TUNG-SOL

TWIN TRIODE

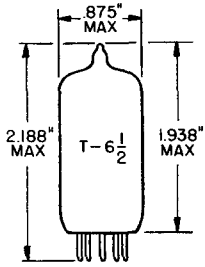
MINIATURE TYPE

FOR

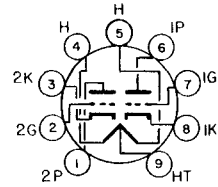
MOBILE COMMUNICATIONS EQUIPMENT

COATED UNIPOTENTIAL CATHODE

ANY MOUNTING POSITION



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



BOTTOM VIEW
BASING DIAGRAM
JEDEC 9A

THE 6080 IS A MEDIUM-MU TRIODE IN THE 9 PIN MINIATURE CONSTRUCTION. IT IS PARTICULARLY SUITED FOR USE IN GENERAL-PURPOSE AMPLIFIER AND PHASE-INVERTER CIRCUITS AS WELL AS FOR MULTI-VIBRATOR AND OSCILLATOR APPLICATIONS.
THE 6680 MAY BE OPERATED WITHOUT SERIOUS DEGRADATION UNDER NORMAL VARIATIONS IN SUPPLY VOLTAGE AS ENCOUNTERED WITH AUTOMOTIVE ELECTRICAL SYSTEMS. ALSO, THE TUBE WILL TOLERATE LARGE HEATER VOLTAGE VARIATIONS FOR SHORT PERIODS, BUT HIGHER EQUIPMENT RELIABILITY CAN BE ACHIEVED WITH IMPROVED SUPPLY-VOLTAGE REGULATION.
THE ELECTRICAL CHARACTERISTICS OF THE 6680 ARE EQUIVALENT TO THE 12AU7.

DIRECT INTERELECTRODE CAPACITANCES

	WITH SHIELD[A]	WITHOUT SHIELD	
GRID TO PLATE, EACH SECTION	1.5	1.5	pf
INPUT, EACH SECTION	1.8	1.6	pf
OUTPUT, SECTION 1	2.0	0.4	pf
OUTPUT, SECTION 2	2.0	0.32	pf

[A] WITH EXTERNAL SHIELD (RETMA 315) CONNECTED TO CATHODE OF SECTION UNDER TEST.

HEATER CHARACTERISTICS AND RATINGS

DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239

SUPPLY CONNECTED TO PINS	4 AND 5	9 AND 4 + 5	
AVERAGE VALUES -VOLTAGE	12.6	6.3	VOLTS
-CURRENT	150	300	MA.
HEATER SUPPLY LIMITS:			
VOLTAGE OPERATION	12.6±2.5	6.3±1.3	VOLTS
MAXIMUM HEATER CATHODE VOLTAGE:			
HEATER NEGATIVE WITH RESPECT TO CATHODE			VOLTS
TOTAL DC AND PEAK	200		VOLTS
HEATER POSITIVE WITH RESPECT TO CATHODE			
DC	100		VOLTS
TOTAL DC AND PEAK	200		VOLTS

PRINTED IN U.S.A.

CONTINUED FROM PRECEDING PAGE

MAXIMUM RATINGS

DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239

EACH SECTION

PLATE VOLTAGE	330	VOLTS
POSITIVE DC GRID VOLTAGE	0	VOLTS
PLATE DISSIPATION	3.0	WATTS
GRID CIRCUIT RESISTANCE		
WITH FIXED BIAS	0.25	MEGOHMS
WITH CATHODE BIAS	1.0	MEGOHMS

TYPICAL OPERATING CHARACTERISTICS

CLASS A1 AMPLIFIER - EACH SECTION

PLATE VOLTAGE	100	250	VOLTS
GRID VOLTAGE	0	−8.5	VOLTS
PLATE CURRENT	11.8	10.5	MA.
TRANSCONDUCTANCE	3100	2200	μMHOS
AMPLIFICATION FACTOR	20	17	
PLATE RESISTANCE, APPROX.	6500	7700	OHMS
GRID VOLTAGE, APPROX.			
Ib = 10 μAMPS	------	−24	VOLTS

