

Multiplier Phototube

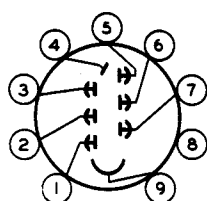
**6-STAGE, HEAD-ON, FLAT-FACEPLATE, COMPACT TYPE HAVING
IN-LINE DYNODE STRUCTURE, 0.5"-DIAMETER CURVED, CIR-
CULAR, SEMITRANSSPARENT PHOTOCATHODE AND S-11 RESPONSE**

DATA

General:

Spectral Response.	S-11
Wavelength of Maximum Response	4400 $\pm$ 500 angstroms
Cathode, Semitransparent:	
Shape.	Curved Circular
Window:	
Area	0.2 sq. in.
Minimum diameter	0.5 in.
Index of refraction.	1.51
Direct Interelectrode Capacitances (Approx.):	
Anode to dynode No.6	1.8 $\mu\mu\text{f}$
Anode to all other electrodes.	2.8 $\mu\mu\text{f}$
Maximum Overall Length	2.75"
Seated Length.	2.18" $\pm$ 0.06"
Maximum Diameter	0.78"
Operating Position	Any
Weight (Approx.)	0.6 oz
Bulb	T6
Socket	Cinch No.121-11-10-134, or equivalent
Base	Small-Button Ninar 9-Pin (JEDEC No.E9-37)
Basing Designation for BOTTOM VIEW	.9NG

Pin 1 - Dynode No.1
Pin 2 - Dynode No.3
Pin 3 - Dynode No.5
Pin 4 - Anode
Pin 5 - Dynode No.6
Pin 6 - Dynode No.4



DIRECTION OF LIGHT:
INTO END OF BULB

Pin 7 - Dynode No.2
Pin 8 - Internal Con-
nection—
Do Not Use
Pin 9 - Photo-
cathode

Maximum Ratings, Absolute-Maximum Values:

SUPPLY VOLTAGE BETWEEN ANODE AND CATHODE (DC or Peak AC).	1500 max.	volts
SUPPLY VOLTAGE BETWEEN DYNODE No.6 AND ANODE (DC or Peak AC).	300 max.	volts
SUPPLY VOLTAGE BETWEEN CONSECUTIVE DYNODES (DC or Peak AC).	200 max.	volts
SUPPLY VOLTAGE BETWEEN DYNODE No.1 AND CATHODE (DC or Peak AC).	400 max.	volts
AVERAGE ANODE CURRENT	0.5 max.	ma
AMBIENT TEMPERATURE.	75 max.	$^{\circ}\text{C}$



Characteristics Range Values for Equipment Design:

Under conditions with dc supply voltage (E) across a voltage divider providing 1/4 of E between cathode and dynode No.1; 1/8 of E for each succeeding stage; and 1/8 of E between dynode No.6 and anode

With E = 1200 volts (Except as noted)

	Min.	Median	Max.	
Sensitivity:				
Radiant, at 4400 angstroms.	-	0.00024	-	amp/ μ w
Cathode radiant, at 4400 angstroms	-	0.048	-	amp/watt
Luminous, at 0 cps [▲] . . .	0.1	0.3	1.0	amp/lumen
Cathode luminous:				
With tungsten light source [★] . .	40	60	-	μ a/lumen
With blue light source [◆] *	-	0.06	-	μ a
Current Amplification. . .	-	5×10^3	-	
Equivalent Anode-Dark-Current Input [●]	-	1×10^{-8}	3×10^{-8}	lumen
Equivalent Noise Input [◆]		3×10^{-10}	1×10^{-9}	lumen

- ▲ Averaged over any interval of 30 seconds maximum.
- Under the following conditions: 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.
- ★ Under the following conditions: The light source is a tungsten-filament lamp operated at a color temperature of 2870° K. The value of light flux is 0.01 lumen and 200 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 blue filter (Corning, Glass Code No.5113 polished to 1/2 stock thickness) from a tungsten-filament lamp operated at a color temperature of 2870° K. The value of light flux on the filter is 0.01 lumen. The load resistor has a value of 0.01 megohm and 200 volts are applied between cathode and all other electrodes connected together as anode.
- * 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 BLUE FILTER at front of this section.
- Measured at a tube temperature of 25° C and with the supply voltage (E) adjusted to give a luminous sensitivity of 0.3 ampere per lumen. Dark current may be reduced by the use of a refrigerant.
- ◆ Under the following conditions: Supply voltage (E) is as shown, 25°-C tube temperature, external shield is connected to cathode, bandwidth 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 pulses is equal to the "off" period. The output current is measured through a filter which passes only the fundamental frequency of the pulses.

