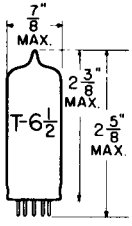
TUNG-SOL

TRIODE-PENTODE

MINIATURE TYPE

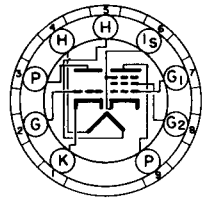


GLASS BULB

COATED UNIPOTENTIAL CATHODE

HEATER
8.0 VOLTS 0.6 AMP.
AC OR DC

ANY MOUNTING POSITION



BOTTOM VIEW
SMALL BUTTON
9 PIN BASE
90X

THE 8CX8 IS A SHARP-CUTOFF PENTODE AND A MEDIUM-MU TRIODE IN THE 9 PIN MINIATURE CONSTRUCTION. THE PENTODE SECTION IS INTENDED PRIMARILY FOR USE AS A VIDEO AMPLIFIER. THE TRIODE SECTION IS SUITABLE FOR A 4.5 MEGACYCLE SOUND IF AMPLIFIER, SWEEP OSCILLATOR, SYNC SEPARATOR, SYNC AMPLIFIER, OR SYNC CLIPPER. 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. EXCEPT FOR HEATER RATINGS AND HEATER WARM-UP TIME THE 8CX8 IS IDENTICAL TO THE 6CX8.

DIRECT INTERELECTRODE CAPACITANCES

WITHOUT EXTERNAL SHIELD

PENTODE SECTION:		
GRID #1 TO PLATE	0.06	μμf
INPUT	9.0	μμf
OUTPUT	4.4	μμf
TRIODE SECTION:		
GRID TO PLATE	4.4	μμf
INPUT	2.2	μμf
OUTPUT	0.38	μμf
PENTODE GRID #1 TO TRIODE PLATE (MAX.)	.005	μμf
TRIODE GRID TO PENTODE PLATE (MAX.)	.018	μμf
PENTODE PLATE TO TRIODE PLATE (MAX.)	0.17	μμf

RATINGS

INTERPRETED ACCORDING TO DESIGN CENTER SYSTEM

	PENTODE SECTION	TRIODE SECTION	
HEATER VOLTAGE	8.0	8.0	VOLTS
MAXIMUM PLATE VOLTAGE	330	330	VOLTS
MAXIMUM SCREEN-SUPPLY VOLTAGE	330	---	VOLTS
MAXIMUM SCREEN VOLTAGE	SEE RATING CHART		
MAXIMUM POSITIVE DC GRID #1 VOLTAGE	0	0	VOLTS
MAXIMUM PLATE DISSIPATION	5.0	2.0	WATTS
MAXIMUM SCREEN DISSIPATION	1.1	---	WATTS

CONTINUED ON FOLLOWING PAGE

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TUNG-SOL

CONTINUED FROM PRECEDING PAGE

RATINGS - CONT'D

INTERPRETED ACCORDING TO DESIGN CENTER SYSTEM

	PENTODE SECTION	TRIODE SECTION	
MAXIMUM HEATER-CATHODE VOLTAGE:			
HEATER POSITIVE WITH RESPECT TO CATHODE			
DC COMPONENT	100	100	VOLTS
TOTAL DC AND PEAK	200	200	VOLTS
HEATER NEGATIVE WITH RESPECT TO CATHODE			
TOTAL DC AND PEAK	200	200	VOLTS
MAXIMUM GRID #1 CIRCUIT RESISTANCE			
WITH FIXED BIAS	0.25	0.5	MEGOHMS
WITH CATHODE BIAS	1.0	1.0	MEGOHMS
HEATER WARM-UP TIME (APPROX.)*	11.0		SECONDS