CLASS A RESISTANCE - COUPLED AMPLIFIER

EACH SECTION

LOW IMPEDANCE DRIVE (APPROXIMATELY 200 OHMS)										
R_L	R_{gf}	E_{bb} = 90 Volts			E_{bb} = 180 Volts			E_{bb} = 300 Volts		
		R_k	E_o	Gain	R_k	E_o	Gain	R_k	E_o	Gain
0.10	0.10	3900	10	10	3600	20	11	3500	30	11
0.10	0.24	5000	14	11	4700	27	12	4400	41	12
0.24	0.24	9400	13	11	8700	25	11	8700	38	12
0.24	0.51	11000	17	11	11000	32	12	11000	48	12
0.51	0.51	19000	15	11	18000	29	12	18000	43	12
0.51	1.0	24000	19	11	23000	37	12	23000	54	12

HIGH IMPEDANCE DRIVE (APPROXIMATELY 100K OHMS)										
R_L	R_{gf}	E_{bb} = 90 Volts			E_{bb} = 180 Volts			E_{bb} = 300 Volts		
		R_k	E_o	Gain	R_k	E_o	Gain	R_k	E_o	Gain
0.10	0.10	2600	11	12	2000	22	13	18000	31	13
0.10	0.24	3400	16	12	2800	32	13	2600	44	14
0.24	0.24	7200	15	12	5800	29	13	5000	41	13
0.24	0.51	9400	19	12	8400	37	13	7000	52	13
0.51	0.51	17000	16	12	15000	33	13	13000	46	13
0.51	1.0	22000	20	12	20000	42	13	18000	58	13

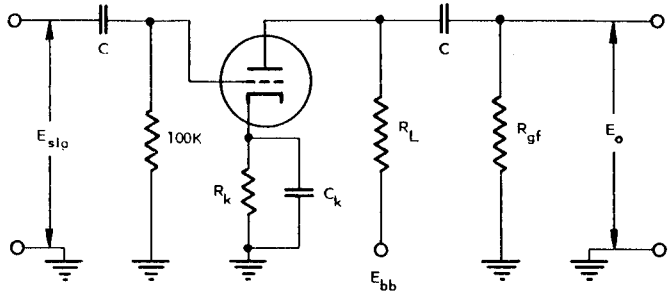
1. E_o IS MAXIMUM RMS VOLTAGE OUTPUT FOR APPROXIMATELY 5% TOTAL HARMONIC DISTORTION.

