

<p>Specification ^{MOA} MOS/CV2483 ^{Am12}</p> <p>Issue 1 Dated 25th August, 1958.</p> <p>To be read in conjunction with K1006 except where otherwise stated.</p>	<p><u>SECURITY</u></p> <table border="1"> <tr> <td><u>Specification</u></td> <td><u>Valve</u></td> </tr> <tr> <td>Unclassified</td> <td>Unclassified</td> </tr> </table>	<u>Specification</u>	<u>Valve</u>	Unclassified	Unclassified
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Unclassified	Unclassified				

→ indicates a change

<p><u>TYPE OF VALVE</u> - Microwave pulsed attenuator tube</p> <p><u>ENVELOPE</u> - Silica</p> <p><u>PROTOTYPE</u> - VX9208</p>					<p><u>MARKING</u></p> <p>See K1001/4.</p> <p>CV number and serial number on Silica envelope.</p> <p>A green spot to be marked on seal off tip.</p>																																
<p><u>RATING</u></p> <table border="1"> <thead> <tr> <th></th> <th>Max.</th> <th>Normal</th> <th>Min.</th> <th>Note</th> </tr> </thead> <tbody> <tr> <td>Operating frequency range K.Mc/s</td> <td>12</td> <td></td> <td>8</td> <td>A</td> </tr> <tr> <td>Microwave incident power Watts</td> <td>200</td> <td></td> <td></td> <td>B</td> </tr> <tr> <td>Excitation pulse width μs</td> <td>3.5</td> <td></td> <td>2.0</td> <td>C</td> </tr> <tr> <td>Excitation frequency Mc/s</td> <td>-</td> <td>50</td> <td>10</td> <td>D</td> </tr> <tr> <td>Peak excitation power Watts</td> <td></td> <td>80</td> <td></td> <td>D</td> </tr> <tr> <td>Attenuation dba</td> <td></td> <td></td> <td>25</td> <td>E C</td> </tr> </tbody> </table>		Max.	Normal	Min.	Note	Operating frequency range K.Mc/s	12		8	A	Microwave incident power Watts	200			B	Excitation pulse width μ s	3.5		2.0	C	Excitation frequency Mc/s	-	50	10	D	Peak excitation power Watts		80		D	Attenuation dba			25	E C	<p><u>EXCITATION</u></p> <p>By R.F. applied to an external metal sleeve</p>	
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					<p><u>DIMENSIONS</u></p> <p>See drawing on Page 3</p>																																
					<p><u>MOUNTING POSITION</u></p> <p>Any</p>																																

NOTES

- The tube is matched at any frequency in this range by a waveguide iris, normal loaded Q value 4. The match will remain constant for different tubes.
- Except where the peak microwave power is spike leakage of less than 0.02 microseconds duration the tube should be preceded by a suitable power limiter for incident microwave peak power in excess of 200 watts.
- This attenuation is developed coincident with the trailing edge of the R.F. excitation pulse.
- The recovery time and attenuation is dependent upon the operating electron density in the tube which reaches its limited value in about 2 microseconds. After ionisation the limit is determined primarily by the impedance of the excitation source.
- At X band, loaded Q value 4, excitation power 80 watts peak.

Typical operating conditions

Two tubes may be used in a four element filter network designed for a 10% pass-band to a V.S.W.R. of 0.85. Under these conditions a minimum peak attenuation of 50 dba is obtained with a maximum recovery time of 8 microseconds to 6 dba. When operating with incident microwave power in excess of 200 watts flat peak the first element of the filter network should include a power limiter tube. The insertion loss for a typical mount at X band is 0.3 dba.

