MINISTRY OF AVIATION - DLRD/RRE

VALVE ELECTRONIC CV4071

Specification MOA/CV4071
Issue 2 dated 27th March, 1963
To be read in conjunction with K1001, BS448 & BS1409

SECURITY: UNCLASSIFIED | UNCLASSIFIED

→ Denotes a change

TYPE OF VALVE - Reliable High voltage, Half Wave Rectifier
CATHODE - Indirectly heated
ENVELOPE - Glass
PROTOTYPE - CV404

MARKING: See K1001/4

RATING

All limiting values are absolute

			Note
Heater Voltage	(V)	4.0	
Heater Current	(A)	1.5	
Max. RMS Anode Voltage	(kV)	6.0	
Max. Working PIV	(kV)	15.0	
Max. No Load PIV	(kV)	16.5	
Max. DC Rectified Current	(mA)	50	
Max. Peak Anode Current	(mA)	300	
Max. Peak Pulse Anode Current	(A)	3.0	
Reservoir Condenser (optimum)	(/uF)	0.25	
Min HT Switch Delay period for Full Rating	(secs)	60	
Min Limiting Source Resistance	(ohms)	7500	
Max Bulb temperature	(^{o}C)	200	
Max Shock (short duration)	g	500	
Max acceleration (continuous operation)	g	2.5	

BASE: BS448/B8-0/1.1

CONNECTIONS

Pin	Electrode
1	Internal connection
2	Heater
3	Internal connection
4	Internal connection
5	Internal connection
6	Internal connection
7	omitted
8	Heater and Cathode
T.C	Anode

TOP CAP: BS448/CT1

DIMENSIONS: See K1001/A1/D1

Dimension(mm)	Min.	Max.
A overall length	105	118
B Diameter	-	34

MOUNTING POSITION: Any

NOTES

A. Ratings apply to condenser input filter and 50 cps.

C. Cautionto Electronic Equipment Design Engineers: Special attention should be given to the temperature of valves to be operated in aircraft. Reliability will be seriously impaired if the maximum bulb temperature is exceeded. The life expectancy may be reduced if conditions other than those specified for life tests are imposed on the valve and will be reduced appreciably if absolute maximum ratings are exceeded. Both reliability and performance will be jeopardised if heater voltage ratings are exceeded: life and reliability performance are directly related to the degree that regulation of the heater voltage is maintained at its centre-rated value.

D. Joint Services Cat. No. 5960-99-000-4071

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TESTS

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

Test Conditions - unless otherwise specified

Vh(V)	Ia(mA d.c.)
4.0	120

K1001	Test	Test Conditions	AQL %	Insp. Level	Symbol	Limits Min.	Limits Max.	Units
	GROUP A							
	Heater current			100%	Ih	1.35	1.65	A
	Anode Voltage			100%	Va	-	120	V
	Rectification (1)	Input voltage = 6KV rms min. f = 50c/s; Cres = .25/uF Source Res = 7.5k Load current = 50mA min. Notes 1, 4.		100%				
	GROUPS B & C	Omitted						
	GROUP D							
	Rectification (2)	as for Rectification (1) in Group A but f = any frequency in the range 1.5 - 2.4 kc/s Notes 1.2.4.	6.5	IA				
	GROUP E							
	Functional Fatigue	Input voltage = 5kV rms Load resistance = 125K C res = 0.01 /uF f = 50 c/s Note 3						
	Post Functional fatigue							
	Rectification (1)	as for Group A test	6.5					
11.3	Fatigue	Vh = 4.0V switched 1 min. on and 3 mins. off. Va = 0 frequency = 170 c/s Min. peak accel. = 5g Duration = 100 hrs (min) divided into 2 planes						

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K1001	Test	Test Conditions	AQL %	Insp. Level	Sym-bol	Limits Min.	Limits Max.	Units
	Post Fatigue Test							
	Rectification (1)	as for Group A test	6.5					
11.4	Shock	Hammer angle = 30° No voltages		IA				
	Post Shock test							
	Rectification (1)	as per Group A test	6.5					
	GROUP F							
AVI/5.3	Life (intermittent)	Half wave rectifier Input voltage = 6kV min. rms. f = 50 c/s, Cres = .25 µF Source resistance = 7.5k Load current = 50mA min. Note 4		IA				
	Life test end point-500 hrs.							
	Rectification (1)		6.5					
	Life test end point-1000 hrs.							
	Rectification (1)		10					
	GROUP G							
AXI/2.5	Re-test after 28days holding period			100%				
AVI/5.6	Inoperatives		0.5%					

NOTES

1. Run for 40 secs. After first 10 secs. switch AC HT supply 3 times - 5 secs off and 5 secs. on. Reject for softness or persistent flash-over.

2. With C reservoir to suit supply frequency.

3. The valve shall be vibrated sinusoidally with a linear change of acceleration with frequency starting at 1g (peak) at 25 c/s and rising to 30g (peak) at 500 c/s. The minimum rate of sweep shall be 1 min/octave. The valve shall complete one full traverse up and down in the horizontal plane.

4. The input voltage and the load current are at the discretion of the manufacturer provided that the specified limits are exceeded.