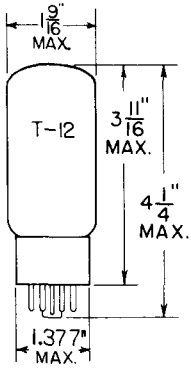
TUNG-SOL

BEAM PENTODE



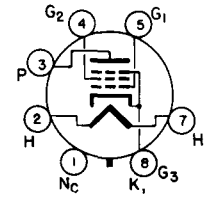
GLASS BULB

MEDIUM SHELL OR
SHORT MEDIUM SHELL
7 PIN OCTAL B7-12
OUTLINE DRAWING
JEDEC 12-16

COATED UNIPOTENTIAL CATHODE

HEATER
6.3±0.6 VOLTS 0.9 AMP.
AC OR DC

ANY MOUNTING POSITION



BOTTOM VIEW

BASING DIAGRAM
JEDEC 7S

THE 6L6GB IS A BEAM PENTODE DESIGNED WITH HIGH POWER SENSITIVITY AND HIGH EFFICIENCY FOR SERVICE IN THE OUTPUT STAGES OF AC RECEIVERS. IT IS CAPABLE OF DELIVERING AN OUTPUT AT ALL POWER LEVELS WITH A VERY LOW PERCENTAGE OF HARMONIC DISTORTION.

DIRECT INTERELECTRODE CAPACITANCES – APPROX.

GRID TO PLATE: G TO P	0.9	pf
INPUT: G_1 TO $(H+K+G_2+BP)$	11.5	pf
OUTPUT: P TO $(H+K+G_2+BP)$	9.5	pf

→ RATINGS

INTERPRETED ACCORDING TO DESIGN MAXIMUM SYSTEM

	TRIODE[A] CONNECTION	PENTODE CONNECTION	
HEATER VOLTAGE	6.3±0.6		VOLTS
MAXIMUM HEATER-CATHODE VOLTAGE:			
HEATER NEGATIVE WITH RESPECT TO CATHODE			
TOTAL DC AND PEAK	200		VOLTS
HEATER POSITIVE WITH RESPECT TO CATHODE			
TOTAL DC AND PEAK	200		VOLTS
DC	100		VOLTS
MAXIMUM PLATE VOLTAGE	300	400	VOLTS
MAXIMUM GRID #2 VOLTAGE	---	300	VOLTS
MAXIMUM PLATE DISSIPATION	22	22	WATTS
MAXIMUM GRID #2 DISSIPATION	---	2.8	WATTS
MAXIMUM GRID #1 CIRCUIT RESISTANCE:			
FIXED BIAS	0.1	0.1	MEGOHM
SELF BIAS	0.5	0.5	MEGOHM

[A]GRID #2 CONNECTED TO PLATE.

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→ INDICATES A CHANGE.

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TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

CLASS A_1 AMPLIFIER – PENTODE CONNECTION

PLATE VOLTAGE	250	300	350	VOLTS
GRID #2 VOLTAGE	250	200	250	VOLTS
GRID #1 VOLTAGE	-14	-12.5	-18	VOLTS
PEAK AF SIGNAL VOLTAGE	14	12.5	18	VOLTS
TRANSCONDUCTANCE	6 000	5 300	5 200	μMHOS
PLATE RESISTANCE	22 500	35 000	33 000	OHMS
ZERO SIGNAL PLATE CURRENT	72	48	54	MA.
MAXIMUM SIGNAL PLATE CURRENT	79	55	66	MA.
ZERO SIGNAL GRID #2 CURRENT	5	2.5	2.5	MA.
MAXIMUM SIGNAL GRID #2 CURRENT	7.3	4.7	7	MA.
LOAD RESISTANCE	2 500	4 500	4 200	OHMS
POWER OUTPUT	6.5	6.5	10.8	WATTS
TOTAL HARMONIC DISTORTION	10	11	15	PERCENT

CLASS A_1 AMPLIFIER – TRIODE CONNECTION[A]

PLATE VOLTAGE	250	VOLTS
GRID #1 VOLTAGE	-20	VOLTS
PEAK AF SIGNAL VOLTAGE	20	VOLTS
TRANSCONDUCTANCE	4 700	VOLTS
PLATE RESISTANCE	1 700	OHMS
AMPLIFICATION FACTOR	8	
ZERO SIGNAL PLATE CURRENT	40	MA.
MAXIMUM SIGNAL PLATE CURRENT	44	MA.
LOAD RESISTANCE	5 000	OHMS
POWER OUTPUT	1.4	WATTS
TOTAL HARMONIC DISTORTION	5	PERCENT

[A] GRID #2 CONNECTED TO PLATE.

