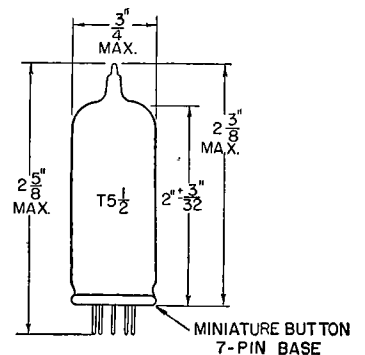


RETMA 5B5

**TERMINAL CONNECTIONS**

- Pin 1—Plate Number 2
- Pin 2—No Connection
- Pin 3—Heater
- Pin 4—Heater
- Pin 5—No Connection
- Pin 6—Plate Number 1
- Pin 7—Cathode

**PHYSICAL DIMENSIONS**



RETMA 5-3

**MAXIMUM RATINGS**

**RECTIFIER SERVICE\*—DESIGN-CENTER VALUES†**

Peak Inverse Plate Voltage

Altitudes up to 40,000 Feet‡ . . . . . 1250 Volts

Altitudes from 40,000 to 60,000 Feet‡ . . . . . 850 Volts

AC Plate-Supply Voltage per Plate—See Rating Chart I§

Steady-State Peak Plate Current per Plate . . . . . 200 Milliamperes

Transient Peak Plate Current per Plate, Maximum Duration 0.2 Second . . . . . 1.45 Amperes

DC Output Current—See Rating Chart I§

Heater-Cathode Voltage

Heater Positive with Respect to Cathode . . . . . 100 Volts

Heater Negative with Respect to Cathode . . . . . 450 Volts

Bulb Temperature at Hottest Point¶ . . . . . 165 C

**CHARACTERISTICS AND TYPICAL OPERATION**

**FULL-WAVE RECTIFIER, ALTITUDES UP TO 40,000 FEET**

	Capacitor- Input Filter	Choke- Input Filter	
AC Plate-Supply Voltage per Plate, RMS . . . . .	325	450	Volts
Filter Input Capacitor . . . . .	4	...	Microfarads
Filter Input Choke . . . . .	...	8	Henrys
Total Plate-Supply Resistance per Plate . . . . .	175	...	Ohms
DC Output Current . . . . .	50	50	Milliamperes
DC Output Voltage at Filter Input . . . . .	365	375	Volts
Tube Voltage Drop			
I <sub>b</sub> = 50 Milliamperes DC per Plate . . . . .	...	22	Volts

\* For use with sinusoidal supply voltages within the frequency range of 25 to 1000 cycles per second.

† To simplify the application of the maximum ratings to circuit design, the electrical design-center maximum ratings are also presented in chart form as Rating Charts I, II, and III. Rating Chart I presents the maximum ratings for a-c plate-supply voltage and d-c output current. Rating Chart II provides a convenient method for checking conformance with the maximum steady-state peak-plate-current rating. Rating Chart III offers a convenient method for checking conformance with the maximum transient peak-plate-current rating.

With a capacitor-input filter, the conditions of each of Rating Charts I, II, and III must be satisfied in order to obtain performance within all of the appropriate electrical maximum ratings. With a choke-input filter, operation within the indicated boundary of Rating Chart I will assure performance within all of the appropriate electrical maximum ratings.

‡ The altitude ratings as presented refer to the limitations of the tube itself. Because the socket employed can become the limiting factor in high-altitude operation, consideration must be given to the voltage-breakdown capabilities of the tube and socket combination employed.

§ The maximum ratings for a-c plate supply voltage and d-c output current are interrelated and are also dependent on whether a choke or capacitor-input filter is employed. This relationship is shown in Rating Chart I. With a capacitor-input filter, the operating point of d-c output current and a-c supply voltage must fall within the curve FAEDG. With a choke-input filter, the operating point must fall within the curve FABCDG.

¶ The indicated maximum bulb-temperature rating should never be exceeded under any circumstances. Tube life and reliability of performance will be enhanced by operation at lower temperatures.

**SPECIAL TESTS AND RATINGS****Inoperatives Control**

Minimum continuous operating time under life-test conditions or equivalent for all tubes prior to characteristics testing . . . . . 46 Hours

**Heater-Cycling Rating**

Cycles of Intermittent Operation, minimum . . . . . 2000 Cycles  
Ef = 7.5 volts cycled for one minute on and one minute off. Eb = 0 volts. Ehk = 100 volts with heater positive with respect to cathode.

