

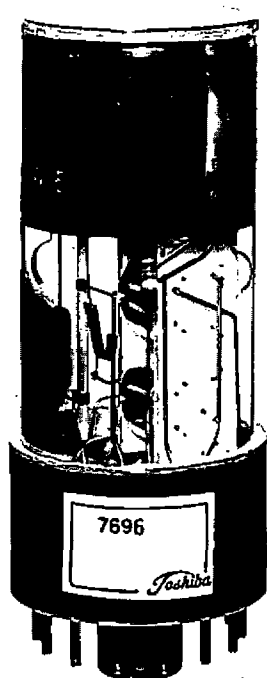
TOKYO SHIBAURA ELECTRIC CO., LTD.
KAWASAKI JAPAN

Toshiba

E I A
REGISTRATION DATA

Type **7 6 9 6**

Date
issued May 30, 1960



Toshiba 7696 is a 2" diameter flat face, end window, 10 stage box type dynode Multiplier Phototube, with Antimony Caesium (CsSb) secondary emission surfaces and Antimony Caesium semitransparent photocathode of S-11 spectral response, which gives extremely good energy resolution when used in scintillation gamma ray spectrometer, and gives extremely good signal to noise ratio when used in flying-spot scanning and low-level photometry.

General :

<i>Spectral Response</i>	S-11
<i>Wavelength of Maximum Response</i>	4400 ± 500 angstroms
<i>Effective Cathode Diameter</i>	1.9" min.
<i>Direct Interelectrode Capacitances (Approx.)</i>	
<i>Anode to all other electrodes</i>	3.3 p _{eff} f
<i>Anode to last dynode</i>	1.3 p _{eff} f
<i>Last dynode to all other electrodes</i>	5.3 p _{eff} f

Electrical Characteristics :

	Min.	Median	Max.
Cathode Luminous Sensitivity (Note 1)	40	85	— $\mu\text{a/lm}$
Anode Luminous Sensitivity (Note 2)	20	50	300 $\mu\text{a}/\mu\text{lm}$
Cathode Radiant Sensitivity at 4400 angstroms (Note 1)	—	0.06	— $\mu\text{a}/\mu\text{W}$
Anode Dark Current (Note 2)	—	—	0.05 μa
Last Dynode Dark Current (Note 2)	—	—	0.05 μa
Luminous Equivalent of Anode Dark Current (Note 2)	—	2×10^{-4}	5×10^{-3} μlm
Interelectrode Dark Current (Note 2)	—	—	—
Current Amplification (Note 2)	—	0.6×10^6	—

NOTE 1. At 200 volts d.c. applied between cathode and all other elements connected together.

NOTE 2. At 1250 volts d.c. overall supply voltage (E), providing the following distribution ratio.

Cathode to dynode No. 1: $1/6\text{ E}$

Each succeeding dynode stage: $1/12\text{ E}$

Last dynode to anode: $1/12\text{ E}$

Focusing electrode: $1/12\text{ E}$

Maximum Ratings, Absolute Values :

Anode Dissipation*	0.5 max. watts
Overall Voltage (d.c.)	1500 max. volts
Anode to Dynode No. 10 Voltage (d.c.)	250 max. volts
No. 1 Dynode Voltage (d.c.)	300 max. volts
Focusing Electrode Voltage (d.c.)	300 max. volts
Anode Current*	0.75 max. ma
Ambient Temperature	75 max. °C

* Averaged over any interval not greater than 30 seconds.

OPERATING CONSIDERATION

The maximum ratings shown in the tabulated data are limiting values above which the serviceability may be impaired from the view point of life and satisfactory performance, and should not exceeded under the worst probable conditions.

The 7696 has a good photoelectron collecting efficiency and uniformity at any focusing electrode potential in the range of 20 to 80% Dynode No. 1 potential.

The 7696 is interchangeable with the DuMont type 6292, RCA type 6342, and E.M.I. type 9536 B, because the base connection and overall dimensions are same with each other.

When Linearity is important matter between anode current and light flux, the voltage-divider current is required at least ten times larger than operating anode current.

For the best picture quality in flying-spot scanning system use, you may operate this tube with selected flying-spot cathode ray tubes.

Toshiba prepares a excellent flying-spot cathode ray tube type "5CNP16" for these purposes.

