ADVANCE DATA

MECHANICAL DATA

Bulb	T-6½
Base	E9-1 Miniature Button
Outline	JEDEC 6-2
Basing	9PY
Cathode	Coated Unipotential
Mounting Position	Any

RATINGS[1]

Bulb Temperature (Measured per JEDEC pub. JO-H1)	+180 °C
Operational Altitude	80,000 Ft.
Radiation Environment	
Total Dosage - (Neutrons/Sq. Cm)	10^{16} nvt
Dose Rate - (Neutrons/Sq. Cm/Sec.)	10^{12} nv

DURABILITY CHARACTERISTICS[2]

Impact Acceleration[3]	500 G
Vibration Acceleration for an Extended Period[4]	10 G
On - Off Heater Cycles[5]	2000

ELECTRICAL DATA

HEATER CHARACTERISTICS

	Parallel[13]	Series[14]
Heater Voltage	6.3	12.6 Volts
Heater Current	460	230 mA
Maximum Heater-Cathode Voltage (Peak)		200 Volts

CONTROLLED DETRIMENTS

Minimum Interelectrode Insulation[6]	100 Megohms
Maximum Total Grid Current[7]	-0.5 μAdc
Maximum Vibration Output as Equivalent Grid Voltage[8]	7.9 mVac
Maximum Heater-Cathode Leakage[9]	5.0 μAdc

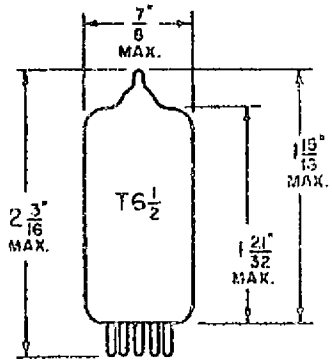
DIRECT INTERELECTRODE CAPACITANCES — Unshielded

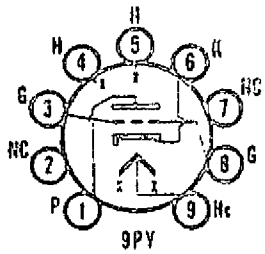
Grid to Plate	2.9 pf
Input: g to (h+k)	10.0 pf
Output: p to (h+k)	1.2 pf

QUICK REFERENCE DATA

The Type 8212 is a miniature medium mu triode intended primarily for cathode follower applications. It is characterized by long life and stable performance under conditions of high altitude, severe shock, vibration and high temperature.

The 8212 is manufactured and inspected to meet the applicable MIL-E-1 specification.





SYLVANIA
ELECTRONIC TUBES

A Division of
Sylvania Electric Products Inc.

RECEIVING TUBE
OPERATIONS
EMPORIUM, PA.

Prepared and Released By The
TECHNICAL PUBLICATIONS SECTION
EMPORIUM, PENNSYLVANIA

from JEDEC release #4160, Feb. 25, 1963

RATINGS[1] (Absolute Values)

Maximum Heater Voltage Variation	±10% Volts
Maximum Plate Voltage	300 Vdc
Maximum Cathode Current	75 mAdc
Maximum Negative Grid Voltage	-40 Volts
Maximum Plate Dissipation	10.0 Watts
Maximum Grid Circuit Resistance	0.5 Meg

Pulse Service (See Chart)

Maximum Heater Voltage Variation	+5.0 -0 Percent
Maximum Negative Grid Voltage	-40 Vdc
Maximum Plate Dissipation	10.0 W
Maximum Average Plate Voltage	150 Vdc
Maximum Instantaneous Forward Plate Voltage[12]	300 v
Maximum Instantaneous Heater to Cathode Voltage	100 v
Maximum Grid Dissipation	0.6 W
Maximum Instantaneous Grid to Cathode Voltage	±60 v

AVERAGE CHARACTERISTICS

Heater Voltage	12.6 V
Plate Voltage	105 Vdc
Grid Voltage	0 Vdc
Cathode Resistor	75 Ohms
Plate Current	25 mAdc
Transconductance	29,000 µmhos
Amplification Factor	28
Plate Resistance (approx.)	965 Ohms
Grid Voltage for Ib = 25 µA (Max.)	-7.5 Vdc

Plate Current[10]: With Ef = 12.6 V; Eb = 105 Vdc; Ec = -20 Vdc; Prr = 10,000 pps; tp = 10 µsec.; egk = 0 V. 100 mAdc

Pulse Cathode Current: With Ef = 12.6 V; Eb = 150 Vdc; Ec = -30 Vdc; egk = +30 V (Measured between grid and cathode pins); tp = 10 µsec.; prr = 2,000 pps; duty cycle = 2.0%. 3000 ma

Minimum Pulse Plate to Cathode Currents Ratio[11]	0.7
Equivalent Noise Resistance (at 50 Mc)	200 Ohms
Hot Input Capacitance (at 50 Mc)	20 pf

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 6 hours over the range 30 cps to 3000 cps.

5. One cycle consists of the application of Ef = 15 V for one minute and interruption of the filament voltage for four minutes. A voltage of Ehk = 140 Vac is applied continuously.

