MINISTRY OF AVIATION - DLRD/RRE.

VALVE ELECTRONIC CV5333

Specification MOA/CV5333
Issue 1A, 28th April, 1965
To be read in conjunction with K1001 B.S.448 and B.S.1409

SECURITY	
Specification	Valve
Unclassified	Unclassified

→ Indicates change

TYPE OF VALVE - Pulse modulator tetrode.

CATHODE - Indirectly heated.

ENVELOPE - Glass.

PROTOTYPE - CV4082.

MARKING

See K1001/4

BASE

Phenolic
B.S.448/B8-0/1.1

RATINGS AND CHARACTERISTICS

Absolute, non-simultaneous and not for Inspection purposes

			Note
Heater voltage.	(V)	6.3	
Heater current.	(A)	1.32	
Max. Anode voltage (DC).	(KV)	1.5	
Max. Anode voltage (Pulse).	(KV)	1.5	
Max. screen voltage (DC).	(V)	800	
Max. anode dissipation.	(W)	15	
Max. screen dissipation.	(W)	3.5	
Max. cathode current (Pulse).	(A)	10.0	
Max. cathode current (DC).	(mA)	120	
Max. anode current (Pulse).	(A)	7.5	
Max. peak heater cathode voltage	(V)	± 150	
Max. grid 1 cathode voltage.	(V)	± 200	
Max. grid 1 dissipation.	(W)	0.5	
Max. bulb temperature	(C)	240	A
Inner amplification factor.	$\mu(g1-g2)$	7.5	
Max. shock (short duration).	(g)	500	
Max. accn. (continuous).	(g)	2.5	

CONNECTIONS

Pin	Electrode	
1	Int.Conn.	IC
2	Heater	h
3	Int.Conn.	IC
4	Screen Grid	g2
5	Control Grid	g1
6	Int.Conn.	IC
7	Heater	h
8	Cathode	k
T.C.	Anode	a

DIMENSIONS

See K1001/A1/D1

Dimension (mm)	Min.	Max.
B Diameter	-	34
A Overall Length	-	100
L Seated Length	-	85

CAPACITANCES (pF) (Note B)

Ca,g1 (nom)	pF	.75
C in out (nom)	pF	7.5
C out in (nom)	pF	13.5

Anode 1

TOP CAP

B.S.448/CT1

MOUNTING POSITION

Any

NOTES

A. The temperature over the top of 15 mm of the bulb to be not greater than 150C.

B. Measured on 1 Mc/s bridge in fully screened holder. No shield. All IC connections left floating.

C. NATO Stock No. 5960-99-037-2304

TESTS

AA. To be performed in addition to those applicable in K1001 and in the specified order unless otherwise agreed with the Inspecting Authority.

BB. This valve has a structure identical with that of the CV4082, but is fitted with a phenolic base.

CC. K1001, section 17, shall apply to this valve. The sampling inspection tests which are performed on CV4082 valves may be used to qualify the CV5333 valves for acceptance, at the discretion of the manufacturer.

TEST CONDITIONS - unless otherwise stated :

Vh(V)	Va(V)	Vg2(V)	Ia(mA)
6.3	150	150	50

K1001	TEST	TEST CONDITIONS	AQL %	Insp Level	Symbol	LIMITS Min.	LIMITS Bogey	LIMITS Max.	Units
5.2	GROUP A								
5.2	Insulation.	Vg1 - all = -100V		100%	R	100	-	-	M
		Vg2 - all = -300V		100%	R	100	-	-	M
		Va - all = -300V		100%	R	100	-	-	M
	Negative grid Current	Rg1 = 500k max.		100%	Ig1	-	-	2.5	µA
	GROUP B	Overall AQL	2.5						
	Heater current		0.65	II	Ih	1.17	-	1.47	A
	Heater cathode Leakage current	Vhk = ± 100V	0.65	II	Ihk	-	-	40	µA
	Negative grid Voltage		0.65	II	Vg1	10.5	-	16.5	V
	Screen current		0.65	II	Ig2	-	-	9.0	mA
	Mutual Conductance		0.65	II	gm	6.0	-	10.0	mA/V
	GROUP C	Overall AQL	6.5						
	Amplification Factor		2.5	I	µg1-g2	6.0	-	10.0	
	Anode current	Vg1 = -30V	2.5	I	Ia	-	-	600	µA
	Vibration noise	Note 4	2.5	I	VaAC	-	-	75	mV
	Emission	A+g2+g1 strapped Va pk = 250V Note 2	2.5	I	Ikpk	7.5	-	-	A

