TUNG-SOL

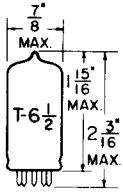
DOUBLE-DIODE PENTODE

MINIATURE TYPE

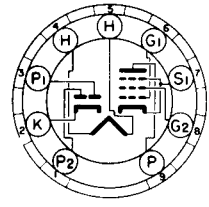
COATED UNIPOTENTIAL CATHODE

HEATER
4.7 VOLTS 0.6±6% AMP.
AC OR DC

ANY MOUNTING POSITION



GLASS BULB



BOTTOM VIEW
SMALL BUTTON
9 PIN BASE
9HK

THE 5BW8 IS A DOUBLE-DIODE PENTODE IN WHICH SEPARATE CATHODES ARE PROVIDED FOR THE TWO SECTIONS. THE DIODE SECTIONS ARE INTENDED FOR USE PRIMARILY AS A HORIZONTAL PHASE DETECTOR IN TELEVISION RECEIVERS. THE PENTODE SECTION IS SUITABLE FOR USE AS A SOUND IF AMPLIFIER, SOUND LIMITER, AND AUTOMATIC-GAIN-CONTROL KEYER.

DIRECT INTERELECTRODE CAPACITANCES

WITHOUT EXTERNAL SHIELD

PENTODE GRID #1 TO PLATE (MAX.)	0.020	μμf
PENTODE INPUT	4.8	μμf
PENTODE OUTPUT	2.6	μμf
GRID #1 TO EACH DIODE PLATE (MAX.)	0.006	μμf
DIODE #1 PLATE TO DIODE CATHODE & HEATER	1.3	μμf
DIODE #2 PLATE TO DIODE CATHODE & HEATER	1.2	μμf

RATINGS

INTERPRETED ACCORDING TO DESIGN CENTER SYSTEM

HEATER VOLTAGE	4.7	VOLTS
MAXIMUM PLATE VOLTAGE	0.6±6%	VOLTS
MAXIMUM SCREEN-SUPPLY VOLTAGE	330	VOLTS
MAXIMUM SCREEN VOLTAGE	SEE SCREEN RATING CHART	
MAXIMUM POSITIVE DC GRID #1 VOLTAGE	0	VOLTS
MAXIMUM NEGATIVE DC GRID #1 VOLTAGE	55	VOLTS
MAXIMUM PLATE DISSIPATION	3.0	WATTS
MAXIMUM SCREEN DISSIPATION	0.55	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 #1 CIRCUIT RESISTANCE		
WITH FIXED BIAS	0.1	MEGOHMS
WITH CATHODE BIAS	0.5	MEGOHMS
MAXIMUM DIODE CURRENT FOR CONTINUOUS OPERATION (EA. SEC.)	5.0	MA.
HEATER WARM-UP TIME (APPROX.) *	11.0	SECONDS

*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.