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TUNG-SOL

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CLASS A_1 PUSH-PULL AMPLIFIER - PENTODE CONNECTION

VALUES ARE FOR TWO TUBES

HEATER VOLTAGE	6.3	6.3	VOLTS
HEATER CURRENT	0.9	0.9	AMP.
PLATE VOLTAGE	250	270	VOLTS
GRID #2 VOLTAGE	250	270	VOLTS
GRID #1 VOLTAGE	-16	-17.5	VOLTS
PEAK AF GRID TO GRID VOLTAGE	32	35	VOLTS
TRANSCONDUCTANCE (EACH TUBE)	5 500	5 700	µMHOS
PLATE RESISTANCE (EACH TUBE)	24 500	23 500	OHMS
ZERO SIGNAL PLATE CURRENT	120	134	MA.
MAXIMUM SIGNAL PLATE CURRENT	140	155	MA.
ZERO SIGNAL GRID #2 CURRENT	10	11	MA.
MAXIMUM SIGNAL GRID #2 CURRENT	16	17	MA.
LOAD RESISTANCE	5 000	5 000	OHMS
POWER OUTPUT	14.5	17.5	WATTS
TOTAL HARMONIC DISTORTION	2	2	PERCENT

CLASS AB_1 PUSH-PULL AMPLIFIER - PENTODE CONNECTION

VALUES ARE FOR TWO TUBES

HEATER VOLTAGE	6.3	6.3	VOLTS
HEATER CURRENT	0.9	0.9	AMP.
PLATE VOLTAGE	360	360	VOLTS
GRID #2 VOLTAGE	270	270	VOLTS
GRID #1 VOLTAGE	-22.5	-22.5	VOLTS
PEAK AF GRID TO GRID VOLTAGE	45	45	VOLTS
ZERO SIGNAL PLATE CURRENT	88	88	MA.
MAXIMUM SIGNAL PLATE CURRENT	132	140	MA.
ZERO SIGNAL GRID #2 CURRENT	5	5	MA.
MAXIMUM SIGNAL GRID #2 CURRENT	15	11	MA.
LOAD RESISTANCE	6 600	3 800	OHMS
POWER OUTPUT	26.5	18	WATTS
TOTAL HARMONIC DISTORTION	2	2	PERCENT

CLASS AB_2 PUSH-PULL AMPLIFIER - PENTODE CONNECTION

VALUES ARE FOR TWO TUBES

HEATER VOLTAGE	6.3	6.3	VOLTS
HEATER CURRENT	0.9	0.9	AMP.
PLATE VOLTAGE	360	360	VOLTS
GRID #2 VOLTAGE	225	270	VOLTS
GRID #1 VOLTAGE	-18	-22.5	VOLTS
PEAK AF GRID TO GRID VOLTAGE	52	72	VOLTS
ZERO SIGNAL PLATE CURRENT	78	88	MA.
MAXIMUM SIGNAL PLATE CURRENT	142	205	MA.
ZERO SIGNAL GRID #2 CURRENT	3.5	5	MA.
MAXIMUM SIGNAL GRID #2 CURRENT	11	16	MA.
LOAD RESISTANCE	6 000	3 800	OHMS
POWER OUTPUT	31	47	WATTS
TOTAL HARMONIC DISTORTION	2	2	PERCENT

