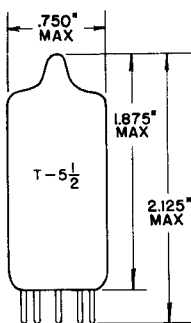
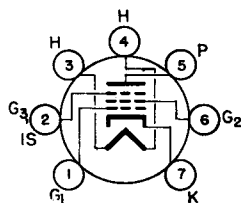


TUNG-SOL



GLASS BULB
MINIATURE BUTTON
7 PIN BASE E7-1
OUTLINE DRAWING
JEDEC 5-2

PENTODE
MINIATURE TYPE
COATED UNIPOTENTIAL CATHODE
HEATER
6.3 VOLTS 300 MA.
AC OR DC
ANY MOUNTING POSITION



BOTTOM VIEW
BASING DIAGRAM
JEDEC 78K

THE 5749 IS A MINIATURE REMOTE CUT-OFF AMPLIFIER PENTODE INTENDED FOR USE AS A RADIO FREQUENCY OR INTERMEDIATE FREQUENCY AMPLIFIER. IT IS DESIGNED FOR RELIABLE LIFE UNDER CONDITIONS OF INTERMITTENT OPERATION.

DIRECT INTERELECTRODE CAPACITANCES

	WITH SHIELD ^A	WITHOUT SHIELD	
GRID TO PLATE (MAX.)	0.0035	0.0035	pf
INPUT	5.5	5.5	pf
OUTPUT	5.5	5.0	pf

^A WITH EXTERNAL SHIELD #316 CONNECTED TO PIN #7.

RATINGS

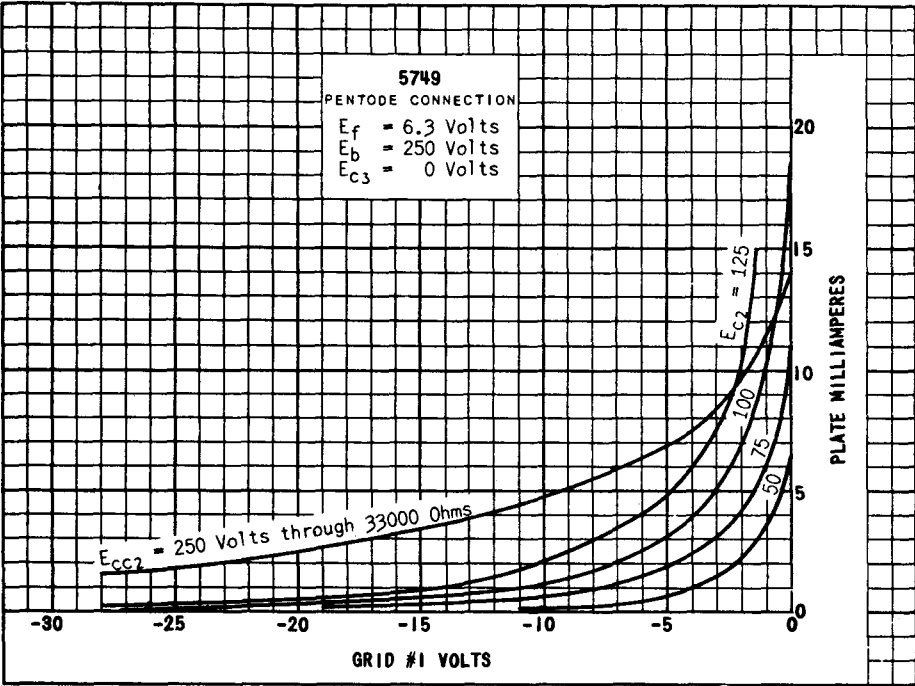
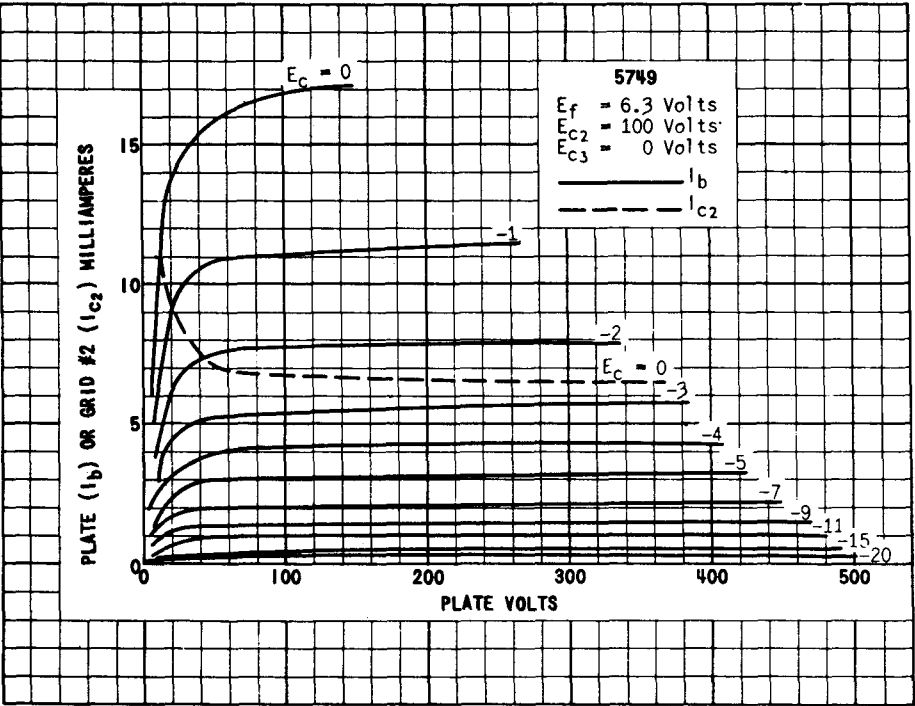
DESIGN CENTER VALUES

