

# SONOTONE CORPORATION

TYPE 6225

## JETEC Registration Data

PENTODE

*The Type 6225 is a semi-remote cut-off pentode designed for applications where reliable performance under conditions of extreme vibration and shock is essential. The design features include close tolerance on filament current and delta transconductance/ $E_f$ , together with resistance to vibration frequencies up to 2000 cycles as indicated by peak to peak readings.*

### MECHANICAL DATA

#### GENERAL

Style ..... subminiature  
Cathode ..... coated unipotential  
Bulb ..... T-3  
Base ..... Subminiature Button  
Flexible Leads

#### Basing Connections:

Lead 1—grid 1  
Lead 2—cathode, shield, grid 3  
Lead 3—heater  
Lead 4—cathode, shield, grid 3  
Lead 5—plate  
Lead 6—heater  
Lead 7—grid 2  
Lead 8—cathode, shield, grid 3

Outline ..... 8-1  
Maximum Diameter ..... 0.400 inch  
Maximum Overall Bulb Length ..... 1.375 inches  
Minimum Lead Length ..... 1.500 inches  
Mounting Position ..... any

#### Ratings

Maximum Impact Acceleration(1) ..... 600 g  
Maximum Vibrational Acceleration  
for Extended Periods(2) ..... 2.5 g  
Maximum Bulb Temperature (measured  
at hottest point on bulb) ..... 220° C

8DE

### ELECTRICAL DATA

#### GENERAL

Heater Voltage (ac or dc) ..... 6.3 volts  
Heater Current ..... 175 ma

#### Life Expectancy:

220° C Ambient Temperature (3) ..... 1000 hours  
Heater Cycle Life (4) ..... 2500 cycles

#### Direct Interelectrode Capacitances:

Shielded\*  
Grid to Plate ..... 0.015 uuf  
Input ..... 4.1 uuf  
Output ..... 3.4 uuf

#### RATINGS—Absolute Values

Heater Voltage ..... 6.3 ( $\pm 5\%$ ) volts  
Maximum Plate Voltage (dc) ..... 165 volts  
Maximum Grid No. 2 Voltage (dc) ..... 155 volts  
Maximum Plate Dissipation ..... 1.1 watts  
Maximum DC Cathode Current ..... 16.5 ma  
Maximum Grid No. 2 Input ..... .55 watts  
Maximum Negative Grid #1  
Voltage ..... 55 volts

#### Maximum Heater-Cathode

Voltage .....  $\pm 200$  volts

#### CHARACTERISTICS

Heater Voltage ..... 6.3 volts  
Plate Voltage (dc) ..... 100 volts  
Cathode Resistor ..... 120 ohms  
Plate Current ..... 7.2 ma  
Grid No. 2 Current ..... 2.0 ma  
Plate Resistance, minimum ..... 0.175 megohm  
Transconductance ..... 4500 umhos  
Transconductance (Ecl)  
—14 volts ..... 25 umhos  
Noise Output Voltage 1,  
maximum (peak to peak) (5) ..... 25 mv  
Noise Output Voltage 2,  
maximum (peak to peak) (6) ..... 100 mv  
Noise Output Voltage 3,  
maximum (peak to peak) (7) ..... 100 mv  
Operation Time(8) ..... 20 seconds  
Mechanical ..... as per MIL-E-17751A

\*Having inside diameter of 0.405" and connected to cathode.

## NOTES

- (1) Tubes are held rigid in three different positions in a Navy Type, High Impact (flyweight) Shock Machine and subjected to 600 g impact acceleration. Hammer angle=42°.
- (2) Tubes are rigidly mounted and subjected in each of three positions to 2.5 g vibrational acceleration at 25 cycles per second for 32 hours.
- (3) Life test is made with a heater voltage of 6.3 volts, plate supply voltage of 100 volts, dc heater-cathode voltage (heater positive with respect to cathode) of 200 volts, cathode resistor of 120 ohms, grid-No. 2 supply voltage of 100 volts and a grid-No. 1 resistor of 1 megohm. Life test end points:  $\Delta$  transconductance/t, 20% maximum; heater-cathode leakage current, 15 microamperes maximum; grid-No. 1 current, —.8 microamperes maximum.
- (4) Under the following conditions: heater voltage of 7.5 volts cycled 1 minute on and 4 minutes off; heater-cathode voltage of 140 volts (rms); plate and grid voltages=0.
- (5) Under the following conditions: plate voltage supply of 100 volts with an impedance not exceeding that of a 40-uf capacitor, plate load resistor of 10000 ohms, cathode resistor of 120 ohms, cathode bypass capacitor of 1000 uf, vibrational acceleration of 15 g at 40 cycles per second. Free free bar vibrator.
- (6) Under the following conditions: A 100-volt plate voltage supply having an impedance not exceeding that of a 40-uf capacitor, plate load resistor of 10000 ohms, cathode resistor of 120 ohms, cathode bypass capacitor of 1000 microfarads, and vibrational acceleration of 15 g, with sweep frequency of 20 to 500 cycles per second.
- (7) Under the following conditions: A 100-volt plate voltage supply having an impedance not exceeding that of a 40-uf capacitor, plate load resistor of 10000 ohms, cathode resistor of 120 ohms, cathode bypass capacitor of 1000 microfarads, and vibrational acceleration of 10 g, with sweep frequency of 500 to 2000 cycles per second.
- (8) Operation Time is the time in seconds required for the plate current to attain a value of 95%  $\pm$ 5% of the three minute plate current value when measured under average operating conditions.