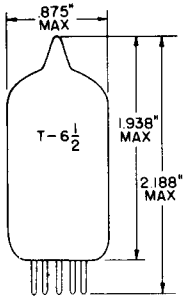
TUNG-SOL

TRIODE PENTODE

MINIATURE TYPE

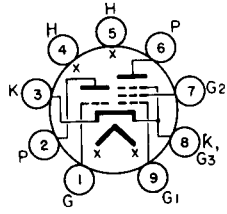


GLASS BULB
MINIATURE BUTTON
9 PIN BASE E9-1
OUTLINE DRAWING
JEDEC 6-2

COATED UNIPOTENTIAL CATHODE

FOR USE AS A COMBINED
OSCILLATOR AND MIXER
IN TELEVISION RECEIVERS

ANY MOUNTING POSITION



BOTTOM VIEW
BASING DIAGRAM
JEDEC 9GF

THE 5CG8 IS A MULTIUNIT TUBE OF THE 9 PIN MINIATURE CONSTRUCTION CONTAINING A MEDIUM-MU TRIODE AND SHARP CUTOFF PENTODE IN ONE ENVELOPE. IT IS DESIGNED PRIMARILY FOR USE AS A COMBINED OSCILLATOR AND MIXER IN 600 MA. SERIES HEATER OPERATED TELEVISION RECEIVERS UTILIZING AN INTERMEDIATE FREQUENCY IN THE ORDER OF 40 MC. THERMAL CHARACTERISTICS OF THE HEATER ARE CONTROLLED SUCH THAT HEATER VOLTAGE SURGES DURING THE WARM-UP CYCLE ARE MINIMIZED PROVIDED IT IS USED WITH OTHER TYPES WHICH ARE SIMILARLY CONTROLLED.

DIRECT INTERELECTRODE CAPACITANCES

	WITH SHIELD[A]	WITHOUT SHIELD	
PENTODE GRID 1 TO PENTODE PLATE: (PG1 TO PP) MAX.	0.02	0.04	pf
PENTODE INPUT: PG1 TO (H+K+PG2+PG3)	4.8	4.6	pf
PENTODE OUTPUT: PP TO (H+K+PG2+PG3)	1.6	0.9	pf
CATHODE TO HEATER: (K TO H)	6.0[B]	6.0	pf
TRIODE GRID TO TRIODE PLATE: (TG TO TP)	1.5	1.5	pf
TRIODE INPUT: TG TO (H+K)	2.4	2.0	pf
TRIODE OUTPUT: TP TO (H+K)	1.0	0.5	pf
PENTODE GRID 1 TO TRIODE PLATE: (PG1 TO TP) MAX.	0.04	0.05	pf
PENTODE PLATE TO TRIODE PLATE: (PP TO TP) MAX.	0.008	0.05	pf

[A] EXTERNAL SHIELD 315 CONNECTED TO PIN 3.

[B] EXTERNAL SHIELD 315 CONNECTED TO PIN 6.

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HEATER CHARACTERISTICS AND RATINGS

DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239

AVERAGE CHARACTERISTICS	4.7 VOLTS	600	MA.
HEATER WARM-UP TIME [C]		11	SECONDS
HEATER SUPPLY LIMITS:			
VOLTAGE OPERATION		4.7	VOLTS
CURRENT OPERATION		600±40	MA.
MAXIMUM HEATER CATHODE VOLTAGE:			
HEATER NEGATIVE WITH RESPECT TO CATHODE			
TOTAL DC AND PEAK		200	VOLTS
HEATER POSITIVE WITH RESPECT TO CATHODE			
DC		100	VOLTS
TOTAL DC AND PEAK		200	VOLTS

