

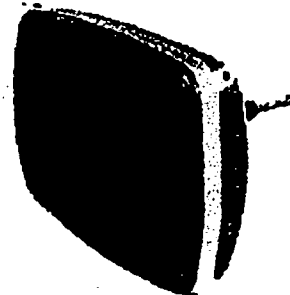


# VDC1208P-BP

## 1.-GENERAL DATA

### 1.1 QUICK REFERENCE DATA

DIRECT VIEWED  
 DIRECT ETCHED FACE  
 RECTANGULAR GLASS TYPE  
 SPHERICAL FACE PLATE  
 LIGHT TINTED GLASS FACE  
 90° MAGNETIC DEFLECTION  
 TV-GRADE  
 USE: TELEVISION



MONOCHROME TUBE

## I. DESCRIPTION

The VDC11208P-BP is a 12 inch, 90 degree, 20 mm neck magnetic deflection picture tube with lugs and tension-band implosion protection.

This tube is designed for grid-drive operation with 130 volts on the grid two, and has an 11.0 volts - 140ma heater.

Overall length is 280 mm max.

## II. ELECTRICAL DATA

A. Gun type.....	Uni-Potential
B. Focusing Method.....	Electrostatic
C. Deflection Method.....	Magnetic
D. Deflection Angles (approx)	
1. Diagonal.....	90 degrees
2. Horizontal.....	82 degrees
3. Vertical.....	67 degrees
E. Direct Interelectrode Capacitance	
1. Cathode to all other electrodes (approx).....	5 pf
2. Grid No. 1 to all other electrodes (approx).....	6 pf
3. External conductive coating to anode.....	1200 pfm <sub>ax</sub>
(Note 1)	600 pfm <sub>ax</sub>
F. External Conductive Coating and Implosion Protection Hardware.....	Are electrically connected



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G. Heater Characteristics

- 1. Heater Voltage ..... 11.0 Volts
- 2. Heater Current ..... 140 MA

III. OPTICAL DATA

- A. Phosphor Number ..... See Chart
- B. Light Transmittance at Center (Approx). 50 Percent
- C. Antireflection Treatment ..... NO

IV. MECHANICAL DATA

- A. Overall Length ..... 280 mm max.
- B. Greatest Dimensions of Tube
  - 1. Diagonal ..... 310 mm
  - 2. Width ..... 274 mm
  - 3. Height ..... 222 mm
- C. Minimum Useful Screen Dimensions (Projected)
  - 1. Diagonal ..... 292 mm min.
  - 2. Horizontal Axis ..... 254 mm min.
  - 3. Vertical ..... 202 mm min.
  - 4. Area ..... 513 Sq-Cms.
- D. Implosion Protection ..... Band with Lugs
- E. Bulb ..... JB310N1
- F. Bulb Contact (JEDEC No.) ..... J1-21
- G. Basing Designation (JEDEC No.) ..... 7GR
- H. Base (JEDEC No.) ..... E7-91
- I. Weight (Approx) ..... 3.0 kg
- J. EXTERNAL DIMENSIONS OF METAL HARDWARE  
(EXCLUDING LUGS AND CLIP IF ANY)
  - 1. Diagonal Axis ..... 316 + 3 mm
  - 2. Horizontal Axis ..... 277 + 3 mm
  - 3. Vertical Axis ..... 225 + 3 mm

V. RATINGS (Absolute Maximum System) - CATHODE DRIVE SERVICE  
Unless otherwise specified, voltage values are positive and measured with respect to Grid No. 1.

- A. Maximum Anode Voltage ..... 15000 Volts
- B. Minimum Anode Voltage ..... 9000 Volts
- C. Grid No. 4 (Focusing Electrode) Voltage -200 to + 500 Volts
- D. Maximum Grid No. 2 Voltage ..... 200 Volts



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- E. Minimum Grid No. 2 Voltage ..... 80 Volts
- F. Grid No. 1 Voltage
  - 1. Maximum Negative Value ..... 154 Volts DC
  - 2. Maximum Negative Peak Value ..... 220 Volts
  - 3. Maximum Positive Value ..... 0 Volts DC
  - 4. Maximum Positive Peak Value ..... 2 Volts
- G. Maximum Heater Voltage ..... 12.65 Volts
- H. Minimum Heater Voltage ..... 9.35 Volts
- I. Maximum Heater-Cathode Voltage (Note 5)
  - 1. Heater Negative with respect to Cathode
    - (a) During warm-up period Not To Exceed 15 seconds..... 130 Volts
    - (b) After equipment Warm-up Period.. 110 Volts
  - 2. Heater Positive with respect to Cathode
    - (a) Operation with the heater positive with respect to the cathode is not recommended.