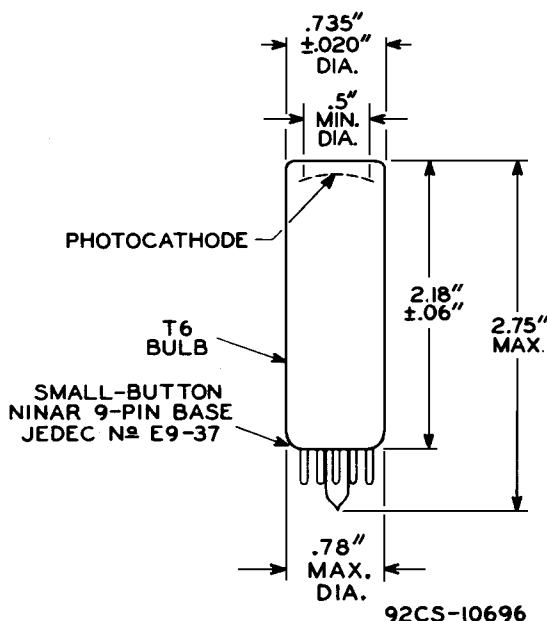
OPERATING CONSIDERATIONS

The use of an average anode current will below the maximum-rated value of 0.5 milliampere is recommended when stability of operation is important.

Electrostatic and/or magnetic shielding of the 7764 may be necessary.

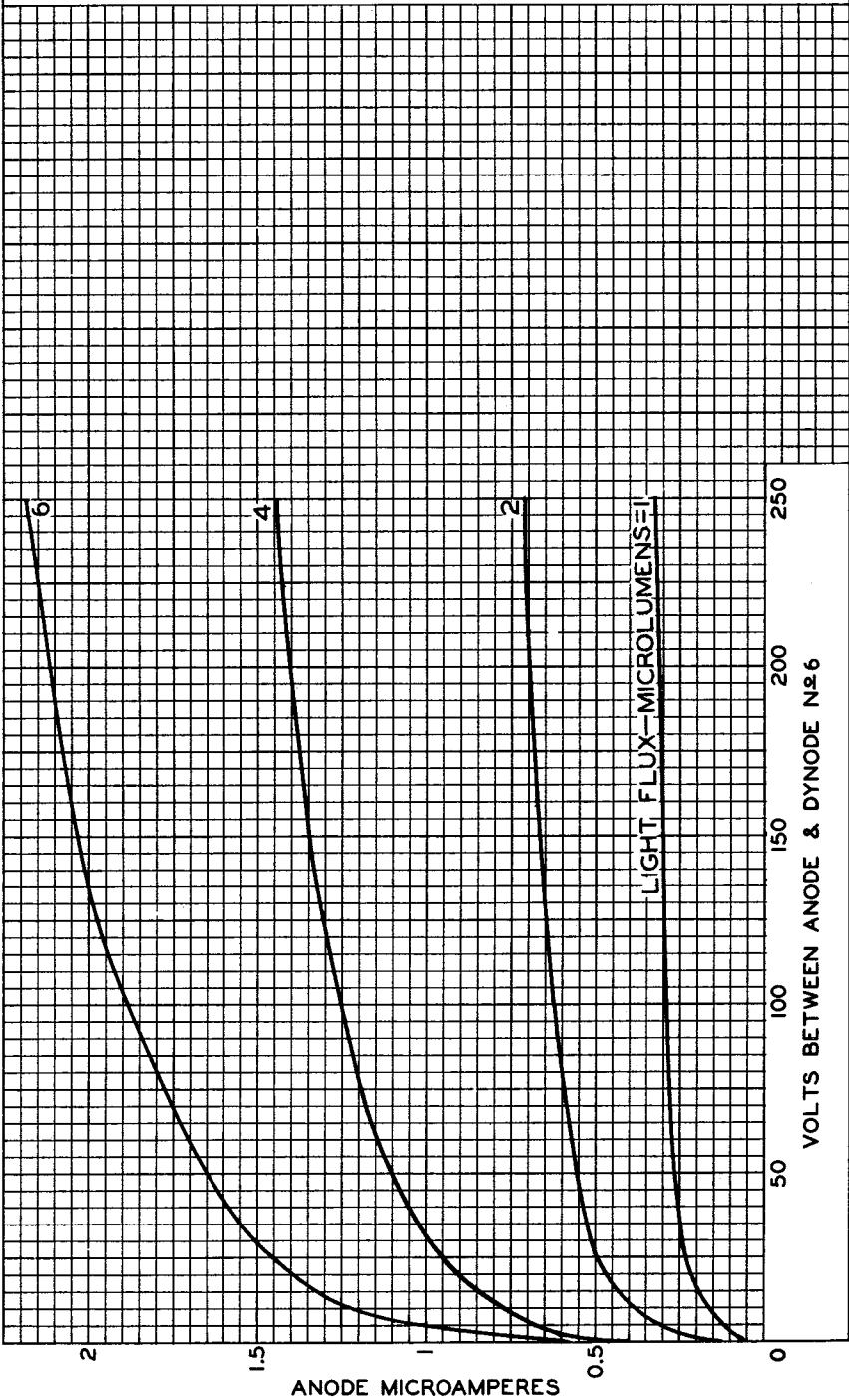
The high voltages at which the 7764 is operated are very dangerous. Before any part of the circuit is touched, the power-supply switch should be turned off and both terminals of any capacitors grounded.