TEST CONDITIONS - Unless otherwise specified

tp (excitation pulse) us

Du (excitation pulse)

Test Mount

Test Circuit

 $3 \pm 10\%$ $0.003 \pm 10\%$

Page 4

Page 5

Qualification Approval Tests

K1006 Ref.	Test	Conditions	Insp. Level	Min.	Max.	Units
K1005 4.4.19.2 4.9.12.2. 4.9.20.5.	Carton Drop: Vibrations: Shocks:	No voltages No voltages Shock applied along tube axis only. Hammer angle 30° (Ampl.)				
4.18.15.1.	Recovery time:	Notes 1 and 2			8	us
	Peak attenuation	Notes 1 and 2		25	-	db
4.11.13.	Life test:	tp(excitation pulse) 2 us Du(excitation pulse) 0.01 No incident microwave power.		1000	-	hours
4.11.4.	Life test and points:	Peak attenuation Recovery time		25		db us
	V.S.W.R.	Note 1		0.95		VSWR
<u>Acceptance Tests</u>		Conditions				
Ref.	Test	Conditions				
4.18.15.1.	Recovery time	Notes 1 and 2	100%		8	us
	Peak attenuation	Notes 1 and 2	100%	25		db

NOTES

- The tube shall be tested in a mount having a loaded Q of $4 \pm 5\%$ at a frequency of $9.16 \pm 10\%$ KHz/s. The mount shall be resonant at the test frequency, the V.S.W.R. being not less than 0.95. The mount shall be provided with a suitable monitor of excitation current which will be used in conjunction with standard tubes to check the output of the excitation oscillator before tests. A drawing of a suitable mount and current monitor circuit is shown on page 4. A circuit of a suitable excitation oscillator for this mount is shown on page 5.
- The recovery time shall be measured with reference to the trailing edge of the R.F. excitation pulse. The time in microseconds shall be taken as the longest indicated by the pulse jitter. The peak attenuation shall be measured within the period 1.0 microsecond after the trailing edge of the excitation pulse. A recovery time curve for an average tube is shown on page 6.

MICROWAVE PULSED ATTENUATOR

To be read in conjunction with K.1006

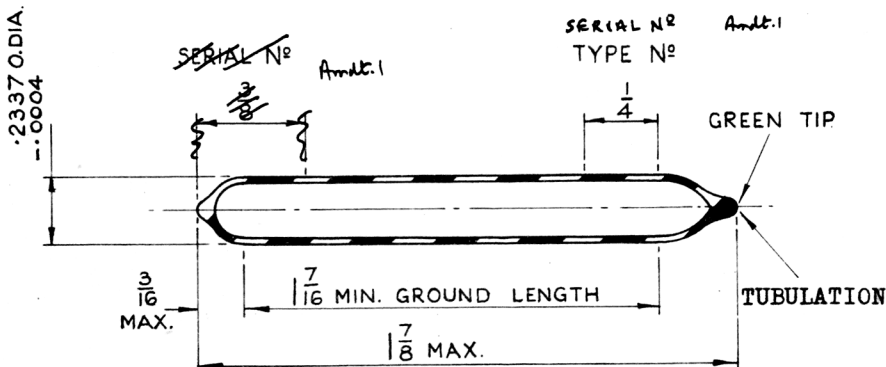
<u>Rating.</u>	F Kilo/s	P _i R.F. W	t _p (excitation) u.s. p (pulse)	f (excitation) Mc/s (frequency)	P _i (excitation) W (pulse)	Attenuation db
Absolute maximum	-	200	3.5	-	-	-
normal	8 - 12	-	-	50	60	-
minimum	-	-	2.0	10	-	25
Note	A	B	C	D	D	E.C.
Dimensions	See outline drawing					
Excitation	R.F. applied to an external metal sleeve.					