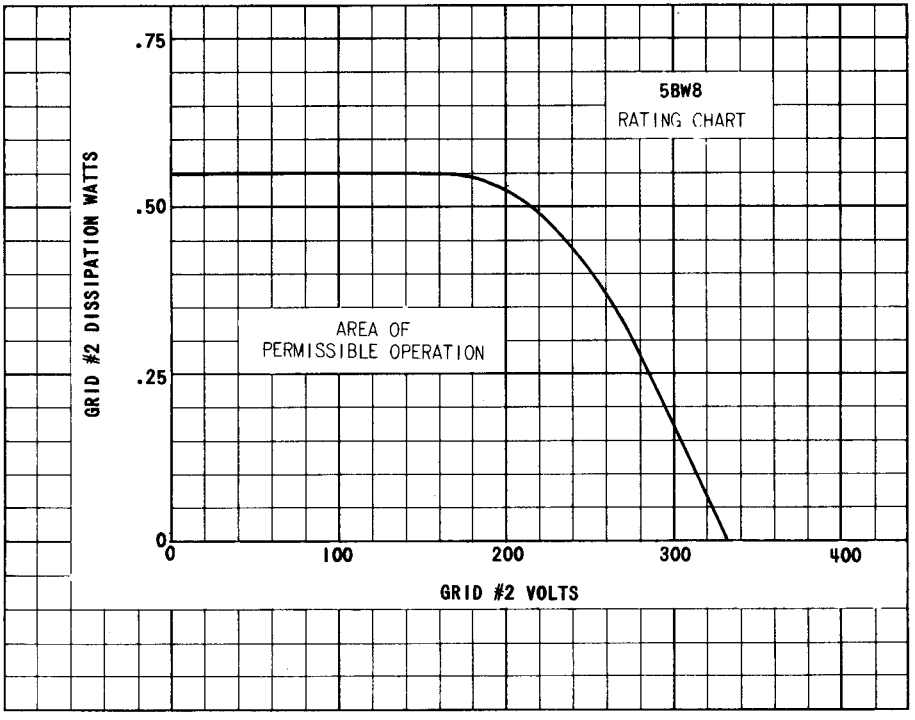
TUNG-SOL

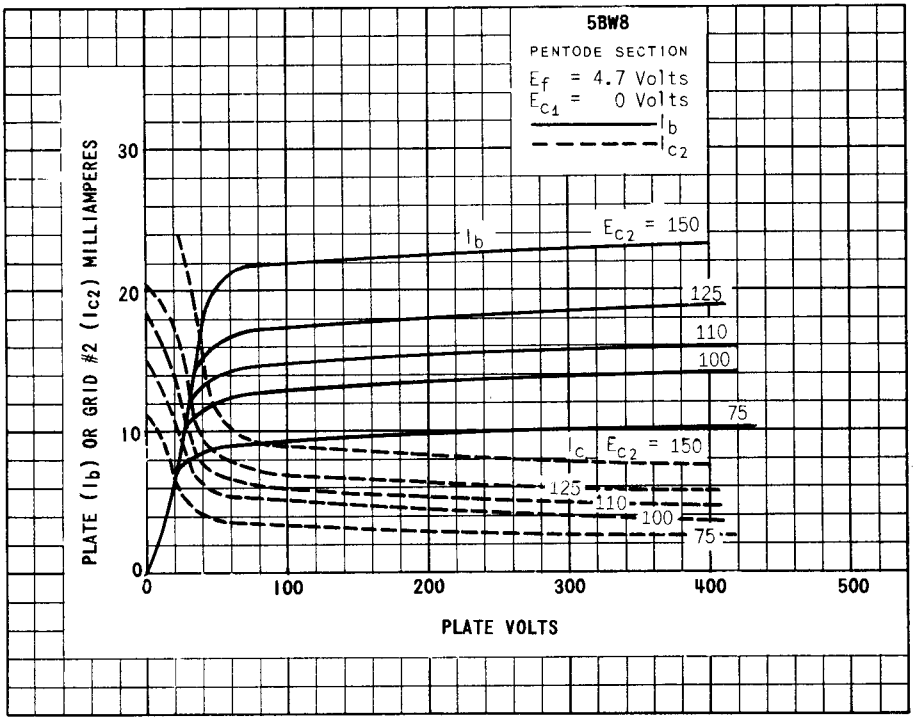
CONTINUED FROM PRECEDING PAGE

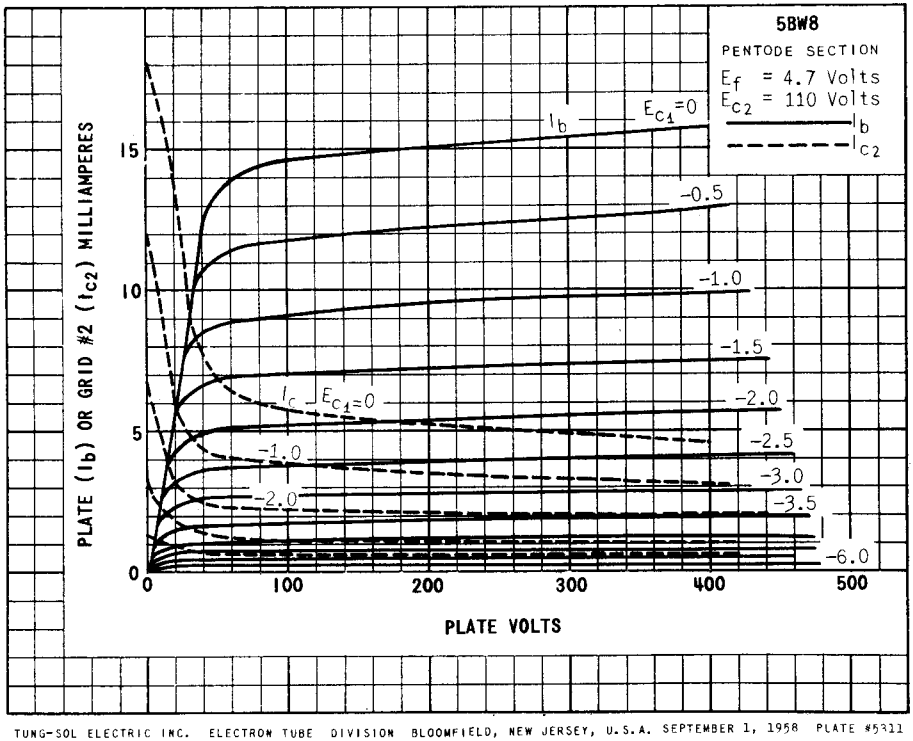
TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

