



## ADVANCE DATA

## MECHANICAL DATA

|                   |                                           |
|-------------------|-------------------------------------------|
| Bulb              | T-3                                       |
| Base              | E8-10, Subminiature Button Flexible Leads |
| Outline           | JEDEC 3-1                                 |
| Basing            | 8DG                                       |
| Cathode           | Coated Unipotential                       |
| Mounting Position | Any                                       |

RATINGS<sup>1</sup> (Absolute Maximum)

|                                                       |               |
|-------------------------------------------------------|---------------|
| Bulb Temperature (Per JEDEC JO-H1)                    | 220 °C        |
| Altitude                                              | 80,000 Ft.    |
| Radiation                                             |               |
| Total Dosage ( $\sqrt{\text{neutrons/sq. cm/sec.}}$ ) | $10^{16}$ nvt |
| Dose Rate (neutrons/sq. cm/sec.)                      | $10^{12}$ nv  |

DURABILITY CHARACTERISTICS<sup>2</sup>

|                                                                      |       |      |
|----------------------------------------------------------------------|-------|------|
| Impact Acceleration (3/4 msec Duration) <sup>3</sup>                 | 750 G | Max. |
| Fatigue (Vibrational Acceleration for Extended Periods) <sup>4</sup> | 2.5 G | Max. |
| On-Off Heater Cycles <sup>5</sup>                                    | 2000  | Min. |

## ELECTRICAL DATA

## HEATER CHARACTERISTICS

|                |        |
|----------------|--------|
| Heater Voltage | 26.5 V |
| Heater Current | 90 mA  |

## DIRECT INTERELECTRODE CAPACITANCES

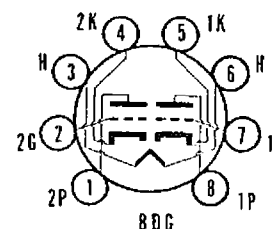
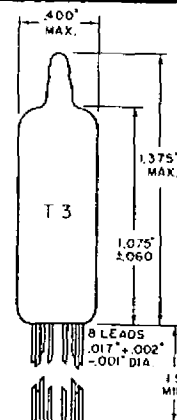
|                              | Shielded <sup>6</sup> | Unshielded          |      |
|------------------------------|-----------------------|---------------------|------|
| Grid to Plate (Each Section) | 1.0                   | 1.0 $\mu\text{f}$   |      |
| Input (Each Section)         | 1.9                   | 1.7 $\mu\text{f}$   |      |
| Output                       |                       |                     |      |
| Section No. 1                | 1.5                   | 0.23 $\mu\text{f}$  |      |
| Section No. 2                | 1.5                   | 0.28 $\mu\text{f}$  |      |
| Grid to Grid                 | 0.011                 | 0.014 $\mu\text{f}$ | Max. |
| Plate to Plate               | 0.60                  | 0.80 $\mu\text{f}$  | Max. |

## CONTROLLED DETRIMENTS

|                                                  |                         |
|--------------------------------------------------|-------------------------|
| Interelectrode Insulation <sup>7</sup>           | 100 Meg. Min.           |
| Total Grid Current <sup>8</sup>                  | -0.3 $\mu\text{A}$ Max. |
| Grid Emission <sup>9</sup>                       | -0.5 $\mu\text{A}$ Max. |
| Vibration Output as Equivalent Ecl <sup>10</sup> | 2.5 mVac Max.           |
| Heater-Cathode Leakage                           | 5.0 $\mu\text{A}$ Max.  |

## QUICK REFERENCE DATA

The Premium Subminiature Type 7889 is a general purpose, medium  $\mu$ , double triode having separate cathode connections for each section. It is particularly useful in low level audio applications. The 7889 is designed to provide dependable operation under conditions of severe shock, vibration, high temperature and high altitude and is manufactured and inspected to meet the applicable MIL-E-1 specification for reliability.

SYLVANIA  
ELECTRONIC TUBES

A Division of  
Sylvania Electric Products Inc.

RECEIVING TUBE  
OPERATIONS  
EMPORIUM, PA.

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RATINGS<sup>1</sup> (Absolute Maximum)

|                                         |                       |
|-----------------------------------------|-----------------------|
| Heater Voltage                          | 26.5 ( $\pm 10\%$ ) V |
| Plate Voltage                           | 165 Vdc               |
| Peak Plate Forward Voltage              | 330 v                 |
| Plate Dissipation (Each Section)        | 0.55 W                |
| Plate Current (Each Section)            | 3.3 mAdc              |
| DC Grid Voltage                         |                       |
| Positive Value                          | 0 Vdc                 |
| Negative Value                          | 55 Vdc                |
| Heater-Cathode Voltage                  |                       |
| Heater Positive with Respect to Cathode | 200 v                 |
| Heater Negative with Respect to Cathode | 200 v                 |
| Grid Circuit Resistance                 | 1.1 Meg               |

## CHARACTERISTICS (Each Section)

|                                     |      |                 |
|-------------------------------------|------|-----------------|
| Plate Voltage                       | 100  | 150 Vdc         |
| Cathode Resistor                    | 1500 | 820 Ohms        |
| Plate Current                       | 0.8  | 1.75 mAdc       |
| Transconductance                    | 1800 | 2500 $\mu$ mhos |
| Amplification Factor                | 70   | 70              |
| Grid Voltage for $I_b = 50 \mu$ Adc | -2.8 | -3.7 Vdc        |

## NOTES:

1. Limiting values beyond which normal tube life and normal tube performance may be impaired.
2. Tests performed as a measure of the mechanical durability of the tube structure.
3. Force as applied in any direction by the Navy Type High Impact (Flyweight) Shock Machine for Electronic Devices. Shock duration = 3/4 milliseconds.
4. Vibrational forces applied in any direction for a period of 96 hours.
5. One cycle consists of the application of  $E_f = 29.0$  V for one minute and interruption of the filament voltage for four minutes. A voltage of  $E_{hk} = 140$  Vac is applied continuously.
6. Capacitances are measured with an external shield No. 318.
7. Measure each section separately with  $E_f = 26.5$  V  $E_{g-all} = -100$  Vdc;  $E_{p-all} = -300$  Vdc; cathode is positive so that no cathode emission occurs.
8. Measure each section separately with  $E_f = 26.5$  V;  $E_b = 150$  Vdc;  $R_k = 820$  ohms;  $R_g = 1.0$  Meg.

## NOTES: (Cont'd)

9. Each section preheated for five minutes with  $E_f = 31.5 \text{ V}$ ;  $E_b = 150 \text{ Vdc}$ ;  $R_k = 820 \text{ ohms}$ ;  $R_g = 1.0 \text{ Meg}$ ; then each section tested separately with  $E_f = 31.5 \text{ V}$ ;  $E_b = 150 \text{ Vdc}$ ;  $E_{c1} = -4.0 \text{ Vdc}$ ;  $R_g = 1.0 \text{ Meg}$ .
10. Test each section separately with  $E_f = 26.5 \text{ V}$ ;  $E_b = 100 \text{ Vdc}$ ;  $R_k = 1500 \text{ ohms}$ ;  $CK = 1000 \text{ } \mu\text{f}$ ;  $R_p = 10,000 \text{ ohms}$ ;  $F = 40 \text{ cps}$ ;  $\text{Acc} = 15 \text{ g}$ .
11. Measure each section separately with  $E_f = 26.5 \text{ V}$ ;  $E_{hk} = \pm 100 \text{ Vdc}$ .