MAXIMUM RATINGS

DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239

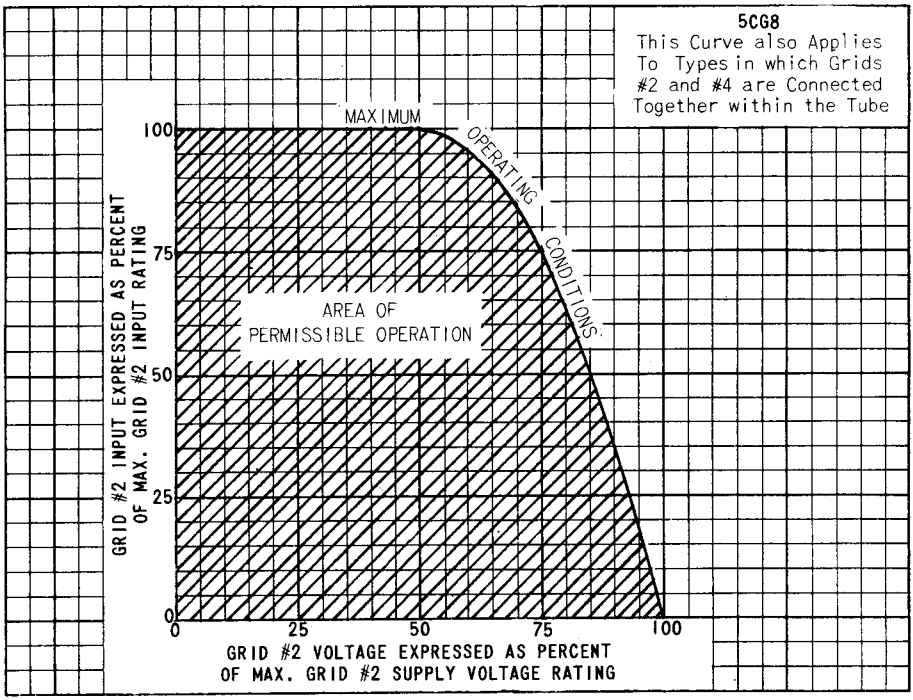
PENTODE PLATE VOLTAGE	275	VOLTS
TRIODE PLATE VOLTAGE	275	VOLTS
GRID 2 SUPPLY VOLTAGE	275	VOLTS
GRID 2 VOLTAGE	SEE J5-C4-2	
PENTODE PLATE DISSIPATION	2.3	WATTS
GRID 2 DISSIPATION	0.45	WATTS
POSITIVE DC GRID 1 VOLTAGE	0	VOLTS
POSITIVE DC TRIODE GRID VOLTAGE	0	VOLTS
TRIODE PLATE DISSIPATION	1.7	WATTS