CHARACTERISTIC CURVES

ANODE CURRENT vs ANODE-TO-LAST DYNODE VOLTAGE

OPERATING CONDITIONS:

1. LIGHT SOURCE: TUNGSTEN-FILAMENT LAMP, COLOR
TEMPERATURE 2870°K

2. SUPPLY VOLTAGE (E_{+}): 1250V

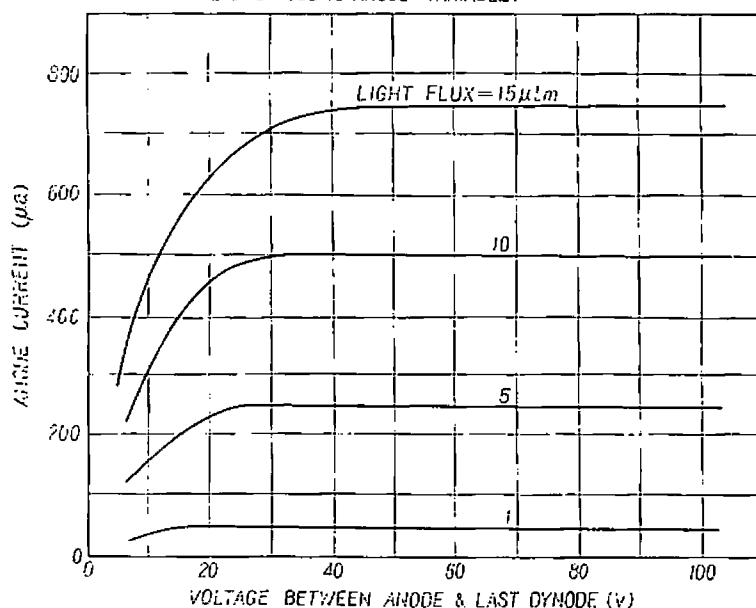
VOLTAGE DISTRIBUTION RATIO:

