Federal Telecommunication Laboratories, Inc.

500 WASHINGTON AVENUE

NUTLEY 10, N. J.

5738

COMMUTATOR TUBE

DESCRIPTION

The 5738 is a 25-circuit electron-beam commutating tube. It employs a single stage of secondary electron multiplication and is capable of delivering 1 milliampere output current. The beam source is a conventional electron gun with electrostatic focus and deflection. The beam is focused on a circular array of 25 secondary emission dynodes (targets) arranged behind an aperture-collector. When suitable sweep voltages are applied to the deflection plates, the beam scans this array. The secondary emission may be modulated by the dynode-collector voltage, or for simple on-off control the grid in the electron gun may be used.

GENERAL DATA	Min.	Bogie	Max.	
ELECTRICAL:				
Heater for coated unipotential cathode:				
Voltage (AC or DC)	5.7	6.3	6.9	volts
Current	.55	.6	.65	amp
Direct Interelectrode Capacitances:				
Dynode to Dynode	.5	1	1.5	μμf
Dynode to Aperture Plate	.5	1	1.5	μμf
Focussing Method		Electrostatic		
Deflection Method		Electrostatic		
Type of Sweep Contemplated		Circular		
Number of Dynodes		25		
Time Ratio: 'Open' to 'Closed'		1.5		
MECHANICAL:				
Overall Length	11-7/8	12	12-1/8	in.
Maximum Diameter	2-11/16	2-3/4	2-13/16	in.
Mounting Position		any		
Angle Subtended by Aperture		5.76		deg.
Angle Subtended by Space between Apertures		8.64		deg.
Gun Base		Medium shell diheptal 12 pin		
Dynode Base		B26-53		
Net Weight		12-1/4		oz.

from RMA release # 698, Oct. 6, 1948

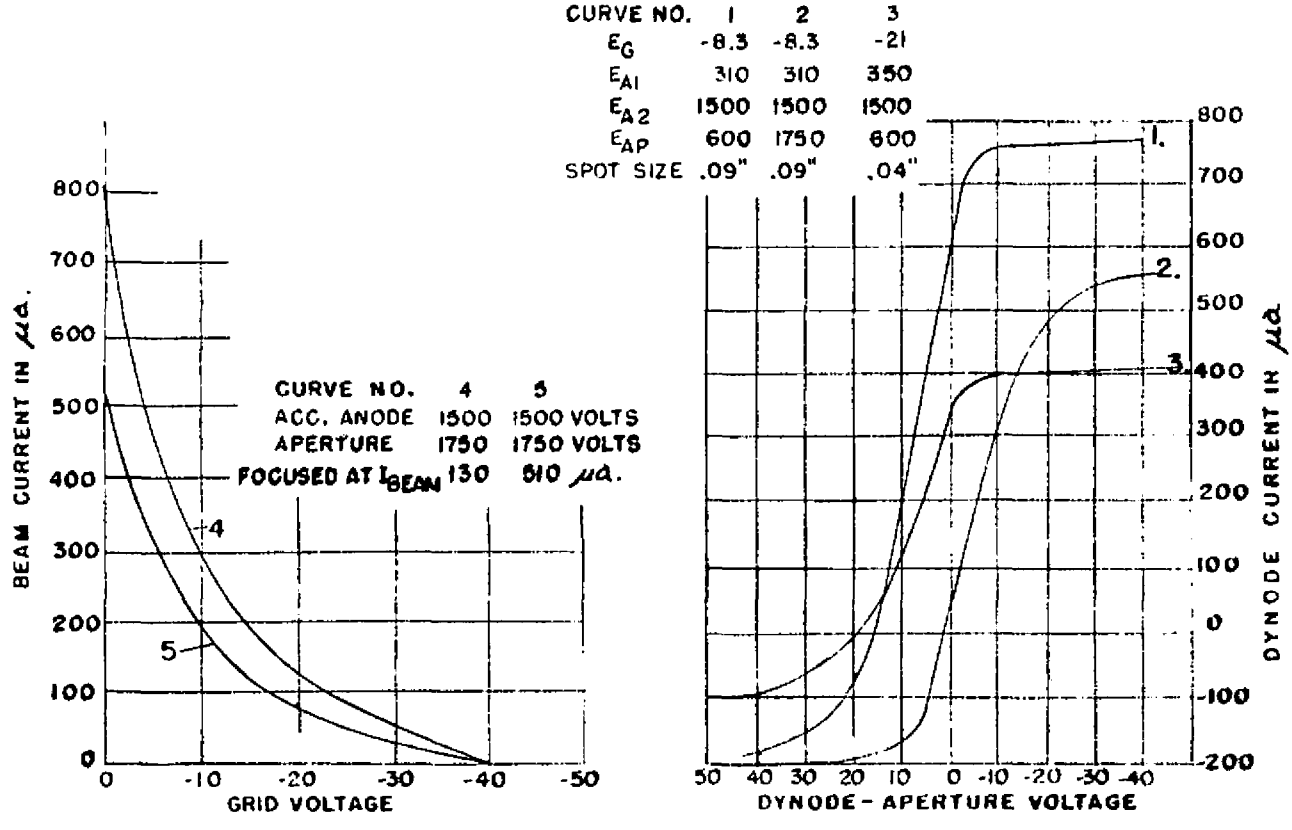
MAXIMUM RATINGS (Design Center Values)