2. GAIN IS MEASURED FOR AN OUTPUT VOLTAGE OF TWO VOLTS RMS.

3. R_k IS IN OHMS; R_L AND R_{gf} ARE IN MEGOHMS.

TUNG-SOL

CONTINUED FROM PRECEDING PAGE



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

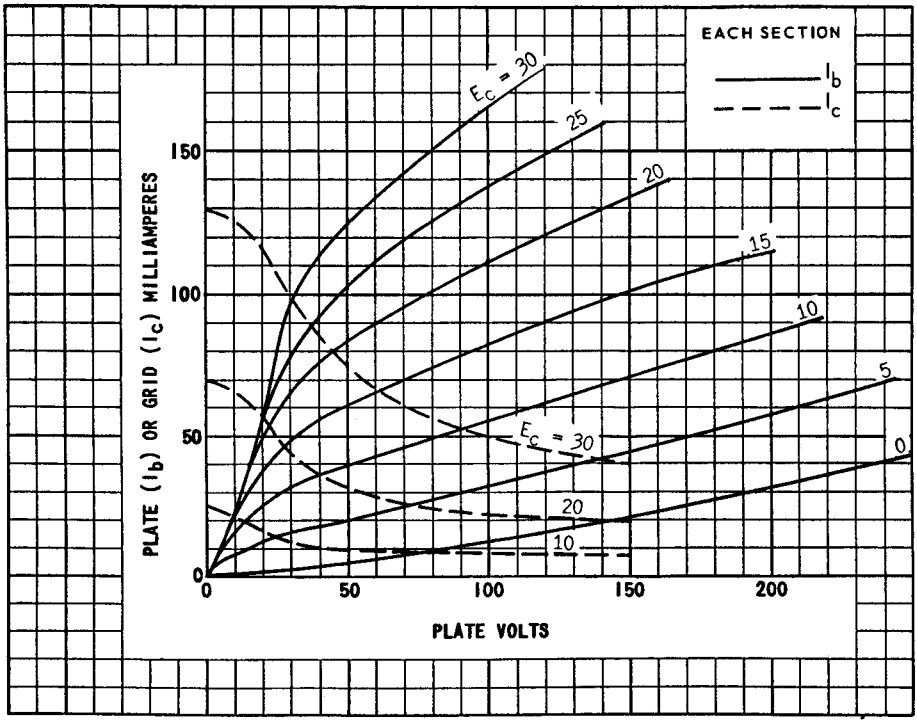
SPECIAL TESTS AND RATINGS

HEATER-CYCLING LIFE TEST

AVERAGE TRANSCONDUCTANCE AT REDUCED HEATER VOLTAGE

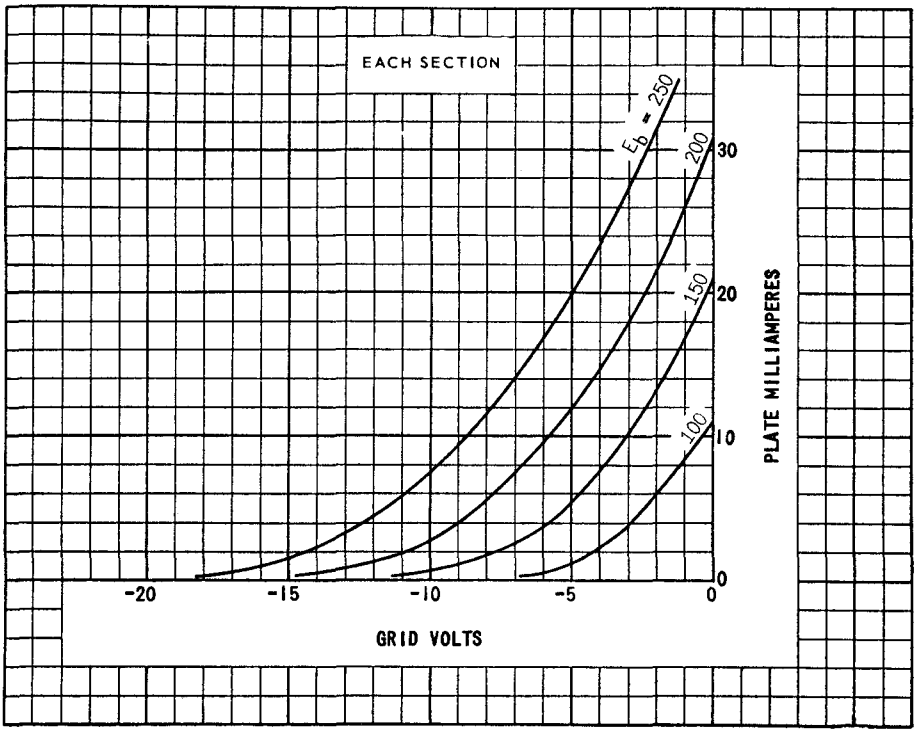
EACH SECTION ,750 μMHOS

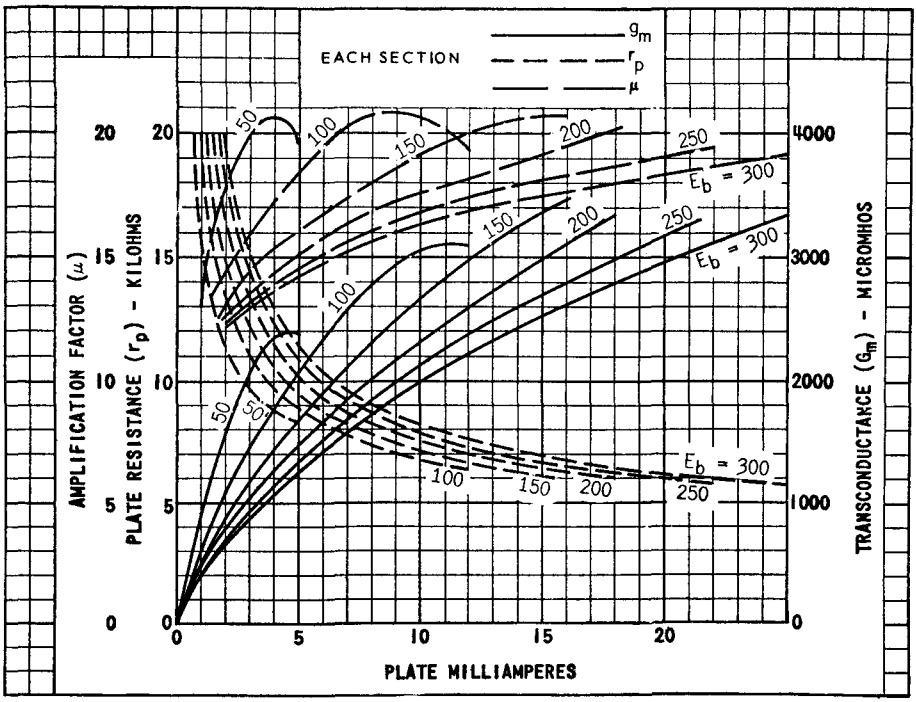