CATHODE TO DYNODE NO.1: $1/6E$

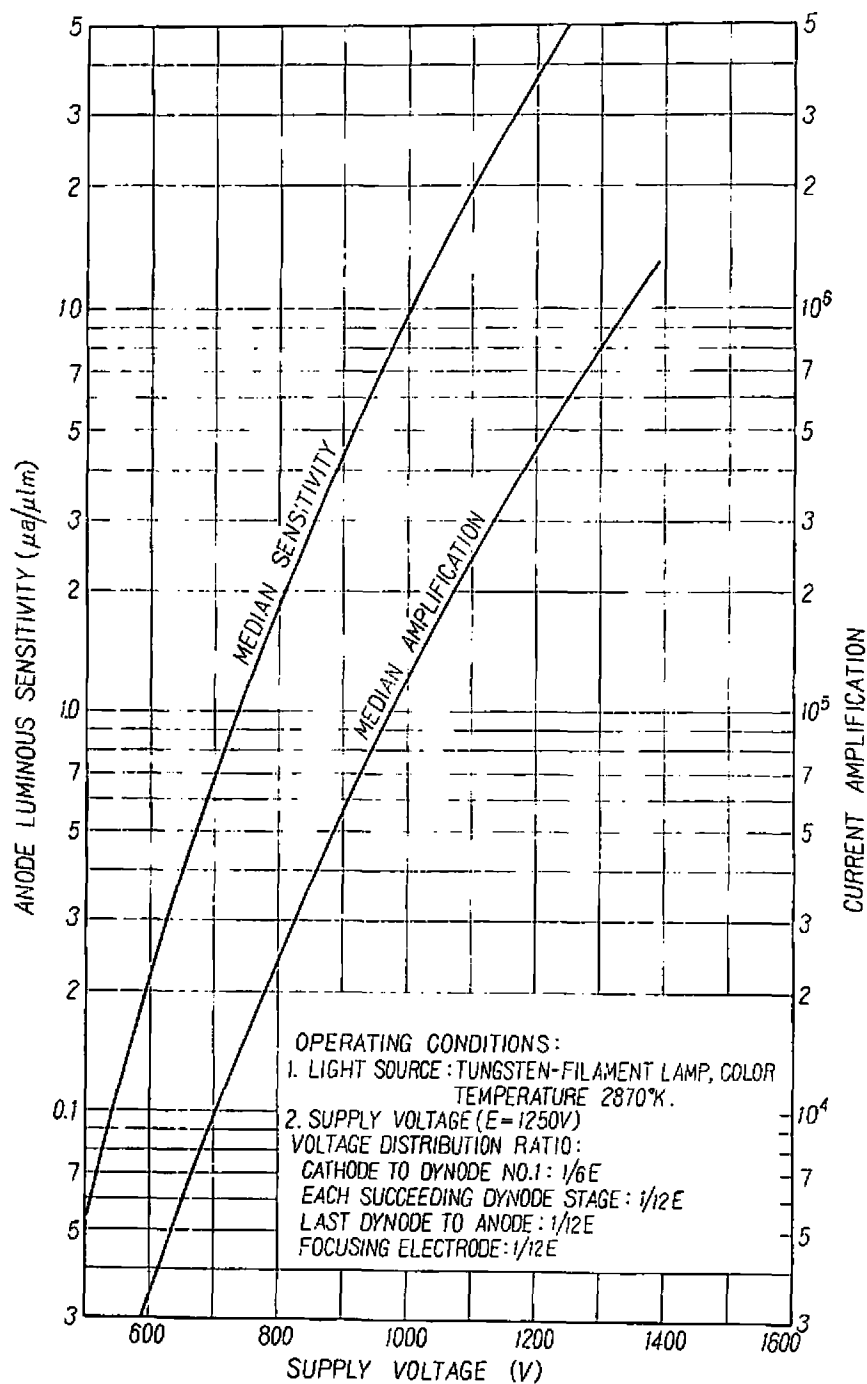
EACH SUCCEEDING DYNODE STAGE: $1/12E$

FOCUSING ELECTRODE: $1/12E$

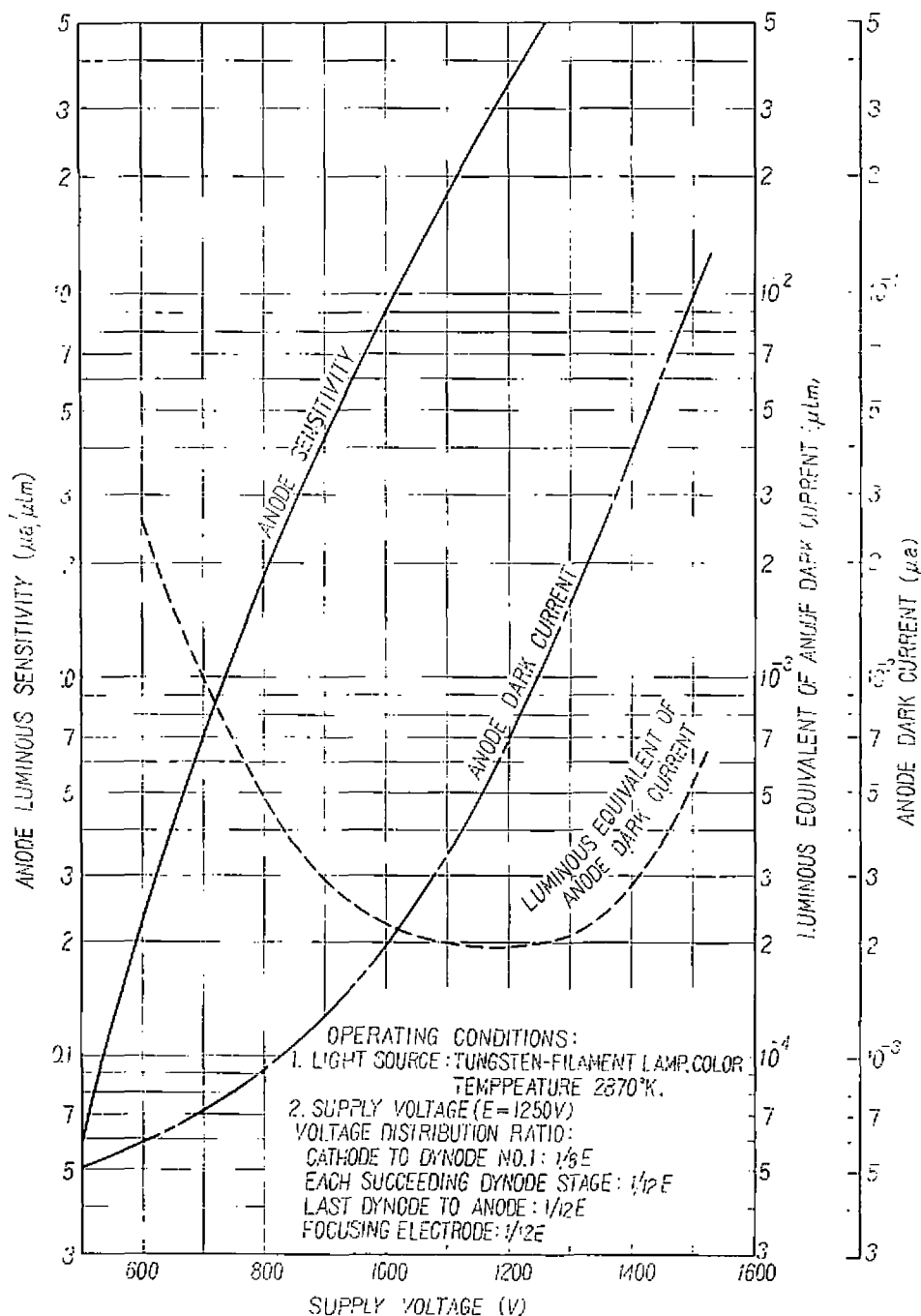
LAST DYNODE TO ANODE: VARIABLE.