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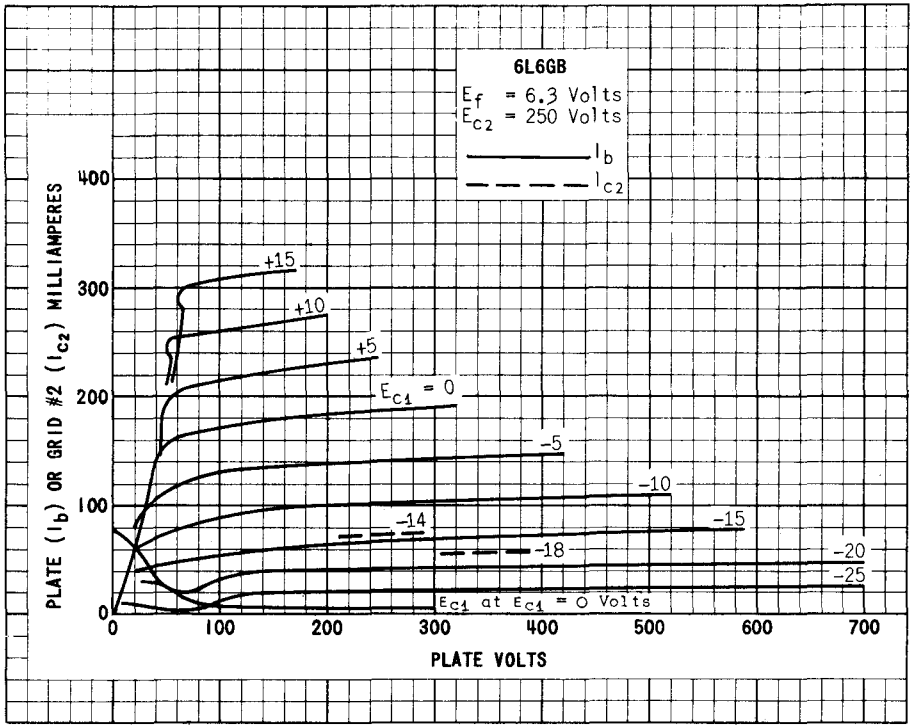
