

INCH-POUND

MIL-PRF-1/262H
14 March 2013
SUPERSEDING
MIL-PRF-1/262G
24 April 2007

PERFORMANCE SPECIFICATION SHEET

ELECTRON TUBE, RECEIVING

TYPE 6203

Inactive for new design
after 7 March 1997

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

The requirements for acquiring the electron tube described
herein shall consist of this document and MIL-PRF-1.

DESCRIPTION: Rectifier, miniature, full wave, high vacuum.

Outline --- 6-3 (EIA).

Base --- E9-1.

Envelope --- T6-1/2.

Cathode --- Coated unipotential.

Base connections:

Pin No.	---	1	2	3	4	5	6	7	8	9
Element	---	2a	nc	nc	h	h	nc	k	nc	1a

ABSOLUTE RATINGS:

Parameter:	Ef	Epp/a	Ehk	R1	C1	Io	ib/a	i surge/a	TE	Alt
Unit:	V	V ac	v	Ohm	μF	mA dc	mA	a	°C	ft
Maximum:	6.9	Note 1	±100, - 450	---	---	Note 1	300	2.0	180	Note 1
Minimum:	5.7	---	---	---	---	---	---	---	---	---
Test conditions:	6.3	400	---	5,800	8	---	---	---	---	---
		(see note 2)								

GENERAL

Qualification - Not required.

This specification sheet uses accept on zero defect sampling in accordance with MIL-PRF-1, table III.

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TABLE I. Requirements and tests.

MIL-STD-1311 Method	Requirement or test	Notes	Conditions	Symbol	Limits		Unit
					Min	Max	
	<u>Conformance inspection, part 1</u>						
1231	Emission (1)	3	E _b = 50 V dc	I _s	165	---	mA dc
1301	Heater current			I _f	830	970	mA
1353	Operation of rectifiers	4, 5	E _{hk} = E _o	I _o	70	---	mA dc
1336	Heater-cathode leakage		E _{hk} = - 450 V dc	I _{hk}	---	75	μA dc
1201	Short and discontinuity detection			---	---	---	---
	<u>Conformance inspection, part 2</u>						
1211	Insulation of electrodes	3	E(a-all) = -500 V dc	R	10	---	MegΩ
1002	Barometric pressure, reduced	6	Pressure = 55 ± 5 mmHg; voltage = 980 V ac	---	---	---	---
1031	High-frequency vibration		No voltages	---	---	---	---
1231	Emission (2)	3	E _f = 5.5 V; E _b = 50 V dc	I _s	150	---	mA dc
1121	Base strain			---	---	---	---
2126	Envelope strain			---	---	---	---
1041	Shock	6	450 G; E _{pp/a} = 0	---	---	---	---
1031	Vibration-fatigue	6		---	---	---	---
---	Shock and vibration - fatigue test end points:						
1336	Heater-cathode leakage			I _{hk}	---	150	μA dc
1353	Operation of rectifiers			I _o	65	---	mA dc
1105	Permanence of marking			---	---	---	---

See notes at end of table.

TABLE I. Requirements and tests - Continued.

MIL-STD-1311 Method	Requirement or test	Notes	Conditions	Symbol	Limits		Unit
					Min	Max	
	<u>Conformance inspection, part 3</u>						
1506	Heater-cycling life		Ef = 7.5 V; Ehk = +100 V dc; Epp/a = 0; 1 min "on", 4 min "off"	---	---	---	---
---	Heater-cycling life-test end point:						
1336	Heater-cathode leakage		Ehk = 450 V dc	Ihk	---	150	μA dc
1501	Intermittent life	4, 7-8	TA = room; TE = +180°C (min); Ehk = Eo	---	---	---	---
---	Intermittent life-test end points (500 hours):						
1353	Change in operation of rectifiers of individual tubes			$\frac{\Delta I_o}{t}$	---	8.5	%
1301	Heater current			If	830	984	mA
1336	Heater-cathode leakage			Ihk	---	75	μA dc
---	Intermittent life-test end points (1,000 hours):						
1353	Change in operation of rectifiers of individual tubes			$\frac{\Delta I_o}{t}$	---	11.5	%
1301	Heater current			If	830	993	mA
1336	Heater-cathode leakage			Ihk	---	75	μA dc

NOTES:

- To simplify the application of the maximum rating to circuit design, absolute ratings are presented in chart form as rating charts I, II, III, and IV. Operating points should be so selected that the boundary limits on rating charts I, II, III, and IV are not exceeded under the worst probable operating conditions with respect to supply-voltage variation, equipment- component variation, equipment-control adjustment, and environmental conditions.

A brief description of each of the rating charts is given below. The values of ac supply voltage as presented refer to the unloaded supply voltages per anode.

