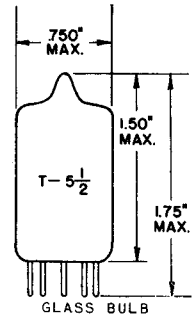
TUNG-SOL



GLASS BULB

SMALL BUTTON MINIATURE
7 PIN BASE E7-1
OUTLINE DRAWING
JEDEC 5-1

DOUBLE DIODE

MINIATURE TYPE

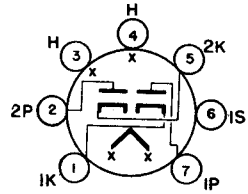
COATED UNIPOTENTIAL CATHODE

HEATER

6.3 VOLTS 300 MA.

AC OR DC

ANY MOUNTING POSITION



BOTTOM VIEW

BASING DIAGRAM
JEDEC 6BT

THE 5726 IS A MINIATURE DOUBLE DIODE PARTICULARLY DESIGNED FOR DEPENDABLE OPERATION UNDER CONDITIONS USUALLY FOUND IN MOBILE AND AIRCRAFT APPLICATIONS. THE HEATERS ARE DESIGNED TO MINIMIZE THE POSSIBILITY OF FAILURE UNDER SEVERE INTERMITTENT ON-OFF OPERATION. THE HEATERS FOR THE TWO DIODE UNITS ARE INTERNALLY CONNECTED IN SERIES SO THAT A HEATER FAILURE MAKES BOTH UNITS UNOPERATIVE. IT IS DESIGNED TO PASS THE SHOCK AND FATIGUE TEST REQUIREMENTS OF THE JAN TYPE 6AL5W.

DIRECT INTERELECTRODE CAPACITANCES

PLATE OF UNIT #1 TO CATHODE OF UNIT #1[A]	3.2	pf
PLATE OF UNIT #2 TO CATHODE OF UNIT #2[A]	3.2	pf
CATHODE OF UNIT #1 TO PLATE OF UNIT #1[B]	3.9	pf
CATHODE OF UNIT #2 TO PLATE OF UNIT #2[B]	3.9	pf
PLATE OF UNIT #1 TO PLATE OF UNIT #2 (MAX.)[C]	0.026	pf

[A] WITH JETEC SHIELD #313 CONNECTED TO HEATER, INTERNAL SHIELD AND CATHODE OF UNIT UNDER TEST.

[B] WITH JETEC SHIELD #313 CONNECTED TO HEATER, INTERNAL SHIELD AND PLATE OF UNIT UNDER TEST.

[C] WITH JETEC SHIELD #313 CONNECTED TO GROUND.

RATINGS

DESIGN CENTER VALUES - SEE EIA STANDARD RS-239

MAXIMUM DC HEATER-CATHODE VOLTAGE	330	VOLTS
MAXIMUM PEAK INVERSE PLATE VOLTAGE	330	VOLTS
MAXIMUM PEAK PLATE CURRENT (PER PLATE)	54	MA.
MAXIMUM DC OUTPUT CURRENT (PER PLATE)	9	MA.