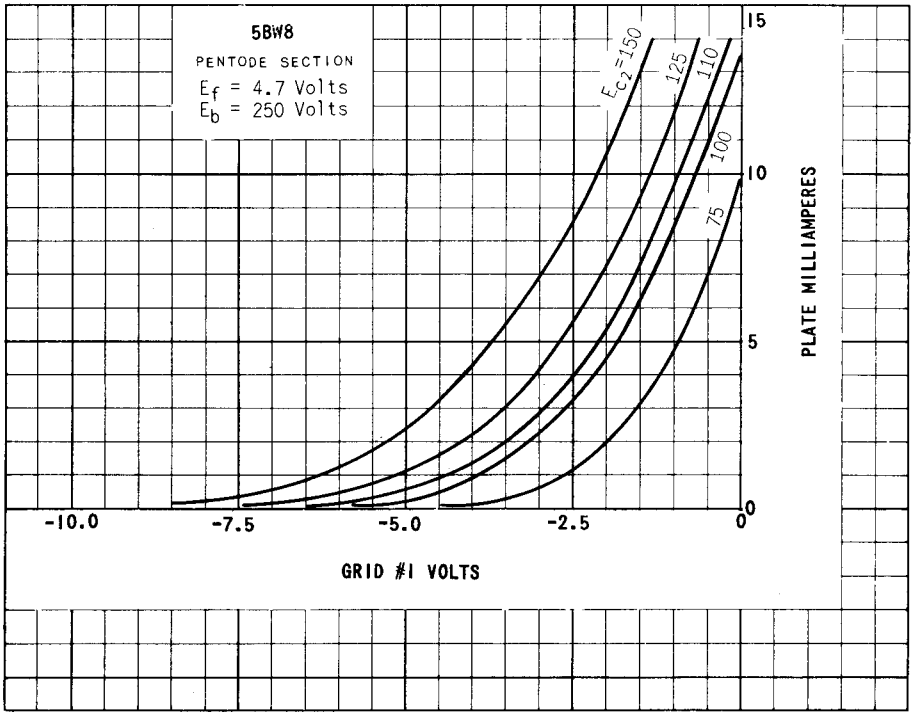
HEATER VOLTAGE	4.7	VOLTS
HEATER CURRENT	0.6±6%	AMP.
PLATE VOLTAGE	250	VOLTS
SCREEN VOLTAGE	110	VOLTS
CATHODE-BIAS RESISTOR	68	OHMS
PLATE RESISTANCE (APPROX.)	0.25	MEGOHMS
TRANSCONDUCTANCE	5200	μMHOS
PLATE CURRENT	10	MA.
SCREEN CURRENT	3.5	MA.
GRID #1 VOLTAGE (APPROX.) I_b=10 μAMPS	-10	VOLTS
AVERAGE DIODE CURRENT (EACH DIODE) WITH 5 VOLTS DC APPLIED	20	MA.

