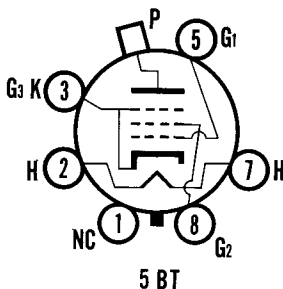




# SYLVANIA TYPES 6EX6 21EX6



## MECHANICAL DATA

|                        |                                        |
|------------------------|----------------------------------------|
| Bulb.....              | T-12                                   |
| Base.....              | Short Medium Shell Octal 5-Pin, B5-123 |
| Outline.....           | 12-21                                  |
| Top Cap.....           | C1-1                                   |
| Basing.....            | 5BT                                    |
| Cathode.....           | Coated Unipotential                    |
| Mounting Position..... | Vertical <sup>1</sup>                  |

## ELECTRICAL DATA

### HEATER CHARACTERISTICS

|                                             | 6EX6 | 21EX6          |
|---------------------------------------------|------|----------------|
| Heater Voltage.....                         | 6.3  | 21.5 Volts     |
| Heater Current.....                         | 2.25 | 0.6 Amperes    |
| Heater Warm-up Time <sup>2</sup> .....      |      | 11 Seconds     |
| Heater-Cathode Voltage (Design Max. Values) |      |                |
| Heater Negative with Respect to Cathode     |      |                |
| Total D C and Peak.....                     | 200  | 200 Volts Max. |
| Heater Positive with Respect to Cathode     |      |                |
| D C.....                                    | 100  | 100 Volts Max. |
| Total D C and Peak.....                     | 200  | 200 Volts Max. |

### DIRECT INTERELECTRODE CAPACITANCES (Unshielded)

|                                |                    |
|--------------------------------|--------------------|
| Grid to Plate.....             | 1.1 $\mu\text{mf}$ |
| Input: g1 to (h+k+g2+B.p)..... | 22 $\mu\text{mf}$  |
| Output: p to (h+k+g2+B.p)..... | 8.5 $\mu\text{mf}$ |

### RATINGS (Design Maximum Values)

|                                                             |                    |
|-------------------------------------------------------------|--------------------|
| <b>Horizontal Deflection Amplifier<sup>3</sup></b>          |                    |
| D C Plate Supply Voltage<br>(Boost + D C Power Supply)..... | 770 Volts Max.     |
| Peak Positive Plate Voltage (Abs. Max.).....                | 7000 Volts         |
| Peak Negative Plate Voltage (Abs. Max.).....                | 1500 Volts         |
| Grid No. 2 Voltage.....                                     | 195 Volts Max.     |
| Peak Negative Grid No. 1 Voltage.....                       | 220 Volts Max.     |
| Plate Dissipation <sup>4</sup> .....                        | 22 Watts Max.      |
| Grid No. 2 Dissipation.....                                 | 3.5 Watts Max.     |
| Average Cathode Current.....                                | 220 Ma Max.        |
| Peak Cathode Current.....                                   | 770 Ma Max.        |
| Grid No. 1 Circuit Resistance.....                          | 0.47 Megohm Max.   |
| Bulb Temperature (At Hottest Point).....                    | 225 Degrees C Max. |

### AVERAGE CHARACTERISTICS

|                                               |                       |
|-----------------------------------------------|-----------------------|
| Plate Voltage.....                            | 175 Volts             |
| Grid No. 2 Voltage.....                       | 175 Volts             |
| Grid No. 1 Voltage.....                       | -30 Volts             |
| Plate Current.....                            | 67 Ma                 |
| Grid No. 2 Current.....                       | 3.3 Ma                |
| Transconductance.....                         | 7700 $\mu\text{mhos}$ |
| Amplification Factor <sup>5</sup> .....       | 4.2                   |
| Plate Resistance.....                         | 8500 Ohms             |
| EC1 for Ib = 1 ma (approx.).....              | -50 Volts             |
| EC1 with Eb = 5000 Volts for Ib = 1.0 ma..... | -101 Volts            |

### Instantaneous Plate Knee Values

|                                       |
|---------------------------------------|
| Eb = 60 V, Ec2 = 150 V and Ec1 = 0 V; |
| Ib = 460 Ma; and Ic2 = 45 Ma;         |
| Eb = 60 V, Ec2 = 125 V and Ec1 = 0 V; |
| Ib = 360 Ma, and Ic2 = 30 Ma.         |

### NOTES:

- Horizontal operation is permitted if Pins 2 and 7 are in a horizontal plane.
- Heater warm-up time is defined as the time required for the voltage across the heater to reach 80% of the rated heater voltage after applying four (4) times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to three (3) times the rated heater voltage divided by the rated heater current.

# SYLVANIA TYPES 6EX6, 21EX6 (Cont'd)

## NOTES: (cont'd)

3. For operation in a 525 line, 30 frame system as described in "Standards of Good Engineering Practice for Television Broadcasting Stations; Federal Communications Commission." The duty cycle of the voltage pulse not to exceed 15% of a scanning cycle.
4. In stages operating with grid leak bias, an adequate cathode bias resistor or other suitable means is required to protect the tube in the absence of excitation.
5. Amplification factor with tube operating as a triode with 175 volts on the plate and Grid No. 2 and -30 volts on Grid No. 1.

## APPLICATION

The Sylvania Types 6EX6 and 21EX6 are beam power amplifiers designed for service as horizontal deflection amplifiers in television receivers. Features of the tubes are extremely high perveance and high plate current at low plate and grid No. 2 voltage, plus a high ratio of plate to Grid No. 2 current.

The 21EX6 employs a 600 ma heater and controlled heater warm-up time for service in series string television receivers.