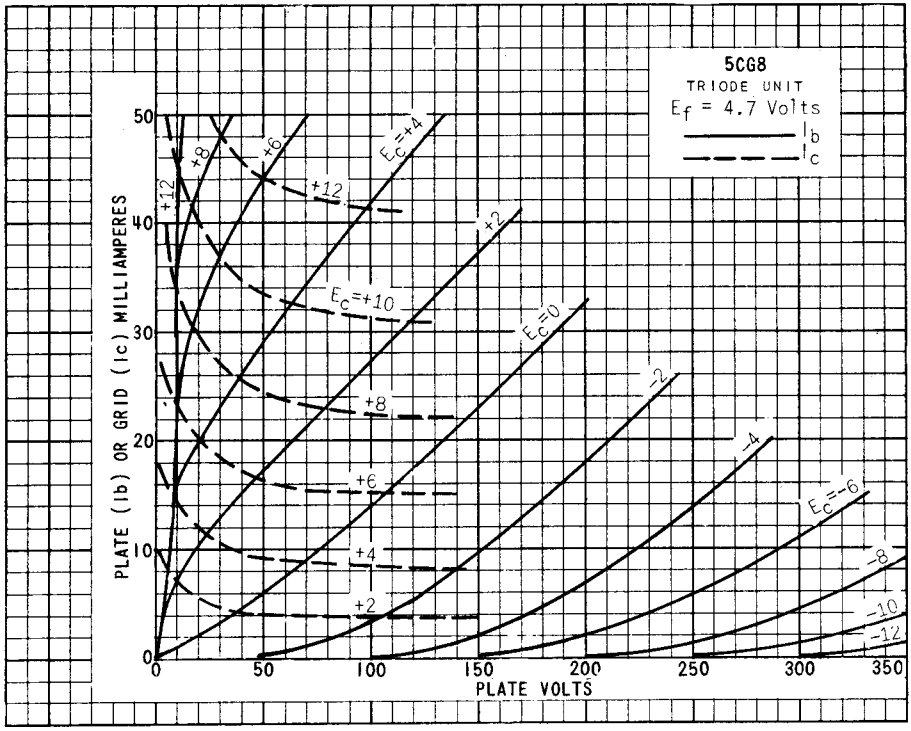
TYPICAL OPERATING CHARACTERISTICS

CLASS A1 AMPLIFIER

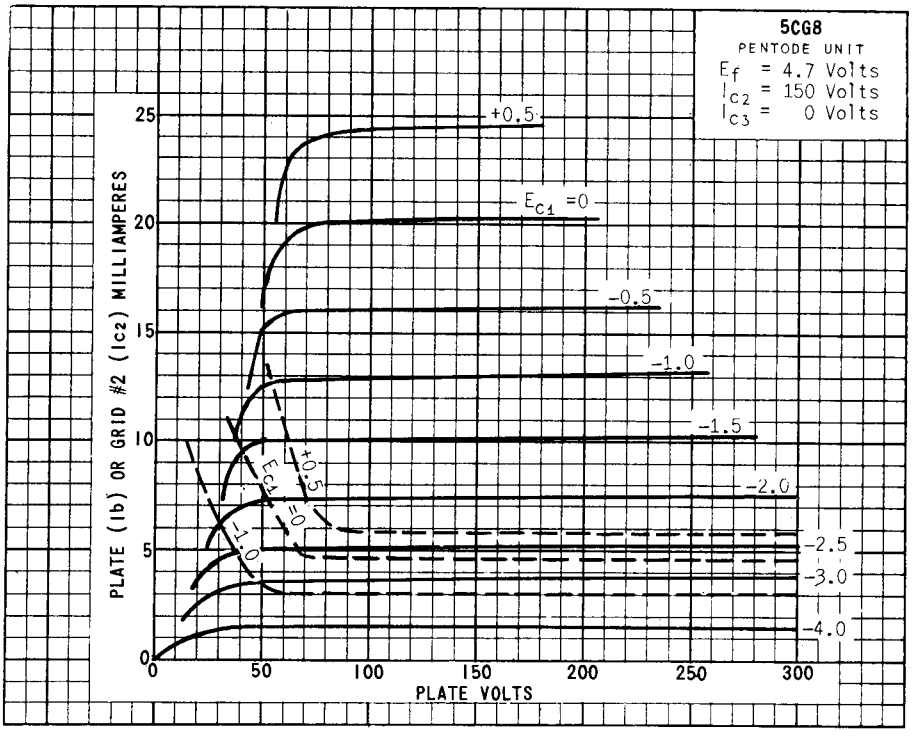
	TRIODE	PENTODE	
PLATE VOLTAGE	125	125	VOLTS
GRID 3 VOLTAGE	CONNECTED TO PIN 3 AT SOCKET		
GRID 2 VOLTAGE	----	125	VOLTS
GRID 1 VOLTAGE	-1.0	-1.0	VOLTS
TRANSCONDUCTANCE	6,500	5,500	μMHOS
PLATE CURRENT	12.0	9.0	MA.
GRID 2 CURRENT	----	2.2	MA.
PLATE RESISTANCE (APPROX.)	6,000	300,000	OHMS
AMPLIFICATION FACTOR	40	----	
GRID 1 VOLTAGE (APPROX.) FOR Ib=20μA	-7	-6.5	VOLTS
ZERO BIAS TRANSCONDUCTANCE (WITH Eb = 100 V; Ec2 = 70 V)	----	5,700	μMHOS

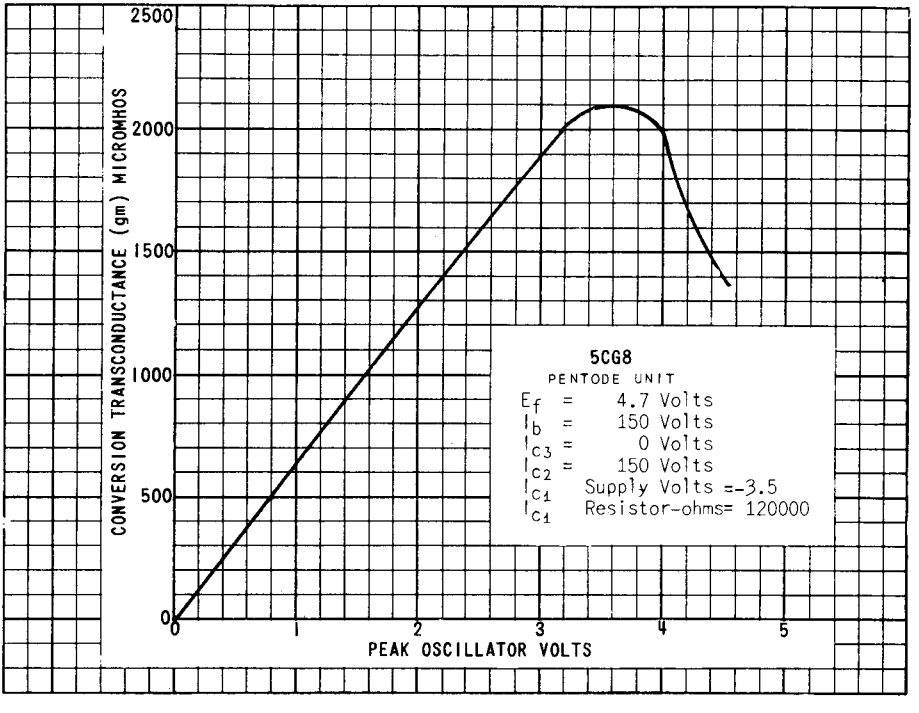
[C] HEATER WARM-UP TIME IS DEFINED AS THE TIME REQUIRED FOR THE VOLTAGE ACROSS THE HEATER TO REACH 80% OF ITS RATED VOLTAGE AFTER APPLYING 4 TIMES RATED HEATER VOLTAGE TO A CIRCUIT CONSISTING OF THE TUBE HEATER IN SEREIS WITH A RESISTANCE OF VALUE 3 TIMES THE NOMINAL HEATER OPERATING RESISTANCE.