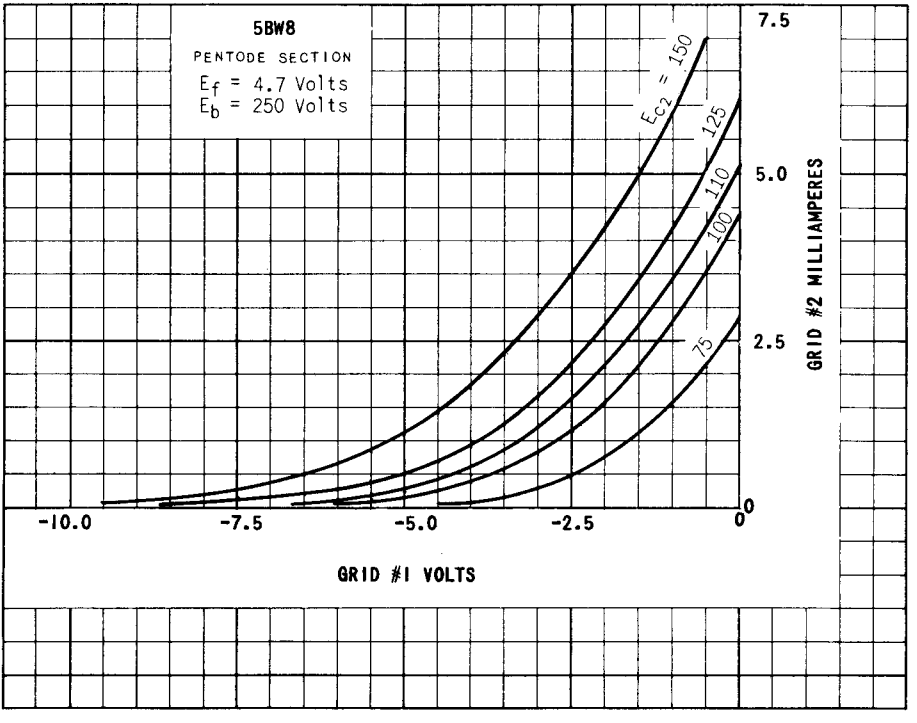
DESIGN-MAXIMUM RATINGS ARE THE LIMITING VALUES EXPRESSED WITH RESPECT TO BOGIE TUBES AT WHICH SATISFACTORY TUBE LIFE CAN BE EXPECTED TO OCCUR. TO OBTAIN SATISFACTORY CIRCUIT PERFORMANCE, THEREFORE, THE EQUIPMENT DESIGNER MUST ESTABLISH THE CIRCUIT DESIGN SO THAT NO DESIGN-MAXIMUM VALUE IS EXCEEDED WITH A BOGIE TUBE UNDER THE WORST PROBABLE OPERATING CONDITIONS WITH RESPECT TO SUPPLY-VOLTAGE VARIATION, EQUIPMENT COMPONENT VARIATION, EQUIPMENT CONTROL ADJUSTMENT, LOAD VARIATION, AND ENVIRONMENTAL CONDITIONS.

