

Photomultiplier Tube

10-STAGE, CURVED-FACEPLATE TYPE HAVING S-10 RESPONSE

1-11/16 INCH MINIMUM DIAMETER CURVED PHOTOCATHODE

GENERAL

Spectral Response.	S-10
Wavelength of Maximum Response	4500 $\pm$ 300 angstroms
Cathode, Semitransparent	Ag-Bi-O-Cs
Shape.	Curved, Circular $\leftarrow$
Minimum area	2.2 sq in
Minimum diameter	1-11/16 in
Window	Lime Glass (Corning ^a No.0080), or equivalent $\leftarrow$
Index of refraction.	1.51
Dynode Material.	Cs-Sb $\leftarrow$
Direct Interelectrode Capacitances (Approx.)	
Anode to dynode No.10	4.2 pF
Anode to all other electrodes.	6.5 pF
Maximum Overall Length	5.81 in
Seated Length.	4.87 $\pm$ 0.19 in
Maximum Diameter	2.31 in
Operating Position	Any
Weight (Approx.)	5.2 oz
Envelope	JEDEC T16
Base . Medium-Shell Diheptal 14-Pin (JEDEC Group 5, No.B14-38),	
	Non-hygroscopic
Socket	Eby ^b No.9709-7, or equivalent $\leftarrow$
Magnetic Shield.	JAN ^c No.S-2004, or equivalent $\leftarrow$

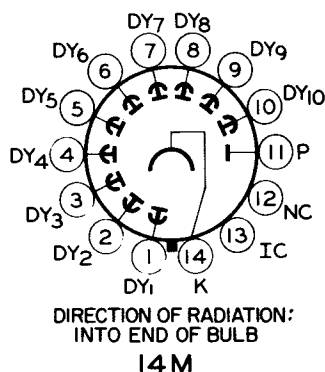
ABSOLUTE-MAXIMUM RATINGS

DC or Peak AC Supply Voltage

Between anode and cathode.	1250	V
Between dynode No.10 and anode	250	V $\leftarrow$
Between dynode No.1 and cathode.	300	V $\leftarrow$
Average Anode Current ^d	0.75	mA
Ambient Temperature.	75	°C

TERMINAL DIAGRAM (Bottom View)

- Pin 1 - Dynode No.1
- Pin 2 - Dynode No.2
- Pin 3 - Dynode No.3
- Pin 4 - Dynode No.4
- Pin 5 - Dynode No.5
- Pin 6 - Dynode No.6
- Pin 7 - Dynode No.7
- Pin 8 - Dynode No.8
- Pin 9 - Dynode No.9
- Pin 10 - Dynode No.10
- Pin 11 - Anode
- Pin 12 - No Connection
- Pin 13 - Do Not Use
- Pin 14 - Photocathode



$\leftarrow$ Indicates a change.



CHARACTERISTICS RANGE VALUES

Under conditions with dc supply voltage (E) across a voltage divider providing 1/6 of E between cathode and dynode No. 1; 1/12 of E for each succeeding dynode stage; and 1/12 of E between dynode No. 10 and anode

With E = 1000 V (Except as noted)

	Min	Typ	Max	
Sensitivity				
Radiant, at 4500 angstroms	-	5.1×10^4	-	A/W
Cathode radiant, at 4500 angstroms.	-	0.02	-	A/W
Luminous, at 0 c/s ^e	10	100	300	A/lm
Cathode luminous				
With tungsten light source ^f	2×10^{-5}	4×10^{-5}	-	A/lm
With red-infrared light source ^g	5×10^{-8}	-	-	A
Current Amplification.	-	2.5×10^6	-	
Equivalent Anode-Dark-Current Input^h.	-	1.4×10^{-9}	2.5×10^{-8}	1m
At a luminous sensitivity of 20 A/lm				
Equivalent Noise Input^j.	-	4×10^{-11}	1.7×10^{-10}	1m
Dark Current	-	-	7.5×10^{-7}	A
To any electrode except anode at 25 °C				

With E = 750 V (Except as noted)

	Min	Typ	Max	
Sensitivity				
Radiant, at 4500 angstroms. . .	-	5.1×10^3	-	A/W
Cathode radiant, at 4500 angstroms	-	0.02	-	A/W
Luminous, at 0 c/s ^e	-	10	-	A/lm
Cathode luminous				
With tungsten light source ^f	2×10^{-5}	4×10^{-5}	-	A/lm
With red-infrared light source ^g	5×10^{-8}	-	-	A
Current Amplification.	-	2.5×10^5	-	

^a Made by Corning Glass Works, Corning, New York.

