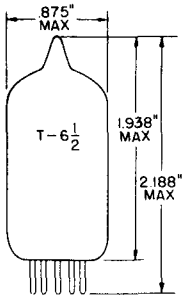
TUNG-SOL



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

TRIPLE-DIODE TRIODE

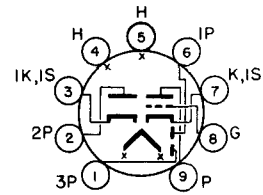
MINIATURE TYPE

COATED UNIPOTENTIAL CATHODES

HEATER

6.3 VOLTS 450 MA.
AC OR DC

ANY MOUNTING POSITION



BOTTOM VIEW
BASING DIAGRAM
JEDEC 9E

THE 6T8A COMBINES THREE HIGH PERVEANCE DIODES AND A HIGH MU TRIODE IN ONE ENVELOPE. ONE OF THE THREE DIODE PLATES HAS AN INDEPENDENT CATHODE PROVIDING SATISFACTORY OPERATION IN BALANCED LOW IMPEDANCE DETECTOR CIRCUITS. THIS STRUCTURE PERMITS THE CONSTRUCTION OF AM/FM RECEIVERS WITH A MINIMUM OF SWITCHING. 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

	WITHOUT SHIELD	WITH[A] SHIELD	
TRIODE GRID TO PLATE	1.7	1.7	pf
TRIODE INPUT	1.6	1.7	pf
TRIODE OUTPUT	1.2	2.4	pf
GRID TO ANY DIODE PLATE (MAX.)	.034	.034	pf
INPUT DIODE 1	3.8	3.8	pf
INPUT DIODE 2	3.8	3.8[B]	pf
INPUT DIODE 3	3.4	3.6	pf
DIODE 2 CATHODE TO ALL	7.5	8.5[C]	pf

RATINGS

INTERPRETED ACCORDING TO DESIGN MAXIMUM SYSTEM

HEATER VOLTAGE	0.45	VOLTS
MAXIMUM PLATE VOLTAGE	330	VOLTS
MAXIMUM POSITIVE DC GRID VOLTAGE	0	VOLTS
MAXIMUM PLATE DISSIPATION	1.1	WATTS
MAXIMUM DIODE CURRENT FOR CONTINUOUS OPERATION (EA. PLATE)	5.5	MA.
MAXIMUM HEATER-CATHODE VOLTAGE		
HEATER NEGATIVE WITH RESPECT TO CATHODE (FOR 6T8A: 100 VOLTS)	90	VOLTS
HEATER POSITIVE WITH RESPECT TO CATHODE (FOR 6T8A: 100 VOLTS)	90	VOLTS
HEATER WARM-UP TIME (APPROX.)**	11.0	SECONDS

CONTINUED ON FOLLOWING PAGE

CONTINUED FROM PRECEDING PAGE

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

CLASS A_1 AMPLIFIER

PLATE VOLTAGE	100	250	VOLTS
GRID VOLTAGE	-1	-3	VOLTS
AMPLIFICATION FACTOR	70	70	
PLATE RESISTANCE (APPROX.)	54 000	58 000	OHMS
TRANSCONDUCTANCE	1 300	1 200	µMHOS
PLATE CURRENT	0.8	1.0	MA.
AVERAGE DIODE CURRENT: (EACH SECTION) MEASURED WITH 5 VOLTS DC APPLIED	20		MA.

