TUNG·SOL
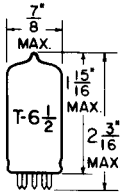
DUPLEX-DIODE TRIODE
MINIATURE TYPE

COATED UNIPOTENTIAL CATHODE

HEATER

6.3 ± 10% VOLTS   0.6 AMP.

AC OR DC

ANY MOUNTING POSITION

GLASS BULB

7" / 8 MAX.

1 15/16 MAX.

T-6 1/2

2 3/16 MAX.
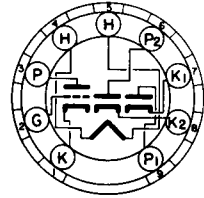
BOTTOM VIEW
SMALL BUTTON
9 PIN BASE
9FJ

THE 6BV8 IS A MINIATURE DUPLEX-DIODE MEDIUM MU TRIODE IN WHICH SEPARATE
CATHODE AND PLATE CONNECTIONS ARE PROVIDED FOR EACH DIODE SECTION. THE
TUBE IS INTENDED PRIMARILY FOR SERVICE AS A COMBINED SYNCHRONOUS DE-
TECTOR AND CHROMINANCE AMPLIFIER IN COLOR TELEVISION RECEIVERS. THE HIGH
PERVEANCE CHARACTERISTIC OF THE TRIODE SECTION ADAPTS THE TUBE PAR-
TICULARLY TO THIS SERVICE. IT IS ALSO SUITABLE FOR USE AS A COMBINED FM
DETECTOR AND AUDIO-FREQUENCY VOLTAGE AMPLIFIER. 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 EXTERNAL SHIELD

TRIODE GRID TO PLATE	2.0	$\mu\mu f$
TRIODE INPUT	3.6	$\mu\mu f$
TRIODE OUTPUT	0.4	$\mu\mu f$
GRID TO DIODE #1 PLATE (MAX.)	0.03	$\mu\mu f$
GRID TO DIODE #2 PLATE (MAX.)	0.07	$\mu\mu f$
DIODE #1 PLATE TO DIODE #1 CATHODE & HEATER	2.4	$\mu\mu f$
DIODE #2 PLATE TO DIODE #2 CATHODE & HEATER	2.4	$\mu\mu f$

RATINGS
INTERPRETED ACCORDING TO DESIGN CENTER SYSTEM

HEATER VOLTAGE	6.3±10%	VOLTS
MAXIMUM PLATE VOLTAGE	330	VOLTS
MAXIMUM POSITIVE DC GRID VOLTAGE	0	VOLTS
MAXIMUM PLATE DISSIPATION	2.7	WATTS
MAXIMUM HEATER—CATHODE VOLTAGE:		
HEATER POSITIVE WITH RESPECT TO CATHODE		
DC COMPONENT	100	VOLTS
TOTAL DC AND PEAK	200	VOLTS
HEATER NEGATIVE WITH RESPECT TO CATHODE		
TOTAL DC AND PEAK	200	VOLTS
MAXIMUM GRID CIRCUIT RESISTANCE		
FIXED BIAS	0.1	MEGOHMS
CATHODE BIAS	0.5	MEGOHMS
MAXIMUM DIODE CURRENT FOR CONTINUOUS OPERATION (EA.DIODE)	10	MA.
HEATER WARM-UP TIME*	11.0	SECONDS

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TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

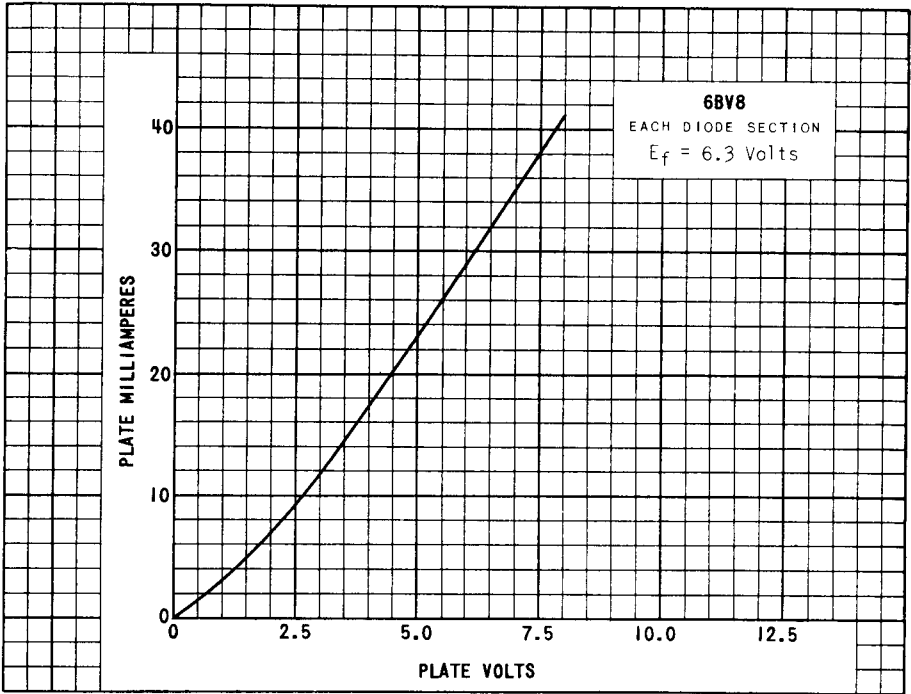|			
HEATER VOLTAGE	6.3±10%	6.3±10%	VOLTS
HEATER CURRENT	0.6	0.6	AMP.
PLATE VOLTAGE	75	200	VOLTS
GRID VOLTAGE	0	---	VOLTS
CATHODE—BIAS RESISTOR	---	330	OHMS
AMPLIFICATION FACTOR	---	33	
PLATE RESISTANCE (APPROX.)	---	5 900	OHMS
TRANSCONDUCTANCE	---	5 600	μMHOS
PLATE CURRENT	14	11	MA.
GRID VOLTAGE (APPROX.)			
$I_b = 100\ \mu$AMPS	---	~11	VOLTS
AVERAGE DIODE CURRENT (EACH DIODE)			
WITH 5.0 VOLTS DC APPLIED	---	23	MA.