6. Measure with Ef = 12.6 V; Eg-all = -100 Vdc; Ep-all = -300 Vdc; Cathode is positive so that no cathode emission occurs.

7. Measure with Ef = 12.6 V; Ec = 0 Vdc; Eb = 105 Vdc; Rk = 75 Ohms.

8. Test with Ef = 12.6 V; Eb = 150 Vdc; Ec = 0 Vdc; Rk = 75 Ohms; Rp = 2000 Ohms; F = 40 cps; Acc = 10 g; Ck = 1000 μf.

9. Measure with Ef = 12.6 V; Ehk = ±100 Vdc.

10. Measured by method using recurrent wave form. Grid pulse is square wave producing specified egk directly at grid terminal with respect to cathode. Plate current is measured by high impedance oscilloscope or equivalent device connected across 1 ohm resistor in plate circuit.

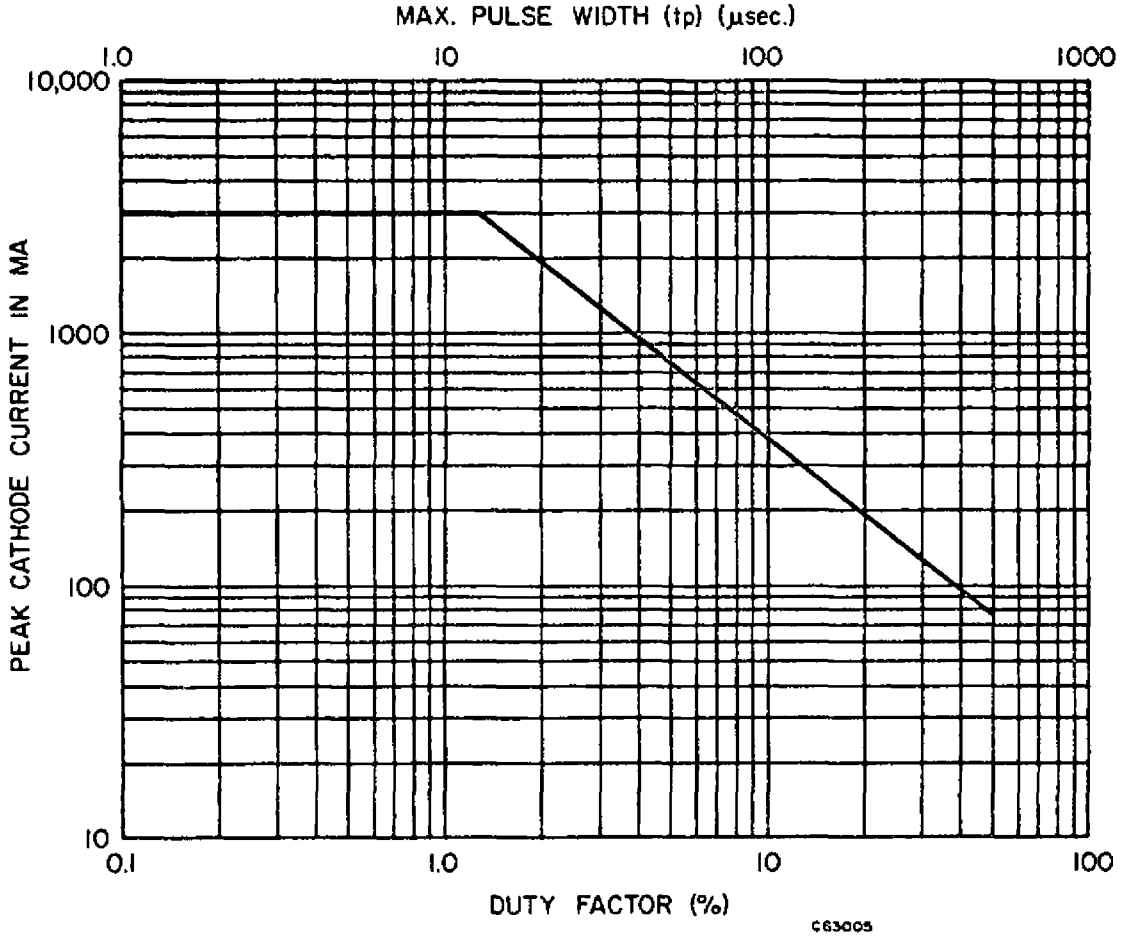
11. Grid pulse is square wave. Peak currents measured using high impedance oscilloscope or equivalent device connected across a cathode or plate resistor of 1.0 ohms.

12. Applies only to the spike occuring at the leading edge of the plate waveform. The spike duration must be limited to 0.1 of tp.

13. Heaters paralled connected, tie pins 4 and 5 together, use center tap pin 9.

14. Heater series connected, use pins 4 and 5.

RATING CHART



RATING CHART INTERPRETATION

The area below and to the left of the line establishes permissible peak cathode current for duty factors up to 50 percent. At duty factors greater than 50 percent the maximum average DC current of 75 milliamperes shall be the rating. Three thousand milliamperes is the maximum peak cathode current rating at any duty factor below 1.3 percent. Duty factor is defined as the ratio of the average current to the maximum peak current occurring in any 1000 microsecond period.