VALVE ELECTRONIC

ADMIRALTY SURFACE WEAPONS ESTABLISHMENT

CV1949

Specification AD/CV1949 Incorporating MIL-E-I-781B Issue 4A Dated 2nd December 1963. To be read in conjunction with K1006	SECURITY Specification: Unclassified Valve: Unclassified

TYPE OF VALVE - Gas Triode Thyratron
CATHODE - Indirectly Heated
ENVELOPE - Glass
PROTOTYPE - 6D4

MARKING
See K1001/4

BASE
BS448/B7G

RATING (Note A)

			Note
Heater Voltage	(V)	6.3±10%	
Heater Current	(A)	0.25	
Max. d.c. Supply Anode Voltage	(V)	250	
Peak Forward Anode Voltage	(V)	350	
Peak Inverse Anode Voltage	(V)	350	
Max. d.c. Grid Voltage	(V)	-150	
Peak d.c. Anode Current	(A)	0.11	
Max. d.c. Anode Current	(mA)	25	
Max. Heater-cathode Voltage	(V)	-110	
Max. Cathode Heating-time	(secs)	30	
Max. Duty Cycle	(%)	0.75	
Max. Ambient Operating Temperature Range	(°C)	-55 to +90	

CONNECTIONS

Pin	Electrode
1	Grid
2	No connection
3	Heater
4	Heater
5	Cathode
6	No connection
7	Anode

DIMENSIONS
BS448/B7G

Dimension (ins)	Min.	Max.
A. Seated height	-	1 7/8
C. Diameter	-	3/4
D. Overall length	-	2 5/32

MOUNTING POSITION
Any

NOTE

A. All limiting values are absolute.

TESTS

The tests described in Specification MIL-E-I-781B shall apply with the exception of the Noise Output (1) test.

(213602)

CV1949

MIL-E-1/781B
14 May 1956
SUPERSEDING
MIL-E-1/781A
17 May 1955

INDIVIDUAL MILITARY SPECIFICATION SHEET

ELECTRON TUBE, THYRATRON, GAS TRIODE

JAN-6D4

This specification sheet forms a part of the latest issue of Military Specification MIL-E-1.

Applications Note: For new applications, this tube is to be used as a noise generator only.

Ratings:	Ef	Ebb	epx	epy	ib	Ib	tk	Ec1	Rhk	Rg	Rp	Rk	Ehk	Pulse Length	Duty Cycle	TA	Alt
Absolute	V	Vdc	v	v	a	mAdc	sec(min)	Vdc	Meg	Meg	ohm	ohm	V	us	%	°C	ft
Maximum:	6.3±10%	250	350	350	0.110	25	30	-150	---	---	---	---	-110	---	0.75	-55to+90	10,000
Test Cond:	6.3	125	---	---	---	---	---	---	1.0	0.5	650	4000	---	---	---	---	---

**Cathode: Coated Unipotential
**Base: Miniature Glass Button 7-Pin, E7-1

*Height: 2-1/8 in. maximum
*Diameter: 3/4 in. maximum

**Pin No.:	1	2	3	4	5	6	7
Element:	g	nc	h	h	k	nc	p

**Envelope: T5-1/2 (6-2)

The following tests shall be performed:
For miscellaneous requirements, see Paragraph 3.3, Inspection Instructions for Electron Tubes.