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

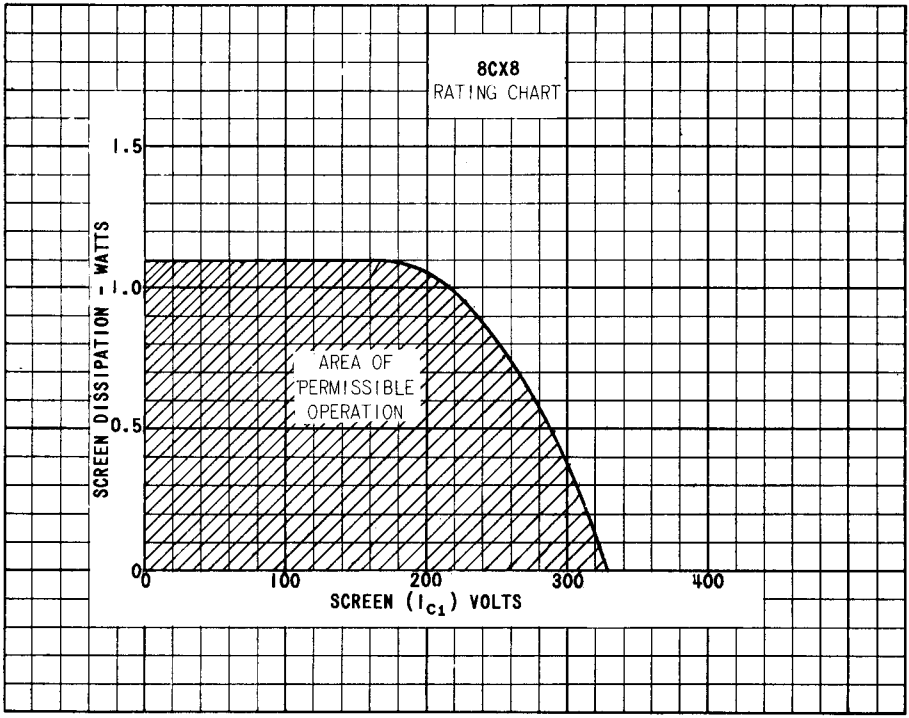
CLASS A_1 AMPLIFIER

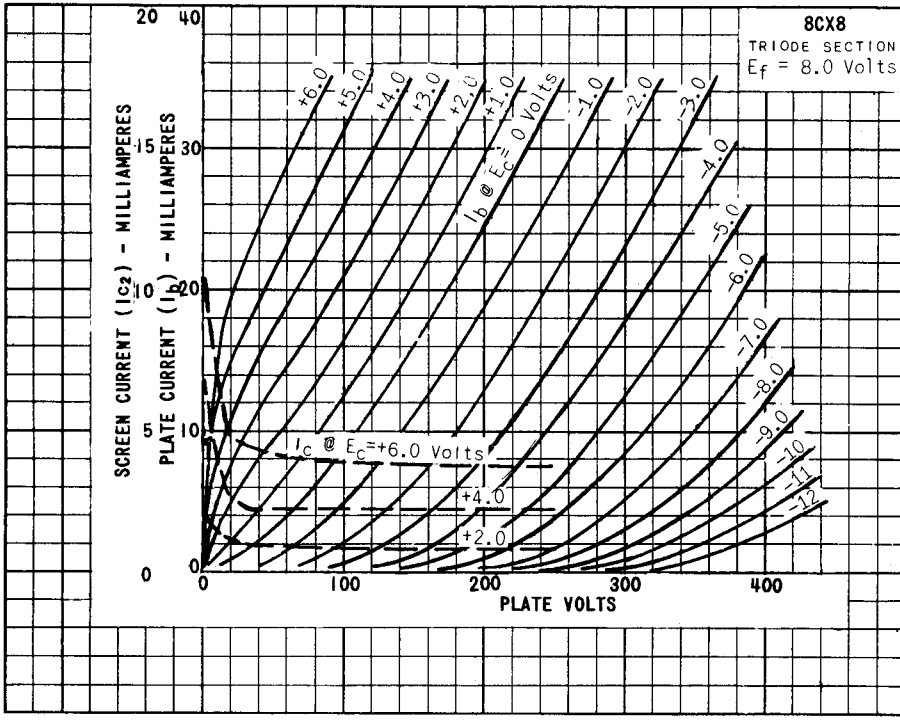
		PENTODE SECTION	TRIODE SECTION	
HEATER VOLTAGE	8.0	8.0	8.0	VOLTS
HEATER CURRENT	0.6±6%	0.6±6%	0.6±6%	AMP.
PLATE VOLTAGE	40	200	150	VOLTS
SCREEN VOLTAGE	125	125	---	VOLTS
GRID #1 VOLTAGE	0[A]	---	---	VOLTS
CATHODE-BIAS RESISTOR	---	68	150	OHMS
AMPLIFICATION FACTOR	---	---	40	
PLATE RESISTANCE (APPROX.)	---	70 000	8 700	OHMS
TRANSCONDUCTANCE	---	10 000	4 600	μMHOS
PLATE CURRENT	40	24	9.2	MA.
SCREEN CURRENT	15.5	5.2	---	MA.
GRID #1 VOLTAGE(APPROX.)				
I_b =100μA.	---	-8.5	-5.0	VOLTS