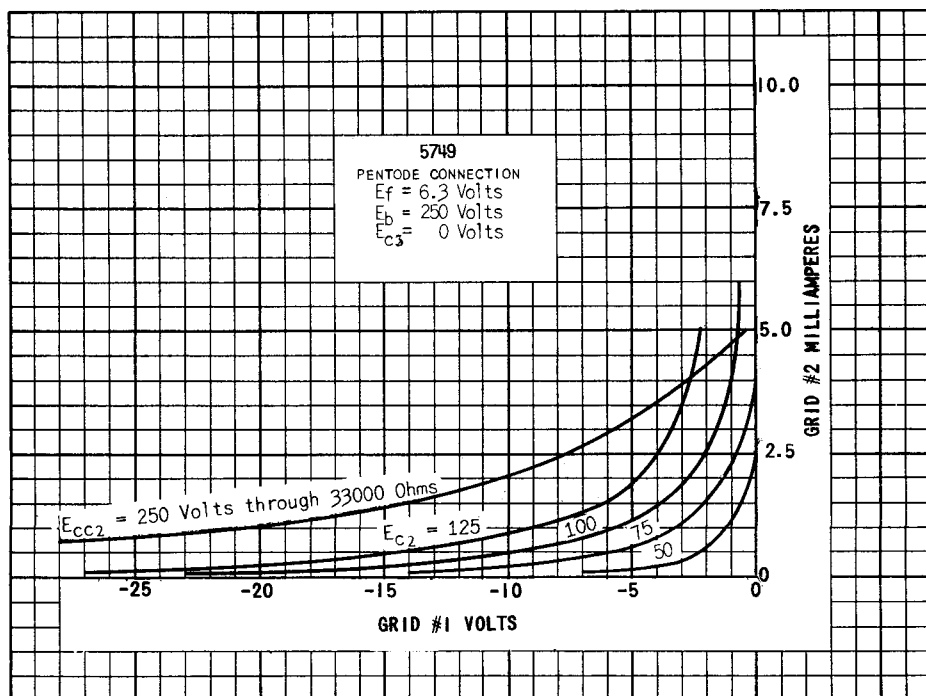
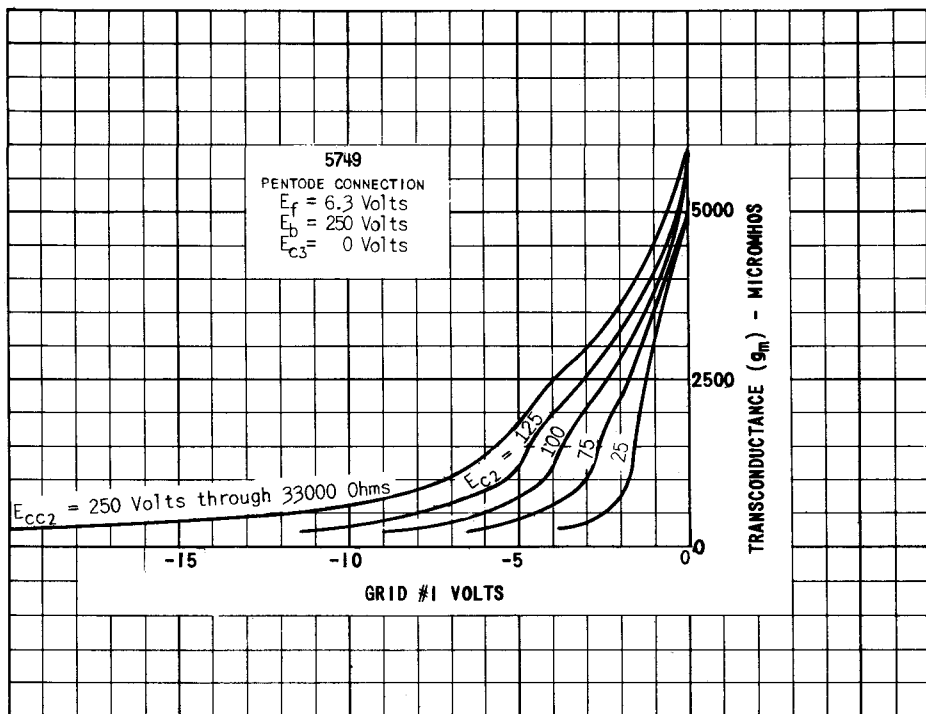
MAXIMUM HEATER-CATHODE VOLTAGE	90	VOLTS
MAXIMUM PLATE VOLTAGE	300	VOLTS
MAXIMUM GRID #2 VOLTAGE	125	VOLTS
MAXIMUM GRID #2 SUPPLY VOLTAGE	300	VOLTS
MAXIMUM POSITIVE GRID #1 BIAS VOLTAGE	0	VOLTS
MAXIMUM NEGATIVE GRID #1 BIAS VOLTAGE	50	VOLTS
MAXIMUM PLATE DISSIPATION	3.0	WATTS
MAXIMUM GRID #2 DISSIPATION	0.6	WATTS