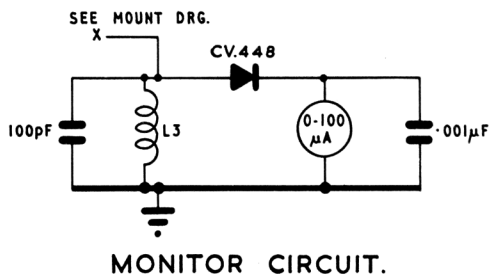
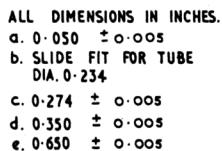
Notes

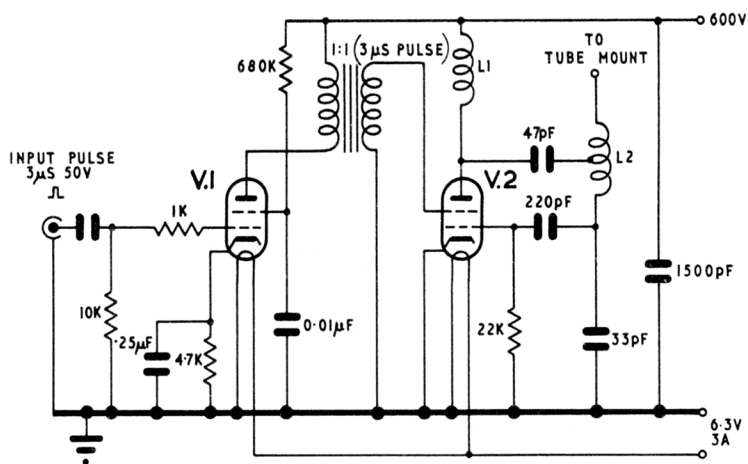
- A. The tube is matched at any frequency in this range by a waveguide iris, normal loaded Q value 4. The match will remain constant for different tubes.
- B. Except where the peak microwave power is spike leakage less than 0.02 microseconds duration the tube should be preceded by a suitable power limiter for incident microwave peak power in excess of 200 watts.
- C. This attenuation is developed coincident with the trailing edge of the R.F. excitation pulse.
- D. The recovery time and attenuation is dependent upon the operating electron density in the tube which reaches its limited value in about 2 microseconds. After ionization the limit is determined primarily by the impedance of the excitation source.
- E. At X band, loaded Q value 4, excitation power 60 watts peak.

Test Conditions

t _p (excitation pulse) u.s.	Du (excitation pulse)	Test Mount	Test Circuit
3 ± 10%	0.003 ± 10%	Page.4.	Note 2.

OUTLINE DRAWING





EXCITATION OSCILLATOR.

ELECTRONIC VALVE SPECIFICATIONS
SPECIFICATION MOS/CV.2483.
ISSUE 1. DATED 25th AUGUST, 1958
AMENDMENT No.1

Page 2

- (i) In column headed 'K1006 Ref.' amend '4.9.12.2' to read '4.9.19.2.'
- (ii) Clause 4.9.20.5. In the Conditions column, following 'Hammer Angle' insert '=30°'

(39975)

P.T.O.

Page 3. OUTLINE DRAWING

- (i) Delete 'SERIAL NO.', relevant '3/8' and associated dimension lines.
- (ii) Immediately above 'TYPE NO.' insert 'SERIAL NO.'.

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

September, 1963.

✓
17/12/63

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION MOS/CV2483 ISSUE No. 1 DATED 25th AUGUST 1958

AMENDMENT No. 2

Page 1. Top of Page

- (i) Insert: 'THIS VALVE MAY BE RADIOACTIVE'
- (ii) Amend 'MINISTRY OF SUPPLY - DLRD/RRE' to read
'MINISTRY OF AVIATION - DLRD/RRE'.
- (iii) Amend Specification MOS/CV2483 to read
Specification MOA/CV2483.

April, 1964
(222302)

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

✓ANS
24.5/64

ELECTRONIC VALVE SPECIFICATIONS.

SPECIFICATION MOA/CV2483, ISSUE No.1., DATED 25th August 1958.

AMENDMENT No.3.

Page 1. Top of Page (inserted by Amendment No.2).

Amend the note, to read "THIS VALVE MAY BE RADIOACTIVE
TO CLASS 1 (See K1001 Appendix XX.)"

October 1966

TVC For RRE

N445215

✓ AM
22/10/66