CV 5333

K1001	TEST	TEST CONDITIONS	AQL %	Insp Level	Sym-bol	LIMITS Min.	LIMITS Bogey	LIMITS Max.	Units
	GROUP D								
	Capacitance	Measured on 1Mc/s bridge with valve in fully screened holder No shield Note 1	6.5	IC	Cag 1 C in C out	0.55 6.00 12.0	0.75 7.50 13.5	0.95 9.00 15.0	pF pF pF
	GROUP E								
11.3	Fatigue	Vh = 6.9V Note 3		Ia IA					
	Post Fatigue Tests	Combined AQL _____	6.5						
	Heater-cathode Leakage current	Vhk = ± 100V	2.5		Ihk	-	-	100	µA
	Negative grid Current	Rg1 = 500k max	2.5		Ig1	-	-	3	µA
	Mutual Conductance		2.5		gm	6.0	-	10	mA/V
	Vibration noise Current	Note 4	2.5		Va AC	-	-	120	mVrms
11.4	Shock	No voltages Hammer angle = 30°		IA					
	Post Shock Tests	Combined AQL _____	6.5						
	Heater-cathode Leakage current	Vhk = ± 100V	2.5		Ihk	-	-	100	µA
	Negative grid Current	Rg1 = 500k max.	2.5		Ig1	-	-	3	µA
	Mutual Conductance		2.5		gm	6.0	-	10	mA/V
	Vibration noise Current	Note 4	2.5		VaAC	-	-	120	mVrms
	GROUP F								
AVI/5	Life	Va = 500V Vg2 = 500V Ia = 30mA Vg1, adjust							
	Life Test end point (500 hrs)								
	Inoperatives		2.5						
	Heater current		6.5		Ih	1.17	-	1.47	
	Heater-cathode Leakage Current	Vhk = ± 100V	6.5		Ihk	-	-	60	µA

K1001	TEST	TEST CONDITIONS	AQL %	Insp Level	Symbol	LIMITS			Units
						Min.	Bogey	Max.	
	GROUP F (Contd)								
	Reverse Grid Current	Rg1 = 500k max.	6.5		Ig1	-	-	3	µA
	Mutual Conductance		6.5		gm	5.5	-	10	mA/V
	Emission Test	A+g2+g1 strapped Vapk = 250V Note 2	6.5		Ikpk	6.0	-	-	-
	Electrode Insulation	See Group A	6.5		R	50	-	-	M
	GROUP G								
A IX /2.5	Electrical retest after 28-day holding period								
A VI /5.6	Inoperatives		0.5	100%					
	Reverse grid current	Rg1 = 500K max.	0.5	100%	Ig1	-	-	2.5	µA

NOTES

1. Capacity connections

	HP	LP	E
C ag 1	TC	5	2. 4. 7. 8. C.
C in	5	2. 4. 7. 8	TC. C.
C out	TC	2. 4. 7. 8	5. C.

2. Tp 2 µsecs p.r.f. 50 c/s.

3. Valves to be vibrated in each of the three required planes for not less than 30 hrs. and not less than 100 hrs. total. Heater switched 1 min. on 3 mins. off. No other voltages applied. Min. peak acceleration = 5g. Frequency = 170 c/s.

4. Va (b) = 250V Rk = 270 ohms
Vg2 (b) = 250V Ck = 1000 µF
RL = 2 Kohms Co = 0.1 µF
Rg2 = 15 Kohms g = 2.5

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION MOA/CV5333 ISSUE 1A DATED 28.4.65

AMENDMENT NO. 1

Page 1. Capacitances

Delete:	"C in",	Substitute:	"C out"
Delete:	"C out".	Substitute:	"C in".

Page 3. Group D. Capacitance. Under 'Symbols' heading

Delete:	"C in",	Substitute:	"C out"
Delete:	"C out",	Substitute:	"C in".

September 1965
N.319506

T.V.C. for R.R.E.

15/4/65