Electronic TUBES

50DC4

DIODE

FOR HALF-WAVE POWER RECTIFIER APPLICATIONS

DESCRIPTION AND RATING

The 50DC4 is a miniature half-wave rectifier designed for use in line-operated equipment having series-connected heaters. The heater is tapped to permit operation of a panel lamp.

GENERAL

ELECTRICAL

Cathode—Coated Unipotential
Heater Voltage, AC or DC*.....50 ± 10% Volts
Heater-Tap Voltage*.....7.5 Volts
Heater Current*.....0.15 Amperes

MECHANICAL

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

MAXIMUM RATINGS

RECTIFIER SERVICE—DESIGN-MAXIMUM VALUES

Peak Inverse Plate Voltage.....330 Volts
Steady-State Peak Plate Current.....720 Milliamperes
DC Output Current
  Without Panel Lamp.....120 Milliamperes
  With Panel Lamp and Shunting Resistor.....110 Milliamperes
  With Panel Lamp and No Shunting Resistor.....70 Milliamperes
Heater-Tap Voltage When Panel Lamp Fails, RMS.....16.5 Volts
Heater-Cathode Voltage
  Heater Positive with Respect to Cathode.....330 Volts
  Heater Negative with Respect to Cathode.....330 Volts

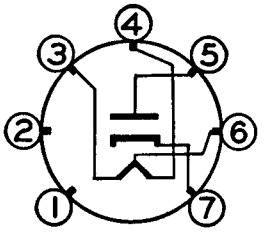
Design-Maximum Ratings are limiting values of operating and environmental conditions applicable to a bogey tube of a specified type as defined by its published data, and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, taking responsibility for the effects of changes in operating conditions due to variations in tube characteristics.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, and environmental conditions.

GENERAL ELECTRIC

BASING DIAGRAM

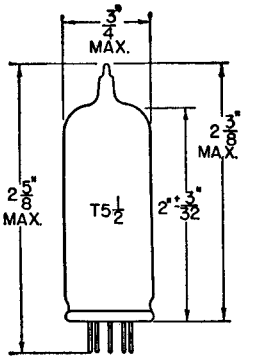


EIA 5BQ

TERMINAL CONNECTIONS

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

PHYSICAL DIMENSIONS



EIA 5-3

CHARACTERISTICS AND TYPICAL OPERATION

HALF-WAVE RECTIFIER WITH PANEL LAMP NUMBER 40 OR NUMBER 47

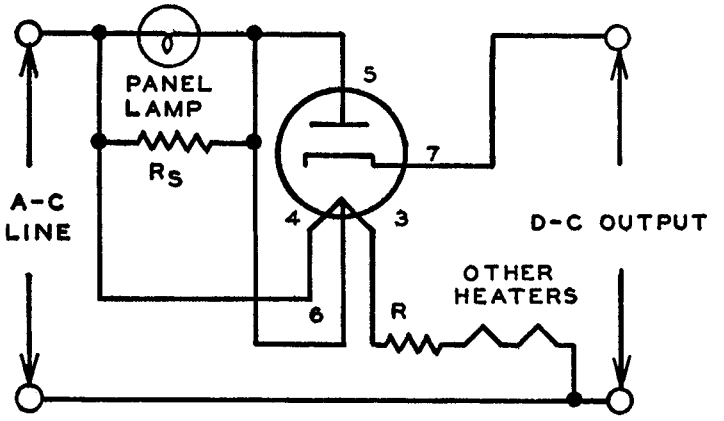
Heater Voltage (Pin 3 to Pin 4)	45	45	45	45	Volts
Heater-Tap Voltage (Pin 4 to Pin 6)	5.5	5.5	5.5	5.5	Volts
Heater Current (Between Pins 3 and 6)	150	150	150	150	Milliamperes
AC Plate-Supply Voltage, RMS	117	117	117	117	Volts
Filter Input Capacitor	40	40	40	40	Microfarads
Total Effective Plate-Supply Impedance	15	15	15	15	Ohms
Panel-Lamp Shunting Resistor	450	200	100	75	Ohms
DC Output Current	70	80	90	100	Milliamperes

HALF-WAVE RECTIFIER WITHOUT PANEL LAMP

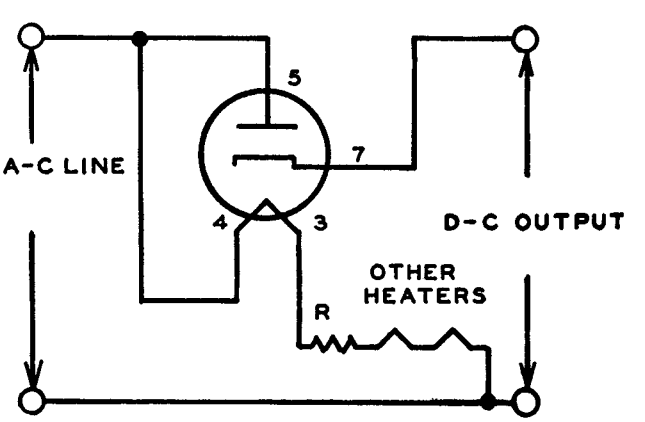
Heater Voltage (Pin 3 to Pin 4)	50	Volts
Heater-Tap Voltage (Pin 4 to Pin 6)	7.5	Volts
Heater Current (Between Pins 3 and 4)	150	Milliamperes
AC Plate-Supply Voltage, RMS	117	Volts
Filter Input Capacitor	40	Microfarads
Total Effective Plate-Supply Impedance	15	Ohms
DC Output Current	110	Milliamperes
DC Output Voltage at Filter Input, approximate		
For DC Output Current of 55 Milliamperes	130	Volts
For DC Output Current of 110 Milliamperes	110	Volts
Tube Voltage Drop		
Ib = 240 Milliamperes DC	21	Volts

*Operation without panel lamp.

TYPICAL CIRCUIT FOR OPERATION WITH PANEL LAMP



TYPICAL CIRCUIT FOR OPERATION WITHOUT PANEL LAMP



R_s = PANEL-LAMP SHUNTING RESISTOR

DROP ACROSS R AT 0.15 AMPERE SHOULD EQUAL DIFFERENCE BETWEEN LINE VOLTAGE AND TOTAL OF ALL RATED HEATER VOLTAGES

AVERAGE PLATE CHARACTERISTICS