- Rating chart I. This chart presents the maximum ratings for ac anode supply voltage and dc output current. The boundary FAEDG defines the limits for capacitor-input filter operation, and the boundary FABCDG defines the limits for choke-input filter operation.
- Rating chart II. This chart provides a convenient method for checking conformance with the maximum steady-state peak-anode current rating. Rating chart II applies to capacitor-input filter operation only.

TABLE I. Requirements and tests - Continued.

- (c) Rating chart III. This chart shows the minimum value of anode supply resistance (R_s) required to remain within the transient peak-anode current rating. The value of R_s should be such that it lies to the left of the line on the rating chart at the highest probable value of line voltage. Rating chart III applies to capacitor-input filter operation only.
 - (d) Rating chart IV. This chart presents the maximum ratings for anode-supply voltage and altitude. Rating chart IV refers to both capacitor-input filter and choke-input filter operation.
2. All values of $E_{pp/a}$ refer to the unloaded supply voltage. The ratings refer to rectifier operation with sinusoidal supply voltages within the frequency range of 25 to 1,000 Hz.
 3. Test each section separately.
 4. Adjust $Z_{p/a}$ in a full-wave circuit so that the TUT indicates $I_o = 75$ mA dc. TUT has a tube drop of $E_{td} = 22$ V dc at $I_s = 70$ mA dc per anode.
 5. This test shall be performed at the conclusion of the holding period.
 6. This test shall be conducted on the initial lot and thereafter on a lot approximately every 12 months. When one lot has passed, the 12-month rule shall apply. In the event of the lot failure, the lot shall be rejected and the succeeding lots shall be subjected to this test until a lot passes.
 7. In a full-wave life-test circuit the values specified for R_1 and C_1 may be considered as approximate and shall be adjusted initially to give not less than $I_o = 75$ mA dc and $i_{b/a} = 270$ ma with a TUT.
 8. Envelope temperature (TE) requirements, when measured in accordance with the temperature by conduction-band measurement (MIL-STD-1311, method 1226), will be satisfied if a TUT having bogey I_b (± 10 percent) under normal test conditions, is determined to operate at or above minimum specified temperature at any position in the life-test rack.