Ef = 10.0 V., Eb = 250 V., Ec = −8.5 V.

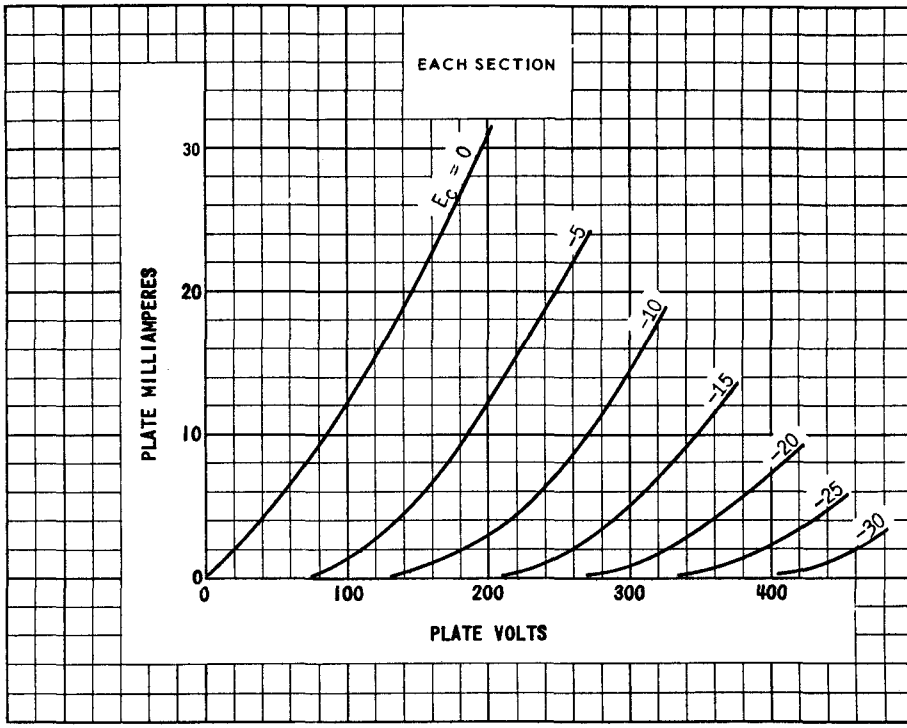


PRINTED IN U.S.A.

6680


EACH SECTION
E_b = 250
200
150
100
30
20
10
0
PLATE MILLIAMPERES
-20
-15
-10
-5
0
GRID VOLTS


EACH SECTION
g_m
r_p
μ
50
100
150
200
250
E_b = 300
30
AMPLIFICATION FACTOR (μ)
PLATE RESISTANCE (r_p) - KILOHMS
TRANSCONDUCTANCE (G_m) - MICROMHOS
20
15
10
5
0
4000
3000
2000
1000
PLATE MILLIAMPERES



PRINTED IN U. S. A.