from JEDEC release #3137, Feb. 6, 1961

DU MONT
ALLEN B. DU MONT LABORATORIES, Clifton, N. J.
DIVISIONS OF FAIRCHILD CAMERA AND INSTRUMENT CORPORATION

TYPE 7860

INDUSTRIAL MULTIPLIER PHOTOTUBE

Ruggedized 10-stage Multiplier Phototube

ACTUAL SIZE

SMALL SIZE FOR LIMITED SPACE USE

The type 7860 is a 10-stage multiplier phototube with a flat end-window type photocathode having an S-11 response. This tube employs silver magnesium dynodes. Silver magnesium is used because it has very stable secondary emitting characteristics over long periods of time.

RIGOROUS SHOCK AND VIBRATION TESTS

Du Mont multiplier phototubes are subjected to rigorous shock and vibration tests. The ruggedized 7860 is tested for VIBRATION at 10g, 25 to 2000 cycles and shock at 40g, 11 millisecond duration. Both tests are performed in each of 3 mutually perpendicular planes for increased reliability.

A potted base is used to keep the maximum diameter equivalent to that of the bulb, and to improve shock resistance.

SPECIFICATIONS

The Du Mont Type 7860 overall length has been shortened considerably over that of conventional types. In conjunction with its small diameter, it is ideally suited for applications where space considerations are of major importance. A potted base is used to keep the maximum diameter equivalent to that of the bulb, and to improve shock resistance. This tube type employs silver magnesium dynodes.

GENERAL CHARACTERISTICS

Electrical Data	Min.	Avg.	Max.	Units
Spectral Response		S-11		
Cathode luminous sensitivity at 210 volts, 0 cycles between cathode and all other electrodes	30	50		μA/Lumen
Anode luminous sensitivity at 105 volts/stage, 0 cycles	3	7.5		A/Lumen
Cathode sensitivity at maximum response at 210 volts between cathode and all other electrodes		.045		μA/μW
Anode dark current at 105 volts/stage (25°C.)			.05	μA
Current amplification at 105 volts/stage		150,000		
Wavelength at maximum response		4,400 ± 500		Angstroms

FEATURES

- 10 Dynode Stage
- S-11 Response
- Small Size:
  - overall length — 3⅞"
  - Diameter bulb — ¾"
- Silver Magnesium Dynodes
- Maximum Stability at high voltage
- Potted Base For:
  - a. Shock Resistance
  - b. Moisture Resistance
  - c. Socket Elimination
  - d. Noise Free Connections

APPLICATION

- Scintillation Probes
- Analysis Low Level Light Sources
- Oil Exploration
- Spectroscopy

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DU MONT
ELECTRONIC TUBE SALES DEPARTMENT
750 Bloomfield Avenue Clifton, New Jersey, U.S.A.

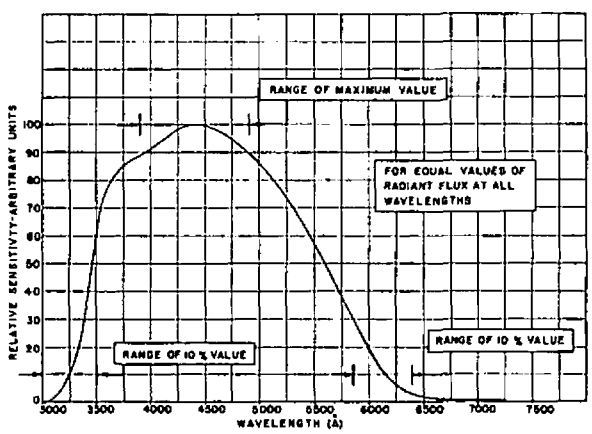
	Avg.	Units
Electrical Data		
Wavelength at 10% of maximum response on long wavelength side	6,125 ± 275	Angstroms
Wavelength at 10% of maximum response on short wavelength side	3,250 ± 250	Angstroms
Mechanical Data		
Window dimensions, minimum	½	Inch Dia.
Tube diameter	¾ ± 1/32	Inch
Overall length	3⅞ ± ¼	Inches
Base — Resin (potted) flexible leads		
Mounting position	Any	
Window index of refraction	1.5	