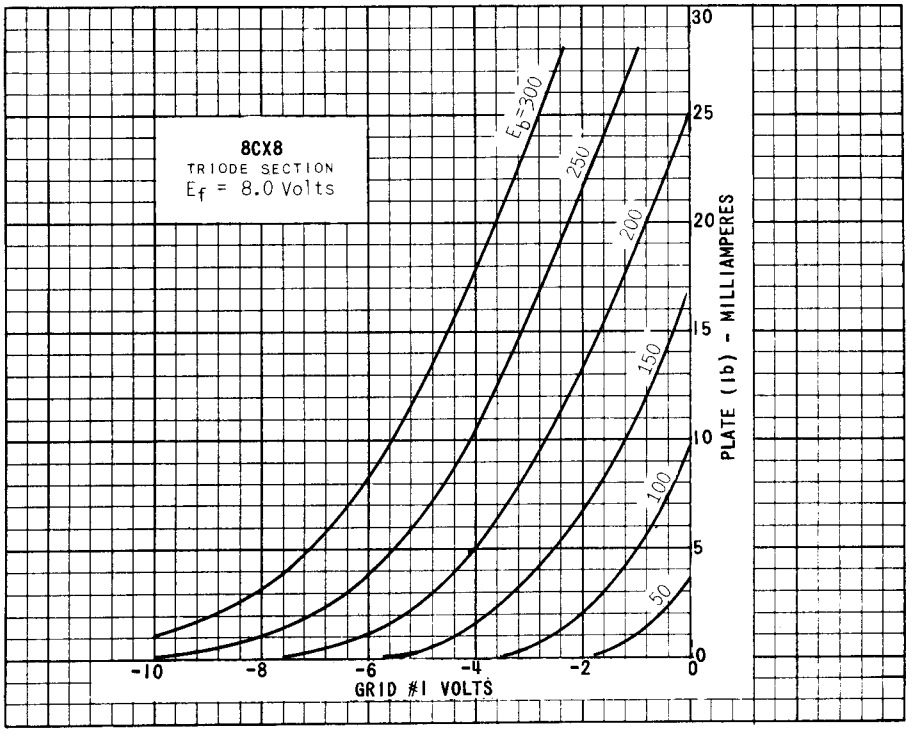
*HEATER WARM-UP TIME IS DEFINED AS THE TIME REQUIRED FOR THE VOLTAGE ACROSS THE HEATER TO REACH 80% OF ITS RATED VOLTAGE AFTER APPLYING 4 TIMES RATED HEATER VOLTAGE TO A CIRCUIT CONSISTING OF THE TUBE HEATER IN SERIES WITH A RESISTANCE OF VALUE 3 TIMES THE NOMINAL HEATER OPERATING RESISTANCE.