*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 ADJUST- MENT, LOAD VARIATION, AND ENVIRONMENTAL CONDITIONS.

6BV8
TRIODE SECTION
E_f = 6.3 Volts
I_b
I_c

6BV8
TRIODE SECTION
E_f = 6.3 Volts

— — — g_m
— — — r_p
——— μ

PLATE RESISTANCE (r_p)–KILOHMS

TRANSCONDUCTANCE (g_m)–MICROMHOS

AMPLIFICATION FACTOR (μ)

PLATE MILLIAMPERES

E_b=250

E_b = 150

E_b = 250

6BV8
TRIODE SECTION
E_f = 6.3 Volts

E_b =300

PLATE MILLIAMPERES

GRID VOLTS

6BV8
EACH DIODE SECTION
$E_f = 6.3$ Volts
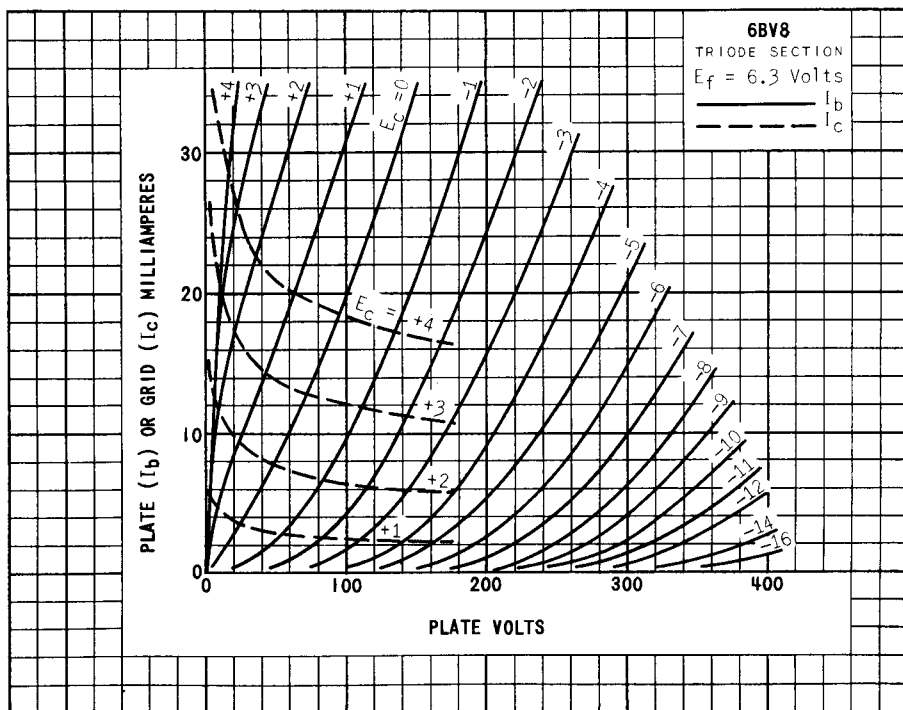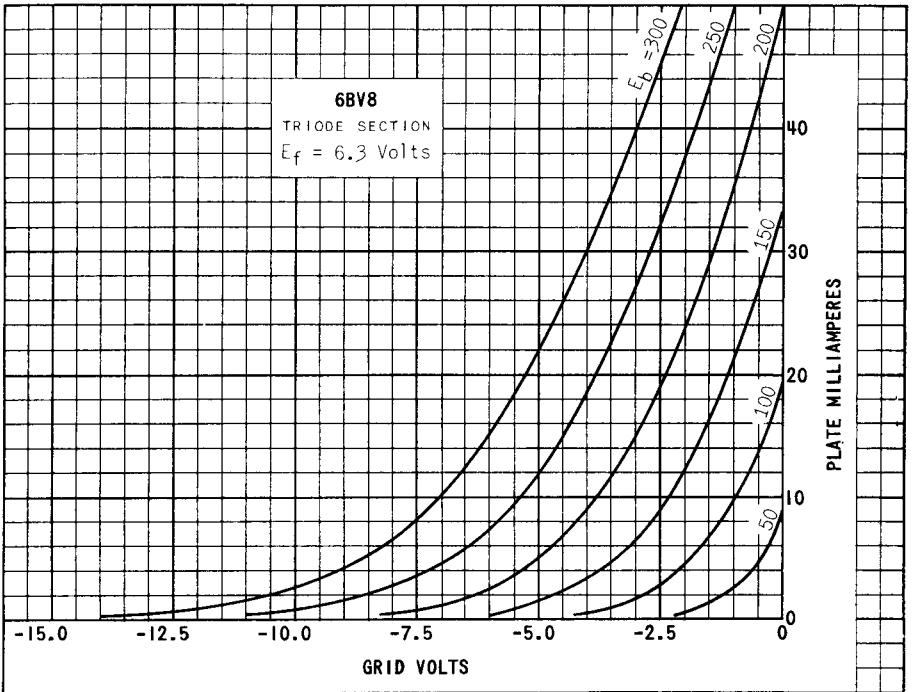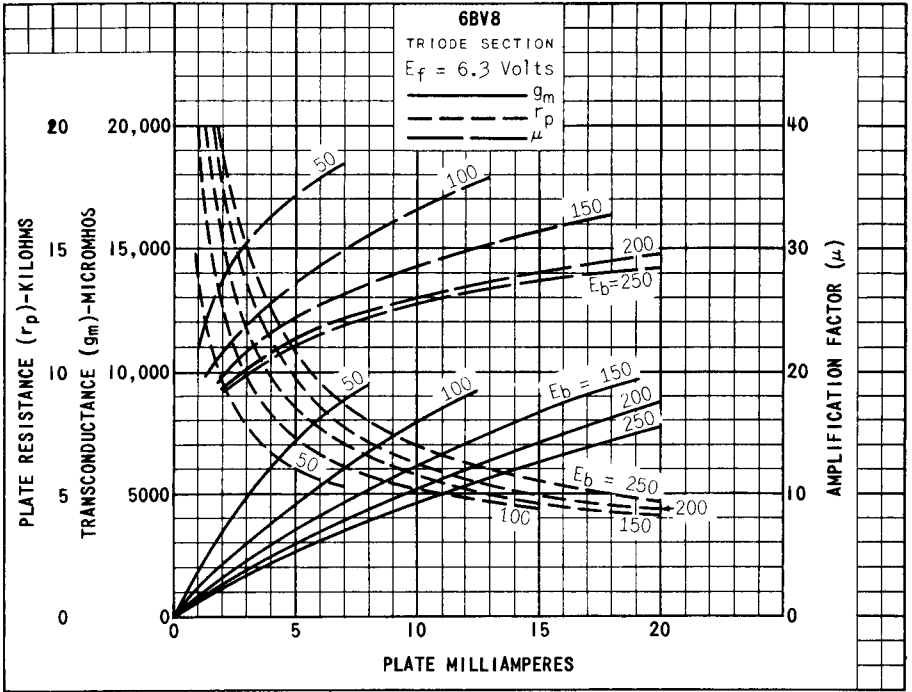
CLASS A RESISTANCE-COUPLED AMPLIFIER
TRIODE SECTION

		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	1600	7.5	18	1500	16	20	1500	28	21
0.10	0.24	1900	7.8	19	1900	22	21	1900	38	21
0.24	0.24	4200	9.4	18	3600	19	19	3600	33	20
0.24	0.51	5100	12	19	4300	26	20	4200	42	22
0.51	0.51	9200	10	18	7800	22	19	7500	36	20
0.51	1.0	11000	13	18	10000	28	19	9400	46	20
		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	2000	11	17	1400	24	20	1100	39	22
0.10	0.24	2500	15	18	1800	31	21	1600	53	22
0.24	0.24	5300	13	18	3700	28	20	3200	45	21
0.24	0.51	6100	16	18	4700	33	20	4100	57	21
0.51	0.51	8100	14	17	8000	28	19	7100	48	20
0.51	1.0	13000	17	18	10000	34	19	9300	59	20

NOTES:

1. E_o is maximum RMS voltage output for approximately five percent 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.

4. Coupling capacitors (C) should be selected to give desired frequency response. R_k should be adequately by-passed.