



# TECHNICAL DATA

## Electronic Tubes

from JEDEC release #3531,  
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### 6HW8 SHEET-BEAM TUBE

The 6HW8 is a miniature, double-plate, sheet-beam tube which incorporates a pair of balanced deflectors to direct the electron beam to either of the two plates, and a control grid to vary the intensity of the beam.

#### GENERAL

##### Electrical

##### Cathode - Coated Unipotential

Heater Voltage, AC or DC*	6.3±0.6%	Volts
Heater Current†	0.3	Amperes
Direct Interelectrode Capacitances, approximate‡		
Deflector-Number 1 to All	4.2	pf
Deflector-Number 2 to All	4.2	pf
Grid-Number 1 to All Except Plates	7.5	pf
Plate-Number 1 to All	4.4	pf
Plate-Number 2 to All	4.4	pf
Grid-Number 1 to Deflector-Number 1, maximum	0.05	pf
Grid-Number 1 to Deflector-Number 2, maximum	0.03	pf
Plate-Number 1 to Plate-Number 2	0.12	pf
Deflector-Number 1 to Deflector-Number 2	0.35	pf

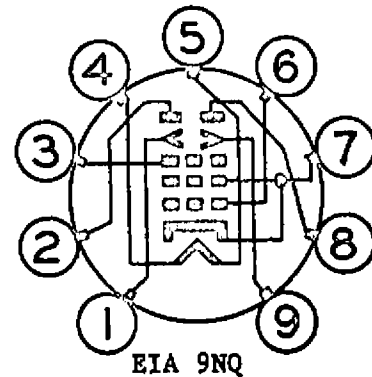
##### Mechanical

Mounting Position - Any		
Envelope - T-6 1/2, Glass		
Base - E9-1, Small Button 9-Pin		
Outline Drawing - EIA 6-3		
Maximum Diameter	7/8	Inches
Maximum Over-all Length	2 5/8	Inches
Maximum Seated Height	2 3/8	Inches

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TERMINAL CONNECTIONS

Pin 1 - Deflector Number 2  
 Pin 2 - Plate Number 2  
 Pin 3 - Accelerator  
 Pin 4 - Heater  
 Pin 5 - Heater and Internal Shield  
 Pin 6 - Grid Number 1 (Control Grid)  
 Pin 7 - Cathode and Focus Electrode  
 Pin 8 - Plate Number 1  
 Pin 9 - Deflector Number 1

BASING DIAGRAMMAXIMUM RATINGS

## Design-Maximum Values

Plate Voltage, Each Plate	330	Volts
Accelerator Voltage	330	Volts
Peak Positive Deflector Voltage, Each Deflector	165	Volts
Peak Negative Deflector Voltage, Each Deflector	165	Volts
Positive DC Grid-Number 1 Voltage	0	Volts
Plate Dissipation, Each Plate	2.0	Watts
DC Cathode Current	30	Milliamperes
Grid-Number 1 Circuit Resistance With Cathode Bias	0.25	Megohms

Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey electron tube of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operation conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of all other electron devices in the equipment.

CHARACTERISTICS AND TYPICAL OPERATION

## Average Characteristics with Deflectors Grounded

Plate-Number 1 Voltage	250	Volts
Plate-Number 2, Connected to Plate-Number 1		
Accelerator Voltage	250	Volts
Deflector-Number 1 Voltage	0	Volts
Deflector-Number 2 Voltage	0	Volts
Cathode-Bias Resistor	270	Ohms
Total Plate Current	13	Milliamperes

CHARACTERISTICS AND TYPICAL OPERATION (Continued)

Accelerator Current	1.4	Milliamperes
Grid-Number 1 Transconductance	4000	Micromhos
Grid-Number 1 Voltage, approximate Ib (total) = 10 Microamperes	-14	Volts
Average Deflector Characteristics		
Plate-Number 1 Voltage	250	Volts
Plate-Number 2 Voltage	250	Volts
Accelerator Voltage	250	Volts
Cathode-Bias Resistor	270	Ohms
Deflector Switching Voltage, maximum <sup>#</sup>	40	Volts
Deflector-Bias Voltage for Minimum Deflector Switching Voltage <sup>#</sup>	12	Volts
Voltage Difference between Deflectors For Ib1 = Ib2, approximate	0	Volts
Plate-Number 1 Current, maximum Ed1 = +2 Volts, Ed2 = +32 Volts Ib2 = 18 ma	50	Microamperes
Plate-Number 2 Current, maximum Ed1 = +32 Volts, Ed2 = +2 Volts Ib1 = 18 ma	50	Microamperes
Deflector-Number 1 Current, maximum Ed1 = +2 Volts, Ed2 = +38 Volts Eb = 225 Volts, Eg1 = +3 Volts	55	Microamperes
Deflector-Number 2 Current, maximum Ed1 = +38 Volts, Ed2 = +2 Volts Eb = 225 Volts, Eg1 = +3 Volts	55	Microamperes

\* The equipment designer should design the equipment so that heater voltage is centered at the specified bogey value, with heater supply variations restricted to maintain heater voltage within the specified tolerance.

+ Heater current of a bogey tube at Ef = 6.3 volts.

‡ Without external shield.

# Deflector switching voltage is defined as the total voltage change on either deflector with an equal and opposite change on the other deflector required to switch the plate current from one plate to the other.