VI. TYPICAL OPERATING CONDITION -Cathode Drive Service

Unless otherwise specified all voltage values are positive with respect to Grid No.1

- A. Anode Voltage ..... 12000 Volts DC
- B. Grid No. 4 Voltage (Focusing Electrode) (Note 3 and 4) ..... 100 to 200 Volts DC
- C. Grid No.2 Voltage ..... 130 Volts DC
- D. Cathode No. 1 Cut-off Voltage (Note 2).. -45 to -65 Volts DC

VII. X-RAY EMITTANCE

A. X-Radiation Registration Reference Point

The maximum anode voltage at which the X-Radiation emitted from this tube will not exceed 0.5 mR/h at 250ua anode current is 19KV.

B. X-Radiation Characteristics

The X-Radiation emitted from this picture tube, as measured in accordance with the procedure of JEDEC publication No. 64, (current revision), will not exceed 0.5mR/h throughout the useful life of the tube when operated with



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regulation limits of a hypothetical power supply having a 5-megohm internal impedance, as shown by figure xm-36. The tube should not be operated beyond its Design Maximum Rated Anode Voltage, but its X-Radiation will not exceed 0.5mR/h for anode voltage and current combinations given by the Iso Exposure Rate Limit Characteristics as shown in Figure XM36.

Operation above those values shown by the curve may result in failure of the television receiver to comply with the Federal Performance Standard for Television Receivers. Sub-Part C of Part 78 of Title 42, Code of Federal Regulations. (PL-90-602), as published in the Federal Register, Volume 34, No. 247, of Thursday, December 25, 1969.

Maximum X-Radiation as a function of anode voltage at 250uA anode current is shown by the curve of Figure XM-35. XM-35. X-Radiation at constant voltage varies linearly with anode current.

### Notes

1. Measured with implosion protection connected to external coating.
2. The Cathode No. 1 voltage for visual extinction of the undeflected focused spot.
3. With the combined Grid No. 1 bias voltage and video-signal adjusted to give an anode current of 150 microamperes on a 9" by 7" pattern from RCA 2F21 monoscope or equivalent.
4. Individual tubes will have satisfactory focus at some value between -100 and +200 Volts.
5. To avoid hum, the A.C. component of the heater-to-cathode voltage should be as low as possible and should be less than 11.00 Volts R.M.S.



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**PHOSPHOR TYPES**

JEDEC TYPE	WTDS (ETA)	PHOSPHORESCENCE (1)	PERSISTENCE (2)	COLOR X	COORDINATE Y
P4	WW (P4)	WHITE	M	0.275	0.313
PWSC		WHITE	MS	0.290	0.315
P40	(P40)	GREENISH-YELLOW	M	0.267	0.318
P31	GH (P31)	GREEN	M	0.269	0.562
P39	GR	YELLOWISH-GREEN	M	0.201	0.717
P42	GW (P42)	YELLOWISH-GREEN	M	0.255	0.655
P43	GY (P43)	YELLOWISH GREEN	M	0.345	0.567
PGB	GR	YELLOWISH GREEN	M	0.203	0.718
PDB	LA	ORANGE	M	0.533	0.446
PDC	-	ORANGE	M	0.554	0.433
PDF	-	AMBER	M	0.540	0.425
PMA	-	ORANGE	M	0.553	0.446
PML	-	ORANGE	L	0.555	0.443
PWA	-	GREEN	M	0.362	0.373
PWB	-	GREEN	M	0.280	0.308
PWD	-	YELLOWISH-WHITE	M	0.369	0.405
PWF	-	YELLOWISH-BLUE	M	0.361	0.395
PWH	-	YELLOWISH-BLUE	M	0.353	0.375
PWS	-	YELLOWISH-WHITE	M	0.354	0.399
PWQ	-	GREENISH-GRAY	M	0.343	0.367
PWY	-	GREEN	M	0.361	0.391
PW2	-	GREEN	M	0.355	0.378
PW3	-	GREEN	LK	0.320	0.377

1. COLOR OF PHOSPHOR DURING DECAY

2. PERSISTANCE CHART

- VS: LESS THAN 1u SEC.
- S: 1U SEC. 10U SEC.
- MS: 10U SEC. 1m SEC
- M: 1m SEC. 100m SEC
- L: 100m SEC. 1 SEC
- VL: 1 SEC. OR OVER



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UNIT: MM