Ref.	Test	Conditions	AQL(%)	Insp. Level or Code	Sym.	LIMITS Min.	LAL	Bogie	UAL	Max.	ALD	Units
	Qualification Approval Tests											
3.1	Qualification Approval:	Required for JAN Marking		---	---							
---	Cathode:	Coated Unipotential		---	---							
3.4.3	Base Connections:			---	---							
4.9.19.1	Vibration:	No Voltage										
	Measurements Acceptance Tests, Part 1: Note 1											
---	Grid-Cathode Voltage:	Ec=-20Vdc;Rhk=0; Note 2	0.65	II	Egk:	---	---	---	---	2.0	---	Vdc
4.10.17.1	†Grid Voltage (1):		0.65	II	Ec:	-11.0	---	---	---	-14.0	---	Vdc
4.10.18	Tube Voltage Drop:	Rb/Ib=100mAdc	0.65	II	Etd:	---	---	---	---	18	---	Vdc
4.9.1	Mechanical:											
	Measurements Acceptance Tests, Part 2											
4.10.8	Heater Current:		6.5	IA	If:	230	---	---	---	270	---	mA
4.10.15	Heater-Cathode Leakage:	Ehk=-100Vdc	6.5	IA	Ihk:	---	---	---	---	15	---	uAdc
4.10.17.1	Grid Voltage (2):	Ebb=50Vdc	6.5	IA	Ec:	-5.0	---	---	---	-7.0	---	Vdc
4.10.17.1	Grid Voltage (3):	Ebb=300Vdc	6.5	IA	Ec:	-21	---	---	---	-31	---	Vdc
---	Noise Output (1):	Ebb=300Vdc;Rg=0; Rp=56000; Note 3	6.5	IA	---	---	---	---	---	---	---	
---	Noise Output (2):	Ebb=250Vdc;Rg=Rk=0; Rp=0.033Meg; Note 4	6.5	IA	Output:	10	---	---	---	---	---	v

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Ref.	Test	Conditions	AQL(%)	Insp. Level or Code	Allowable Defectives per Characteristic		Sym.	Limits		Units
					1st Sample	Combined Samples		Min.	Max.	
	Acceptance Life Tests									
4.11	Life Test:	Group A;Ebb=250Vdc; Ec=-20Vdc;Rp=5000; Rhk=disconnected;Ehk= 110V					t:	500	---	hours
4.11.4	Life Test End Points:	Grid Voltage (1): Noise Output; Note 4					Ec: Output:	-9.5 9.0	-15.5 ---	Vdc v
	Packaging Requirements									
4.9.18.1.6	Container Drop:	(d) Package Group 1; Container Size B								

Note 1: The AQL for the combined defectives for attributes in Measurements Acceptance Tests, Part 1, excluding Mechanical, shall be one percent. A tube having one or more defects shall be counted as one defective. MIL-STD-105, Inspection Level II, shall apply.

Note 2: Voltage measured across specified grid resistor.

Note 3: The tube shall be placed in the circuit of Figure 1, in a constant magnetic field of 375 ± 10% gausses perpendicular to the normal electron path. The direction of the magnetic field shall be such as to deflect the electron beam toward the top of the tube. (North pole of magnet at Pin No. 7). The noise voltage measured at the output of the 1000-cps bandwidth filter shall not be less than the limits specified below for the various specified frequencies: (Inspection Level 1C shall be used.)

Frequency, Mc	Minimum Noise Voltage, uV, RMS
0.1	10,000
0.2	14,000
0.5	25,000
1.0	22,000
2.0	7,000
5.0	500
10.0	70

Note 4: The tube shall be placed in the circuit shown (Figure 2) in a constant magnetic field of 375 ± 20% gausses which is perpendicular to the normal electron path. The direction of the magnetic field shall be such as to deflect the electron beam toward the top of the tube. The noise voltage measured at the plate of the tube and across the output of the circuit shall not be less than the specified limit in peak-to-peak volts. The oscilloscope used for noise amplitude measurement shall have a 3 db video bandwidth extending to at least 4 megacycles.

Note 5: Reference specification shall be of the issue in effect on the date of invitation for bid.

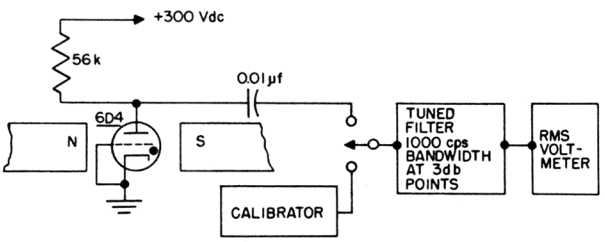

Figure 1.

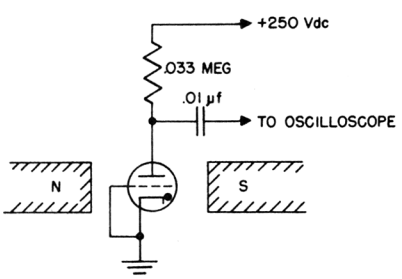

Figure 2.