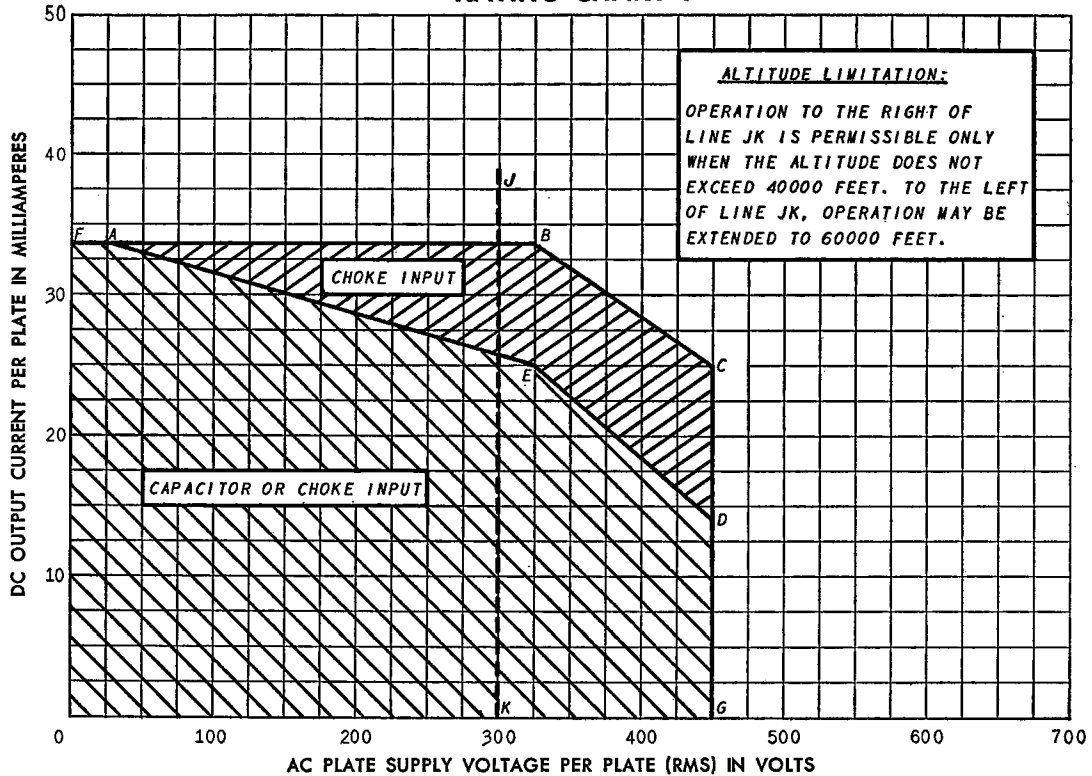
**Shock Rating**

Impact Acceleration in Any Direction . . . . . 700 G  
Forces as applied by the Navy-type, High Impact (flyweight) Shock Machine for Electronic Devices or its equivalent.

