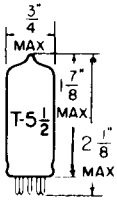
TUNG-SOL

HEPTODE

MINIATURE TYPE

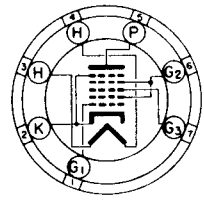


GLASS BULB

COATED UNIPOTENTIAL CATHODE

HEATER
3.15 VOLTS 0.6 AMP
AC OR DC

ANY MOUNTING POSITION



BOTTOM VIEW
MINIATURE BUTTON
7 PIN BASE
7CH

THE 3CS6 IS A MINIATURE DUAL CONTROL PENTAGRID DESIGNED FOR USE IN SYNC SEPARATOR CIRCUITS IN 600 MA. SERIES HEATER OPERATED TELEVISION RECEIVERS. EACH OF THE CONTROL GRIDS HAVE A SHARP CUT-OFF CHARACTERISTIC. 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, ITS CHARACTERISTICS ARE IDENTICAL TO THE 6CS6.

DIRECT INTERELECTRODE CAPACITANCES - APPROX.

GRID #1 TO PLATE: G_1 TO P (MAX.)	0.05	μμf
GRID #3 TO PLATE: G_3 TO P (MAX)	0.36	μμf
#1 INPUT: G_1 TO (H+K+G_2+$G_{3\&5}$)	5.5	μμf
#3 INPUT: G_3 TO (H+K+G_1+$G_{2\&5}$)	7.0	μμf
OUTPUT: P TO (H+K+G_1+G_2+$G_{3\&5}$)	7.5	μμf
COUPLING: G_1 TO G_3 (MAX.)	0.22	μμf

RATINGS ←

INTERPRETED ACCORDING TO DESIGN CENTER SYSTEM

DESIGN CENTER VALUES

HEATER VOLTAGE	3.15	VOLTS
MAXIMUM HEATER-CATHODE VOLTAGE:		
HEATER NEGATIVE		
TOTAL DC AND PEAK	200	VOLTS
HEATER POSITIVE		
DC	100	VOLTS
TOTAL DC AND PEAK	200	VOLTS
MAXIMUM PLATE VOLTAGE	300	VOLTS
MAXIMUM GRID #2 & #4 VOLTAGE[A]		
MAXIMUM GRID #2 & #4 SUPPLY VOLTAGE	300	VOLTS
MAXIMUM PLATE DISSIPATION		
MAXIMUM SCREEN DISSIPATION:		
FOR GRIDS #2 & #4 VOLTAGE UP TO 150 VOLTS	1.0	VOLTS
FOR GRIDS #2 & #4 VOLTAGE BETWEEN 150 & 300 VOLTS [A]		
MAXIMUM CATHODE CURRENT	14	MA.
MAXIMUM GRID #1 CIRCUIT RESISTANCE	0.47	MEGOHM
MAXIMUM GRID #3 CIRCUIT RESISTANCE	2.2	MEGOHMS
HEATER WARM-UP TIME (APPROX.)*	11.0	SECONDS

[A] SEE SCREEN DISSIPATION RATING CHART JEDEC #J5-C4-2.

→ INDICATES A CHANGE.

*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.