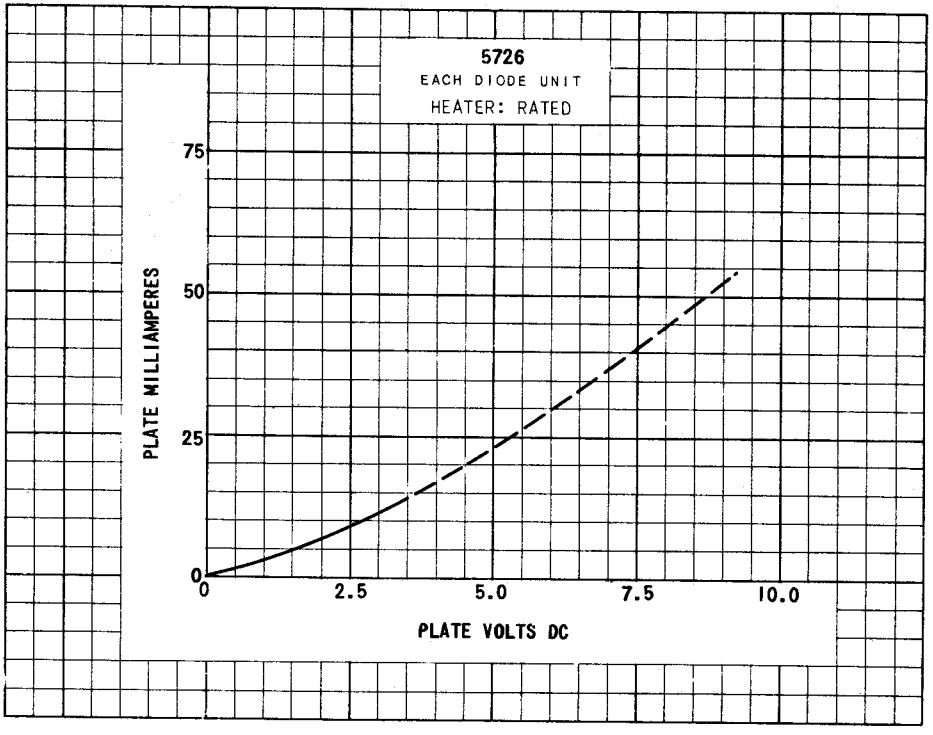
TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

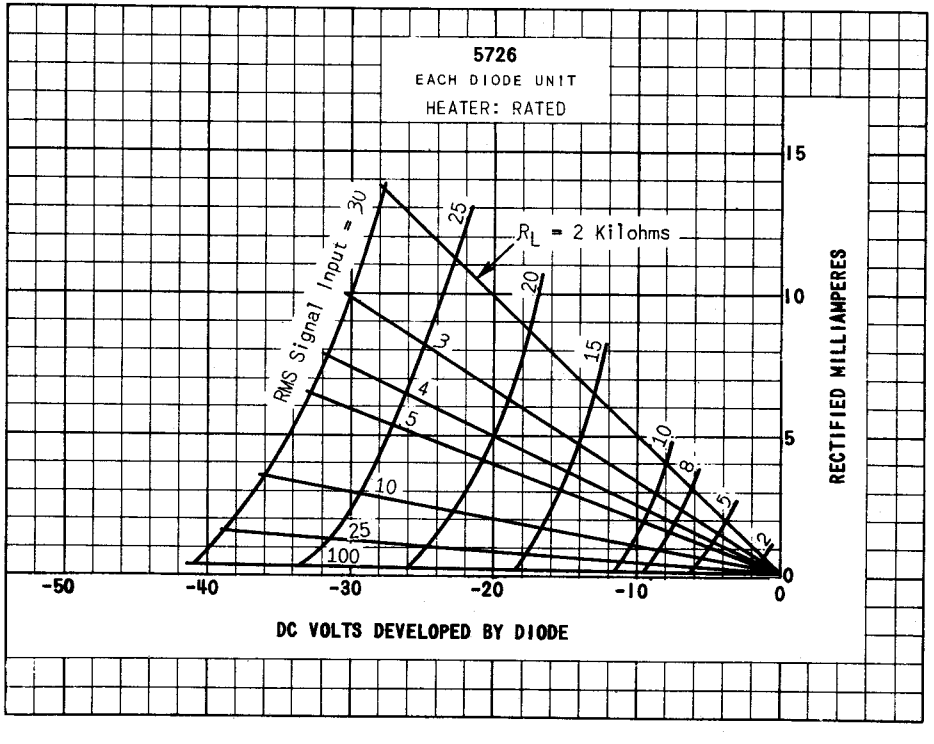
HALF-WAVE RECTIFIER

IN HALF-WAVE SERVICE THE TWO UNITS CAN BE USED SEPARATELY OR IN PARALLEL

AC PLATE VOLTAGE (PER PLATE) RMS	117	VOLTS
MINIMUM TOTAL EFFECTIVE PLATE SUPPLY IMPEDANCE (PER PLATE)	300	OHMS
DC OUTPUT CURRENT (PER PLATE)	9	MA.
HEATER CYCLES OF INTERMITTENT OPERATION (MIN.)[C]	5 000	CYCLES

[C] THE 5726 HAS A HEATER WHICH IS DESIGNED TO WITHSTAND AT LEAST 3000 CYCLES OF INTERMITTENT OPERATION AT 7.5 VOLTS.