**Fatigue Rating**

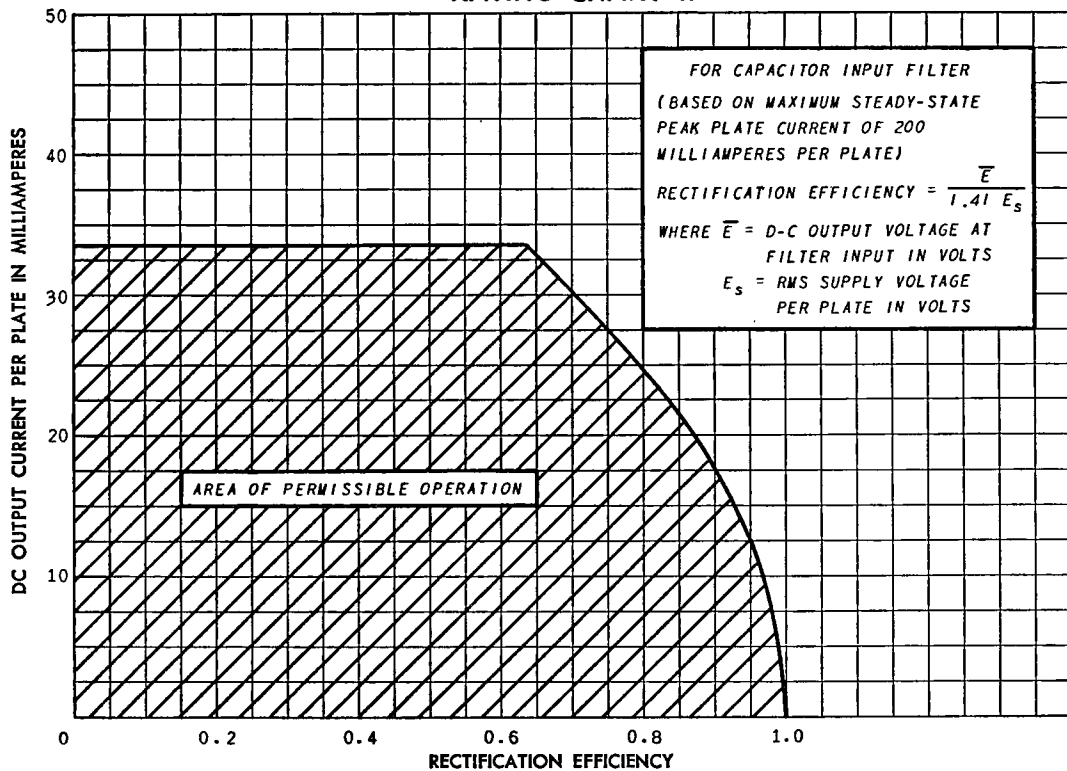
Vibrational Acceleration in Any Direction . . . . . 2.5 G  
Vibrational forces for a period of at least 100 hours at a frequency of 25 cycles per second.

RATING CHART I



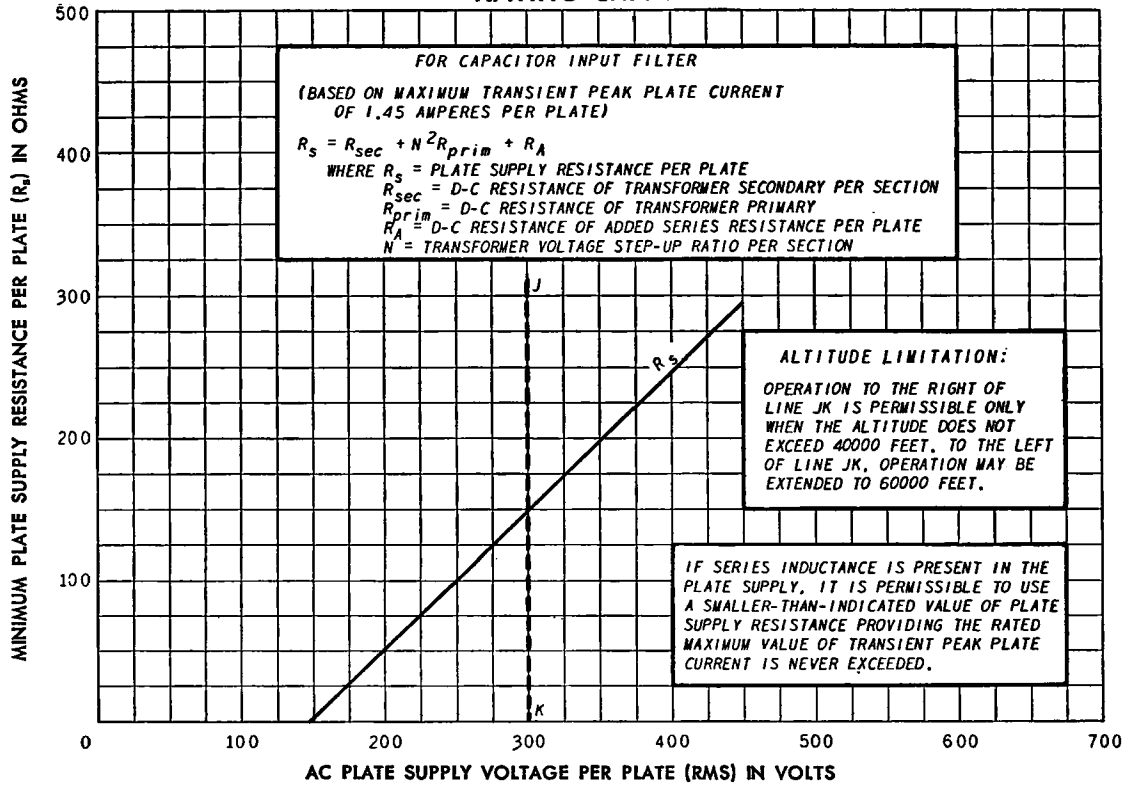
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RATING CHART II