TRIODE UNIT AS RESISTANCE COUPLED AMPLIFIER

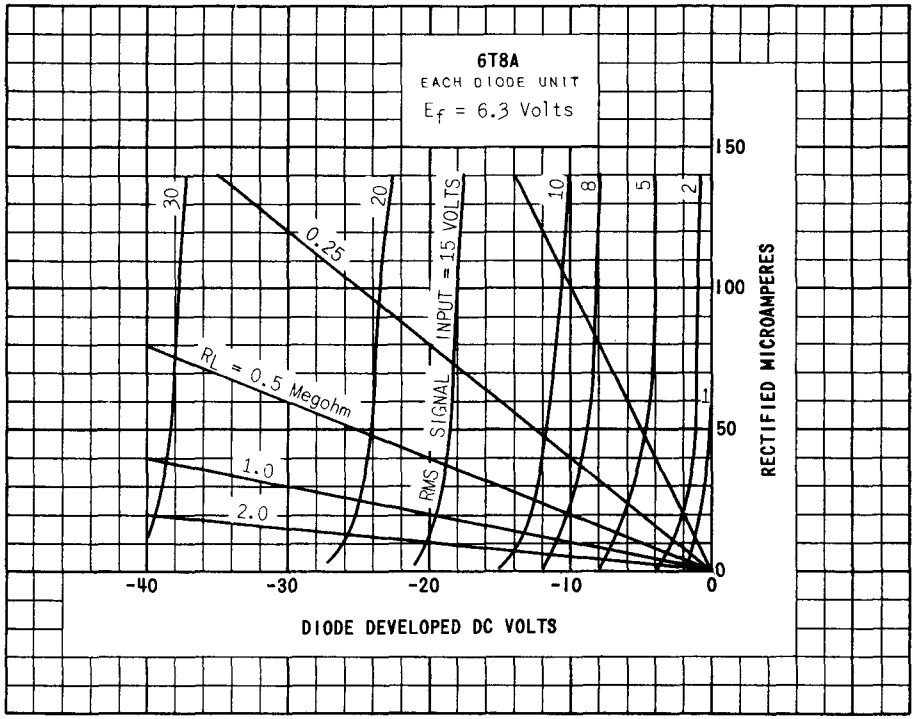
PLATE SUPPLY VOLTAGE	90	VOLTS
CONTROL GRID VOLTAGE	0	VOLTS
PLATE LOAD RESISTOR	220 000	OHMS
CONTROL GRID RESISTOR	10.0	MEGOHMS
INPUT CONDENSER	0.01	µf
OUTPUT CONDENSER	0.01	µf
GRID RESISTOR OF FOLLOWING STAGE	470 000	OHMS
SIGNAL SOURCE IMPEDANCE (MAX.)	1 000	OHMS
DISTORTION	5	PERCENT
OUTPUT VOLTAGE	8.5	VOLTS
VOLTAGE GAIN AT 400 CPS	35	

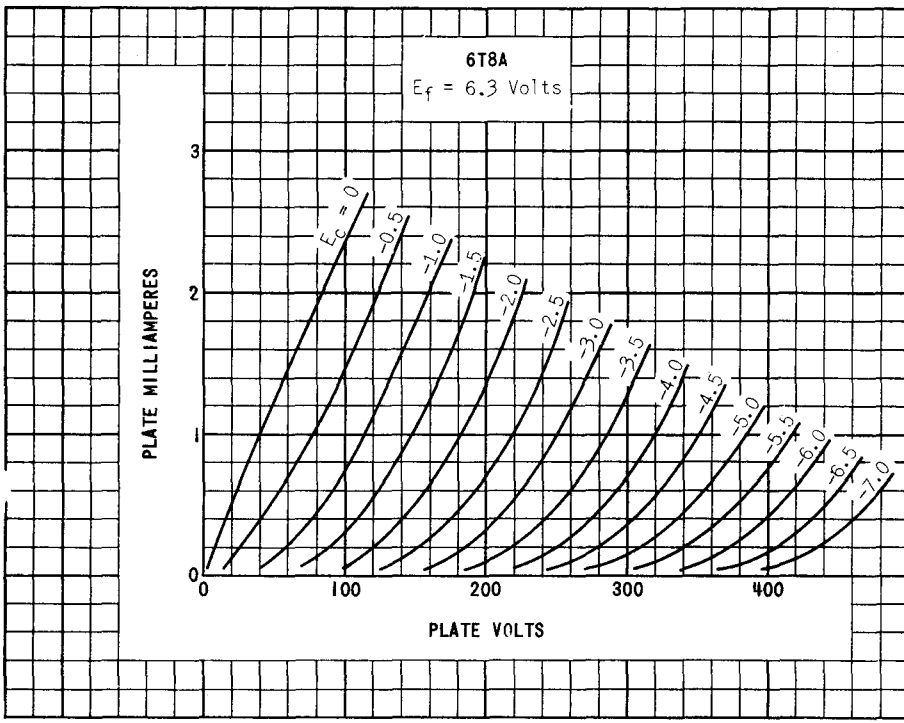
[A] WITH EXTERNAL SHIELD #315 CONNECTED TO PIN #7, EXCEPT AS NOTED.