CONTINUED ON FOLLOWING PAGE

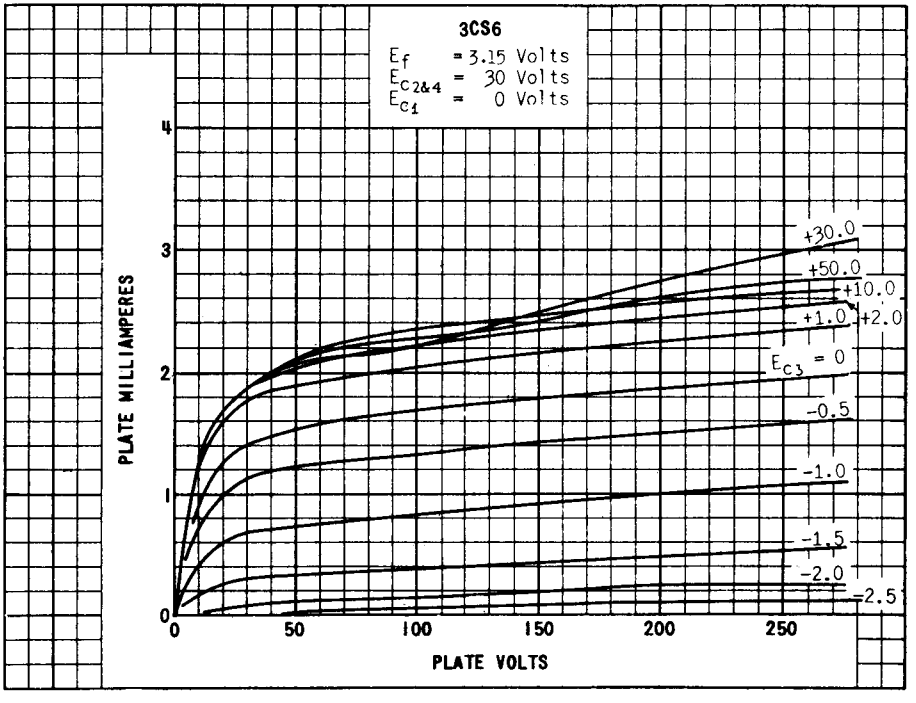
TUNG-SOL

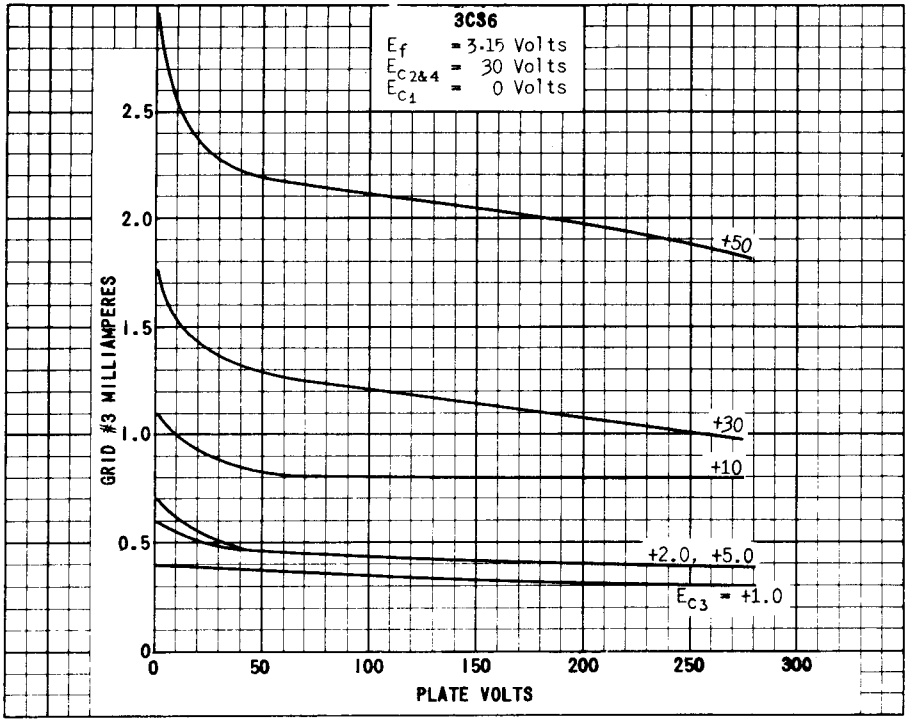
CONTINUED FROM PRECEDING PAGE

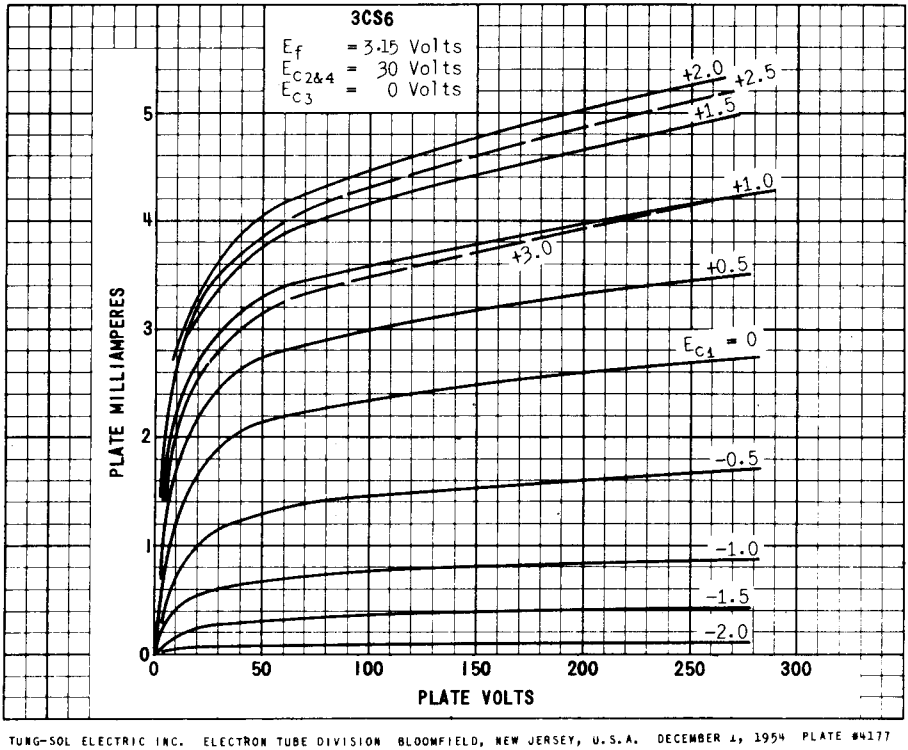
TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

CLASS A_1 AMPLIFIER

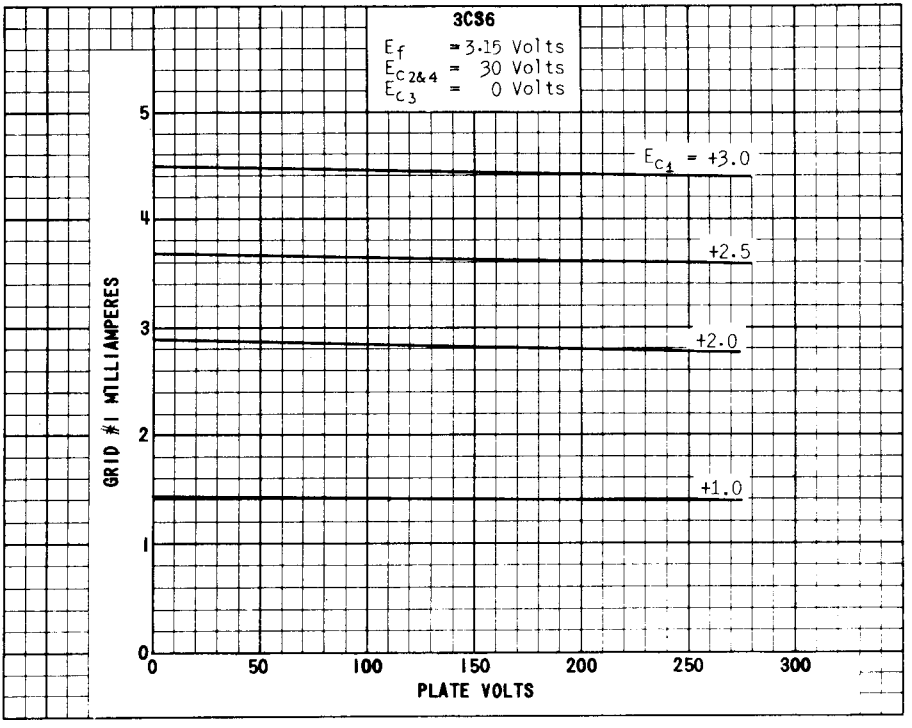
HEATER VOLTAGE	3.15	3.15	3.15	VOLTS
HEATER CURRENT	0.6	0.6	0.6	AMP.
PLATE VOLTAGE	10	100	100	VOLTS
GRID #2 & #4 VOLTAGE	30	30	30	VOLTS
GRID #1 VOLTAGE	0	0	-0	VOLTS
GRID #3 VOLTAGE	0	-1	0	VOLTS
PLATE CURRENT	2.0	0.8	1.0	MA.
GRID #2 & #4 CURRENT	4.5	5.5	1.3	MA.
TRANSCONDUCTANCE (MEASURED BETWEEN GRID #1 AND PLATE)	---	---	1 100	μMHOS
TRANSCONDUCTANCE (MEASURED BETWEEN GRID #3 AND PLATE)	---	1 500	---	μMHOS
PLATE RESISTANCE (APPROX.)	---	0.7	1.0	MEGOHM
GRID #1 VOLTAGE (APPROX.) FOR I_b=50 μA	---	---	-2.5	VOLTS
GRID #3 VOLTAGE (APPROX.) FOR I_b=50 μA	---	-2.2	---	VOLTS




