AMPEREX ELECTRON TUBE TYPE 5869

The 5869 is a three-electrode mercury-vapor rectifying tube with negative control characteristics. This tube is designed for grid-control rectifier applications of relatively high voltage and current. The cathode is directly heated, oxide-coated.

Maximum Ratings, Absolute Values:

Maximum Peak Anode Voltage			
Inverse	13,000	10,000	volts
Forward	13,000	10,000	volts
Condensed Mercury Temperature Limits	+25 to +55	+25 to +60	centigrade
Maximum Plate Current			
Peak		4.0	amperes
Average		1.0	amperes
Surge, for design only (Maximum duration 0.1 seconds)		40	amperes
Maximum Averaging time		5	seconds
Maximum Negative Control-Grid Voltage Before Conduction		300	volts
Maximum Positive Control-Grid Current			
Average (Averaging time, one cycle)		10	ma
Peak		50	ma
Maximum Grid Resistance		0.1	megohms
Frequency Range		25 to 150	cps

GENERAL

Electrical Data

	Min.	Bogey	Max.	
Filament Voltage	4.75	5.0	5.25	volts
Filament Current at 5.0 volts	---	6.5	7.5	amperes
Filament Heating Time* (before applying Plate Voltage)	120	---	---	seconds
Anode-to-control-grid Capacitance	---	3	---	uuf
Control-grid-to-cathode Capacitance	---	8	---	uuf
Deionization Time, approximate	---	250	---	microseconds
Ionization Time, approximate	---	10	---	microseconds
Typical Bias at 13,000 volts			-100	volts
Typical Bias at 10,000 volts			- 50	volts
Typical Grid Current (Average)			1	ma
Typical Grid Resistance			20,000	ohms
Tube Voltage Drop (Ib = 4 amperes)			15	volts

* The minimum heating time refers only to the filament. Sufficient additional time must be allowed to permit the condensed mercury temperature to rise to the mimimum condensed mercury temperature limit and to permit all the mercury to condense in the lower part of the tube.

from RTMA release #1128, Jan 30, 1953

AMPEREX 5869

Mechanical Data

Type of cooling - Convection

Equilibrium Condensed-Mercury Temperature Rise		
At Full Load, approximate	25	°C
At No Load, approximate	22	°C
Mounting position - Vertical with base down		
Net Weight, approximate	8.5	ounces
Shipping Weight, approximate	22	ounces

OPERATIONAL NOTES

Note 1: In order to obtain maximum life period of the tube it is recommended to apply a filament voltage phase shift of 90° with respect to plate voltage.

