MINISTRY OF SUPPLY - D.I.R.D.(A)/R.R.E.

VALVE ELECTRONIC **CV2229**

Specification MOS(A)/CV2229 Issue 3 Dated 19th March 1954 To be read in conjunction with K1001 excluding clauses 5.2, 5.3 and 5.8	SECURITY	
	Specification	Valve
	UNCLASSIFIED	UNCLASSIFIED

→ Indicates a change

TYPE OF VALVE - Package Magnetron

CATHODE - Indirectly-heated

PROTOTYPE - VX9035

MARKING

See K1001/4

RATING

			Note
Heater Voltage	(V)	12.6	
Heater Current	(A)	2.25	
Max. Peak Anode Current	(A)	25	C,D.
Max. Peak Input Power	(kW)	500	
Max. Anode Input Power	(W)	250	
Max. Duty Cycle		0.0005	C
Max. Pulse Duration	(usecs)	2.25	
Max. Rate of Voltage Rise	(kV/usec)	220	
Max. Anode Temperature	(°C)	140	
Max. Cathode Terminal Temperature	(°C)	200	
Min. Cathode Heating Time	(secs)	180	E
Nominal Operating Frequency	(Mc/s)	9375	

CONNECTIONS

See Drawing on Page 4

DIMENSIONS

See Drawing on Page 4

NOTES

A. The valve shall not be operated at maximum peak input power at pressure less than 600 mm Hg.

B. The heater current surge when switching on should be limited to 3 times the normal operating current. Precautions shall be taken against pulse voltages being generated across the heater terminals.

C. During operation when Duty Cycle = .0004, the heater voltage should be reduced to 5.0 vdts. For operation at other duty cycles the Approving Authority should be consulted.

D. Max. Peak Anode Current shall not exceed 20A with Tp = 2.25 usecs.

E. The following switching cycle is recommended:-

Full heater voltage should be applied for 2 minutes, then HT applied to give half input power for 1 minute; after which, heater voltage should be reduced to the operating level and full power applied simultaneously.

TESTS

To be performed in addition to those applicable in K1001

	Test Conditions				Test	Limits		No. Tested	Note
	Vh (V)	Pulse Length (usecs)	Repetition Frequency (per sec)	Mean Ia (mA)		Min.	Max.		
a	12.6	0	0	0	Ih (A)	2.0	2.5	100%	1
b	5.0	2.0	250	9	Peak Va (kV)	18	23	100%	2,3.
c	5.0	2.0	250	9	Frequency (Mc/s)	9325	9425	100%	2,3.
d	5.0	2.0	250	11.25	Efficiency	35	-	100%	2,3,9.
e	5.0	2.0	250	6.5	Frequency Pulling (Mc/s)	-	15	100%	2,4.
f	5.0	2.0	250	9	Bandwidth (Mc/s)	-	3	100%	2,3,5.
g	5.0	2.0	250	Peak current varied over range 15-25A	There shall be no mode change	-	-	100%	2,3,6.
h	5.0	2.0	250	11.25	Switching & Stability After a shelf life of not less than 7 days, the valve shall be started from cold with the switching cycle detailed in Note 1, and shall operate immediately upon application of full HT. The valve shall flash less than 10 times during a one minute interval in a test period not exceeding 5 minutes after commencement of operation.			100%	2,3,7.
j	5.0	2.0	250	9	Thermal Factor (Mc/°C) Change in frequency	-	-0.25	TA	

TESTS (Cont'd)

CV 2229

	Test Conditions				Test	Limits		No. Tested	Note
	Vh (V)	Pulse Length (μsecs)	Repetition Frequency (pps)	Mean Ia (mA)		Min.	Max.		
k	5.0	2.0	250	9	Low Temperature Operation The valve shall operate satisfactorily at -55°C with not more than 180 secs. between the application of Vh and Va. Valve to be at -55°C initially.			TA	1
m	0	-	-	-	Pressurising	-	-	TA	
	40-45 lbs./sq.in. abs. input & output assemblies.								

NOTES

1. The valve shall be run with the heater on for not more than 3 mins. before the application of full HT. The following switching cycle may be observed:

   Full heater voltage should be applied for not more than 2 mins, then HT applied to give half power for not more than 1 min, after which the heater voltage should be reduced to 5V and full power applied simultaneously.

2. The maximum rate of rise of the voltage pulse shall not be less than 220kV/μsec.

3. The valve shall be coupled by means of a Choke Coupling, WG15, Drawing No. TR/B610111, I-S Cat. No. Z.830033 which shall be terminated in a resistive load to give a VSWR better than 1.1 to 1.