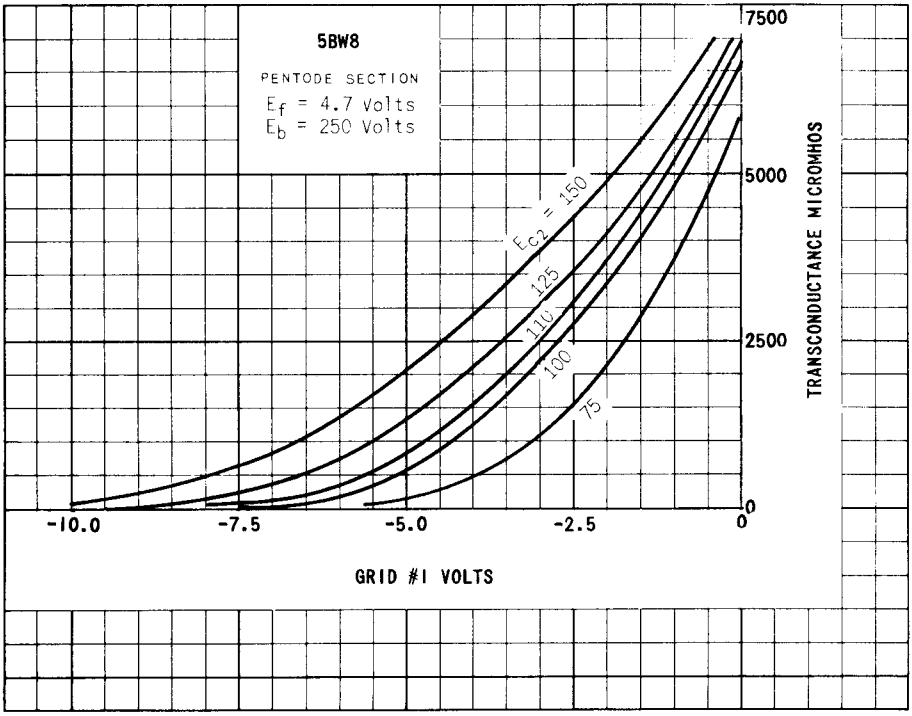


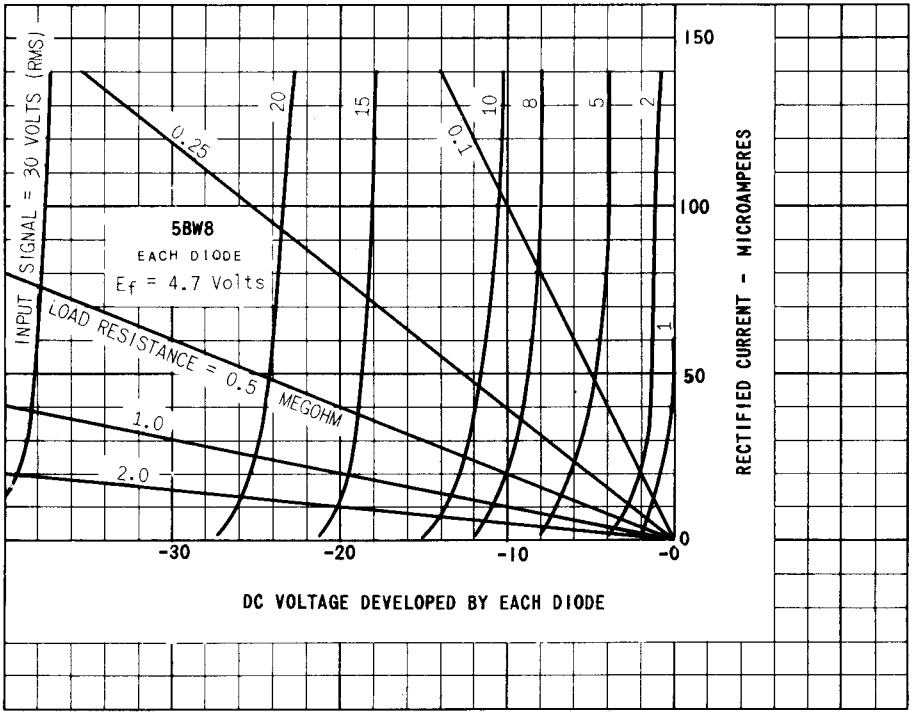

5BW8
PENTODE SECTION
E_f = 4.7 Volts
E_{c_1} = 0 Volts
I_b
I_{c_2}
PLATE (I_b) OR GRID #2 (I_{c_2}) MILLIAMPERES
PLATE VOLTS
I_b E_{c_2} = 150
125
110
100
75
I_c E_{c_2} = 150
125
110
100
75
0
10
20
30
0
100
200
300
400
500


5BW8
PENTODE SECTION
E_f = 4.7 Volts
E_{c_2} = 110 Volts
I_b
I_{c_2}
PLATE (I_b) OR GRID #2 (I_{c_2}) MILLIAMPERES
PLATE VOLTS
I_b E_{c_1}=0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-6.0
I_c E_{c_1}=0
-1.0
-2.0
0
5
10
15
0
100
200
300
400
500


5BW8
PENTODE SECTION
E_f = 4.7 Volts
E_b = 250 Volts
E_{c_2}=150
125
110
100
75
15
10
5
0
PLATE MILLIAMPERES
-10.0
-7.5
-5.0
-2.5
0
GRID #1 VOLTS


5BW8
PENTODE SECTION
E_f = 4.7 Volts
E_b = 250 Volts
E_{c_2} = 150
125
110
100
75
7.5
5.0
2.5
0
GRID #2 MILLIAMPERES
-10.0
-7.5
-5.0
-2.5
0
GRID #1 VOLTS


5BW8
PENTODE SECTION
E_f = 4.7 Volts
E_b = 250 Volts
E_{c2} = 150
125
110
100
75
7500
5000
2500
0
TRANSCONDUCTANCE MICROMHOS
-10.0
-7.5
-5.0
-2.5
0
GRID #1 VOLTS


INPUT SIGNAL = 30 VOLTS (RMS)
5BW8
EACH DIODE
E_f = 4.7 Volts
LOAD RESISTANCE = 0.5 MEGOHM
1.0
2.0
0.25
20
15
10
8
5
2
1
0.1
150
100
50
0
RECTIFIED CURRENT - MICROAMPERES
-30
-20
-10
-0
DC VOLTAGE DEVELOPED BY EACH DIODE