[B] WITH EXTERNAL SHIELD #315 CONNECTED TO PIN #3.

[C] WITH EXTERNAL SHIELD #315 CONNECTED TO PINS #4 AND #5.

** 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.





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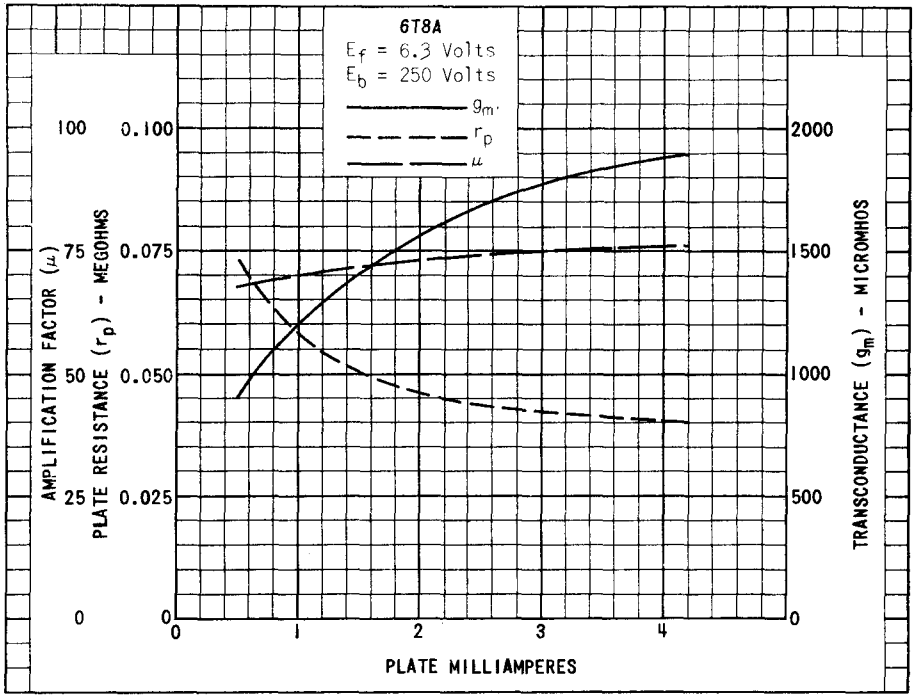
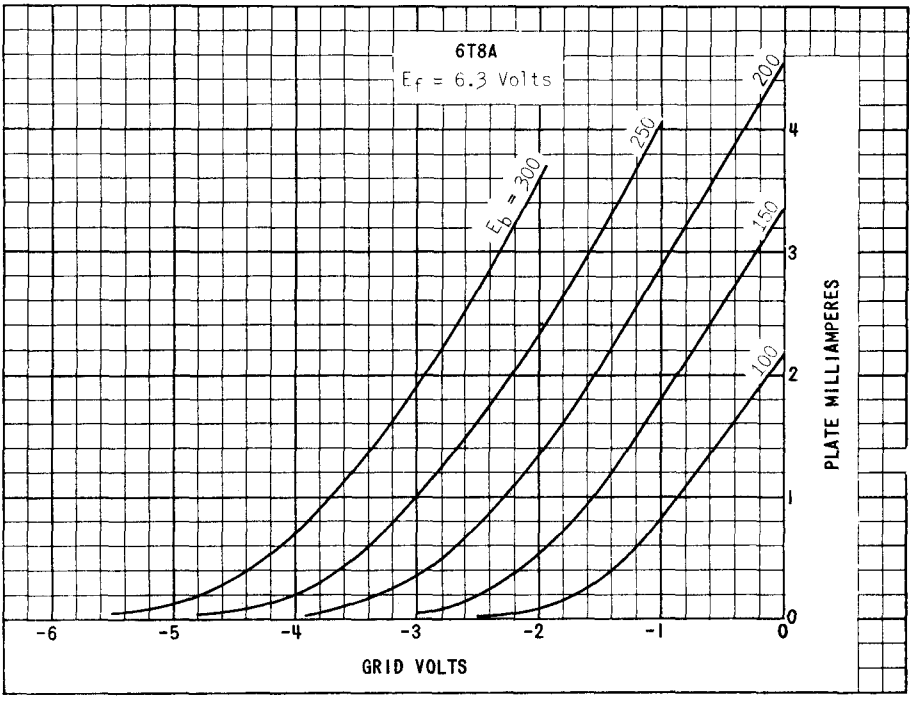
6T8A