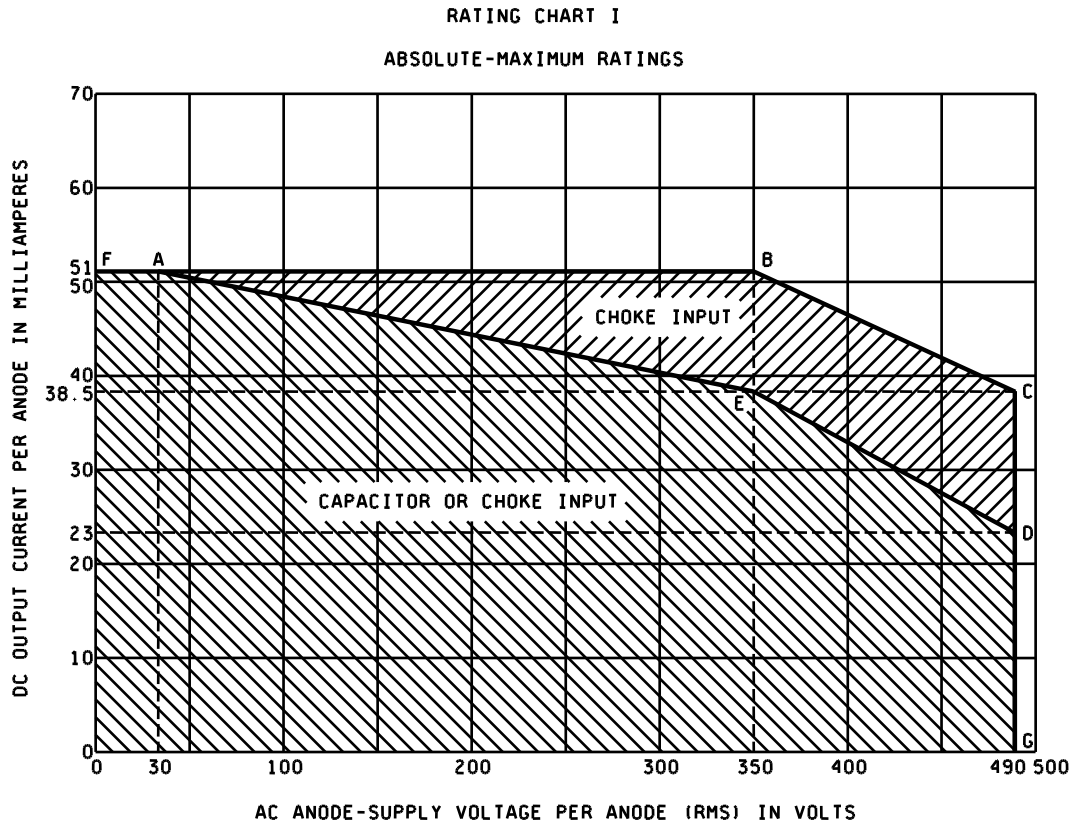
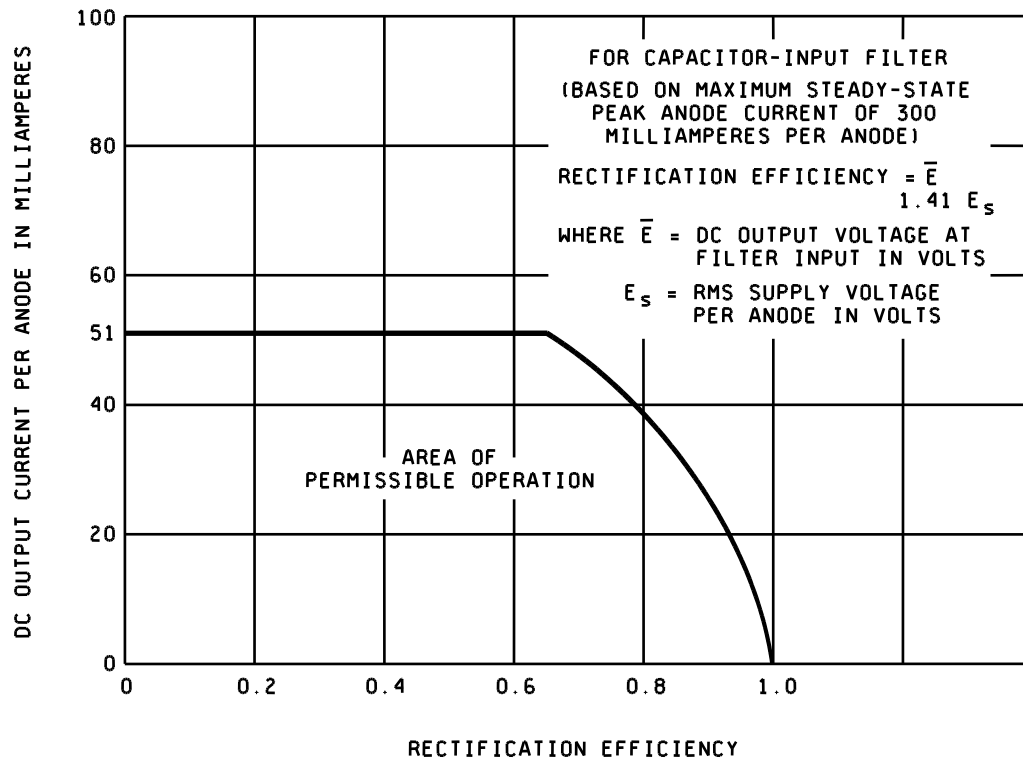
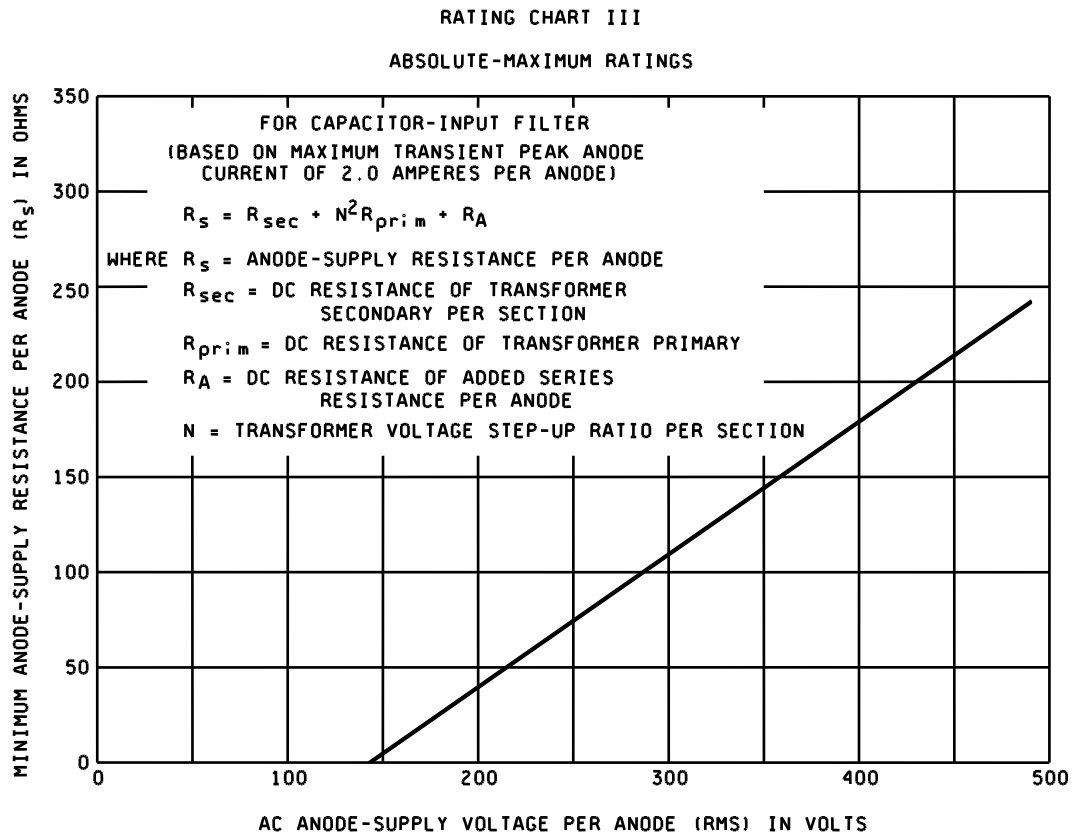


