MULTIPLIER PHOTOTUBE
Type 6836/FW118

The 6836/FW118 is a 16-stage multiplier phototube of the end-window type having an S-1 spectral response. An electron lens system with a defining aperture in the electron image plane is incorporated in this tube between the photocathode and the first dynode. This feature limits the effective photocathode area and thus improves the equivalent noise input by reducing collected thermionic emission current and ion feedback. By means of an external magnetic field the electron image in the plane of the aperture may be deflected in a systematic pattern thus yielding information suitable for tracking or guidance systems.

Electrical Data		Min.	Median	Max.	Unit
Cathode luminous sensitivity	Notes 1 & 2	15	20		μa/lumen
Anode luminous sensitivity	Notes 3 & 4	50	200	800	amp/lumen
Cathode radiant sensitivity at 8000 Å	Notes 1 & 5		0.0022		μa/μwatt
Anode dark current	Notes 4 & 6			20	μa
Last dynode dark current	Notes 4 & 6			12	μa
Luminous equivalent of anode dark current	Notes 4 & 6			2×10^{-8}	lumen
Equivalent noise input	Notes 4 & 7			10^{-10}	lumen
Current amplification	Note 4	2.5×10^{6}	10^{7}		
Interelectrode capacitance					
Anode to all other electrodes			4.9		$\mu\mu$f
Anode-to-last dynode			2.3		$\mu\mu$f
Last dynode to all other electrodes			4.3		$\mu\mu$f

Note 1. At 270 volts dc applied between cathode and all other elements connected together.

Note 2. With 10^{-2} lumen source of 2870 degrees K color temperature radiation covering central area of approximately 1/8 inch diameter (illumination normal to plane of window.)

Note 3. With chopped 10^{-7} lumen source of 2870 degrees K color temperature radiation within effective photocathode area.

Note 4. At 1800 volts dc over-all; with recommended voltage distribution ratio, cathode to dynode 1 to dynode 2 etc. to anode: 2:1:1 ..... 1:1:1.5:3. Aperture electrode tied to dynode No. 1.

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Note 5. At wavelength of maximum response, excluding response below 4000 Å.

Note 6. Dark current measured at 25 degrees C. This value may be greatly reduced by moderate cooling of the photocathode; (solid CO_2 temperature).

Note 7. Peak-to-peak value of square wave chopped flux input (2870 degrees K color temperature radiation) which gives an rms output of the fundamental component of signal equal to the rms noise measured at a 1-cps bandwidth.

Maximum Ratings, Absolute Values

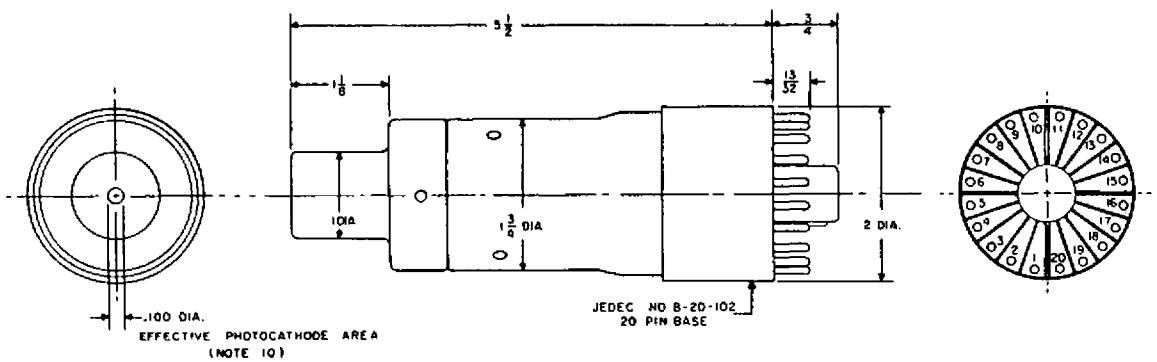
Anode dissipation	Note 8	0.03 watt
Over-all voltage (peak or dc)		2250 volts
Anode current	Note 8	0.1 ma
Ambient temperature		75 degrees C
Peak anode current	Notes 4 & 9	0.5 ma

Note 8. Averaged over any interval not greater than 1 second.

Note 9. For 10-percent maximum departure from linearity of output current versus input flux.