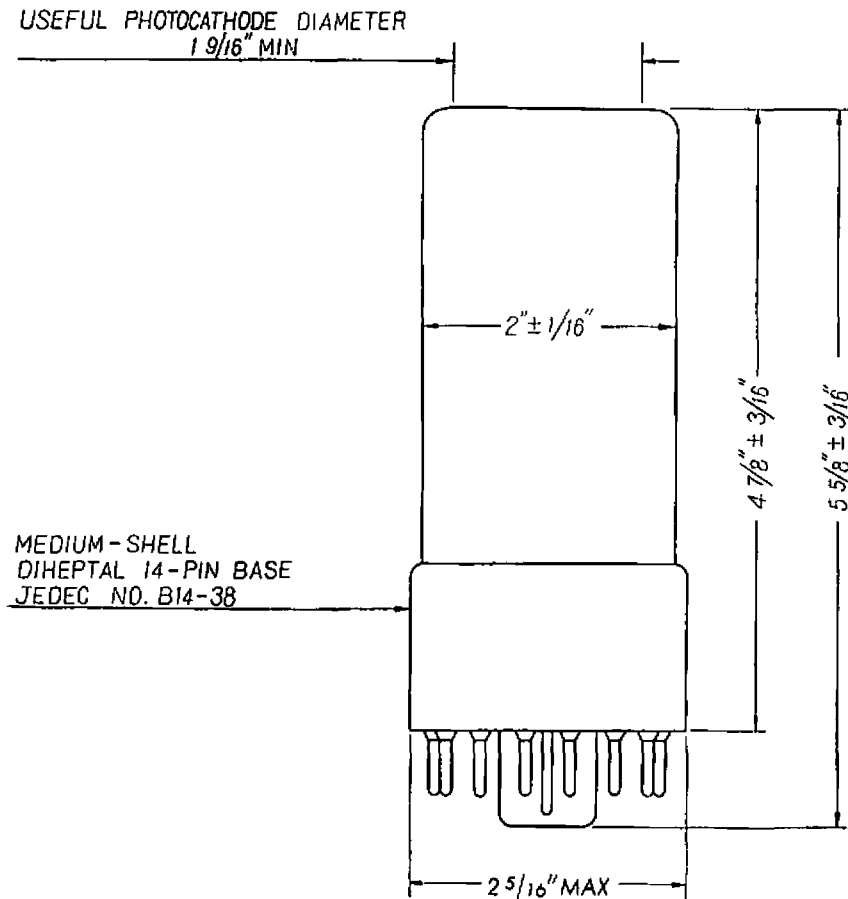
LUMINOUS SENSITIVITY vs OVERALL VOLTAGE



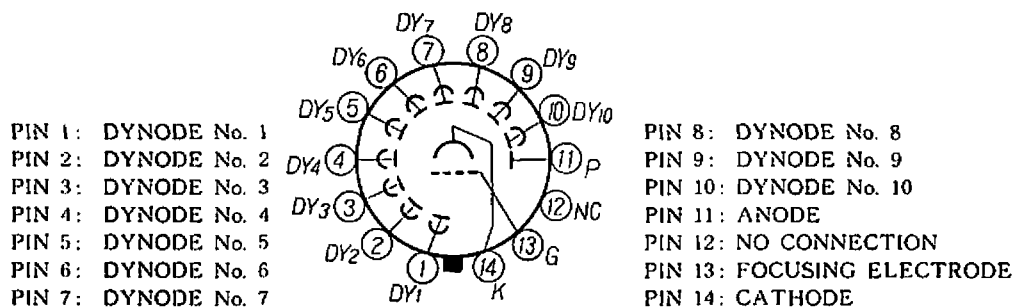
TYPICAL CHARACTERISTICS OF
ANODE SENSITIVITY AND ANODE DARK CURRENT



OUTLINE DRAWING



PIN CONNECTIONS
BOTTOM VIEW



DIRECTION OF LIGHT:
INTO END WINDOW OF BULB

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The Toshiba logo is rendered in a classic, elegant script typeface. The word "Toshiba" is written in a fluid, cursive style with a prominent arch over the initial 'T' and a long, sweeping tail on the final 'a'. The letters are black and stand out against the white background.

All inquiries as to the data should be addressed to Tokyo Shibaura Electric Co., Ltd., Lamp and Tube Manufacturing and Sales Division, 72 Horikawacho, Kawasaki, Kanagawa-ken, Japan.