FIGURE 1. Rating chart I.

RATING CHART II

ABSOLUTE-MAXIMUM RATINGS

FIGURE 2. Rating chart II.

FIGURE 3. Rating chart III.

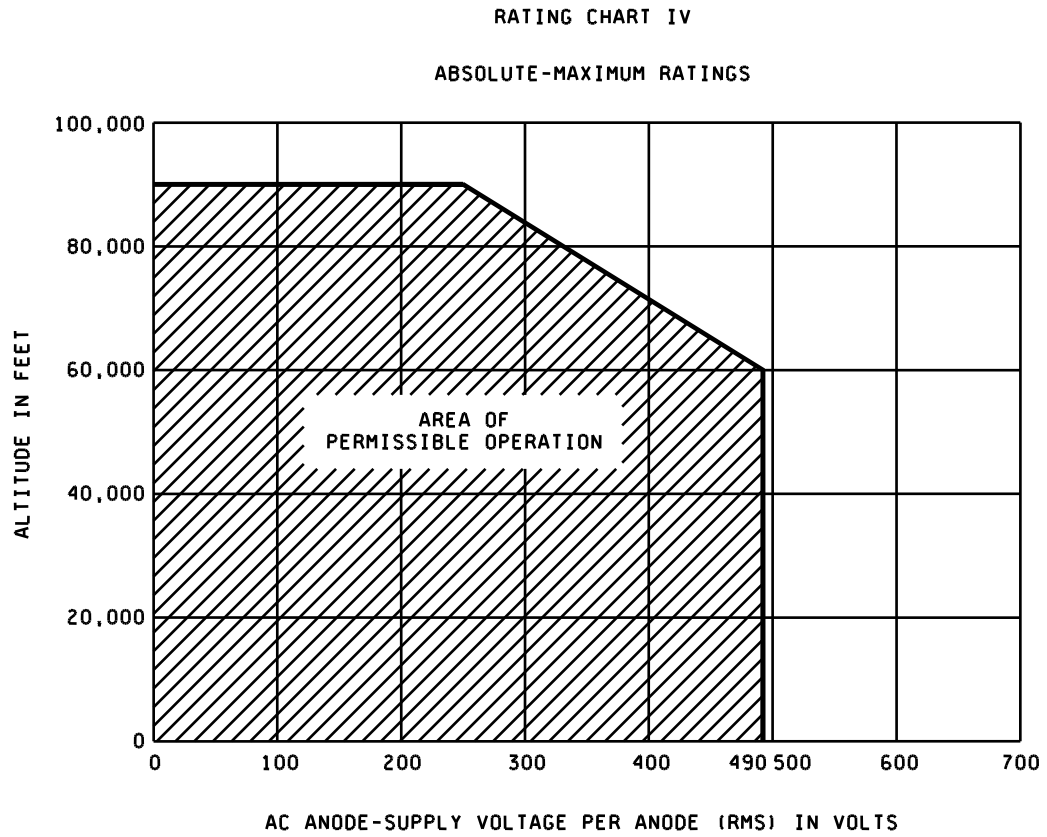


FIGURE 4. Rating chart IV.

Referenced documents. In addition to MIL-PRF-1, this document references MIL-STD-1311.

The margins of this specification are marked with vertical lines to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

Custodians:

Army - CR
Navy - EC
Air Force - 85
DLA - CC

Preparing activity:

DLA - CC

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Review activities:

Army – AR, AV, MI
Navy - AS, CG, MC
Air Force - 99

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