^b Made by Hugh H. Eby Company, 4701 Germantown Avenue, Philadelphia 44, Pa.

^c Made by JAN Hardware Manufacturing Company, 38-01 Queens Blvd., Long Island City 1, New York.

^d Averaged over any interval of 30 seconds maximum. For best stability, the average anode current value should not exceed 100 microamperes.

^e Under the following conditions: The light source is a tungsten-filament lamp having a lime-glass envelope. It is operated at a color temperature of 2870°K and a light input of 10 microlumens is used.

^f Under the following conditions: The light source is a tungsten-filament lamp having a lime-glass envelope. It is operated at a color temperature of 2870°K. The value of light flux is 0.01 lumen and 167 volts are applied between cathode and all other electrodes connected as anode.

^g Under the following conditions: Light incident on the cathode is transmitted through a red-infrared filter (Combination of Corning C.S. Nos. 3-67 and 7-59, Glass Code No. 3482 and 5850, respectively—Manufactured by the Corning Glass Works, Corning, New York) from a tungsten-filament lamp operated at a color temperature of 2870°K. The value of light flux

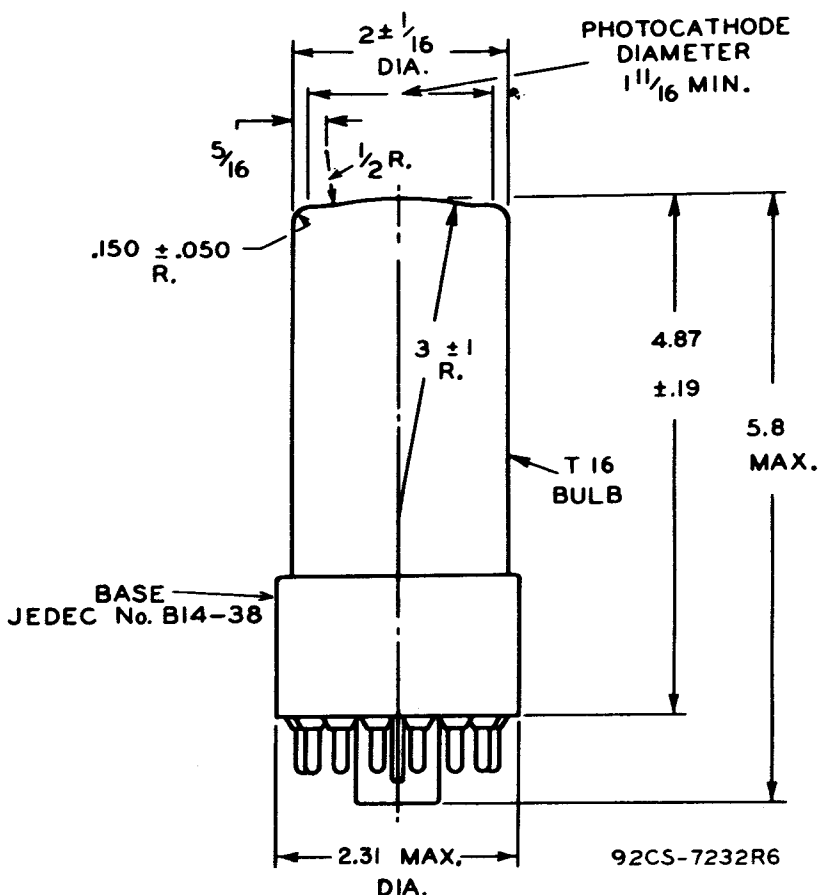
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incident on the filter is 0.01 lumen and 167 volts are applied between cathode and all other electrodes connected at anode.

- h At a tube temperature of 25°C. Prior to measurement, tube is stored in dark for a period of 30 minutes. Dark current may be reduced by use of a refrigerant.
- j Under the following conditions: Supply voltage (E) is as shown, 25°C tube temperature, external shield connected to cathode, bandwidth 1 cycle per second, tungsten-light source at a color temperature of 2870°K interrupted at a low audio frequency to produce incident radiation pulses alternating between zero and the value stated. The "on" period of the pulse is equal to the "off" period.

DIMENSIONAL OUTLINE



DIMENSIONS IN INCHES

Center line of bulb will not deviate more than 2° in any direction from perpendicular erected at the center of bottom of the base.

SPECTRAL-SENSITIVITY CHARACTERISTIC
of Phototube having S-10 Response
is shown at the front of this Section

TYPICAL ANODE CHARACTERISTICS
are the same as those shown for Type 6199



Typical Sensitivity and Current Amplification Characteristics

