

*Excellence in Electronics*

The type 12ABP — is a 12-inch electrostatic focus and magnetic deflection cathode-ray tube suitable for radar applications. A low-voltage electrostatic focus lens is employed, designed to operate at or near cathode potential to afford substantially automatic focus, independent of accelerator voltage variations. In addition, the 12ABP — employs a high resolution electron gun.

The final A designates a metallized screen for greater light output, improved contrast, and minimizing screen charging effects.

**MECHANICAL DATA**

BASE: Small Shell Duodecal 6—Pin

CAP: Recessed Small Cavity

TERMINAL CONNECTIONS:

Pin 1 Heater  
Pin 2 Grid #1  
Pin 6 Grid #4  
Pin 10 Grid #2

Pin 11 Cathode  
Pin 12 Heater  
Cap Grids #3 and #5  
(Collector)

MOUNTING POSITION: Any

**GENERAL DATA**

|                   | <u>12ABP7</u>  | <u>12ABP14</u>  | <u>12ABP19A</u> |
|-------------------|----------------|-----------------|-----------------|
|                   | <u>12ABP7A</u> | <u>12ABP14A</u> |                 |
| Phosphor          | #7             | #14             | #19             |
| Fluorescence      | Blue           | Blue            | Orange          |
| Phosphorescence   | Yellow         | Orange          | Orange          |
| Persistence       | Long           | Medium - Long   | Long            |
| Focusing Method   | Electrostatic  | Electrostatic   | Electrostatic   |
| Deflecting Method | Magnetic       | Magnetic        | Magnetic        |
| Deflection Angle  | 55°            | 55°             | 55°             |

**ELECTRICAL DATA**HEATER CHARACTERISTICS:

|                                         |                 |
|-----------------------------------------|-----------------|
| Heater Voltage                          | 6.3 volts       |
| Heater Current                          | 0.6 ± 10% amps. |
| Peak Heater - Cathode Voltage: (Max.)   |                 |
| Heater Negative with Respect to Cathode | 180 volts DC    |
| Heater Positive with Respect to Cathode | 180 volts DC    |

DIRECT INTERELECTRODE CAPACITANCES: (μfds.) (approx.)

|                                 |   |
|---------------------------------|---|
| Grid #1 to all other electrodes | 6 |
| Cathode to all other electrodes | 5 |

DESIGN CENTER MAXIMUM RATINGS:

|                                      |                        |
|--------------------------------------|------------------------|
| Collector Voltage ▲                  | 12,000 volts DC        |
| Grid #4 Voltage (Focusing Electrode) | -500 to +1000 volts DC |
| Grid #2 Voltage                      | 700 volts DC           |
| Grid #1 Voltage:                     |                        |
| Negative - Bias Value                | 180 volts DC           |
| Positive - Bias Value *              | 0 volts DC             |
| Positive - Peak Value                | 0 volts DC             |

CHARACTERISTICS AND TYPICAL OPERATION:

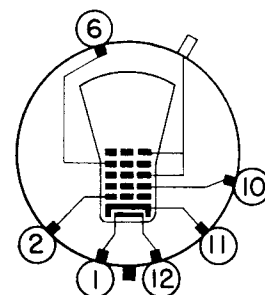
|                                        |                     |
|----------------------------------------|---------------------|
| Collector Voltage ▲                    | 10,000 volts DC     |
| Grid #4 Voltage (Focusing Electrode) ● | 0 to 300 volts DC   |
| Grid #2 Voltage                        | 300 volts DC        |
| Grid #1 Voltage ⊕                      | -28 to -72 volts DC |
| Line Width ■                           | 0.019 inch max.     |
| Spot Position (undeflected) □          | 5/8 inch            |

MAXIMUM CIRCUIT VALUES:

|                            |                  |
|----------------------------|------------------|
| Grid #1 Circuit Resistance | 1.5 max. megohms |
|----------------------------|------------------|

**TYPE**

**12ABP7**  
**12ABP7A**  
**12ABP14**  
**12ABP14A**  
**12ABP19A**



BOTTOM VIEW

12M.

Tentative Data

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RECEIVING TUBE AND SEMICONDUCTOR OPERATIONS

## TYPE

12ABP7 - 12ABP7A  
12ABP14 - 12ABP14A  
12ABP19A



## CATHODE RAY TUBE

- \* *At or near this rating, the effective resistance of the collector supply should be adequate to limit the collector input power to 6 watts.*
- ▲ *Brilliance and definition decrease with decreasing collector voltages. In general, collector voltage should not be less than 8000 volts.*
- ◆ *Cathode should be returned to one side or to the mid-tap of the heater transformer winding.*
- *With grid #1 voltage adjusted to produce a collector current of 100  $\mu$ A, with the pattern adjusted for best overall focus. Measured with a 525-line interlaced and synchronized 7  $\frac{1}{2}$ X 10 inch pattern, with interlaced line blanking (current measured before applying blanking.)*
- ⊕ *Visual extinction of 7  $\frac{1}{2}$ X 10 inch raster pattern.*
- *Measured with a 525-line interlaced and synchronized pattern with interlaced line blanking. Pattern width adjusted to 90% of minimum useful screen diameter.  $I_b$  - 100  $\mu$ A, measured before applying blanking. Line width is the merged raster height of divided by the number of lines (262.5) (measured in center of tube face). To avoid damage to the screen of the 12ABP19A, it is recommended that the screen current be not more than 50  $\mu$ A. when measuring line width. The line width under these conditions will be 0.019 inch maximum (current measured before applying blanking) for P7 and P14 phosphors, and 0.018 inch for the P19A*
- *The center of the undeflected, focused spot will fall within a circle of 5/8 inch radius concentric with the center of the tube face, with tube shielded.*

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RECEIVING TUBE AND THERMION TUBE OPERATIONS



TYPE  
12ABP7 - 12ABP7A  
12ABP14- 12ABP14A  
12ABP19A

## CATHODE RAY TUBE