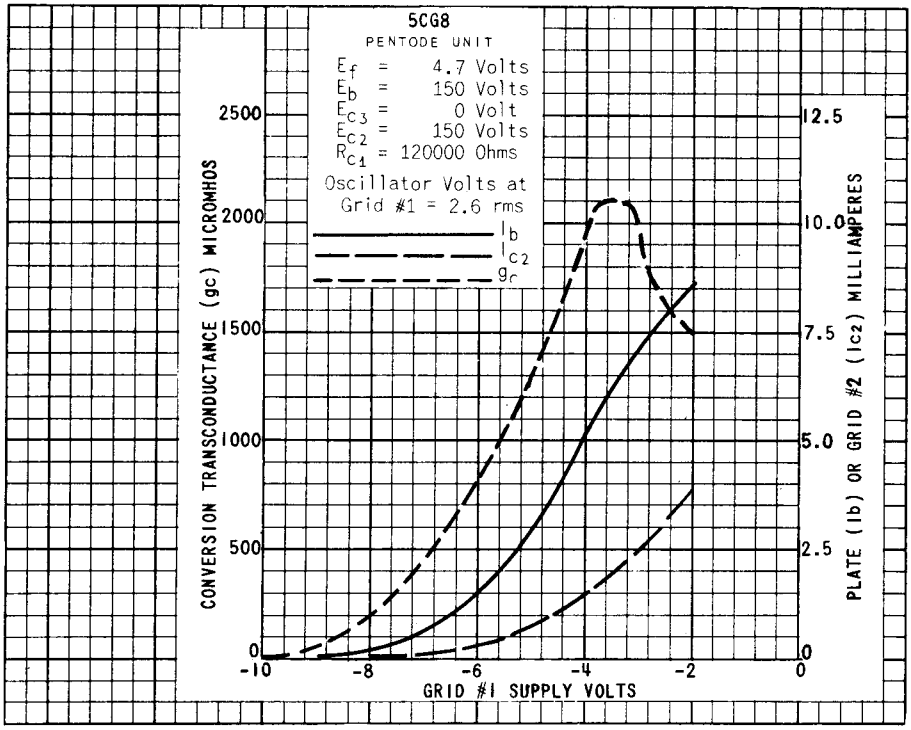

5CG8
This Curve also Applies To Types in which Grids #2 and #4 are Connected Together within the Tube
MAXIMUM OPERATING CONDITIONS
AREA OF PERMISSIBLE OPERATION
GRID #2 INPUT EXPRESSED AS PERCENT OF MAX. GRID #2 INPUT RATING
100
75
50
25
0
0
25
50
75
100
GRID #2 VOLTAGE EXPRESSED AS PERCENT OF MAX. GRID #2 SUPPLY VOLTAGE RATING


5CG8
TRIODE UNIT
Ef = 4.7 Volts
Ib
Ic
PLATE (Ib) OR GRID (Ic) MILLIAMPERES
50
40
30
20
10
0
+12
+8
+6
+12
Ec=+4
+2
Ec=+10
Ec=0
+8
+6
+4
+2
-2
-4
Ec=-6
-8
-10
-12
0
50
100
150
200
250
300
350
PLATE VOLTS

5CG8


5CG8
PENTODE UNIT
Ef = 4.7 Volts
Ic2 = 150 Volts
Ic3 = 0 Volts
PLATE (Ib) OR GRID #2 (Ic2) MILLIAMPERES
PLATE VOLTS
+0.5
Ec1 =0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
-4.0
0
5
10
15
20
25
50
100
150
200
250
300


5CG8
PENTODE UNIT
Ef = 4.7 Volts
Ib = 150 Volts
Ic3 = 0 Volts
Ic2 = 150 Volts
Ic1 Supply Volts =-3.5
Ic1 Resistor-ohms= 120000
CONVERSION TRANSCONDUCTANCE (gm) MICROMHOS
PEAK OSCILLATOR VOLTS
0
500
1000
1500
2000
2500
1
2
3
4
5



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