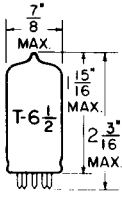
TUNG-SOL

TRIODE-PENTODE

MINIATURE TYPE

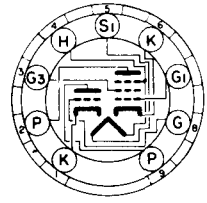


GLASS BULB

UNIPOTENTIAL CATHODE

HEATER
6.3 VOLTS 0.45 AMP.
AC OR DC

ANY MOUNTING POSITION



BOTTOM VIEW
SMALL-BUTTON NOVAL
9 PIN BASE
9FT

THE 6CH8 IS A GENERAL PURPOSE MULTIUNIT TUBE OF THE 9 PIN MINIATURE CONSTRUCTION CONTAINING A MEDIUM MU TRIODE AND SHARP CUTOFF PENTODE IN ONE ENVELOPE. IT IS INTENDED FOR A WIDE VARIETY OF APPLICATIONS IN BLACK AND WHITE AND COLOR TELEVISION RECEIVERS. THE PENTODE UNIT MAY BE USED AS AN INTERMEDIATE FREQUENCY AMPLIFIER, VIDEO AMPLIFIER, AGC AMPLIFIER AND AS A REACTANCE TUBE WHILE THE TRIODE UNIT IS WELL SUITED FOR USE IN LOW-FREQUENCY OSCILLATOR, SYNC-SEPARATOR, SYNC-CLIPPER, AND PHASE-SPLITTER CIRCUITS.

DIRECT INTERELECTRODE CAPACITANCES
WITHOUT EXTERNAL SHIELD

TRIODE UNIT:		
GRID TO PLATE	1.6	μμf
GRID TO CATHODE, HEATER & GRID #3 AND INTERNAL SHIELD	1.9	μμf
PLATE TO CATHODE, HEATER & GRID #3 AND INTERNAL SHIELD	1.6	μμf
PENTODE UNIT:		
GRID #1 TO PLATE (MAX.)	0.025	μμf
GRID #1 TO HEATER & INTERNAL SHIELD & GRID #3, GRID #2, & CATHODE	7	μμf
PLATE TO HEATER & INTERNAL SHIELD & GRID #3, GRID #2, & CATHODE	2.25	μμf
PENTODE GRID #1 TO TRIODE PLATE	0.02	μμf
PENTODE PLATE TO TRIODE PLATE	0.04	μμf
TRIODE GRID TO PENTODE PLATE	0.005	μμf

RATINGS
INTERPRETED ACCORDING TO DESIGN CENTER SYSTEM

CLASS A_1 AMPLIFIER

	TRIODE UNIT	PENTODE UNIT	
HEATER VOLTAGE	6.3	6.3	VOLTS
MAXIMUM PLATE VOLTAGE	300	300	VOLTS
MAXIMUM GRID #3 VOLTAGE POSITIVE VALUE	---	0	VOLTS
MAXIMUM GRID #2 SUPPLY VOLTAGE	---	300	VOLTS
MAXIMUM GRID #2 (SCREEN) VOLTAGE	---	SEE FIGURE #1	

CONTINUED ON FOLLOWING PAGE

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TUNG-SOL

CONTINUED FROM PRECEDING PAGE

RATINGS — CONT'D

INTERPRETED ACCORDING TO DESIGN CENTER SYSTEM

CLASS A_1 AMPLIFIER

	TRIODE UNIT	PENTODE UNIT	
MAXIMUM GRID #1 (CONTROL-GRID) VOLTAGE:			
POSITIVE BIAS VALUE	0	0	VOLTS
MAXIMUM PLATE DISSIPATION	2.6	2	WATTS
MAXIMUM GRID #2 INPUT:			
FOR GRID #2 VOLTAGES UP TO 150 VOLTS	---	0.5	WATT
FOR GRID #2 VOLTAGES BETWEEN 150 & 300V.	---	SEE FIGURE 1	
MAXIMUM PEAK HEATER-CATHODE VOLTAGE:			
HEATER NEGATIVE WITH RESPECT TO CATHODE	200	---[A]	VOLTS
HEATER POSITIVE WITH RESPECT TO CATHODE	200[B]	0	VOLTS
MAXIMUM GRID #1 CIRCUIT RESISTANCE:*			
FOR CATHODE-BIAS OPERATION	1.0	1.0	MEGOHM
FOR FIXED-BIAS OPERATION	0.5	0.25	MEGOHM

