



19AU4

HALF-WAVE VACUUM RECTIFIER

For Television Damper Service

TENTATIVE DATA

RCA-19AU4 is a half-wave vacuum rectifier tube of the glass-octal type. It is particularly suited for use as a damper diode in horizontal-deflection circuits of black-and-white television receivers utilizing series-heater strings.

Rated to withstand a maximum peak inverse plate voltage of 4500 volts (absolute), the 19AU4 can supply a maximum peak plate current of 1050 milliamperes and a maximum dc plate current of 175 milliamperes. Designed with insulation between heater and cathode to withstand negative peak pulses between heater and cathode of as much as 4500 volts (absolute) with a dc component up to 900 volts, the 19AU4 provides flexibility in choice of deflection circuits.

This type is designed with a 600-milliampere heater having a controlled heating time to insure dependable performance in television receivers employing a series-heater string arrangement.

GENERAL DATA

Electrical:

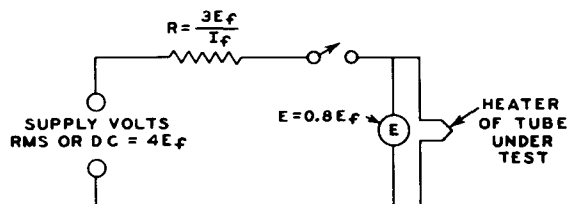
Heater, for Unipotential Cathode:

Voltage (AC or DC)	18.9	volts
Current	0.6	amp
Warm-Up Time (Average)	11	seconds

Heater warm-up time is defined as the time required in the test circuit shown in Fig.1 for the voltage (E) across the heater terminals to increase from zero to 15.1 volts.

Direct Interelectrode Capacitances (Approx. without external shield):

Plate to heater and cathode	8.5	μf
Cathode to heater and plate	11.5	μf
Heater to cathode	4.0	μf



E_f = RATED HEATER VOLTAGE OF TUBE UNDER TEST.
 I_f = RATED HEATER CURRENT OF TUBE UNDER TEST.
92CS-8503

Fig.1 - Test Circuit for Determining Heater Warm-Up Time.

Mechanical:

Mounting Position	Any
Maximum Overall Length	3-13/16"

Maximum Seated Length	3-1/4"
Maximum Diameter	1-9/32"
Bulb	T-9
Base	Short Intermediate-Shell Octal 5-or 6-Pin with External Barriers (JETEC Nos. B5-B5 or B6-60)

DAMPER SERVICE

Maximum Ratings, Design-Center Values Except as Noted:

For operation in a 525-line, 30-frame system*

PEAK INVERSE PLATE VOLTAGE (ABSOLUTE MAXIMUM)	4500 [•]	max.	volts
PEAK PLATE CURRENT	1050	max.	ma
DC PLATE CURRENT	175	max.	ma
PLATE DISSIPATION	6	max.	watts
PEAK HEATER-CATHODE VOLTAGE:			
Heater negative with respect to cathode (Absolute Maximum)	4500 ^{••}	max.	volts
Heater positive with respect to cathode	300 [†]	max.	volts

* As described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations," Federal Communications Commission.

[•] This rating is applicable where the duty cycle of the voltage pulse does not exceed 15 per cent of one horizontal scanning cycle. In a 525-line, 30-frame system, 15 per cent of one horizontal scanning cycle is 10 microseconds.

^{••} Under no circumstances should this absolute value be exceeded.

* The dc component must not exceed 900 volts.

[†] The dc component must not exceed 100 volts.

OPERATING CONSIDERATIONS

The maximum ratings shown in the tabulated data for peak plate current, dc plate current, plate dissipation, and peak heater-cathode voltage with the heater positive with respect to cathode are working design-center maximums established according to the standard design-center system of rating electron tubes. Tubes so rated will give satisfactory performance in equipment designed so that these maximum ratings will not be exceeded when the equipment is operated from ac or dc power-line supplies whose normal voltage, including normal variations, falls within ± 10 per cent of line-center voltage value of 117 volts.

