

**Damper Service—Diode Unit**

For operation in a 525-line, 30-frame system

**MAXIMUM RATINGS (Design-Maximum Values)**

|                                     |            |       |
|-------------------------------------|------------|-------|
| Peak Inverse Plate Voltage#         | 4200       | volts |
| Peak Plate Current                  | 1200       | mA    |
| Average Plate Current               | 200        | mA    |
| Heater-Cathode Voltage:             |            |       |
| Peak value                          | +200 —4200 | volts |
| Average value                       | +100 —500  | volts |
| Bulb Temperature (at hottest point) | 200        | °C    |

**CHARACTERISTICS, Instantaneous Value**

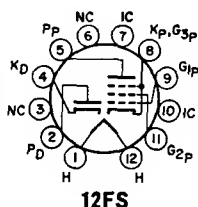
|                                                                                        |    |       |
|----------------------------------------------------------------------------------------|----|-------|
| Tube Voltage Drop for plate current of 350 mA                                          | 21 | volts |
| # Pulse duration must not exceed 15% of a horizontal scanning cycle (10 microseconds). |    |       |

**38HK7**

53HK7

**DIODE—BEAM POWER TUBE**

Duodecar type used in television receiver applications. The diode unit is used for damper service and the beam power unit for horizontal-deflection amplifier service. Outlines section, 15D; requires duodecar 12-contact socket. Type 53HK7 is identical with 38HK7 except for heater ratings.



|                                                        |               |               |         |
|--------------------------------------------------------|---------------|---------------|---------|
| Heater Voltage (ac/dc)                                 | 38HK7<br>37.8 | 53HK7<br>53.2 | volts   |
| Heater Current                                         | 0.45          | 0.315         | ampere  |
| Heater Warm-up Time (Average)                          | 11            | 11            | seconds |
| Heater-Cathode Voltage:                                |               |               |         |
| Peak value                                             | ±200 max      | ±200 max      | volt    |
| Average value                                          | 100 max       | 100 max       | volts   |
| Direct Interelectrode Capacitances (Approx.):          |               |               |         |
| Diode Unit:                                            |               |               |         |
| Plate to Cathode and Heater                            |               | 10            | pF      |
| Cathode to Plate and Heater                            |               | 9             | pF      |
| Heater to Cathode                                      |               | 2             | pF      |
| Beam Power Unit:                                       |               |               |         |
| Grid No.1 to Plate                                     |               | 0.38          | pF      |
| Grid No.1 to Cathode, Heater, Grid No.2, and Grid No.3 |               | 19            | pF      |
| Plate to Cathode, Heater, Grid No.2, and Grid No.3     |               | 8             | pF      |

**Beam Power Unit as Class A<sub>1</sub> Amplifier**

| CHARACTERISTICS                                       | Triode**   |      | Pentode Connection |      |       |
|-------------------------------------------------------|------------|------|--------------------|------|-------|
|                                                       | Connection |      |                    |      |       |
| Plate Voltage                                         | 130        | 3500 | 50                 | 130  | volts |
| Grid-No.2 (Screen-Grid) Voltage                       | 130        | 130  | 130                | 130  | volts |
| Grid-No.1 (Control-Grid) Voltage                      | -22        | —    | 0                  | -22  | volts |
| Amplification Factor                                  | 4.2        | —    | —                  | —    |       |
| Plate Resistance                                      | —          | —    | —                  | 6200 | ohms  |
| Transconductance                                      | —          | —    | —                  | 8800 | μmhos |
| Plate Current                                         | —          | —    | 450                | 60   | mA    |
| Grid-No.2 Current                                     | —          | —    | 40                 | 2.8  | mA    |
| Grid-No.1 Voltage (Approx.) for plate current of 1 mA | —          | -66  | —                  | -39  | volts |

**MAXIMUM CIRCUIT VALUE**

|                              |   |        |
|------------------------------|---|--------|
| Grid-No.1-Circuit Resistance | 1 | megohm |
|------------------------------|---|--------|

\*\* Grid No.2 tied to plate.

**Beam Power Unit as Horizontal-Deflection Amplifier**

For operation in a 525-line, 30-frame system

**MAXIMUM RATINGS (Design-Maximum Values)**

|                                           |      |       |
|-------------------------------------------|------|-------|
| Plate Voltage                             | 500  | volts |
| Peak Positive-Pulse Plate Voltage         | 5000 | volts |
| Peak Negative-Pulse Plate Voltage         | 0    | volts |
| Grid-No.2 Voltage                         | 150  | volts |
| DC Grid-No.1 Voltage, Negative-bias value | 55   | volts |
| Peak Negative-Pulse Grid-No.1 Voltage     | 330  | volts |
| Average Cathode Current                   | 230  | mA    |
| Peak Cathode Current                      | 800  | mA    |
| Plate Dissipation†                        | 10   | watts |
| Grid-No.2 Input                           | 3.5  | watts |

**MAXIMUM CIRCUIT VALUE**

Grid-No.1-Circuit Resistance ..... 1 megohm  
 † A bias resistor or other means is required to protect the tube in absence of excitation.

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| Peak Plate Current                  | 1200       | mA    |
| Average Plate Current               | 200        | mA    |
| Heater-Cathode Voltage:             |            |       |
| Peak value                          | +200 —3700 | volts |
| Average value                       | +100 —500  | volts |
| Bulb Temperature (At hottest point) | 200        | °C    |

**CHARACTERISTIC, Instantaneous Value**

Tube Voltage Drop for plate current of 350 mA ..... 16 volts

# Pulse duration must not exceed 15% of a horizontal scanning cycle (10 microseconds).

Refer to chart at end of section. **39/44**

Refer to chart at end of section. **40**

Refer to chart at end of section. **40KD6**

For replacement use type 36KD6/40KD6.

Refer to type 6KG6A/EL509. **40KG6A/PL509**

Refer to chart at end of section. **41**

Refer to chart at end of section. **42**

Refer to chart at end of section. **42EC4A/PY500**

Refer to type 6KN6. **42KN6**

Refer to chart at end of section. **43**

Refer to chart at end of section. **45**

Refer to chart at end of section. **45Z3**

Refer to chart at end of section. **45Z5GT**

Refer to chart at end of section. **46**

Refer to chart at end of section. **47**

Refer to chart at end of section. **48**

Refer to chart at end of section. **49**

Refer to chart at end of section. **50**

Refer to chart at end of section. **50A5**

Refer to chart at end of section. **50B5**

Refer to type 6BM8/ECL82. **50BM8/UCL82**