MAXIMUM RATINGS

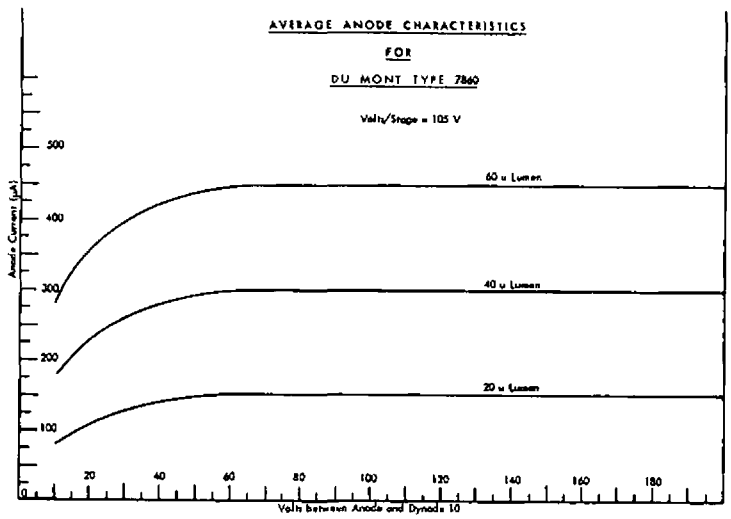
	Max.	Units
Peak cathode current[1]	10	μA
Average anode current[2]	1	mA
Average anode dissipation[2]	0.5	W
Peak anode dissipation	2.0	W
Supply voltage between anode and cathode (DC or peak AC)	1,300	Volts
Supply voltage between last dynode and anode (DC or peak AC)	125	Volts
Supply voltage between cathode and first dynode (DC or peak AC)	250	Volts
Ambient temperature	75°	C

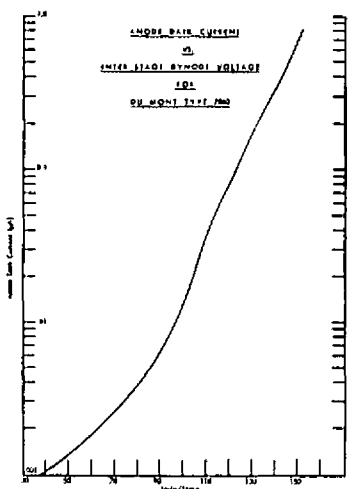
NOTES

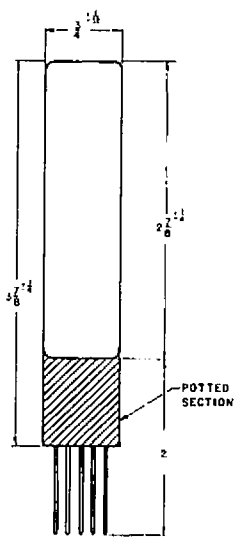
1. The cathode current given here is that current at which the response of the cathode ceases to be a linear function of the light intensity because of cathode resistance. In general, the cathode current must be kept well below this value in order to satisfy the maximum ratings on the anode current.
2. Averaged over a 30 second interval maximum.

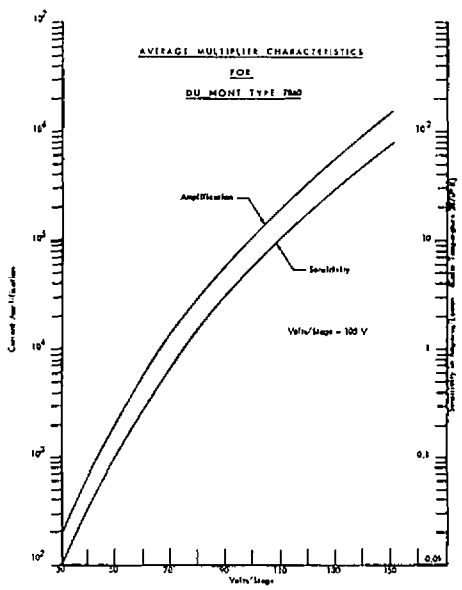


SPECTRAL RESPONSE OF S11 PHOTOCATHODE









JOINT ELECTRON DEVICE ENGINEERING COUNCIL

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E. I. A.
REGISTRATION
FILE

Supplementary Information
of
Electron Device Type Registration

Release No. 3137

March 6, 1961

The Joint Electron Device Engineering Council announced the registration of the following electron device designation

7860

on February 6, 1961, under the sponsorship of Allen B. Du Mont Laboratories, Clifton, New Jersey.

The specification for registration of type 7860 failed to show the basing diagram. Please note the following:

Pin 1	Dynode	No. 1
Pin 2	Dynode	No. 3
Pin 3	Dynode	No. 5
Pin 4	Dynode	No. 7
Pin 5	Dynode	No. 9
Pin 6	Anode	
Pin 7	Dynode	No. 10
Pin 8	Dynode	No. 8
Pin 9	Dynode	No. 6
Pin 10	Dynode	No. 4
Pin 11	Dynode	No. 2
Pin 12	Cathode and Focussing Electrode (Shield)	

The first lead counter-clockwise from the red lead is Pin No. 1 (viewing from bottom of tube).