9QP4

CATHODE-RAY TUBE

9-INCH RECTANGULAR, GLASS
FOCUS—ELECTROSTATIC
DEFLECTION—MAGNETIC
70-DEGREE DEFLECTION ANGLE

7½ BY 6½ INCH PICTURE SIZE
FACEPLATE—SPHERICAL, CLEAR
ION-TRAP GUN
PERSISTENCE—SHORT

DESCRIPTION AND RATING

The 9QP4 is a television picture tube especially designed to feature small size, light weight, and a low-current heater for series-string operation.

The reduction in size and weight over other tubes with comparable characteristics makes it particularly suitable for use in small, light weight, portable television receivers.

Since the tube is designed primarily for series-string operation, its use will permit the circuit simplification and power reduction possible in such service.

GENERAL

ELECTRICAL
Heater Voltage ........................................... 4.7 ± 10% Volts
Heater Current ........................................... 0.3 Amperes
Heater Warm-up time ................................... 11 Seconds

Focusing Method—Electrostatic
Deflecting Method—Magnetic
Deflection Angle, approximate
   Diagonal ............................................. .70 Degrees
   Horizontal ......................................... .61 Degrees
   Vertical ............................................ .49 Degrees

Direct Interelectrode Capacitances, approximate
   Cathode to All Other Electrodes ................... .6 μμf
   Grid-No. 1 to All Other Electrodes ............... .4 μμf

OPTICAL
Phosphor Number—P4
   Fluorescent Color—White
   Phosphorescent Color—White
   Persistence—Short

   Faceplate—Clear
MECHANICAL

Over-all Length .................................................. 12\(\frac{3}{4}\) ± \(\frac{1}{8}\) Inches

Greatest Bulb Dimensions

  Diagonal .................................................. 8\(\frac{3}{4}\) + \(\frac{1}{8}\) - \(\frac{1}{8}\) Inches
  Width .................................................. 8\(\frac{3}{4}\) + \(\frac{1}{8}\) - \(\frac{1}{8}\) Inches
  Height .................................................. 6\(\frac{1}{2}\) + \(\frac{1}{8}\) - \(\frac{1}{8}\) Inches

Minimum Useful Screen Dimensions

  Diagonal .................................................. 8\(\frac{1}{4}\) Inches
  Width .................................................. 7\(\frac{1}{8}\) Inches
  Height .................................................. 6\(\frac{3}{8}\) Inches

Neck Length .................................................. 6\(\frac{1}{2}\) Inches

Base—Small-shell Duodecal 7-Pin, JETEC No. B7-179
Basing, JETEC Designation—12AD

Mounting Position—Any
Net Weight, approximate .................................... 2 Pounds

MAXIMUM RATINGS*

CATHODE-DRIVE SERVICE

DESIGN-CENTER VALUES†

Anode Voltage‡ .................................................. 6800 Max Volts DC
Focusing-Electrode Voltage for Focus ................................ -100 to +500 Max Volts DC
Grid-No. 2 Voltage .................................................. 300 Max Volts DC
Cathode to Grid-No. 1 Voltage§
  Negative-Bias Value .................................................. 0 Max Volts DC
  Positive-Bias Value .................................................. 100 Max Volts DC
  Negative-Peak Value .................................................. 2 Max Volts
  Positive-Peak Value .................................................. 130 Max Volts

Peak Heater-Cathode Voltage

  Heater Negative with Respect to Cathode
  During Warm-up Period not to Exceed 15 Seconds ................................ 200 Max Volts
  After Equipment Warm-up Period ................................ 150 Max Volts
  Heater Positive with Respect to Cathode ................................ 150 Max Volts

TYPICAL OPERATING CONDITIONS*

CATHODE-DRIVE SERVICE

Anode Voltageπ .................................................. 5500 Volts DC
Focusing-Electrode Voltage for Focus ................................ 0 to 400 Volts DC
Focusing-Electrode Current .................................................. -15 to +25 Microamperes DC
Grid-No. 2 Voltage .................................................. 200 Volts DC
Cathode to Grid-No. 1 Voltage♦ ........................................... +28 to +52 Volts DC
Ion-Trap Field Intensity ∆, approximate ........................................... 22 Gausses
* Voltages are positive with respect to Grid-No. 1 unless otherwise specified.
† The maximum ratings provide a ten percent safety factor in accordance with the standard design-center system of rating cathode-ray tubes. The tube will withstand the combined effects of variations in line voltage and components provided the maximum design-center values are not exceeded by more than ten percent.
‡ Anode, Grid-No. 3, and Grid-No. 5 which are connected together within the tube are referred to herein as anode.
§ Grid-No. 1 must not be positive with respect to cathode at any time during warm-up or subsequent operation.
π Brightness and focus quality decrease with decreasing anode voltage. In general, the anode voltage should not be less than 3500 volts.
♦ For visual extinction of focused raster.
△ Single-field ion-trap magnet adjusted to optimum position, equivalent to 22 milliamperes through RETMA ion-trap magnet No. 117.

SCREEN DIMENSIONS
DIAGONAL 8-1/4"
WIDTH 7-11/16"
HEIGHT 6-1/8"
AREA 43 SQ. IN

NOTES:
1. REFERENCE LINE IS DETERMINED BY THE PLANE OF THE UPPER EDGE OF THE SHOULDER OF THE REFERENCE-LINE GAGE (RETMA NO. 110) WHEN THE GAGE IS RESTING ON THE CONE.
2. DEFLECTION ANGLE ON DIAGONAL IS 70 DEGREES.
3. APPROXIMATE POSITION OF ION-TRAP MAGNET

BASING DIAGRAM
12 AD