3CS6
E_f = 3.15 Volts
$E_{c2\&4}$ = 30 Volts
E_{c1} = 0 Volts
GRID #3 MILLIAMPERES
PLATE VOLTS
0
0.5
1.0
1.5
2.0
2.5
50
100
150
200
250
300
+50
+30
+10
+2.0, +5.0
E_{c3} = +1.0


3CS6
E_f = 3.15 Volts
$E_{c2\&4}$ = 30 Volts
E_{c3} = 0 Volts
PLATE MILLIAMPERES
PLATE VOLTS
0
1
2
3
4
5
50
100
150
200
250
300
+2.0
+2.5
+1.5
+1.0
+3.0
+0.5
E_{c1} = 0
-0.5
-1.0
-1.5
-2.0

3CS6



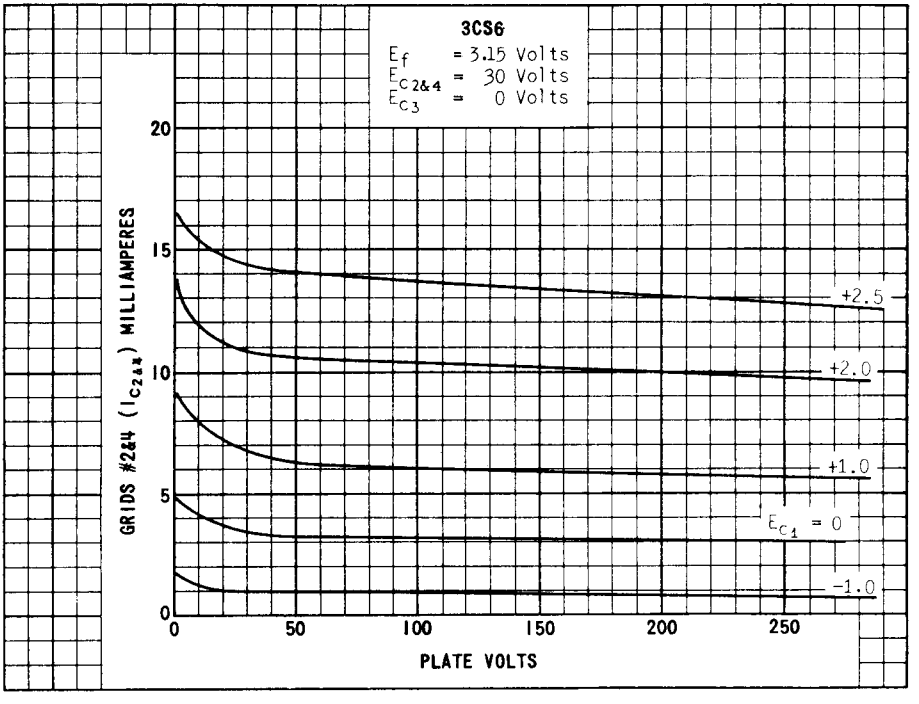
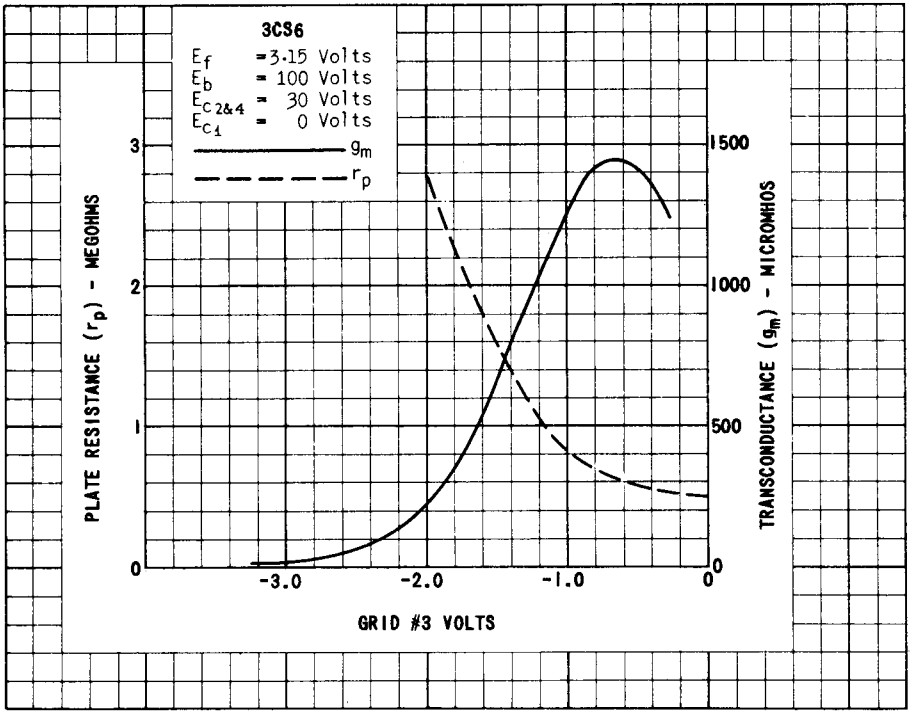
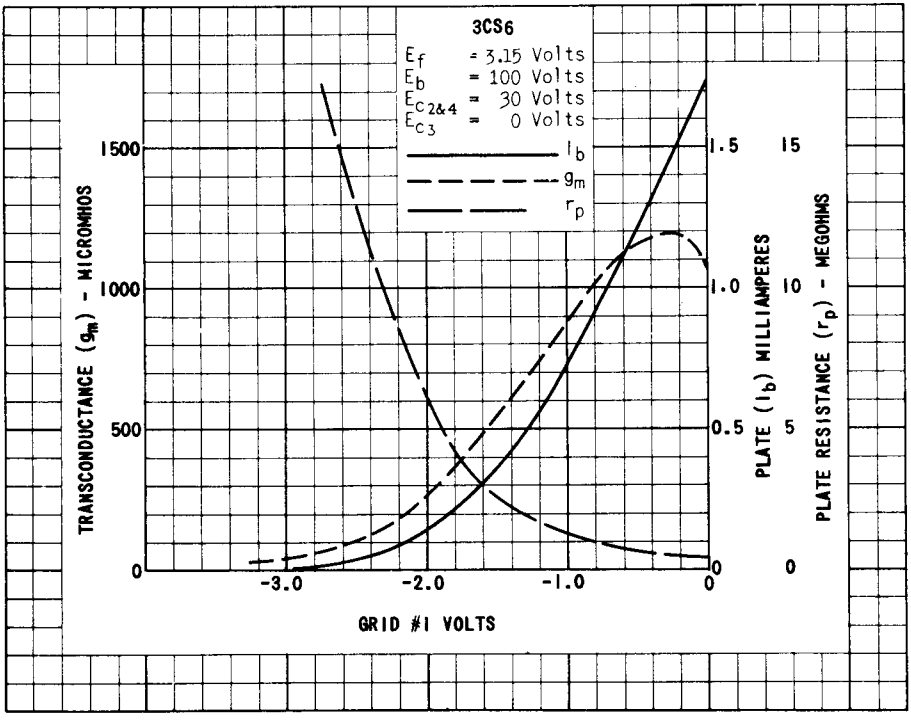