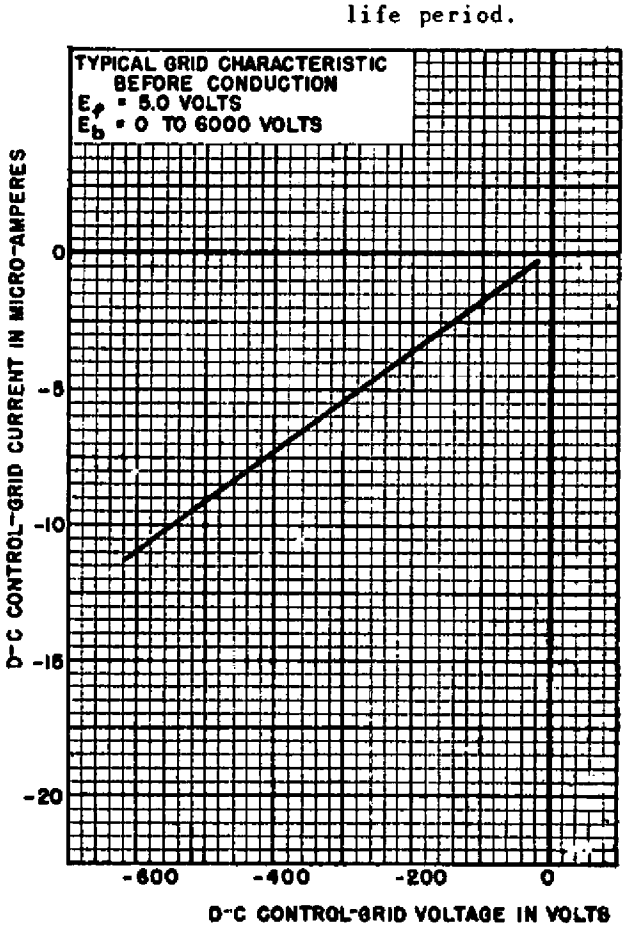
Note 2: Characteristic Curves

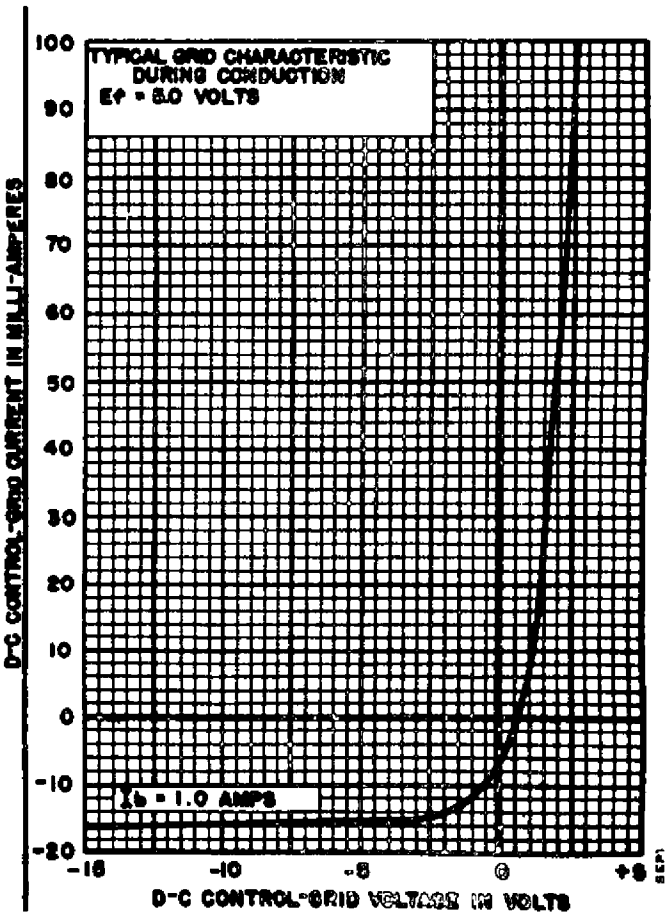
The circuit returns are connected to the center tap of the filament transformer.

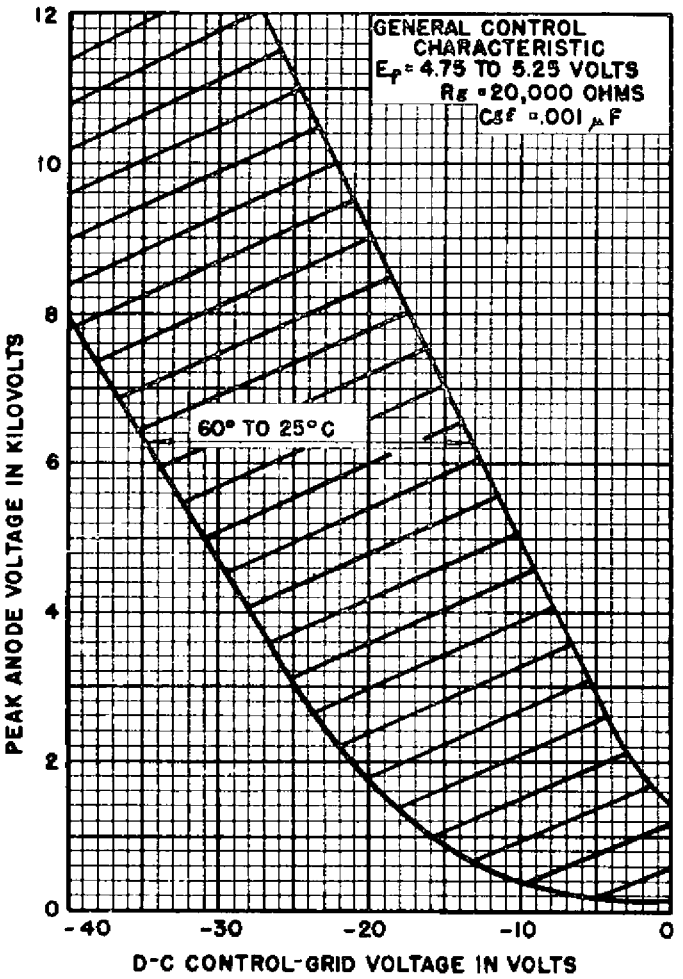
Note 3: General Control Characteristic Curve

The band width illustrated in this curve includes the unavoidable variations in the characteristics of a mercury thyratron. These include:

1. Shift due to condensed mercury temperature variation within the rated range.
2. Shift caused by filament voltage variation.
3. Differences from tube to tube due to manufacturing variances.
4. Shift due to aging effects within the guaranteed life period.