6T8A
Ef = 6.3 Volts
Eb = 250 Volts
gm
rp
μ
AMPLIFICATION FACTOR (μ)
PLATE RESISTANCE (rp) - MEGOHMS
TRANSCONDUCTANCE (gm) - MICROMHOS
PLATE MILLIAMPERES
100
75
50
25
0
0.100
0.075
0.050
0.025
0
2000
1500
1000
500
0
0
1
2
3
4


6T8A
Ef = 6.3 Volts
Eb = 300
250
200
150
100
PLATE MILLIAMPERES
GRID VOLTS
-6
-5
-4
-3
-2
-1
0
0
1
2
3
4

TUNG-SOL

RESISTANCE COUPLED AMPLIFIER

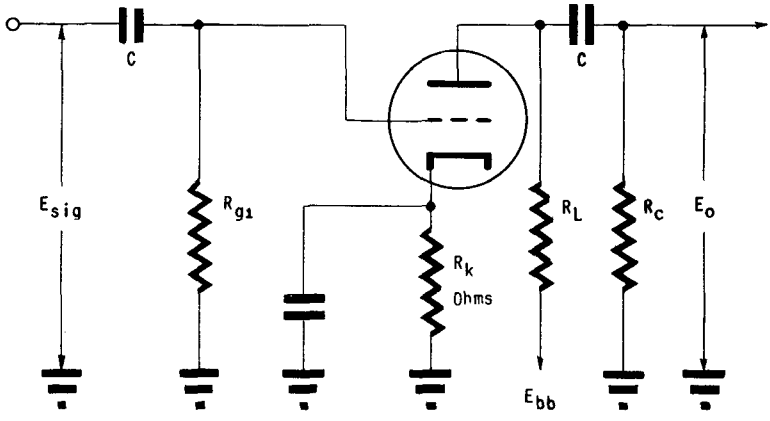
R1	Rg1	Rc	Ebb = 90 VOLTS			Ebb = 180 VOLTS			Ebb = 300 VOLTS		
MEG.	MEG.	MEG.	Rk	GAIN	Eo	Rk	GAIN	Eo	Rk	GAIN	Eo
0.10	A	0.10	5700	21	7	2400	29	18	1800	33	35
0.10	A	0.24	6100	26	9	2700	34	23	2000	38	42
0.24	A	0.24	9100	30	10	4300	40	24	3000	44	43
0.24	A	0.51	10000	34	13	4700	45	31	3300	49	52
0.51	A	0.51	15000	37	14	7500	47	28	5600	51	50
0.51	A	1	16000	40	16	8200	50	35	6200	55	60
0.24	10	0.24	—	31	5.0	—	44	19	—	48	40
0.24	10	0.51	—	37	7.0	—	49	25	—	52	52
0.51	10	0.51	—	39	7.5	—	51	22	—	54	44
0.51	10	1	—	42	10	—	54	28	—	58	56

[A] VALUE OF Rg1 IS NOT CRITICAL.

Rk TAKEN TO NEAREST RMA VALUE FOR EACH CASE INSTEAD OF ABSOLUTE OPTIMUM VALUE.

Eo IS RMS OUTPUT AT 5% TOTAL HARMONIC DISTORTION.

GAIN MEASURED AT Eo = 2.0 VOLTS RMS OUTPUT.



NOTE: COUPLING CAPACITORS (C) SHOULD BE SELECTED TO GIVE DESIRED FREQUENCY RESPONSE. Rk SHOULD BE ADEQUATELY BY-PASSED.