5726
EACH DIODE UNIT
HEATER: RATED
PLATE MILLIAMPERES
75
50
25
0
0
2.5
5.0
7.5
10.0
PLATE VOLTS DC


5726
EACH DIODE UNIT
HEATER: RATED
RMS Signal Input = 30
25
20
15
10
8
6
5
4
3
2
R_L = 2 Kilohms
10
25
100
RECTIFIED MILLIAMPERES
15
10
5
0
-50
-40
-30
-20
-10
0
DC VOLTS DEVELOPED BY DIODE

TUNG-SOL

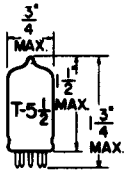
TWIN DIODE

MINIATURE TYPE

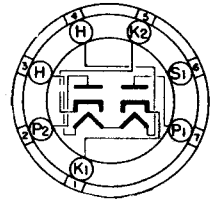
COATED UNIPOTENTIAL CATHODE

HEATER
6.3 VOLTS 0.30 AMP
AC OR DC

ANY MOUNTING POSITION



GLASS BULB



BOTTOM VIEW
MINIATURE BUTTON
7 PIN BASE
6BT

THE 5726/6AL5W/6097 IS A RUGGEDIZED TWIN DIODE OF THE SEVEN PIN MINIATURE CONSTRUCTION. A SHIELD BETWEEN THE TWO DIODE SECTIONS IS BROUGHT OUT TO A SEPARATE BASE PIN, SO THAT ELECTRICALLY INDEPENDENT OPERATION WILL BE ASSURED. THIS IS USEFUL FOR GENERAL PURPOSE APPLICATIONS SUCH AS CLIPPER AND CLAMPER CIRCUITS, WHERE THE TWO SECTIONS MAY BE USED IN DIFFERENT PARTS OF THE OVERALL CIRCUITRY. ITS HIGH PERVEANCE PERMITS HIGH EFFICIENCY IN EITHER FM OR AM SERVICE, IN RATIO DETECTOR OR PHASE DISCRIMINATOR CIRCUITS. SINCE IT MUST BE ABLE TO WITHSTAND SEVERE MECHANICAL TESTS TO MEET TEST SPECIFICATIONS, THE 5726/6AL5W/6097 IS ESPECIALLY SUITED FOR USE IN INDUSTRIAL AND MILITARY AIRBORNE EQUIPMENT WHICH MAY BE SUBJECTED TO SEVERE SHOCK AND VIBRATION.

DIRECT INTERELECTRODE CAPACITANCES

	WITHOUT SHIELD	WITH SHIELD #316	
MAXIMUM PLATE #1 TO PLATE #2 (RATED)	.068	.026	μμf
PLATE TO (h+k+istes) (RATED)	2.5	3.2	μμf
MAXIMUM	---	4.0	μμf
MINIMUM	---	2.4	μμf
CATHODE TO (h+p+istes) (RATED)	3.9*	3.9	μμf
MAXIMUM	---	4.7	μμf
MINIMUM	---	3.1	μμf

* NOMINAL VALUE.

RATINGS
ABSOLUTE MAXIMUM VALUES

HEATER VOLTAGE	6.3±10%	VOLTS
MAXIMUM PEAK INVERSE PLATE VOLTAGE	360	VOLTS
MAXIMUM PEAK DC PLATE CURRENT (EACH SECTION)[A]	60	mA
MAXIMUM DC OUTPUT CURRENT (EACH SECTION)	10	mA
MAXIMUM SURGE CURRENT (EACH SECTION)	350	mA
MAXIMUM HEATER CATHODE VOLTAGE	360	VOLTS
MAXIMUM BULB TEMPERATURE	165	°C

TYPICAL OPERATING CONDITIONS
HALF-WAVE RECTIFIER[B]