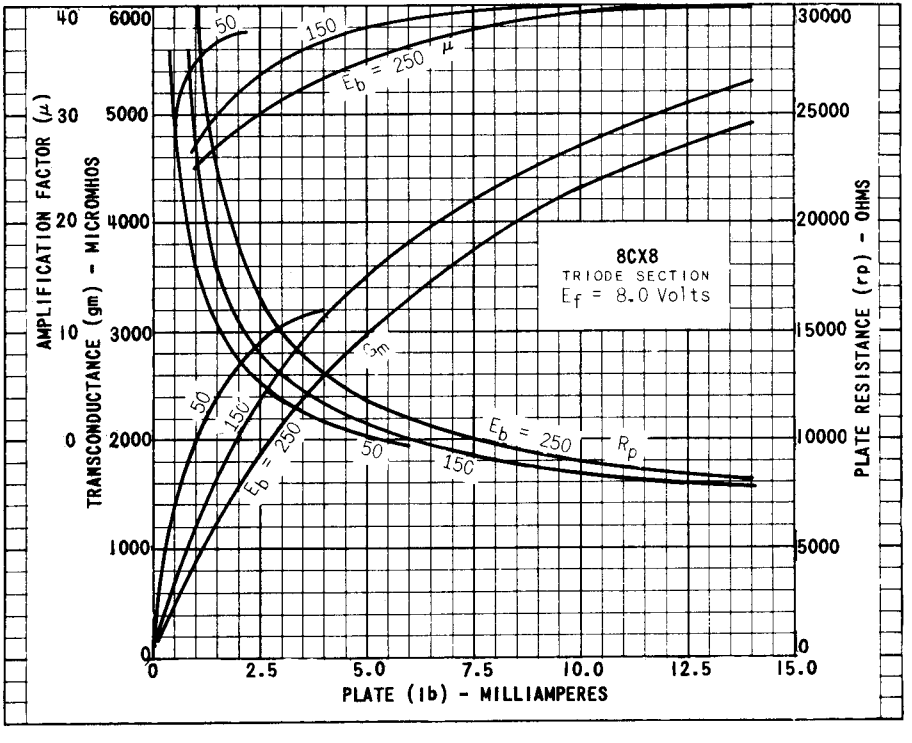
DESIGN-MAXIMUM RATINGS ARE THE LIMITING VALUES EXPRESSED WITH RESPECT TO BOGIE TUBES AT WHICH SATISFACTORY TUBE LIFE CAN BE EXPECTED TO OCCUR. TO OBTAIN SATISFACTORY CIRCUIT PERFORMANCE, THEREFORE, THE EQUIPMENT DESIGNER MUST ESTABLISH THE CIRCUIT DESIGN SO THAT NO DESIGN-MAXIMUM VALUE IS EXCEEDED WITH A BOGIE TUBE UNDER THE WORST PROBABLE OPERATING CONDITIONS WITH RESPECT TO SUPPLY-VOLTAGE VARIATION, EQUIPMENT COMPONENT VARIATION, EQUIPMENT CONTROL ADJUSTMENT, LOAD VARIATION, AND ENVIRONMENTAL CONDITIONS.

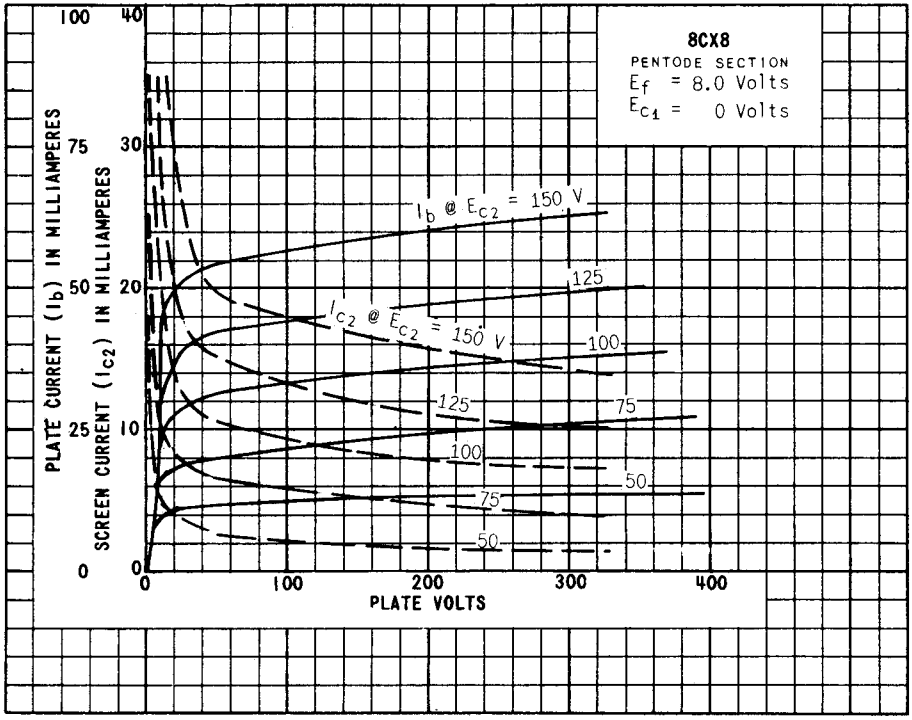
[A] APPLIED FOR SHORT INTERVAL (TWO SECONDS MAXIMUM) SO AS NOT TO DAMAGE TUBE.