PLATE #4178 DECEMBER 1, 1954 TUNG-SOL ELECTRIC INC. ELECTRON TUBE DIVISION BLOOMFIELD, NEW JERSEY, U.S.A.


3CS6
E_f = 3.15 Volts
E_b = 100 Volts
$E_{c2\&4}$ = 30 Volts
E_{c1} = 0 Volts
g_m
r_p
PLATE RESISTANCE (r_p) - MEGOHMS
TRANSCONDUCTANCE (g_m) - MICROMHOS
GRID #3 VOLTS
3
2
1
0
1500
1000
500
0
-3.0
-2.0
-1.0
0


3CS6
E_f = 3.15 Volts
E_b = 100 Volts
$E_{c2\&4}$ = 30 Volts
E_{c3} = 0 Volts
I_b
g_m
r_p
TRANSCONDUCTANCE (g_m) - MICROMHOS
PLATE (I_b) MILLIAMPERES
PLATE RESISTANCE (r_p) - MEGOHMS
GRID #1 VOLTS
1500
1000
500
0
1.5
1.0
0.5
0
15
10
5
0
-3.0
-2.0
-1.0
0

3CS6

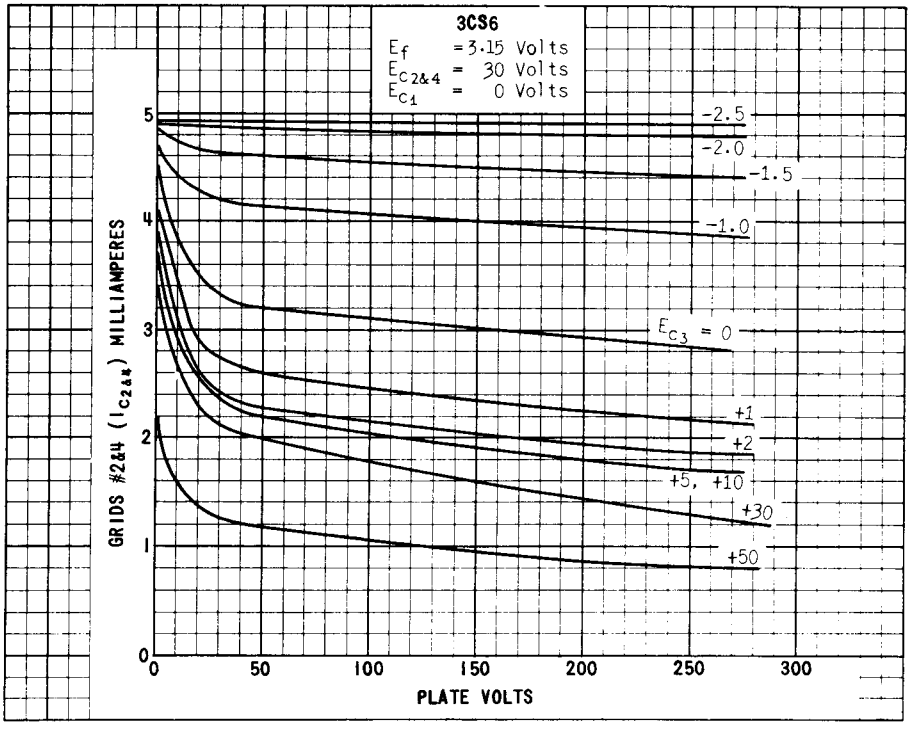


PLATE #4180 DECEMBER 1, 1954 TUNG-SOL ELECTRIC INC. ELECTRON TUBE DIVISION BLOOMFIELD, NEW JERSEY, U.S.A.