4. Measured with a standing wave voltage ratio of not less than 1.5 to 1.0 varied through all phases.

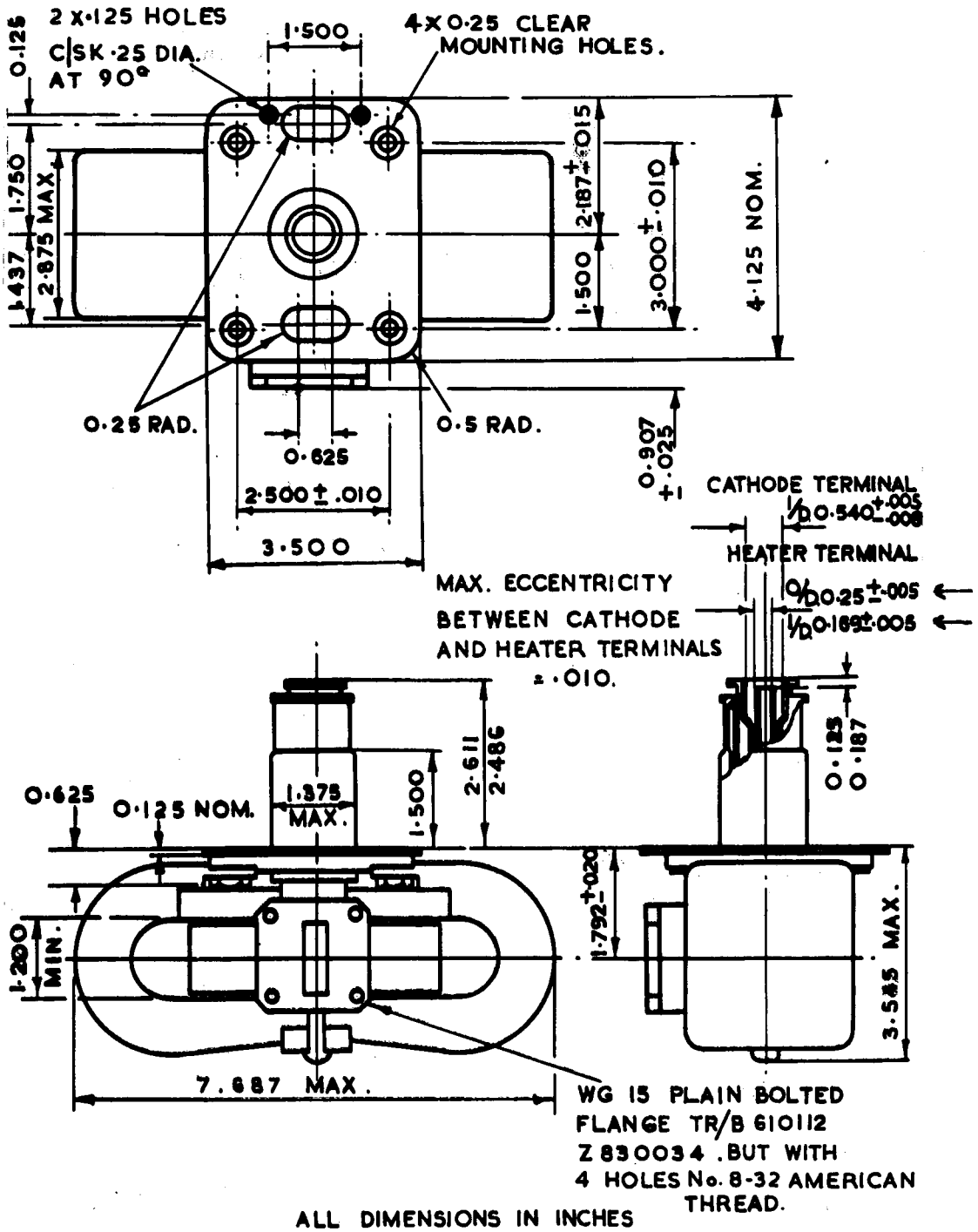
5. The RF bandwidth shall be measured at one-quarter power by means of a Spectrum Analyser.

6. No pulses shall be missing when viewed a Spectrum Analyser. No double traces of voltage and current shall appear during a 5 secs. interval when the peak current is varied over the specified range.

7. Test to be performed using an approved modulator.

8. The output waveguide shall be pressurised to 10-15 lbs./sq.in. during testing.

9. After a life of 250 hours the efficiency shall be not less than 25%.



ALL DIMENSIONS IN INCHES

CV2229/3/4