The maximum ratings shown in the tabulated data for peak inverse plate voltage and peak heater-cathode voltage with the heater negative with respect to cathode are limiting values above which the serviceability of the 19AU4 may be impaired from the viewpoint of life and satisfactory performance. Therefore, in order

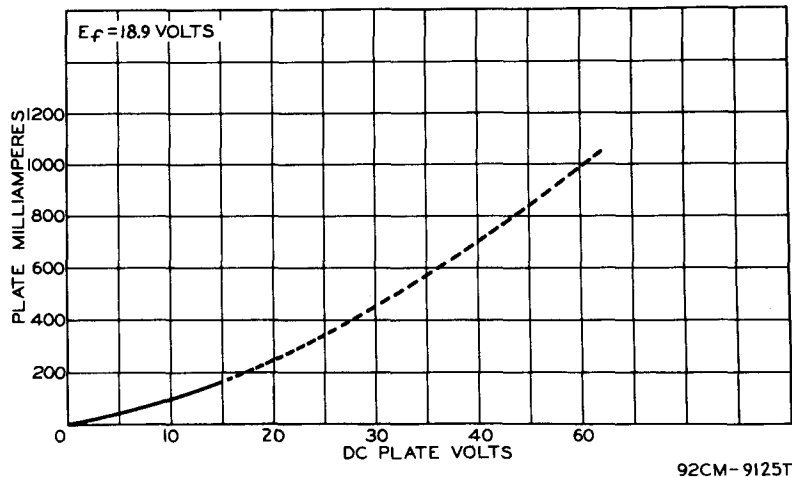


not to exceed these absolute ratings, the equipment designer has the responsibility of determining an average design value for each rating below the absolute value of that rating by an amount such that the absolute value will never be exceeded under any usual condition of supply-voltage variation, load variation, or manufacturing variation in the equipment itself.

The base pins of the 19AU4 fit the standard octal socket. Socket terminals for pins 1, 2, 4,

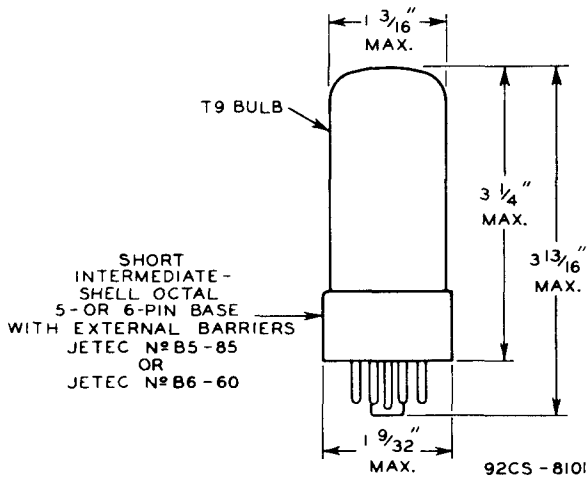
and 6 should not be used for tie points. It is also recommended that socket clips for these pins be removed to reduce the possibility of arc-over and to minimize leakage.

In television receivers employing series-heater strings, a resistor in series with the string of tubes will minimize voltage surges across any individual tube during starting. The resistor should preferably have a negative temperature characteristic.



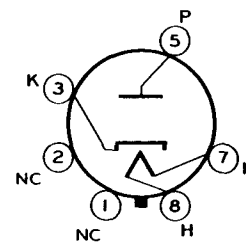
Average Plate Characteristics of Type 19AU4.

DIMENSIONAL OUTLINE



SOCKET CONNECTIONS

Bottom View



- PIN 1: NO CONNECTION—DO NOT USE; OR OMITTED
- PIN 2: NO CONNECTION—DO NOT USE
- PIN 3: CATHODE
- PIN 5: PLATE
- PIN 7: HEATER
- PIN 8: HEATER

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