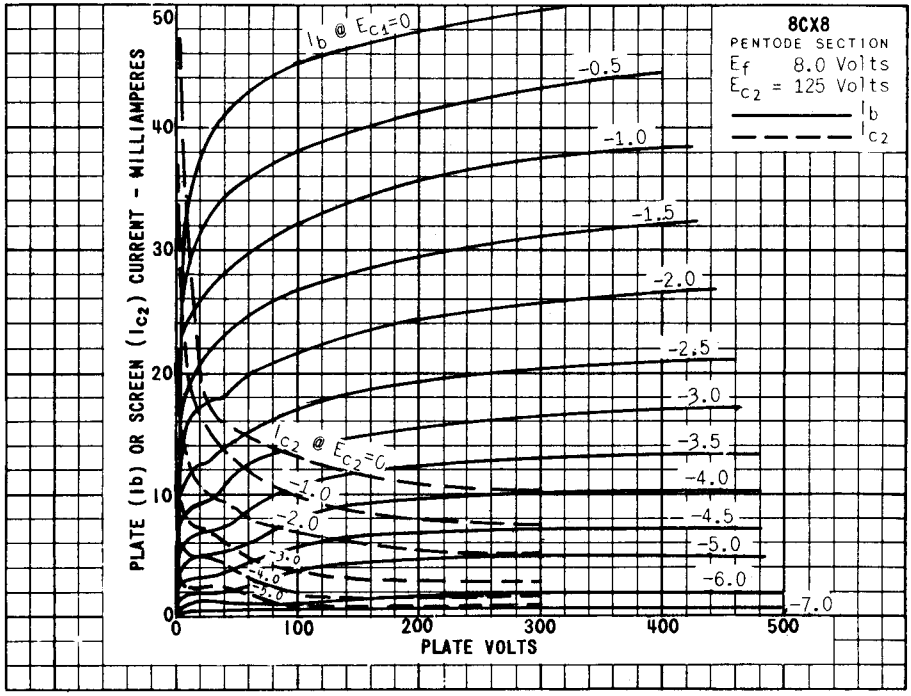

8CX8
RATING CHART
SCREEN DISSIPATION - WATTS
1.5
1.0
0.5
0
AREA OF
PERMISSIBLE
OPERATION
0
100
200
300
400
SCREEN (I_{c1}) VOLTS