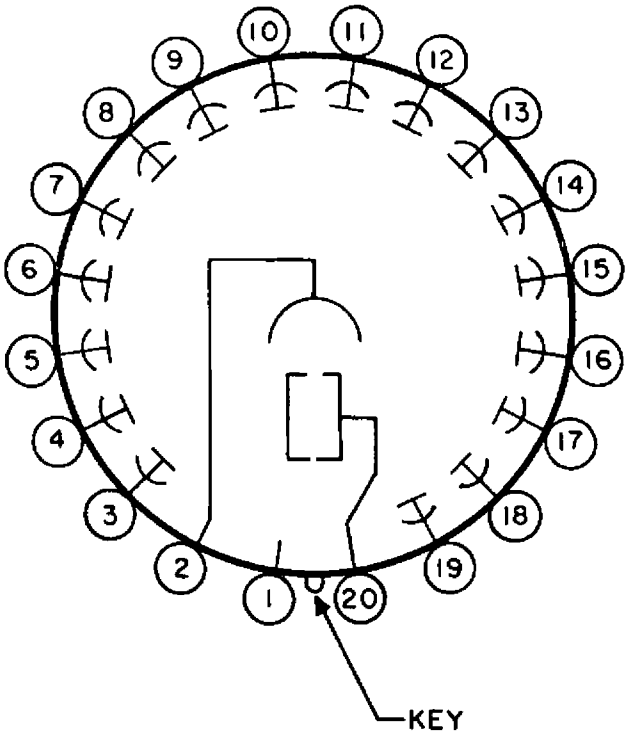
Outline Drawing and Basing Diagram

Dimensional Outline



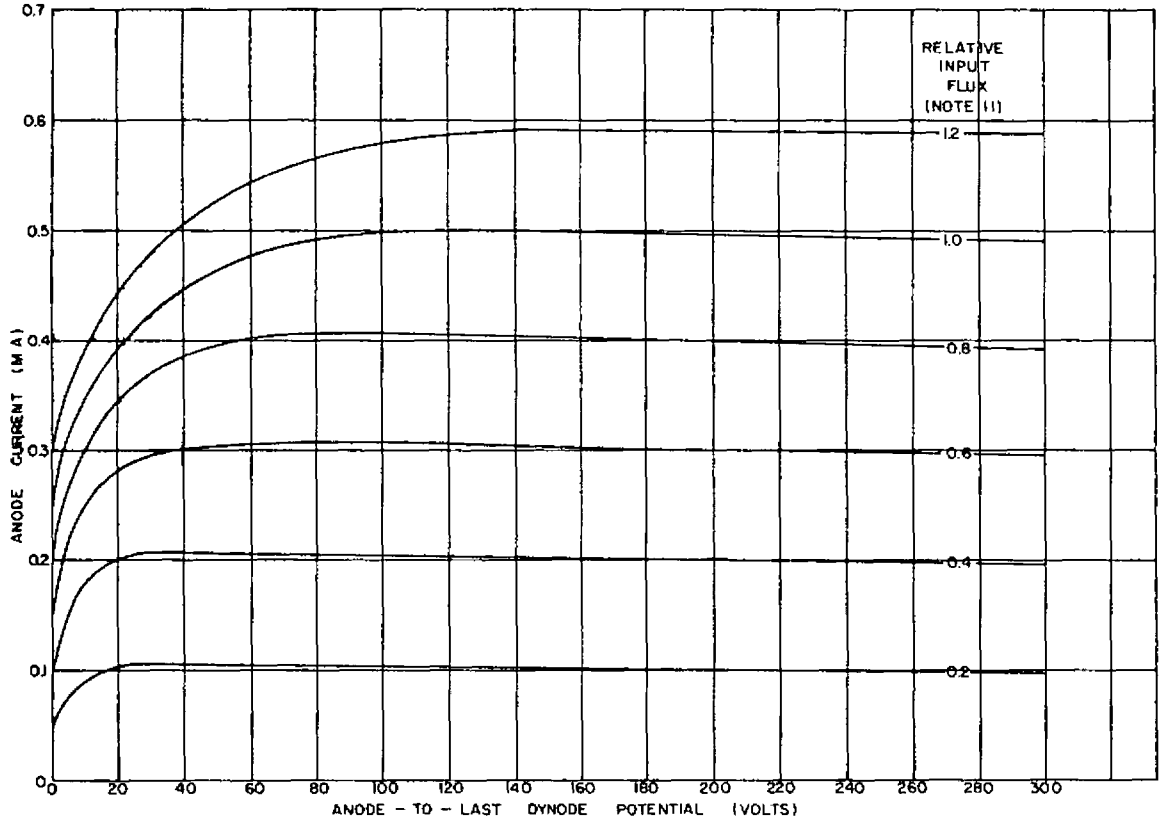
Note 10. Center of circular effective photocathode area falls within ±1/32 inch of the tube axis established with reference to the glass envelope.

