

MILITARY SPECIFICATION SHEET
 ELECTRON TUBE, RECEIVING
 TYPE 5829WA

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The complete requirements for procuring the electron tube described herein shall consist of this document and the latest issue of Specification MIL-E-1.

DESCRIPTION: Double diode, subminiature, 400 MHz

Outline --- 2-5 (EIA)
 Base --- Pinch press (7 leads in line)
 Envelope --- T2X3
 Cathode --- Coated unipotential

Base connections:

Pin No.	---	1	2	3	4	5	6	7
Element	---	2a	2k	h	sd	h	1a	1k

ABSOLUTE-MAXIMUM RATINGS:

Parameter:	Ef	Epp/a	epx	Ehk	R1	C1	Io/a	ib/a	isurge/a	TE	Alt
Unit:	V	Vac	v	v	Ohms	μF	mAdc	ma	ma	°C	ft
Maximum:	6.6	130	360 (see note 1)	360	---	---	5.5	33	175	220	See note 8
Minimum:	6.0	---	---	---	---	---	---	---	---	---	---

TEST

<u>CONDITIONS:</u>	6.3	117	---	0	14,000	8	---	---	---	---	---
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GENERAL:

Qualification - Required
 Reliable tube

Method	Requirement or test	Notes	Conditions	AQL (percent defective)	Inspection level or code	Symbol	Limits		Unit
							Min	Max	
2220	<u>Qualification inspection</u> Resonant frequency			---	---	Length	13.5	---	cm
1201	<u>Quality conformance inspection, part 1</u> Short and discontinuity detection			0.4	II	---	---	---	---
1301	Heater current			0.65	II	I _f	138	162	mA
1231	Emission	2	Es = 6.5 Vdc	0.65	II	I _s	15	---	mAdc
1353	Operation of rectifiers	3,4		0.65	II	I _o	9.0	---	mAdc
1336	Heater-cathode leakage	2		0.65	II	I _{hk}	---	10	μAdc
1211	<u>Quality conformance inspection, part 2</u> Insulation of electrodes	2		2.5	I	R	---	---	---
1256	Electrode current (anode)	2	E _{bb} = 0; R _p = 40,000 ohms	2.5	S3	I _b	2	20	μAdc
1256	Electrode current (anode) (difference between sections)			2.5	S3	I _b	---	5	μAdc
1331	Direct-interelectrode capacitance		No shield 1a to 2a 1a to h+1k+sd 2a to h+2k+sd 1k to h+1a+sd 2k to h+2a+sd 1k to h 2k to h	6.5	Code E	C	0.06 1.9 1.7 2.4 2.8 1.1 1.3	0.12 3.5 3.3 4.2 4.6 2.2 2.5	pF pF pF pF pF pF pF
1116	Lead fatigue			2.5	Code F	---	---	---	---
2126	Envelope strain			2.5	I	---	---	---	---
1041	Shock		450 G	15	S4	---	---	---	---
1031	Variable-frequency vibration		No voltages	10	See note 5	---	---	---	---
1031	Vibration-fatigue			6.5	See note 5	---	---	---	---
---	Shock, variable-frequency vibration, and vibration-fatigue-test end points:								
1336	Heater-cathode leakage			---	---	I _{hk}	---	15	μAdc
1353	Operation of rectifiers			---	---	I _o	7.0	---	mAdc
1105	Permanence of marking			---	---	---	---	---	---

Method	Requirement or test	Notes	Conditions	Symbol	Limits		Unit
					Min	Max	
	<u>Quality conformance inspection, part 3</u>						
1506	Heater-cycling life-test		$E_f = 7.5 \text{ V}; E_{hk} = 140 \text{ Vac}; E_b = 0;$ 1 min on, 4 min off	---	---	---	---
---	Heater-cycling life-test end point:						
1336	Heater-cathode leakage			Ihk	---	20	μAdc
1501	Intermittent life	6,7	$TE = 220^\circ\text{C (min)}; E_{hk} = 117 \text{ Vac};$ Group E	---	---	---	---
---	Intermittent life-test end points (500 hours):						
1301	Heater current			If	135	165	mA
1353	Operation of rectifiers			Io	7.5	---	mAdc
1353	Change in operation of rectifiers of individual tubes			ΔI_o t	---	15	%
1336	Heater-cathode leakage			Ihk	---	20	μAdc
1211	Insulation of electrodes			R	50	---	Meg
---	Intermittent life-test end points (1,000 hours):						
1301	Heater current			If	135	165	mA
1353	Operation of rectifiers			Io	7.5	---	mAdc
1353	Change in operation of rectifiers of individual tubes			ΔI_o t	---	15	%
1336	Heater-cathode leakage			Ihk	---	20	μAdc
1211	Insulation of electrodes			R	25	---	Meg

NOTES:

1. The maximum voltage appearing between any pair of pins shall be no greater than the peak inverse anode voltage rating.
2. Test each unit separately.
3. In a full-wave circuit, adjust Zp/a so that $I_o = 10 \text{ mAdc}$ with a TUT having an Etd of 5.5 Vdc at 15 mAdc per anode. The minimum peak anode current shall be 25 ma per anode. Tap and reject for recurring arcs or sputters.
4. This test shall be performed at the conclusion of the holding period.
5. This test shall be conducted on the initial lot and thereafter on a lot approximately every 12 months. In the event of lot failure, the lot shall be rejected and the succeeding lots shall be subjected to this test until a lot has passed. When one lot has passed, the 12-month rule shall apply. MIL-STD-105, sample size code letter E, shall apply.
6. Envelope temperature (TE) requirements, when measured in accordance with the temperature by conduction-band measurement (method 1226), will be satisfied if a TUT having bogey I_b (± 5 percent) under normal test conditions, is determined to operate at or above minimum specified temperature at any position in the life-test rack.
7. In a full-wave life-test circuit, the values of R1 and C1 shall be considered as approximate and shall be adjusted initially so that I_o is equal to or greater than 10 mAdc with i_b equal to or greater than 25 ma.
8. See "Reduced pressure (altitude) rating", and altitude, maximum peak voltage in the basic document.
9. Revision letters are not used in this revision to identify changes with respect to the previous issue, due to the extensiveness of the changes.

Custodians:

Army - ER
Navy - EC
Air Force - 85

Review activities:

Army - MI
Air Force - 99
DLA - ES

User activities:

Army - AR
Navy - AS, OS, MC, CG
Air Force - 11

Preparing activity:

Navy - EC

Agent:

DLA - ES

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