GENERAL CONTROL CHARACTERISTIC
E_f = 4.75 TO 5.25 VOLTS
R_g = 20,000 OHMS
C_{sf} = .001 μF
60° TO 25°C
PEAK ANODE VOLTAGE IN KILOVOLTS
D-C CONTROL-GRID VOLTAGE IN VOLTS
0
2
4
6
8
10
12
-40
-30
-20
-10
0

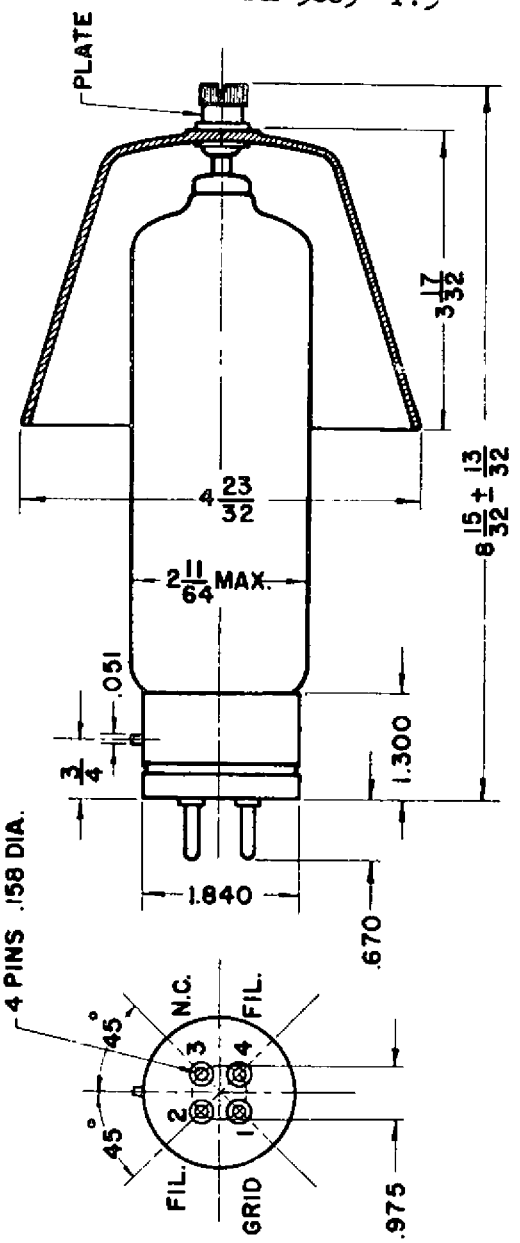
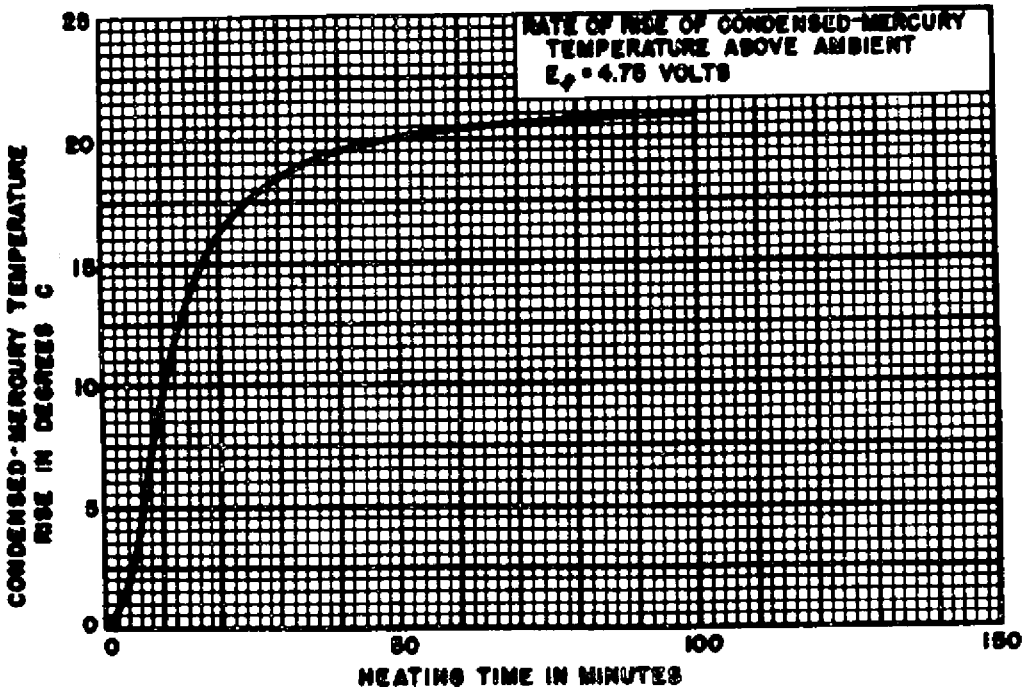


PLATE
3 17/32
8 15/32 ± 13/32
4 23/32
2 11/64 MAX.
.051
3/4
1.300
1.840
.670
4 PINS .158 DIA.
N.C.
FIL.
FIL.
GRID
45°
45°
1
2
3
4
.975


RATE OF RISE OF CONDENSED-MERCURY TEMPERATURE ABOVE AMBIENT
E_f = 4.75 VOLTS
CONDENSED-MERCURY TEMPERATURE RISE IN DEGREES C
HEATING TIME IN MINUTES
0
5
10
15
20
25
0
50
100
150