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

CLASS A₁ AMPLIFIER

PLATE VOLTAGE	100	250	VOLTS
GRID #3 VOLTAGE	0	0	VOLTS
GRID #2 VOLTAGE	100	100	VOLTS
CATHODE BIAS RESISTOR	68	68	OHMS
TRANSCONDUCTANCE	4,300	4,400	μMHOS
PLATE RESISTANCE (APPROX.)	0.25	1.0	MEGOHM
PLATE CURRENT	10.8	11.0	MA.
GRID #2 CURRENT	4.4	4.2	MA.
GRID #1 VOLTAGE FOR $G_m = 40 \mu\text{MHOS}$	-20	-20	VOLTS.





TUNG-SOL

PENTODE

MINIATURE TYPE

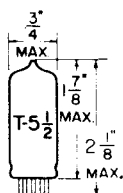
COATED UNIPOTENTIAL CATHODE

HEATER

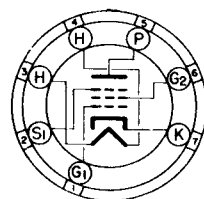
6.3 VOLTS 0.3 AMP.

AC OR DC

ANY MOUNTING POSITION



GLASS BULB


BOTTOM VIEW
 MINIATURE BUTTON
 7 PIN BASE

78K

THE 5749/6BA6W IS A RUGGEDIZED, REMOTE CUT-OFF PENTODE VOLTAGE AMPLIFIER OF THE SEVEN PIN MINIATURE CONSTRUCTION. IT HAS EXTREMELY LOW GRID-PLATE CAPACITANCE AND HIGH TRANSCONDUCTANCE TO PERMIT EFFICIENT OPERATION IN SUCH APPLICATIONS AS RF AND IF AMPLIFIERS. CONTROLS ON THE PRODUCT AVERAGE FOR SUCH CHARACTERISTICS AS HEATER CURRENT, PLATE CURRENT, SCREEN GRID CURRENT AND TRANSCONDUCTANCE ASSURE THAT THESE CRITICAL CHARACTERISTICS WILL REMAIN WELL CENTERED. SINCE IT MUST BE ABLE TO WITHSTAND SEVERE MECHANICAL TESTS TO MEET TEST SPECIFICATIONS, THE 5749/6BA6W IS ESPECIALLY SUITED FOR USE IN MILITARY OR INDUSTRIAL AIRBORNE EQUIPMENT WHICH MAY BE SUBJECTED TO SEVERE SHOCK AND VIBRATION.