SOCKET CONNECTIONS
Bottom View



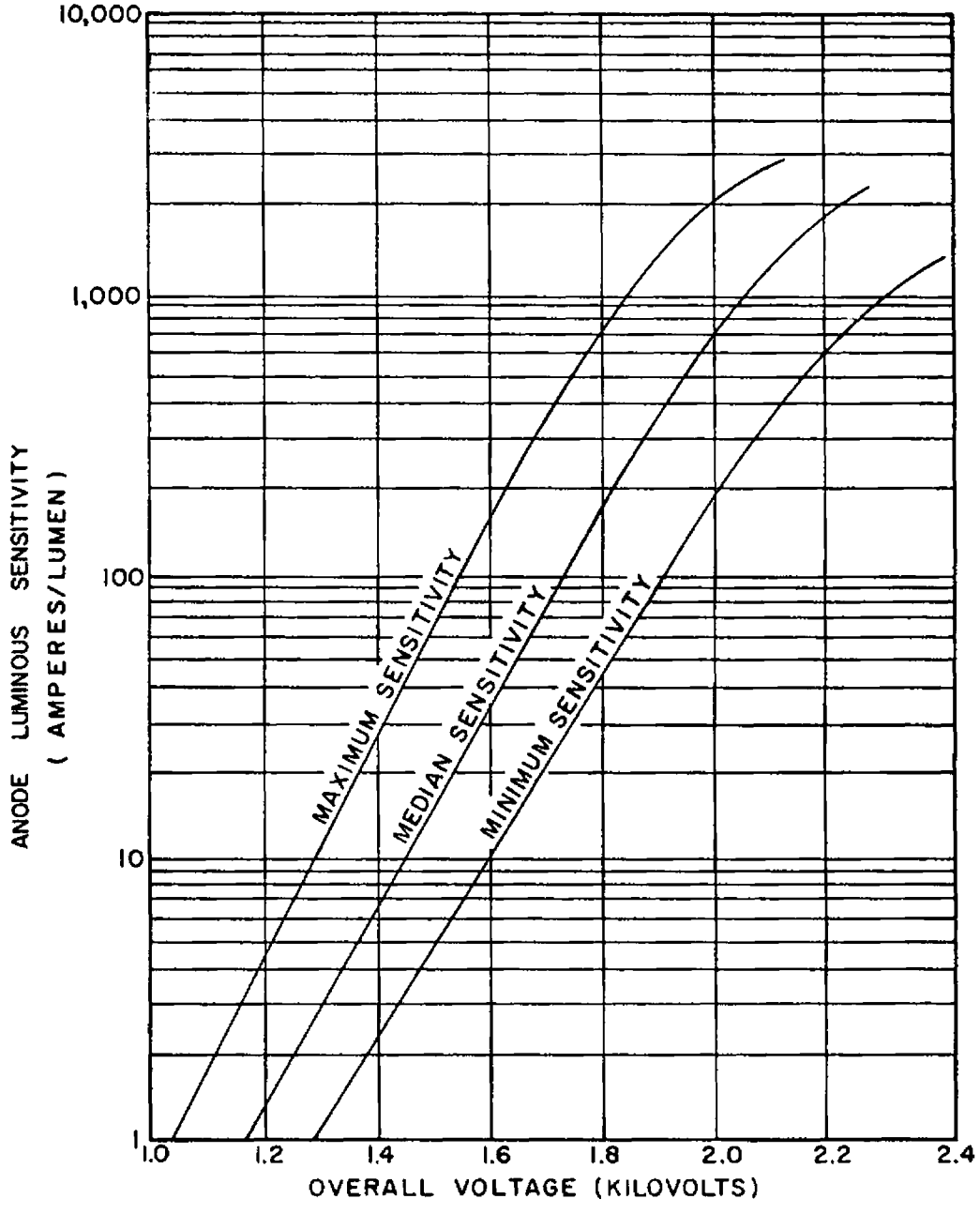
Pin 1	No Connection	Pin 11	Anode
Pin 2	Photocathode	Pin 12	Dynode No. 16
Pin 3	Dynode No. 1	Pin 13	Dynode No. 14
Pin 4	Dynode No. 3	Pin 14	Dynode No. 12
Pin 5	Dynode No. 5	Pin 15	Dynode No. 10
Pin 6	Dynode No. 7	Pin 16	Dynode No. 8
Pin 7	Dynode No. 9	Pin 17	Dynode No. 6
Pin 8	Dynode No. 11	Pin 18	Dynode No. 4
Pin 9	Dynode No. 13	Pin 19	Dynode No. 2
Pin 10	Dynode No. 15	Pin 20	Aperture Electrode

Characteristic Curves



Anode Current versus Anode-to-Last Dynode Voltage

Note 11. With 1537 volts dc cathode-to-last dynode divided according to recommended voltage distribution (Note 4).



Anode Luminous Sensitivity versus Over-All Voltage