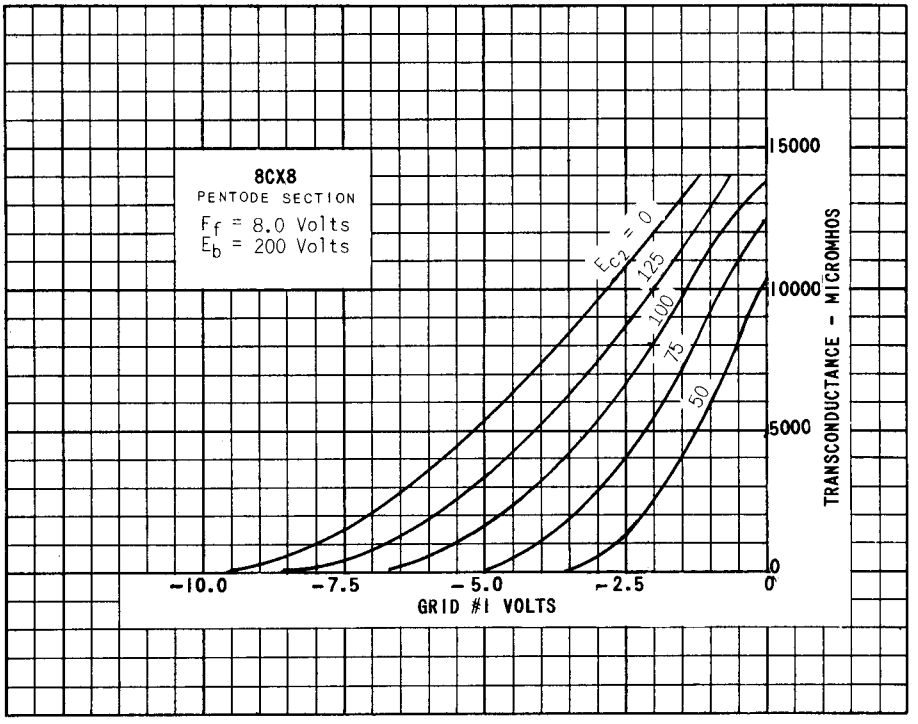

8CX8
TRIODE SECTION
E_f = 8.0 Volts
SCREEN CURRENT (I_{c2}) - MILLIAMPERES
PLATE CURRENT (I_b) - MILLIAMPERES
20
40
15
30
10
20
5
10
0
0
100
200
300
400
PLATE VOLTS
+6.0
+5.0
+4.0
+3.0
+2.0
+1.0
I_b @ E_c= 0 Volts
-1.0
-2.0
-3.0
-4.0
-5.0
-6.0
-7.0
-8.0
-9.0
-10
-11
-12
I_c @ E_c=+6.0 Volts
+4.0
+2.0

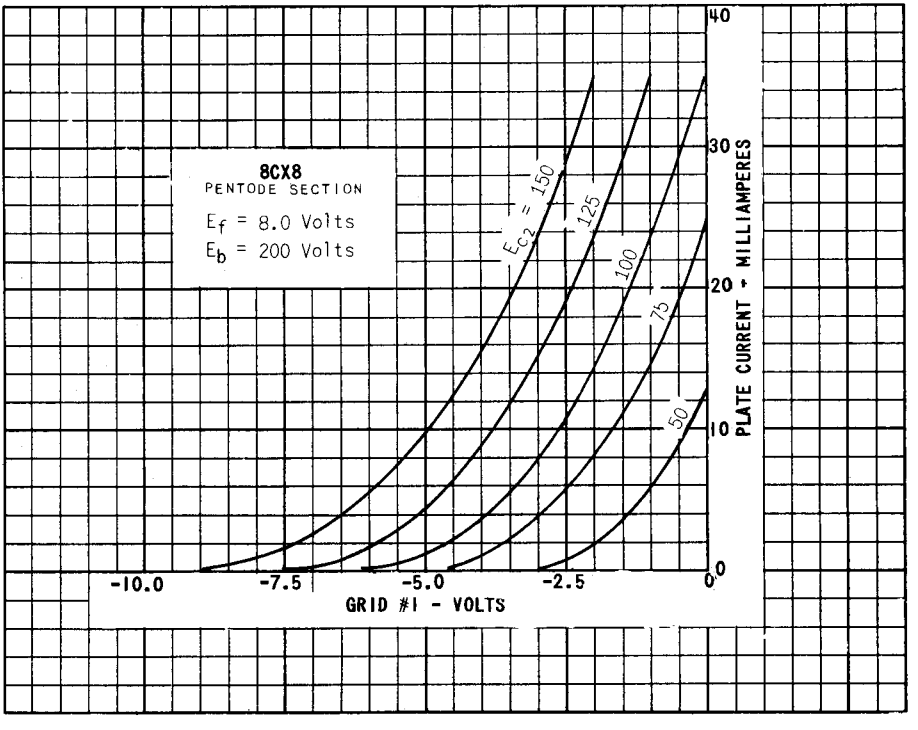

8CX8
TRIODE SECTION
Ef = 8.0 Volts
Eb=300
250
200
150
100
50
PLATE (Ib) - MILLIAMPERES
GRID #1 VOLTS
-10
-8
-6
-4
-2
0
5
10
15
20
25
30