DIRECT INTERELECTRODE CAPACITANCES

	WITH SHIELD #315	WITHOUT SHIELD	
MAXIMUM GRID #1 TO PLATE (RATED)	.0035	.0035	μμf
INPUT (RATED)	5.5	5.5	μμf
MAXIMUM	---	6.6	μμf
MINIMUM	---	4.4	μμf
OUTPUT (RATED)	5.5	5.0	μμf
MAXIMUM	---	6.5	μμf
MINIMUM	---	3.5	μμf

RATINGS

ABSOLUTE MAXIMUM VALUES

HEATER VOLTAGE	6.3±10%	VOLTS
MAXIMUM DC PLATE VOLTAGE	330	VOLTS
MAXIMUM DC GRID #2 VOLTAGE	150	VOLTS
MAXIMUM PLATE DISSIPATION	3.3	WATTS
MAXIMUM GRID #2 DISSIPATION	0.7	WATT
MAXIMUM HEATER-CATHODE VOLTAGE	±100	VOLTS
MAXIMUM BULB TEMPERATURE	165	°C
MAXIMUM ALTITUDE	10 000	FEET
MAXIMUM SHOCK	450	G

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

CLASS A₁ AMPLIFIER

HEATER VOLTAGE	6.3	VOLTS
HEATER CURRENT	0.3	AMP.
PLATE VOLTAGE	100	250 VOLTS
GRID #3 VOLTAGE	0	0 VOLTS
SCREEN GRID VOLTAGE	100	100 VOLTS

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TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS — CONT'D.
CLASS A₁ AMPLIFIER

CATHODE BIAS RESISTOR	68	68	OHMS
PLATE RESISTANCE (APPROX.)	0.25	1.0	MEGOHMS
TRANSCONDUCTANCE	4300	4400	μMHOS
PLATE CURRENT	10.8	11.0	mA
SCREEN CURRENT	4.4	4.2	mA
GRID #1 VOLTAGE, $G_m = 40$ μMHOS	-20	20	VOLTS

CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN

 $E_f = 6.3V$, $E_b = 250Vdc$, $E_{c1} = 0Vdc$, $E_{c2} = 100Vdc$, $R_k^A = 680HMS$, E_{c3}^B

	INITIAL		500 HOUR LIFE TEST				
	INDIVIDUAL MIN.	MAX.	PROD. MIN.	AVG. MAX.	INDIVIDUAL MIN.	MAX.	
HEATER CURRENT	275	325	289	311	275	325	mA
HEATER CATHODE-LEAKAGE ($E_{hk} = \pm 100 Vdc$)	---	10	---	3	---	10	μAdc
GRID CURRENT ($E_{c1} = -1.0Vdc$, $R_{g1} = 0.25MEG$)	---	-1.0	---	-0.2	---	-1.0	μAdc
PLATE CURRENT	8.5	13.5	9.4	12.6	---	---	mA
TRANSCONDUCTANCE (1)	3600	5200	3910	4890	3000	5200	μMHOS
INSULATION OF ELECTRODES ^C ($E_f = 6.3V$, $E(g1-a11) = -100Vdc$, $E(p-a11) = -300Vdc$)							
$R(g1-a11)$	100	---	---	---	50	---	MEGOHMS
$R(p-a11)$	100	---	---	---	50	---	MEGOHMS
SCREEN CURRENT	---	5.6	---	5.0	---	---	mA
TRANSCONDUCTANCE (2) ^D ($E_f = 5.5V$)	3100	---	3560	---	---	---	μMHOS
Δ AVERAGE TRANS- CONDUCTANCE (1)	---	---	---	---	---	17	PERCENT
TRANSCONDUCTANCE (3) ($E_{c1} = -20Vdc$, $R_k = 0$, $C_k = 0$)	5	100	20	60	---	---	μMHOS
GRID EMISSION ^E ($E_f = 7.5V$, $E_{c1} = -25Vdc$, $R_{g1} = 0.5 MEG$, $R_k = 0$, $C_k = 0$)	---	-1.0	---	---	---	---	μAdc