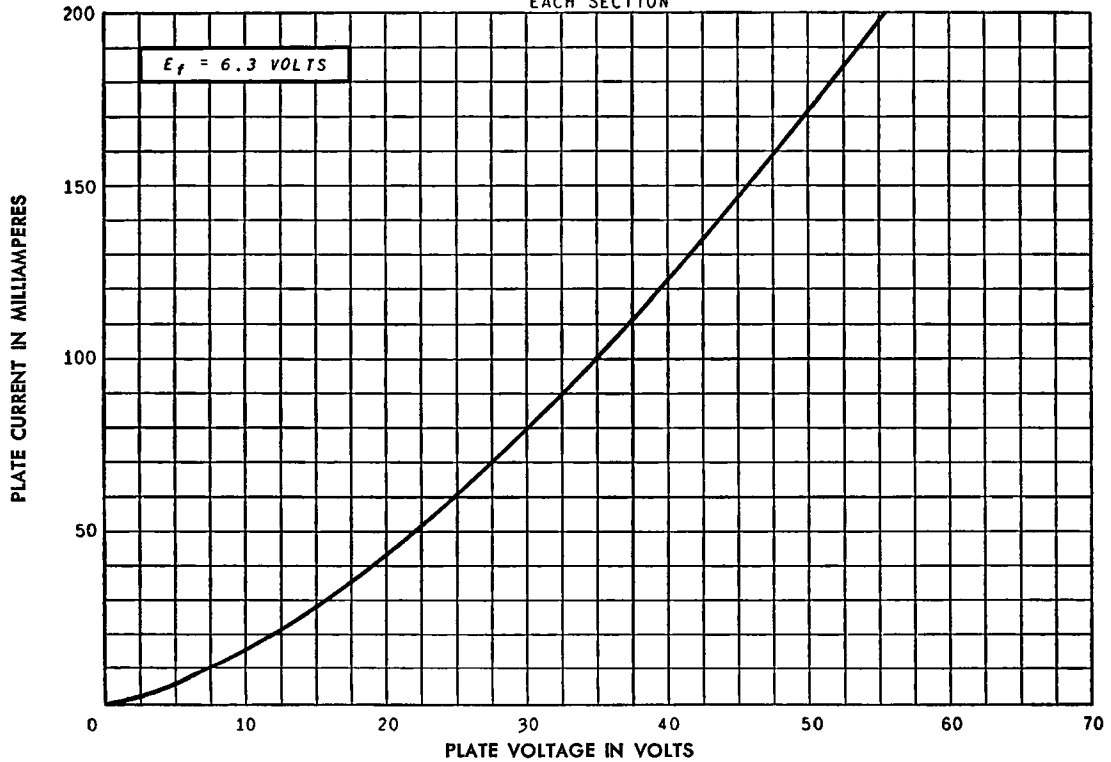
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**RATING CHART III**