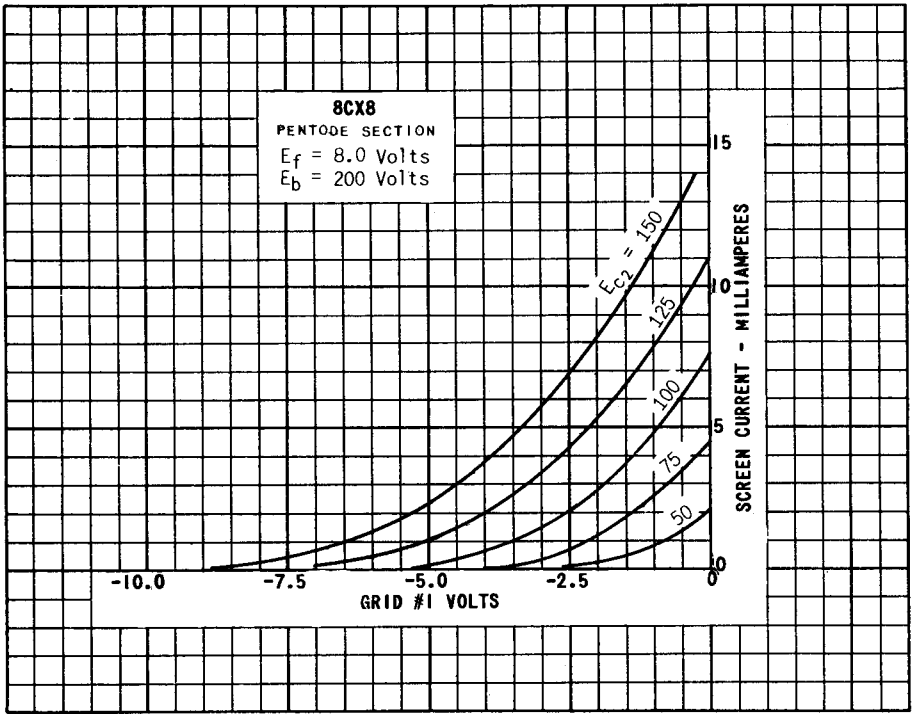

8CX8
TRIODE SECTION
Ef = 8.0 Volts
Eb = 250 μ
50
150
gm
Eb = 250
Rp
AMPLIFICATION FACTOR (μ)
TRANSCONDUCTANCE (gm) - MICROMHOS
PLATE RESISTANCE (rp) - OHMS
PLATE (Ib) - MILLIAMPERES
0
2.5
5.0
7.5
10.0
12.5
15.0
1000
2000
3000
4000
5000
6000
10000
15000
20000
25000
30000
10
20
30
40






8CX8
PENTODE SECTION
E_f = 8.0 Volts
E_b = 200 Volts
E_{c2} = 0
125
100
75
50
15000
10000
5000
0
TRANSCONDUCTANCE - MICROMHOS
-10.0
-7.5
-5.0
-2.5
0
GRID #1 VOLTS


8CX8
PENTODE SECTION
E_f = 8.0 Volts
E_b = 200 Volts
E_{c2} = 150
125
100
75
50
40
30
20
10
0
PLATE CURRENT - MILLIAMPERES
-10.0
-7.5
-5.0
-2.5
0
GRID #1 - VOLTS


8CX8
PENTODE SECTION
E_f = 8.0 Volts
E_b = 200 Volts
E_{c2} = 150
125
100
75
50
15
10
5
0
SCREEN CURRENT - MILLIAMPERES
-10.0
-7.5
-5.0
-2.5
0
GRID #1 VOLTS