HEATER VOLTAGE	6.3	VOLTS
HEATER CURRENT	0.30	AMP.
AC PLATE VOLTAGE, PER PLATE (RMS)	117	VOLTS
MINIMUM TOTAL EFFECTIVE PLATE SUPPLY IMPEDANCE, PER PLATE	300	OHMS
DC OUTPUT CURRENT, PER PLATE	9	mA
HEATER CYCLES OF INTERMITTENT OPERATION, MINIMUM	5000	CYCLES

CONTINUED ON FOLLOWING PAGE

TUNG-SOL

CONTINUED FROM PRECEDING PAGE

CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN

E_f = 6.3V, $E_{pp/p}$ = 165Vac, R_l = 11,000 OHMS, C_l = 8µf
EXCEPT AS MODIFIED BELOW

	INITIAL				500 HOUR LIFE TEST		
	INDIVIDUAL MIN.	INDIVIDUAL MAX.	PROD. MIN.	AVG. MAX.	INDIVIDUAL MIN.	INDIVIDUAL MAX.	
HEATER CURRENT	275	325	---	---	275	325	mA
HEATER–CATHODE LEAKAGE (E_{hk} =± 100 Vdc)	---	±5	---	---	---	±10	µAdc
GRID EMISSION (1) (E_b = 10 Vdc)	40	---	---	---	35	---	mAdc
GRID EMISSION (2) [CD] (E_b = 7Vac)	---	15	---	---	---	15	PERCENT
OPERATION [EF]	16	---	---	---	---	---	mAdc
PLATE CURRENT (E_{bb}=0, R_p=40,000)	2	20	---	---	2	20	µAdc
PLATE CURRENT DIFFERENCE BETWEEN DIODES	---	5	---	---	---	---	µAdc
INSULATION OF ELECTRODES [G] (E_f=6.3V, E(p-all)=300Vdc, p NEGATIVE, E(sd-all)=300Vdc, sd NEGATIVE)							
R(p-all)	100	---	---	---	50	---	MEGOHMS
R(sd-all)	100	---	---	---	50	---	MEGOHMS

SPECIAL REQUIREMENTS

	MIN.	MAX.	
VARIABLE FREQUENCY VIBRATION [H] (NO VOLTAGES)	---	---	
VIBRATIONAL FATIGUE [J]	---	---	
SHOCK [K] (HAMMER ANGLE = 48°, $E_{pp/p}$=0)			
POST SHOCK AND VIBRATIONAL FATIGUE TEST END POINTS			
HEATER CATHODE LEAKAGE	---	±15	µAdc
OPERATION	14	---	mAdc
GLASS STRAIN [L]	---	---	
CONTINUITY AND SHORT [M]	---	---	
LOW PRESSURE VOLTAGE BREAKDOWN [N] (PRESSURE=55±5 mm MERCURY, TEMP. =25±5°C, HUMIDITY=0, VOLTAGE=500Vac, 60 CYCLES, SINUSOIDAL WAVEFORM)	500	---	Vac
HUM [P] (E_f = 7.0V)	---	10	mVac
1 HOUR STABILITY LIFE TEST INTERMITTENT LIFE TEST CONDITIONS	---	---	
STABILITY LIFE TEST END POINTS EMISSION [Q]	---	10	PERCENT
100 HOUR SURVIVAL RATE LIFE TEST INTERMITTENT LIFE TEST CONDITIONS OR EQUIVALENT	---	---	
HEATER CYCLING LIFE TEST [R] (E_f=7.5V, E_{hk}=135Vdc, HEATER POSITIVE, E_{pp}=0)	---	---	
HEATER CYCLING LIFE TEST END POINTS [S] HEATER–CATHODE LEAKAGE	---	±20	µAdc
INTERMITTENT LIFE TEST [TU] (MIN. BULB TEMP. =+165°C)	---	---	

NOTES

[A] DIFFICULTY MAY BE ENCOUNTERED IF THIS TUBE IS OPERATED FOR LONG PERIODS OF TIME WITH VERY SMALL VALUES OF CATHODE CURRENT.

[B] IN HALF-WAVE SERVICE THE TWO UNITS CAN BE USED SEPARATELY OR IN PARALLEL.

