6217

MULTIPLIER PHOTOTUBE

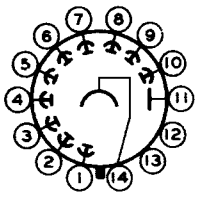
10-STAGE, HEAD-ON TYPE WITH
1-1/2" SEMI-TRANSPARENT CATHODE AND S-10 RESPONSE

DATA

General:

Spectral Response	S-10	
Wavelength Range of Highest-Response Region	3700 to 5600 angstroms	
Cathode, Semi-transparent:		
Shape	Circular	
Window:		
Area	1.8	sq. in.
Minimum Diameter	1.5	in.
Index of Refraction	1.51	
Direct Interelectrode Capacitances:		
Anode to Dynode No.10	4.2	μμf
Anode to All Other Electrodes	6.5	μμf
Overall Length	5-5/8" ± 3/16"	
Seated Length	4-7/8" ± 3/16"	
Maximum Diameter	2-1/4"	
Mounting Position	Any	
Bulb	T-16	
Base	Medium-Shell Diheptal 14-Pin, Non-hygroscopic (JETEC No.B14-38)	
Basing Designation for BOTTOM VIEW	14M1	

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



DIRECTION OF LIGHT: INTO END OF BULB

Pin 9 – Dynode No.9
Pin 10 – Dynode No.10
Pin 11 – Anode
Pin 12 – No Connection
Pin 13 – Internal Con. Do Not Use
Pin 14 – Cathode

Maximum Ratings, *Absolute Values*:

ANODE-SUPPLY VOLTAGE (DC or Peak AC)□	1250 max.	volts
SUPPLY VOLTAGE BETWEEN DYNODE No.10 AND ANODE (DC or Peak AC)	150 max.	volts
ANODE CURRENT:		
Peak	7.5 max.	ma
Average○	0.75 max.	ma
Average for Minimum Fatigue○	0.1 max.	ma
AMBIENT TEMPERATURE	75 max.	°C

□ Referred to cathode.
○ Averaged over any interval of 30 seconds maximum.

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CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN

Under conditions with supply voltage (E) across 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 volts (except as noted)

	Min.	Av.	Max.	
Sensitivity:				
Anode, at 5400 angstroms	–	8500	–	μamp/μwatt
Luminous:				
Anode:*				
At 0 cps	10	24	–	amp/lumen
At 100 Mc	–	21	–	amp/lumen
Cathode:				
With Tungsten Light Source● .	20	40	–	μamp/lumen
With Red-Infrared Light Source#◆.	0.05	–	–	μamp
Current Amplification■.	–	600000	–	
Equivalent Anode-Dark-Current Input**	–	1×10^{-8}	2.5×10^{-8}	lumen
Equivalent Noise Input##	–	4×10^{-11}	–	lumen

With E = 750 volts (except as noted)

	Min.	Av.	Max.	
Sensitivity:				
Anode, at 5400 angstroms	–	850	–	μamp/μwatt
Luminous:				
Anode:*				
At 0 cps	–	2.4	–	amp/lumen
Cathode:				
With Tungsten . . Light Source● .	20	40	–	μamp/lumen
With Red-Infrared Light Source#◆.	0.05	–	–	μamp
Current Amplification■.	–	60000	–	

* For conditions where the light source is a tungsten-filament lamp operated at a color temperature of 2870°K. A light input of 10 microlumens is used. The load resistor has a value of 0.01 megohm.

● For conditions the same as shown under (*) except that the value of light flux is 0.01 lumen and that 150 volts are applied between cathode and all other electrodes connected together as anode.

\# Under the following conditions: Light incident on the cathode is transmitted through a red-infrared filter (combination of Corning, Glass Code Nos. 3482 and 5850 filters) from a tungsten-filament lamp operated at a color temperature of 2870°K. The value of light-flux on the filter is 0.1 lumen. The load resistor has a value of 0.01 megohm, and 150 volts are applied between cathode and all other electrodes connected together as anode. This test evaluates the magnitude of the infrared response in the tail of the response characteristic and provides a critical criterion for the response in the red band.