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

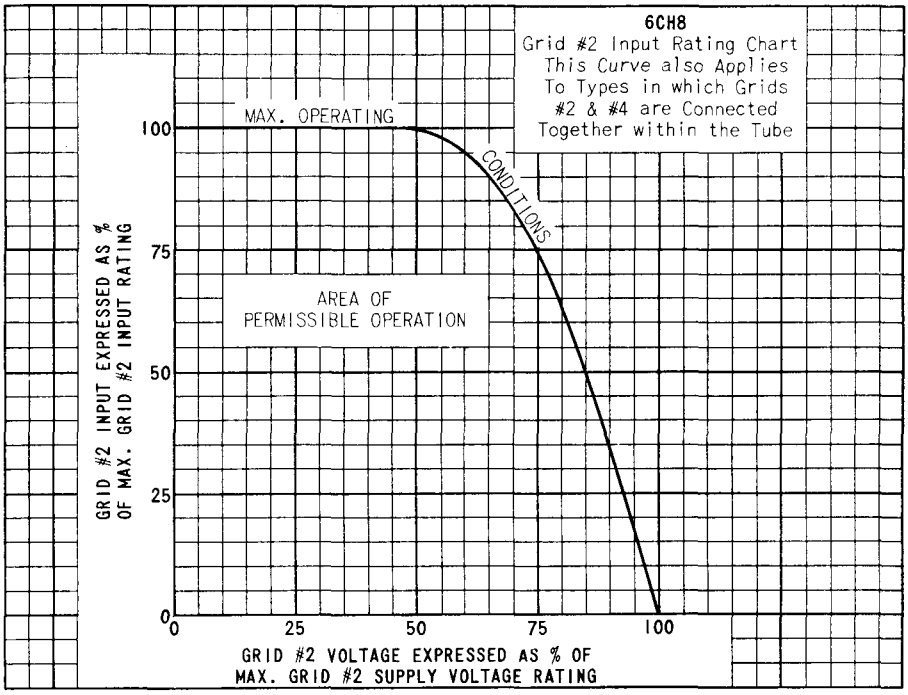
CLASS A_1 AMPLIFIER

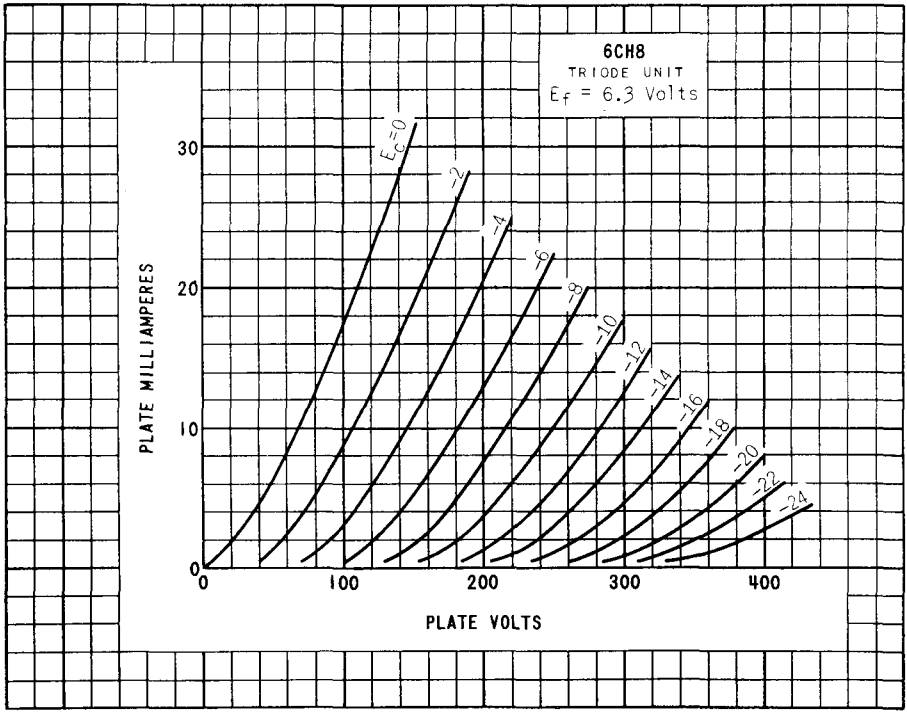
	TRIODE UNIT	PENTODE UNIT	
HEATER VOLTAGE	6.3	6.3	VOLTS
HEATER CURRENT	0.45	0.45	AMP.
PLATE SUPPLY VOLTAGE	200	200	VOLTS
GRID #3 SUPPLY VOLTAGE	---	0	VOLTS
GRID #2 SUPPLY VOLTAGE	---	150	VOLTS
GRID #1 VOLTAGE	-6	---	VOLTS
CATHODE-BIAS RESISTOR	---	180	OHMS
AMPLIFICATION FACTOR	19	---	
PLATE RESISTANCE (APPROX.)	5 750	300 000	OHMS
TRANSCONDUCTANCE	3 300	6 200	μMHOS
GRID #1 VOLTAGE (APPROX.) FOR PLATE CURRENT OF 10 μAMP	-19	-8	VOLTS
PLATE CURRENT	13	9.5	MA.
GRID #2 CURRENT	---	2.8	MA.