SPECIAL REQUIREMENTS

	MIN.	MAX.	
VARIABLE FREQUENCY VIBRATION ^F ($R_p = 2000$)	---	400	mVac
VIBRATIONAL FATIGUE ^G	---	---	
MINIATURE TUBE BASE STRAIN ^H (NO VOLTAGES)	---	---	
STABILIZATION ^J (INTERMITTENT LIFE TEST CONDITIONS OR EQUIVALENT)	---	---	
SHOCK ^K (HAMMER ANGLE = 30°, $E_{hk} = 100Vdc$, $R_{g1} = 0.1 MEG$, $C_k = 0$)	---	---	
POST SHOCK AND VIBRATIONAL FATIGUE TEST END POINTS	---	---	
GRID CURRENT	---	-2.0	μAdc
HEATER-CATHODE LEAKAGE	---	30	μAdc
LOW FREQUENCY VIBRATION	---	450	mVac
TRANSCONDUCTANCE (1)	3000	---	μMHOS
SHORT AND CONTINUITY ^L	---	---	
RF NOISE ^M ($E_{sig} = 15mVac$, $C_k = 0.2 \mu f$)	---	---	

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TUNG-SOL

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SPECIAL REQUIREMENTS - CONT'D.

	MIN.	MAX.
NOISE AND MICROPHONICS ^N ($E_f=6.3\text{Vdc}$, $E_{bb}=E_{c2}=300\text{Vdc}$, $E_{c1}=200\text{mVac}$, $R_p=10,000$, $R_k=200$, $R_{g2}=60,000$, $C_{g2}=2\mu f$)	---	200 mVac
LOW FREQUENCY VIBRATION ^O ($R_p=2000$)	---	300 mVac
INTERMITTENT LIFE TEST ($E_b=300\text{Vdc}$, $E_{c2}=150\text{Vdc}$, $E_{hk}=135$, $R_{g1}=0.25\text{MEG}$, $R_k=230$, $C_k=0$)	---	---
HEATER CYCLING LIFE TEST ($E_f=7.5\text{V}$, $E_b=E_{c1}=E_{c2}=E_{c3}=0$, $E_{hk}=135\text{Vdc}$)	2000	--- CYCLES
HEATER CYCLING LIFE TEST END POINTS HEATER-CATHODE LEAKAGE	---	20 μAdc

NOTES

A THE CATHODE RESISTOR SHALL BE SHUNTED WITH A CAPACITIVE REACTANCE NOT EXCEEDING 3 OHMS AT 60 CYCLES.

B TIE GRID #3 TO THE NEGATIVE TERMINAL OF THE CATHODE RESISTOR.

C SEE MIL-E-1C 4.8.2

D PREHEAT ALL TUBES TO BE TESTED FOR TRANSCONDUCTANCE (2) UNDER THE FOLLOWING CONDITIONS FOR A PERIOD OF 5 MINUTES PRIOR TO TESTING. $E_f=5.5\text{V}$, $E_b=250\text{Vdc}$, $E_{c1}=E_{c3}=0$, $E_{c2}=100\text{Vdc}$, $R_k=68$, $R_{g1}=0.5\text{MEG}$.

E PREHEAT ALL TUBES TO BE TESTED FOR GRID EMISSION UNDER THE FOLLOWING CONDITIONS FOR A PERIOD OF 5 MINUTES PRIOR TO TESTING. $E_f=7.5\text{V}$, $E_b=250\text{Vdc}$, $E_{c1}=E_{c3}=0$, $E_{c2}=100\text{Vdc}$, $R_k=68$, $R_{g1}=0.5\text{MEG}$. TWO SECONDS SHALL BE THE MAXIMUM TIME BETWEEN PREHEAT AND TEST.

F SEE MIL-E-1C 4.9.20.3

G SEE MIL-E-1C 4.9.20.6

H SEE MIL-E-1C 4.9.6.1

J SEE MIL-E-1C 4.7.5

K SEE MIL-E-1C 4.9.20.5

L SEE MIL-E-1C 4.7.5

M SEE MIL-E-1C 4.10.3.1

N SEE MIL-E-1C 4.10.3.5

O SEE MIL-E-1C 4.9.20.4

5749/6BA6W

PREMIUM TUBE