◆,■,**,##: See next page.

TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

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♦ For Spectral Characteristic of this source, see sheet SPECTRAL CHARACTERISTIC OF 2870°K LIGHT SOURCE AND SPECTRAL CHARACTERISTIC OF LIGHT FROM 2870°K SOURCE AFTER PASSING THROUGH INDICATED RED-INFRARED FILTER at front of this section.

■ Ratio of anode sensitivity to cathode sensitivity under conditions of 2870°K tungsten light input.

** Defined as the quotient of the dc anode dark current by the anode luminous sensitivity. After tube has been in the dark for 30 minutes, the equivalent dark-current input is measured at a tube temperature of 25°C and with the supply voltage (E) adjusted to give an anode luminous sensitivity of 20 amperes per lumen. Dark current caused by thermionic emission and ion feedback may be reduced by the use of a refrigerant.

Defined as the value where the rms output current is equal to the rms noise current determined under the following conditions: Supply voltage (E) is 1000 volts, 25°C tube temperature, ac-amplifier bandwidth of 1 cycle per second, tungsten light source 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. The output current is measured through a filter which passes only the fundamental frequency of the pulses.

OPERATING NOTES

Performance of the 6217 is affected by magnetic fields. It will be observed with certain orientations of the 6217 that the earth's magnetic field is sufficient to cause a noticeable decrease in the response of the tube. Therefore, it may be desirable to provide magnetic shielding for the 6217 particularly when it is to be used in a strong magnetic field.

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

AVERAGE ANODE CHARACTERISTICS,
SENSITIVITY CHARACTERISTIC,
and
CURRENT AMPLIFICATION CHARACTERISTIC
are the same as those shown for Type 6199

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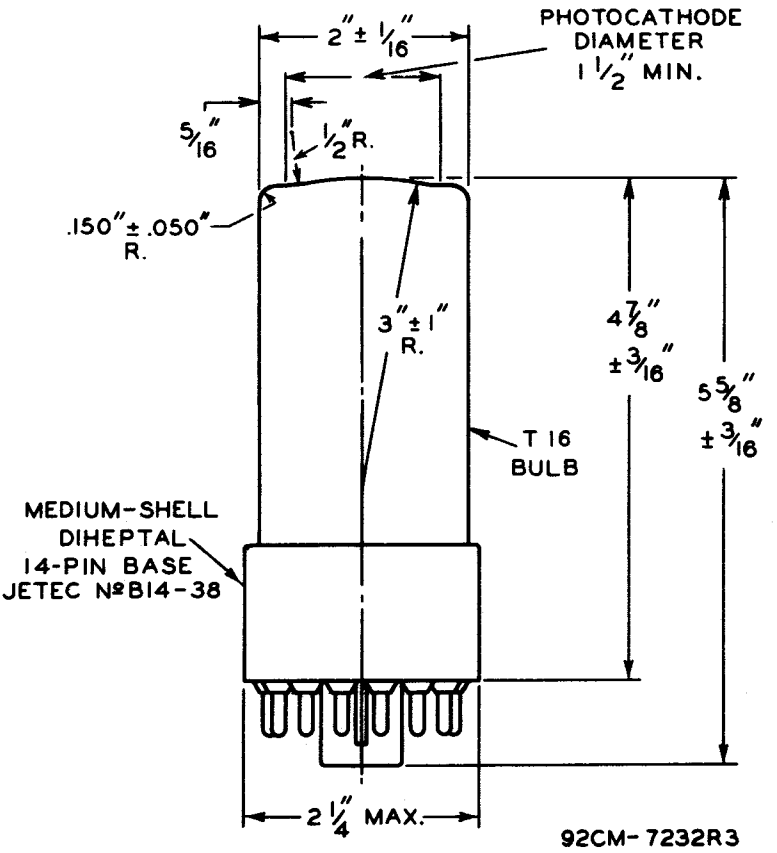

℄ OF BULB WILL NOT DEVIATE MORE THAN 2° IN ANY DIRECTION FROM THE PERPENDICULAR ERECTED AT THE CENTER OF BOTTOM OF THE BASE.