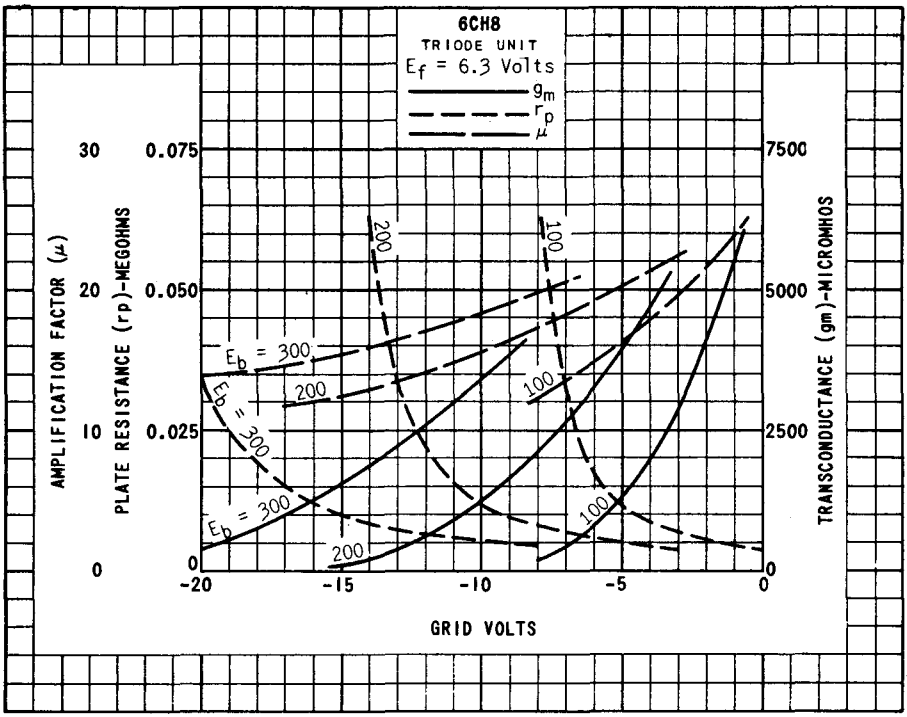
[A] THE HEATER-CATHODE VOLTAGE SHOULD NOT EXCEED THE VALUE OF THE OPERATING CATHODE BIAS BECAUSE THE VOLTAGE BETWEEN THE HEATER AND CATHODE IS ALSO APPLIED BETWEEN THE CATHODE AND GRID #3. THE NET RESULT IS TO MAKE GRID #3 NEGATIVE WITH RESPECT TO CATHODE WITH POSSIBLE CHANGE IN TUBE CHARACTERISTICS.

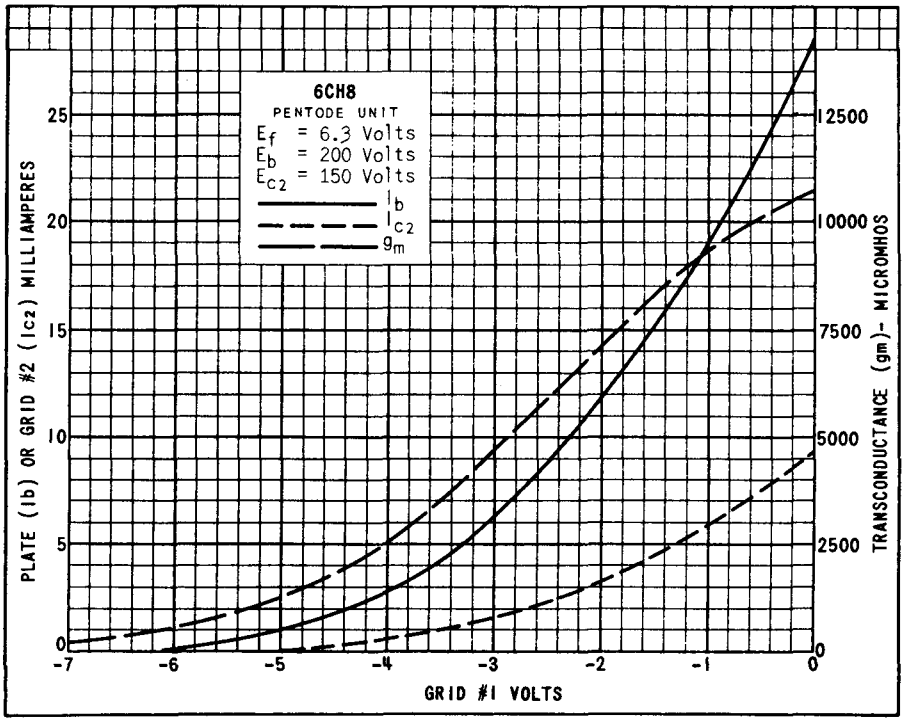
[B] THE DC COMPONENT MUST NOT EXCEED 100 VOLTS.

