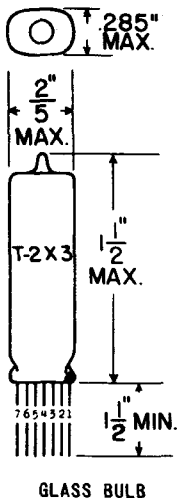


TUNG-SOL

DOUBLE DIODE
SUBMINIATURE TYPE

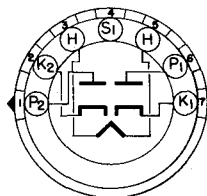
COATED UNIPOTENTIAL CATHODE

HEATER

6.3 VOLTS 0.15 AMP.

AC OR DC

ANY MOUNTING POSITION



BOTTOM VIEW
SUBMINIATURE - 8
FLEXIBLE LEADS

THE 5829WA IS A CATHODE-TYPE DOUBLE DIODE IN THE SUBMINIATURE CONSTRUCTION, CAPABLE OF OPERATION UP TO ABOUT 400 MC. AN INTERNAL SHIELD IS CONSTRUCTED BETWEEN THE TWO DIODE SECTIONS AND BROUGHT OUT ON A SEPARATE LEAD SO THAT ELECTRICALLY INDEPENDENT OPERATION CAN BE ASSURED. PRODUCT AVERAGE CONTROLS ON SUCH CHARACTERISTICS AS EMISSION AND FULL WAVE OPERATIONAL LOAD CURRENT ASSURE THAT THESE CRITICAL CHARACTERISTICS WILL REMAIN WELL CENTERED. SINCE IT MUST BE ABLE TO WITHSTAND SEVERE MECHANICAL TESTS TO MEET TEST SPECIFICATIONS, THE 5829WA IS ESPECIALLY SUITABLE FOR USE IN MILITARY AND INDUSTRIAL EQUIPMENT WHICH MAY BE SUBJECTED TO SEVERE SHOCK AND VIBRATION SUCH AS AIRBORNE COMMUNICATIONS EQUIPMENT.

DIRECT INTERELECTRODE CAPACITANCES

	WITHOUT SHIELD	
PLATE #1 TO ALL OTHER ELEMENTS (RATED)	2.6	$\mu\mu f$
MAXIMUM	3.5	$\mu\mu f$
MINIMUM	1.9	$\mu\mu f$
PLATE #2 TO ALL OTHER ELEMENTS (RATED)	2.3	$\mu\mu f$
MAXIMUM	3.3	$\mu\mu f$
MINIMUM	1.7	$\mu\mu f$
CATHODE #1 TO ALL OTHER ELEMENTS (RATED)	3.9	$\mu\mu f$
MAXIMUM	4.2	$\mu\mu f$
MINIMUM	2.4	$\mu\mu f$
CATHODE #2 TO ALL OTHER ELEMENTS (RATED)	3.9	$\mu\mu f$
MAXIMUM	4.6	$\mu\mu f$
MINIMUM	2.8	$\mu\mu f$
PLATE #1 TO PLATE #2 (RATED)	0.1	$\mu\mu f$
MAXIMUM	0.12	$\mu\mu f$
MINIMUM	0.06	$\mu\mu f$

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TUNG-SOL

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DIRECT INTERELECTRODE CAPACITANCES - CONT'D.

	WITHOUT SHIELD	
CATHODE #1 TO HEATER (RATED)	2.0	$\mu\mu\text{f}$
MAXIMUM	2.2	$\mu\mu\text{f}$
MINIMUM	1.1	$\mu\mu\text{f}$
CATHODE #2 TO HEATER (RATED)	2.0	$\mu\mu\text{f}$
MAXIMUM	2.5	$\mu\mu\text{f}$
MINIMUM	1.3	$\mu\mu\text{f}$

RATINGS

ABSOLUTE MAXIMUM VALUES

HEATER VOLTAGE	6.3 $\pm$ 5%	VOLTS
MAXIMUM DC PLATE SUPPLY VOLTAGE (EACH SECTION)	130	VOLTS
MAXIMUM PEAK PLATE INVERSE VOLTAGE	360	VOLTS
MAXIMUM HEATER CATHODE VOLTAGE	$\pm$ 360	VOLTS
MAXIMUM DC OUTPUT CURRENT (EACH SECTION)	5.5	mA.
MAXIMUM PEAK PLATE CURRENT (EACH SECTION)	33	mA.
MAXIMUM SURGE CURRENT (EACH SECTION)	175	mA.
MAXIMUM BULB TEMPERATURE	220	$^{\circ}\text{C}$
MAXIMUM ALTITUDE	60 000	FEET

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

HALF-WAVE RECTIFIER

HEATER VOLTAGE	6.3	VOLTS
HEATER CURRENT	0.15	AMP.
MINIMUM TOTAL EFFECTIVE PLATE SUPPLY IMPEDANCE PER PLATE	400	OHMS
DC OUTPUT CURRENT PER PLATE	5	mA.
AVERAGE TUBE VOLTAGE DROP @ 15 mA PER PLATE	5	VOLTS

CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN

$E_f = 6.3\text{V}$, $E_{pp/p} = 117\text{Vdc}$, $E_{hk} = 0\text{V}$, $R_L = 14000\text{ Ohms}$, $C_L = 8\text{ }\mu\text{f}$