Accelerating Anode Voltage	2000 max. volts
Focusing Anode Voltage	500 max. volts
Aperture Voltage	2000 max. volts
Dynode Voltage	500 max. volts
Dynode to Aperture Voltage	1500 max. volts
Grid Voltage	
Positive Bias Voltage	0 max. volts
Negative Bias Voltage	-75 max. volts
Dynode Current	1 max. ma.
Sweep Frequency (approximate)	30 max. mc/sec

TYPICAL OPERATING CONDITIONS

Sweep Frequency	8000 cycles/sec
Accelerating Anode Voltage	1500 volts
Focusing Anode Voltage	350 volts
Aperture Voltage	1750 volts
Grid Voltage	-15 volts
Dynode Voltage	500 volts
Dynode Current	0.5 ma.
Beam Current	0.2 ma.
Dynode Load Resistance	10,000 ohms.
Deflection Voltages (peak to peak sweep)	
D_1 and D_2	145 volts
D_3 and D_4	191 volts

CHARACTERISTICS



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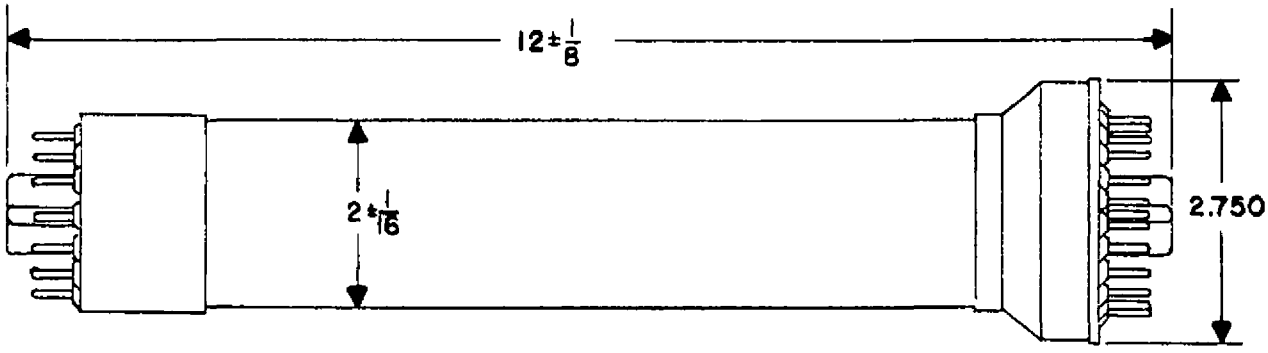
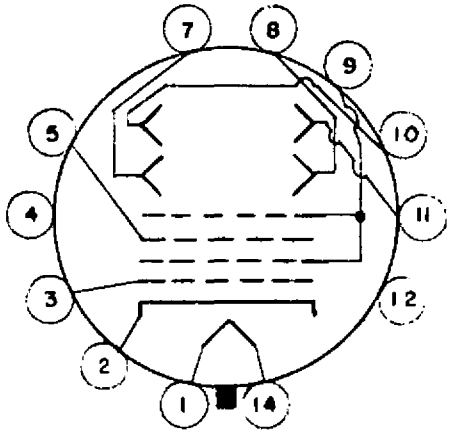


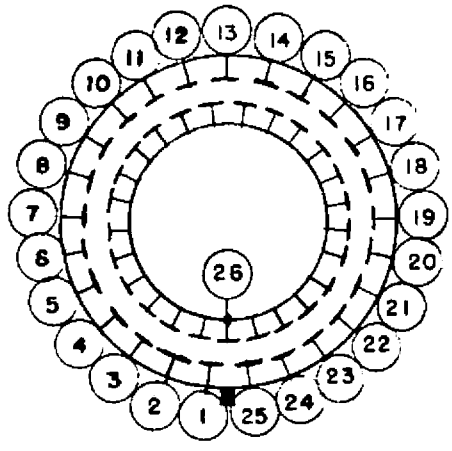


BASE - MEDIUM SHELL
DIHEPTAL - 12 PIN

GUN SECTION

BASE CONNECTIONS

1- HEATER
2- CATHODE
3- GRID
4- CATHODE
5- FOCUSING ANODE
7- DEFLECTION PLATE - D1
8- " " - D2
9- ACCELERATING ANODE
10- DEFLECTION PLATE-D3
11- " " -D4
12- NO CONNECTION
14- HEATER



BASE - SPECIAL
WAFER - 26 PIN

DYNODE SECTION

BASE CONNECTIONS

1 TO 25 - DYNODES
26 - APERTURE PLATE