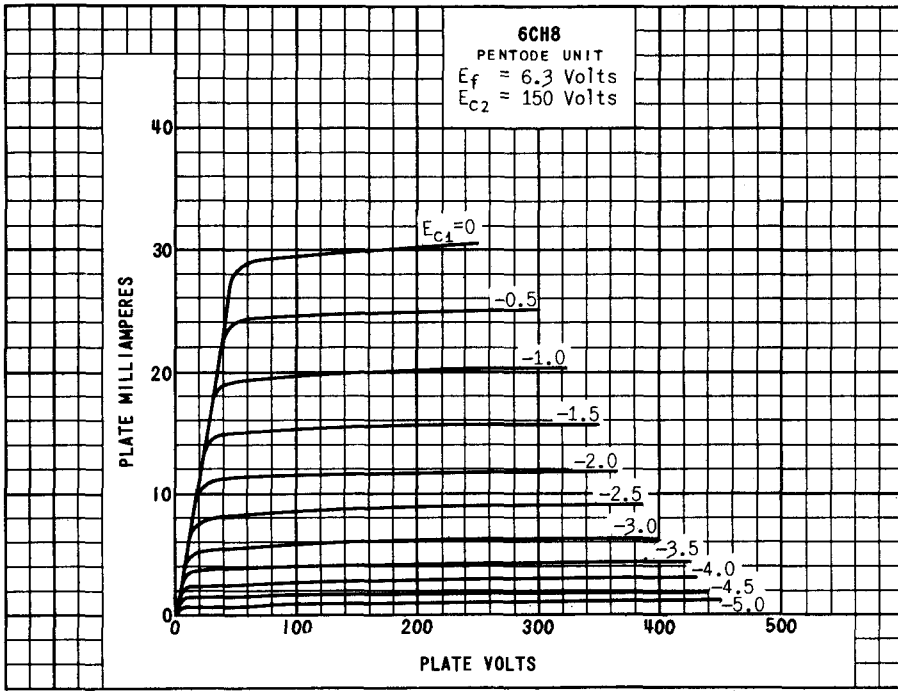
* IF EITHER UNIT IS OPERATED AT MAXIMUM RATED CONDITIONS, GRID-#1-CIRCUIT RESISTANCE FOR BOTH UNITS SHOULD NOT EXCEED THE STATED VALUES.


6CH8
Grid #2 Input Rating Chart
This Curve also Applies
To Types in which Grids
#2 & #4 are Connected
Together within the Tube
MAX. OPERATING
CONDITIONS
AREA OF
PERMISSIBLE OPERATION
GRID #2 INPUT EXPRESSED AS %
OF MAX. GRID #2 INPUT RATING
100
75
50
25
0
0
25
50
75
100
GRID #2 VOLTAGE EXPRESSED AS % OF
MAX. GRID #2 SUPPLY VOLTAGE RATING


6CH8
TRIODE UNIT
Ef = 6.3 Volts
Ec=0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-22
-24
PLATE MILLIAMPERES
30
20
10
0
0
100
200
300
400
PLATE VOLTS


6CH8
TRIODE UNIT
Ef = 6.3 Volts
gm
rp
μ
AMPLIFICATION FACTOR (μ)
PLATE RESISTANCE (rp)-MEGOHMS
TRANSCONDUCTANCE (gm)-MICROMHOS
GRID VOLTS
Eb = 300
Eb = 200
Eb = 100
30
20
10
0
0.075
0.050
0.025
0
7500
5000
2500
0
-20
-15
-10
-5
0


6CH8
PENTODE UNIT
Ef = 6.3 Volts
Eb = 200 Volts
Ec2 = 150 Volts
Ib
Ic2
gm
PLATE (Ib) OR GRID #2 (Ic2) MILLIAMPERES
TRANSCONDUCTANCE (gm)- MICROMHOS
GRID #1 VOLTS
25
20
15
10
5
0
12500
10000
7500
5000
2500
0
-7
-6
-5
-4
-3
-2
-1
0


6CH8
PENTODE UNIT
E_f = 6.3 Volts
E_{c2} = 150 Volts
PLATE MILLIAMPERES
PLATE VOLTS
0
10
20
30
40
0
100
200
300
400
500
E_{c1}=0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0