EXCEPT AS MODIFIED BELOW

	INITIAL			500 HOUR LIFE TEST			
	INDIVIDUAL MIN.	MAX.	PROD. MIN.	AVG. MAX.	INDIVIDUAL MIN.	MAX.	
HEATER CURRENT	138	162	---	---	135	165	mA _{dc}
HEATER-CATHODE LEAKAGE ($E_{hk} = \pm 100\text{ Vdc}$)	---	± 10	---	---	---	± 20	μA_{dc}
INSULATION OF ELECTRODES (E_p TO ALL = - 300 Vdc)	100	---	---	---	50	---	MEGOHMS
PLATE CURRENT ($E_{bb} = 0$, $R_p = 400$)	2	20	---	---	---	---	μA_{dc}
PLATE CURRENT DIFFERENCE BETWEEN SEC.	---	5.0	---	---	---	---	μA_{dc}
GRID EMISSION ($E_g = 6.5\text{ Vdc}$)	15	---	16.5	---	---	---	μA_{dc}

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SPECIAL REQUIREMENTS

	MIN.	MAX.	
LOW PRESSURE VOLTAGE BREAKDOWN (PRESSURE = 55 ± 5 mm Hg, VOLTAGE = $330 V_{ac}$) ^A	---	---	
VARIABLE FREQUENCY VIBRATION ^B (NO VOLTAGES, POST SHOCK AND VIBRATIONAL FATIGUE TEST END POINTS APPLY)	---	---	
SUBMINIATURE LEAD FATIGUE ^C	4	---	ARCS
SHOCK ^D (HAMMER ANGLE = 30°)	---	---	
VIBRATIONAL FATIGUE ^E (G = 2.5; FIXED FREQUENCY; F = 25 MIN, 60 MAX)	---	---	
POST SHOCK AND VIBRATIONAL FATIGUE TEST END POINTS			
HEATER CATHODE LEAKAGE	---	± 15	μA_{dc}
OPERATION	7.0	---	$m A_{dc}$
SHORT AND CONTINUITY ^F	---	---	
GLASS STRAIN ^G	---	---	
HEATER CYCLING LIFE TEST ($E_f = 7.5V$, $E_{hk} = 140V_{ac}$, $E_b = 0$, 1 MIN ON 4 MIN OFF)	---	---	
HEATER CYCLING LIFE TEST END POINTS	---	---	
HEATER CATHODE LEAKAGE	---	± 20	μA_{dc}
INTERMITTENT LIFE TEST (T ENVELOPE = $220^\circ C$) H, J.	---	---	

NOTES

^A TUBE SHALL BE TESTED IN A CHAMBER UNDER THE CONDITIONS OF PRESSURE SPECIFIED. THE SPECIFIED VOLTAGE SHALL BE APPLIED BETWEEN THE LEADS OF ELEMENTS CARRYING B^+ VOLTAGE AND THE ADJACENT LEADS. VOLTAGE SHALL BE OF A SINUSOIDAL WAVE FORM WITH $F = 60$ CYCLES. TUBE SHOWING EVIDENCE OF CORONA OR ARCING SHALL BE CONSIDERED DEFECTIVE.

^B SEE MIL-E-1C 4.9.20.3

^C SEE MIL-E-1C 4.9.5.3

^D SEE MIL-E-1C 4.9.20.5

^F SEE MIL-E-1C 4.7.5

^G GLASS STRAIN TEST PROCEDURE: ALL TUBES SUBJECTED TO THIS TEST SHALL HAVE BEEN SEALED A MINIMUM OF 48 HOURS PRIOR THERETO. ALL TUBES SHALL BE AT ROOM TEMPERATURE IMMEDIATELY PRIOR TO THIS TEST. THE ENTIRE TUBE SHALL BE IMMERSSED IN WATER OF NOT LESS THAN $85^\circ C$ FOR 15 SECONDS AND IMMEDIATELY THEREAFTER IMMERSSED IN WATER OF NOT MORE THAN $5^\circ C$ FOR 5 SECONDS. THE VOLUME OF WATER SHALL BE LARGE ENOUGH THAT THE TEMPERATURE WILL NOT BE APPRECIABLY EFFECTED BY THE TEST. THE METHOD OF SUBMERSION SHALL BE IN ACCORDANCE WITH DRAWING #245-JAN, AND SUCH THAT A MINIMUM OF HEAT IS CONDUCTED AWAY BY THE HOLDER USED. THE TUBES SHALL BE PLACED IN WATER SO THAT NO CONTACT IS MADE WITH THE CONTAINING VESSEL, NOR SHALL THE TUBES CONTACT EACH OTHER. AFTER THE 5-SECOND SUBMERSION PERIOD, THE TUBES SHALL BE REMOVED AND ALLOWED TO DRY AT ROOM TEMPERATURE ON A WOODEN SURFACE. AFTER DRYING AT ROOM TEMPERATURE FOR 48 HOURS, THE TUBES SHALL BE INSPECTED FOR EVIDENCE OF AIR LEAKS. ELECTRICAL REJECTS, OTHER THAN INOPERATIVES, MAY BE USED IN THE PERFORMANCE TEST.

^H ENVELOPE TEMPERATURE IS DEFINED AS THE HIGHEST TEMPERATURE INDICATED WHEN USING A THERMOCOUPLE OF #40BS OR SMALLER DIAMETER ELEMENTS WELDED TO A RING OF .025 INCH DIAMETER PHOSPHOR BRONZE PLACED IN CONTACT WITH THE ENVELOPE.

^J IN FULL-WAVE LIFE TEST CIRCUIT, THE VALUES OF R_L AND C_L GIVEN IN THE TEST CONDITIONS SHALL BE CONSIDERED AS APPROXIMATE AND SHALL BE ADJUSTED INITIALLY TO GIVE I_0 EQUAL TO OR GREATER THAN 10 $m A_{dc}$ WITH I_b EQUAL TO OR GREATER THAN 25 mA. $E_{hk} = 117 V_{ac}$.

^E SEE MIL-E-1C 4.9.20.6