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



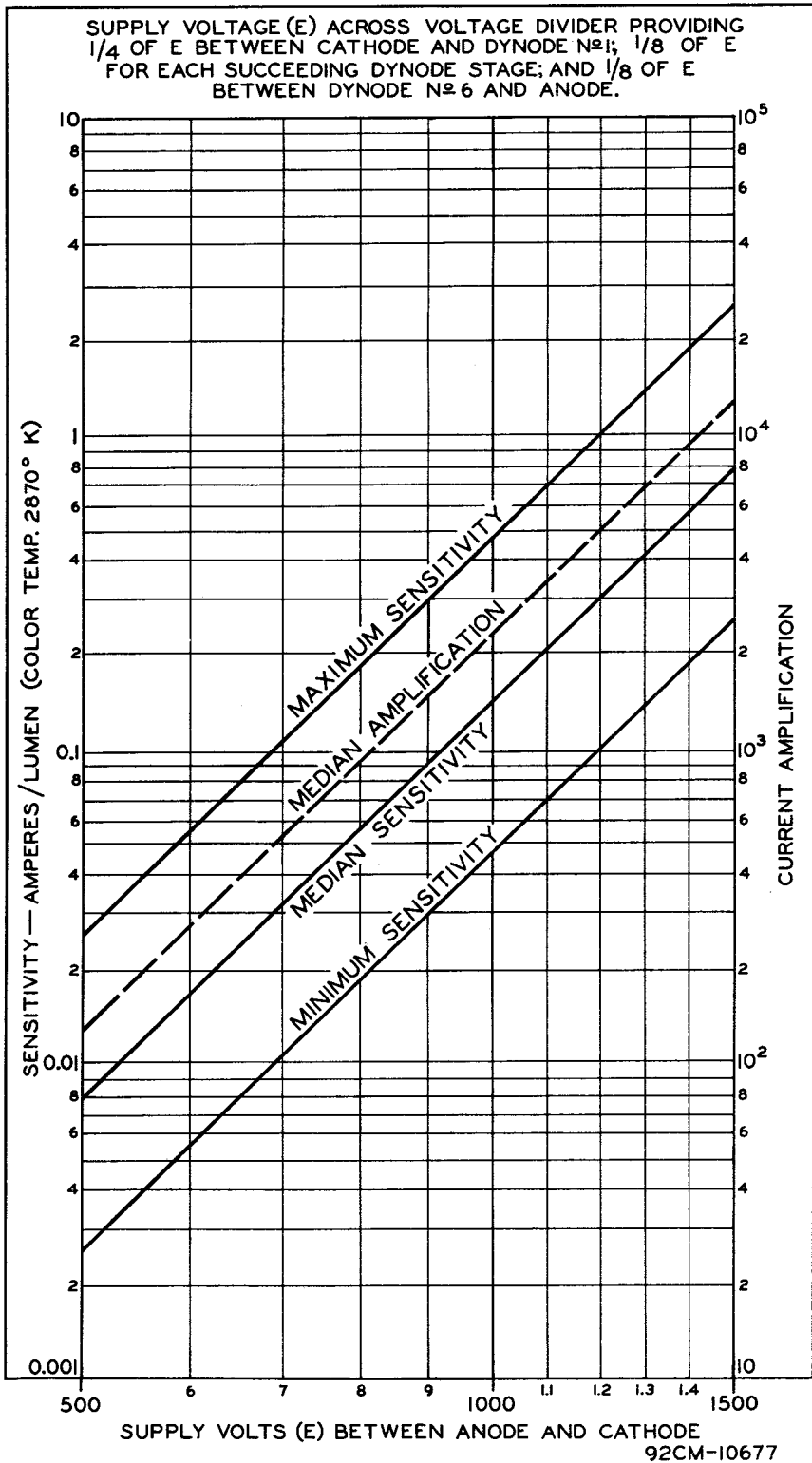
AVERAGE ANODE CHARACTERISTICS

DYNODE №1-TO-CATHODE VOLTS=300
EACH SUCCEEDING-DYNODE-STAGE VOLTS=150
LIGHT SOURCE IS A TUNGSTEN-FILAMENT LAMP OPERATED AT
COLOR TEMPERATURE OF 2870° K.



92CM-10673

CHARACTERISTICS



TYPICAL ANODE-DARK-CURRENT CHARACTERISTIC