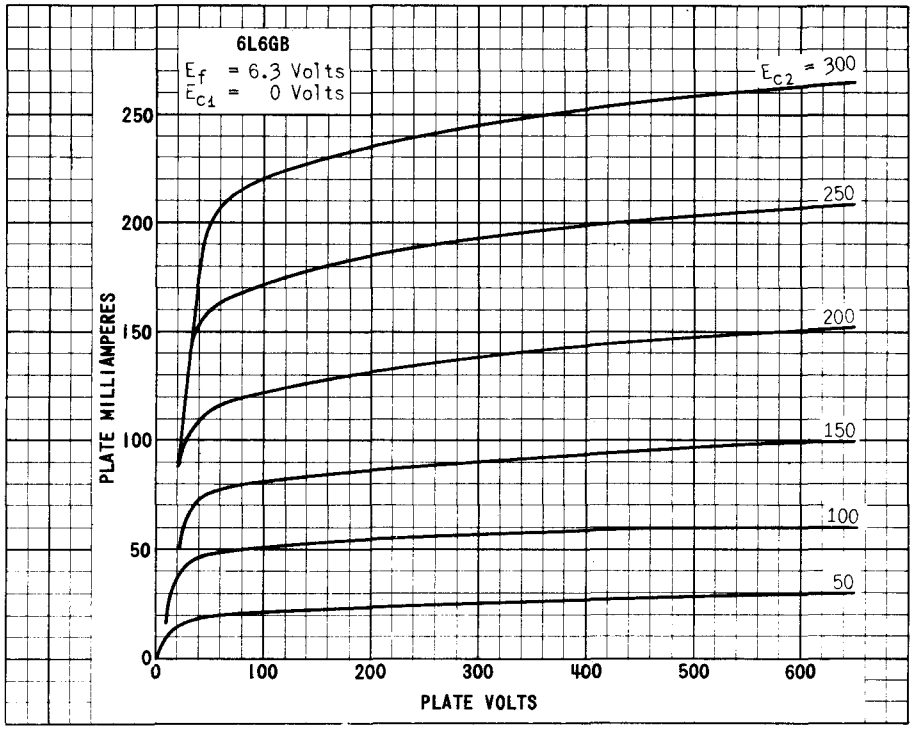
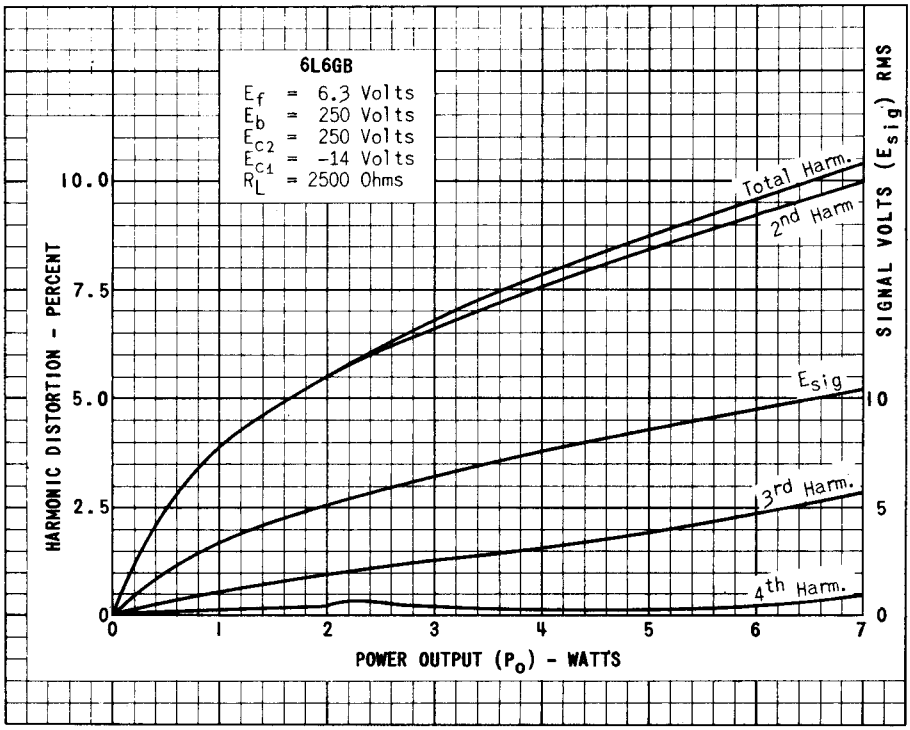
6L6GB