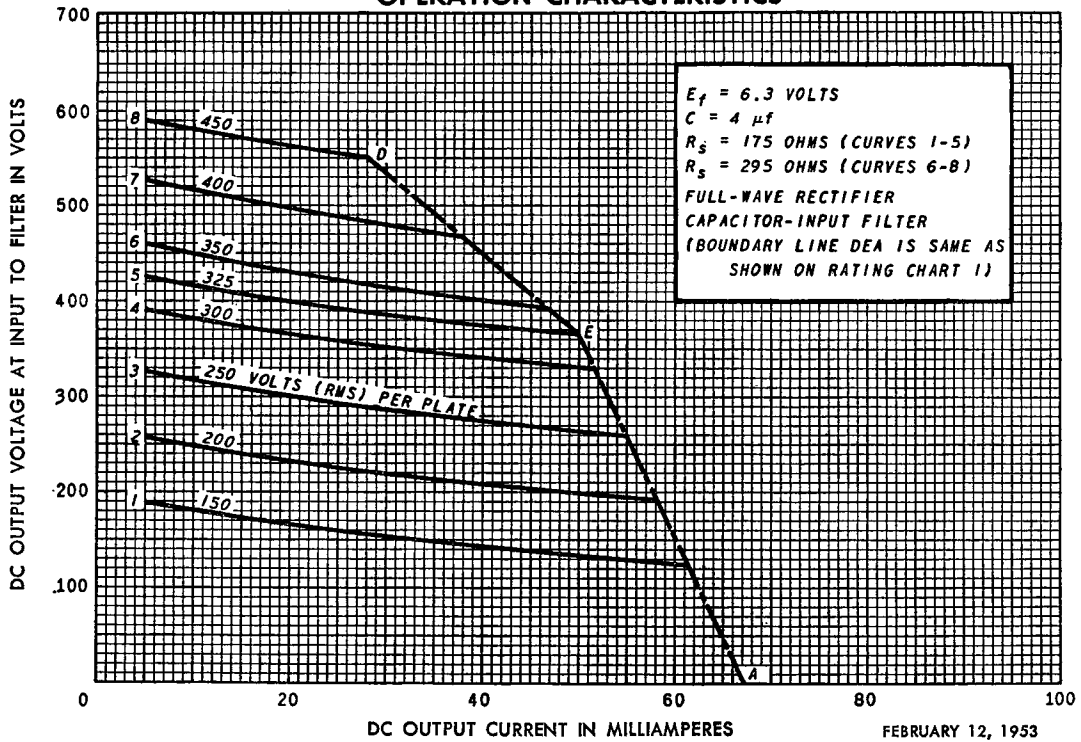
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**AVERAGE PLATE CHARACTERISTICS**  
 EACH SECTION

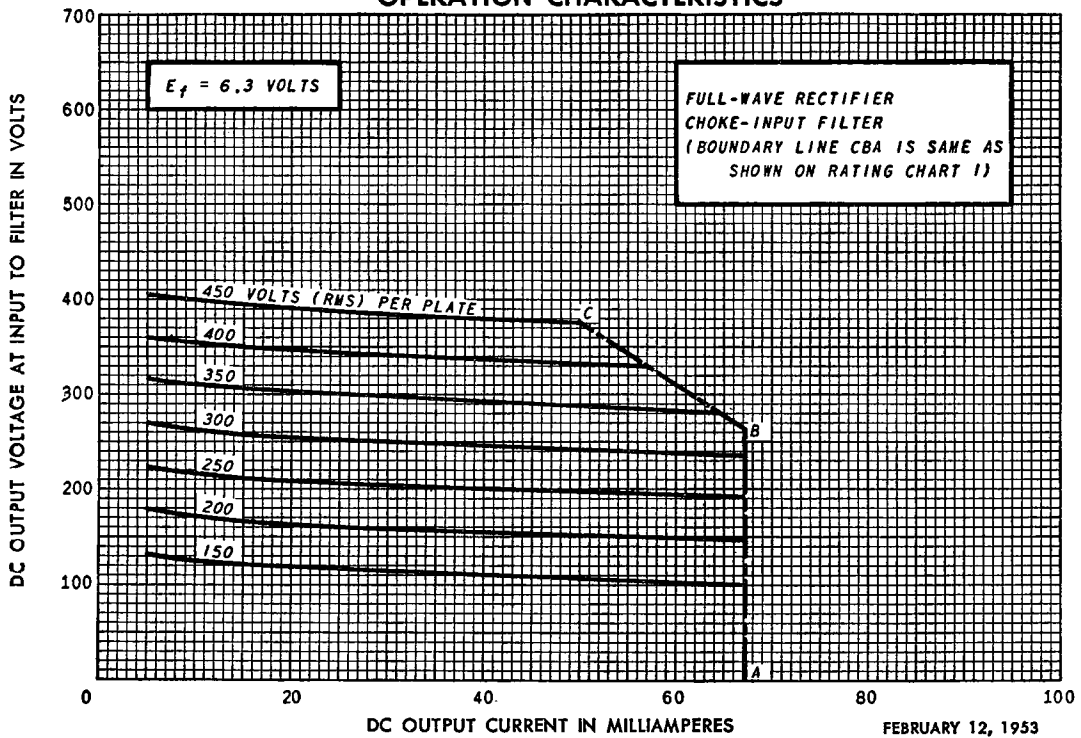


FEBRUARY 12, 1953

OPERATION CHARACTERISTICS



OPERATION CHARACTERISTICS



TUBE DEPARTMENT



Schenectady 5, N. Y.