CONTINUED ON FOLLOWING PAGE

TUNG-SOL

CONTINUED FROM PRECEDING PAGE

NOTES -CONT'D.

C READINGS AT E_f=5.7V ARE MADE WITH E_b=7.0V.
THE VALUE OF EMISSION (2) SHALL APPLY TO INDIVIDUAL TUBES AS IS EXPRESSED:

MADE WITH E_b=7.0V. $\frac{(Is \text{ AT } 6.3)-(Is \text{ AT } 5.7)}{(Is \text{ AT } 6.3)} \times 100$

D SEE MIL-E-1C 4.10.1.1

E SEE MIL-E-1C 4.10.13

F IN A FULL-WAVE CIRCUIT, ADJUST Zp/p SO THAT A BOGIE TUBE GIVES I_o=18mAdc AND Ib NOT LESS THAN 50 MA PER PLATE. A BOGIE TUBE HAS A TUBE DROP OF E_{td}=10Vdc, AT Is=60mAdc PER PLATE. $E_{hk}=E_o+117$ Vac.

G SEE MIL-E-1C 4.8.2

H SEE MIL-E-1C 4.9.20.3

J SEE MIL-E-1C 4.9.20.6

K SEE MIL-E-1C 4.9.20.5

L GLASS STRAIN CONSISTS OF COMPLETELY SUBMERGING THE TUBE INTO BOILING WATER (97°C-100°C) FOR A PERIOD OF 15 SECONDS, THEN IMMEDIATELY PLUNGING INTO COLD WATER (0°C±3°C). THE AMOUNT OF WATER SHALL BE AT LEAST 2 LITERS PER FIFTEEN TUBES. TUBES FOR THIS TEST SHALL HAVE BEEN EXHAUSTED A MINIMUM OF 48 HOURS PRIOR TO PERFORMANCE OF THE TEST.

M SEE MIL-E-1C 4.7.5

N BREAKDOWN SHALL BE DEFINED AS THAT VOLTAGE AT WHICH ARCING OCCURS BETWEEN ANODE BASE PIN AND ADJACENT PINS.

P THE TEST CIRCUIT TO BE USED IS SHOWN SCHEMATICALLY IN FIGURE #1.

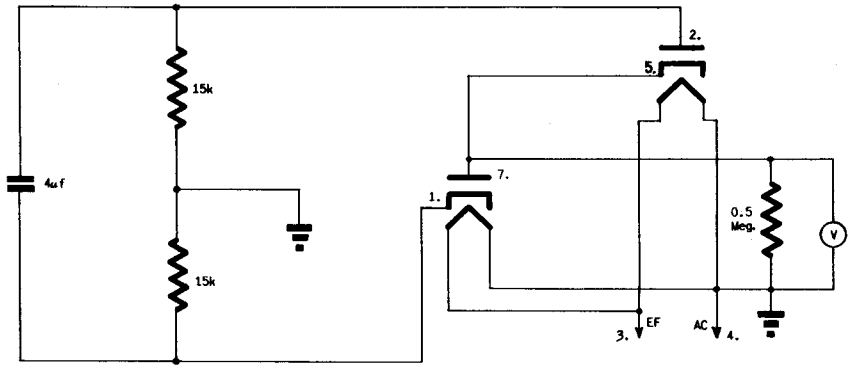


Figure 1.

Pin numbers for the element connections are indicated.

Q THE VALUE OF EMISSION SHALL BE MEASURED AT CONDITION E_b=7.0V FOR INITIAL AND TERMINAL READINGS.

R SEE MIL-E-1C 4.11.7

S SEE MIL-E-1C 4.11.4

T SEE MIL-E-1C 4.11.5

U $E_{hk}=E_o+117$vac. IN A FULL-WAVE LIFE TEST CIRCUIT, THE VALUES SPECIFIED FOR RL AND CL MAY BE CONSIDERED AS APPROXIMATE AND SHALL BE ADJUSTED INITIALLY TO GIVE NOT LESS THAN I_O = 18 mAdc AND Ib = 50 MA WITH A BOGIE TUBE.

5726/6AL5W/6097
PREMIUM TUBE