6L6GB
Ef = 6.3 Volts
Ec2 = 250 Volts
Ib
Ic2
PLATE (Ib) OR GRID #2 (Ic2) MILLIAMPERES
400
300
200
100
0
+15
+10
+5
Ec1 = 0
-5
-10
-14
-15
-18
-20
-25
Ec1 at Ec1 = 0 Volts
0
100
200
300
400
500
600
700
PLATE VOLTS


6L6GB
Ef = 6.3 Volts
Ec1 = 0 Volts
Ec2 = 300
250
200
150
100
50
PLATE MILLIAMPERES
250
200
150
100
50
0
0
100
200
300
400
500
600
PLATE VOLTS


6L6GB
Ef = 6.3 Volts
Eb = 250 Volts
Ec2 = 250 Volts
Ec1 = -14 Volts
RL = 2500 Ohms
HARMONIC DISTORTION - PERCENT
SIGNAL VOLTS (Esig) RMS
POWER OUTPUT (Po) - WATTS
Total Harm.
2nd Harm.
Esig
3rd Harm.
4th Harm.
0
2.5
5.0
7.5
10.0
0
5
10
0
1
2
3
4
5
6
7

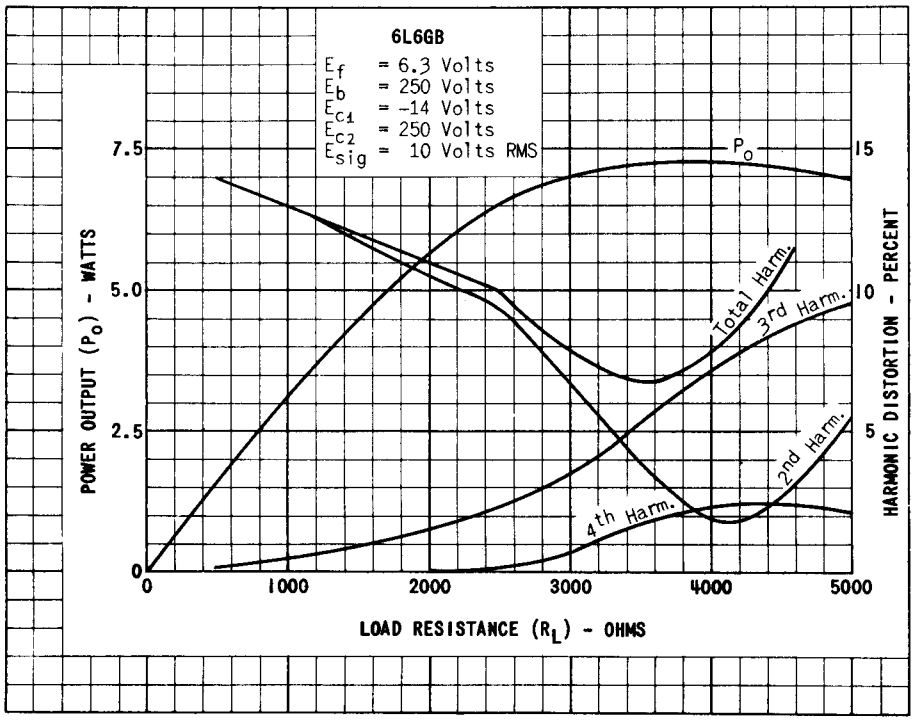
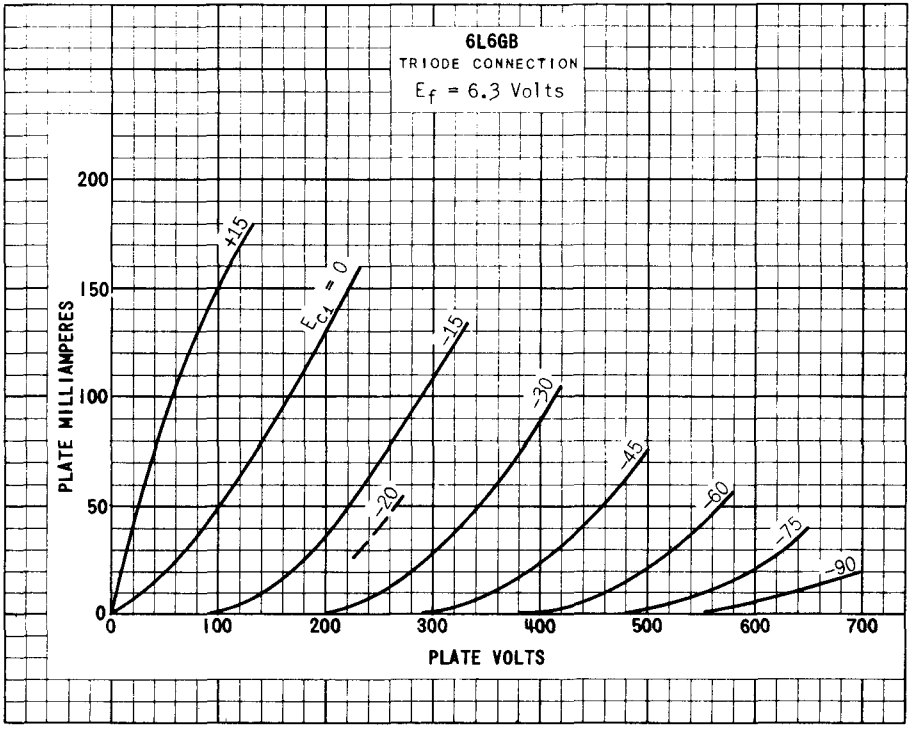

6L6GB
Ef = 6.3 Volts
Eb = 250 Volts
Ec1 = -14 Volts
Ec2 = 250 Volts
Esig = 10 Volts RMS
POWER OUTPUT (Po) - WATTS
HARMONIC DISTORTION - PERCENT
LOAD RESISTANCE (RL) - OHMS
Po
Total Harm.
3rd Harm.
2nd Harm.
4th Harm.
0
2.5
5.0
7.5
5
10
15
0
1000
2000
3000
4000
5000

PLATE 559-3

6L6GB


6L6GB
TRIODE CONNECTION
E_f = 6.3 Volts
PLATE MILLIAMPERES
PLATE VOLTS
0
50
100
150
200
0
100
200
300
400
500
600
700
+15
E_{cc} = 0
-15
-20
-30
-45
-60
-75
-90