THE M-O VALVE
COMPANY LIMITED

A2521

GEC

UHF
GROUNDED GRID TRIODE

BRIEF DATA

A uhf triode for use in grounded grid circuits as a low noise amplifier, small power amplifier or frequency multiplier at frequencies up to 1250 MHz. The A2521 is a commercial version of the CV2453, except for the heater current rating.

HEATER

Heater voltage	6.3	V
Heater current (approx) - A2521	0.3	A
Heater current (approx) - CV2453	0.37	A

MAXIMUM RATINGS

DC anode voltage	250	V
Peak anode voltage	1000	V
Anode dissipation	2.5	W
DC grid current	6	mA
DC cathode current	25	mA
Peak cathode current (pulse duration $< 2\,\mu s$)	700	mA
Negative dc grid voltage	20	V
Peak heater-cathode voltage	100	V
Bulb temperature	200	°C

CAPACITANCES (Measured on a cold unscreened valve)

Cathode plus heater to grid	3.5	pF
Anode to grid	1.6	pF
Cathode plus heater to anode	0.06	pF

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CHARACTERISTICS

DC anode voltage	130	V
DC anode current	16	mA
Negative dc grid voltage (approx)	1	V
Mutual conductance (approx)	15	mA/V
Amplification factor	60	–

OPERATING DATA

CLASS A GROUNDED GRID AMPLIFIER
Typical Operation

Frequency	1250	900	400	200	MHz
V_b	180	180	180	180	V
R_a	3.3	3.3	3.3	3.3	kΩ
R_k	68	68	68	68	Ω
I_a	16	16	16	16	mA
*Δf (to 3 dB)	20	50	6	4	MHz
†Power gain	9	10	17	14.5	dB
†‡Noise factor	11.1	9.5	6.7	4.6	dB

*Bandwidth and power gain may be adjusted by altering the coupling between the anode circuit and the output line.

†With input circuit adjusted for minimum noise factor.

‡Using a gas discharge noise source.

CLASS C GROUNDED GRID UHF POWER AMPLIFIER AND FREQUENCY MULTIPLIER
Maximum Permissible Conditions

DC anode voltage	250	V
Anode dissipation	2.5	W
Peak anode current	100	mA
DC grid current	6	mA
Positive dc cathode to grid voltage	20	V

Typical Operation as Amplifier

Frequency	400	900	MHz
DC anode voltage	250	150	V
Anode dissipation	2	2.4	W
*DC anode current	18	20	mA
DC grid current	4.5	2.5	mA
Positive dc cathode to grid voltage	10.5	5.0	V
Driving power	0.3	0.45	W
Load power (approx)	2.6	0.9	W

*Set by adjustment of cathode resistance.

Typical Operation as Frequency Multiplier

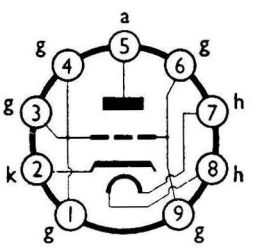
Frequency-in	200	133.3	450	300	416.6	MHz
Frequency-out	400	400	900	900	1250	MHz
V_a	200	200	140	90	130	V
p_a	2.4	2.5	2.4	2.5	2.4	W
$*I_a$	20	15	20	20	18.5	mA
I_g	3.5	1.5	3.5	3.0	1.5	mA
$+V_{k-g}$	20	20	15	10	10.5	V
p_{dr}	0.6	0.55	0.6	1.2	0.22	W
P_L (approx)	1.8	0.75	0.7	0.3	0.05	W

*Set by adjustment of R_k.

INSTALLATION

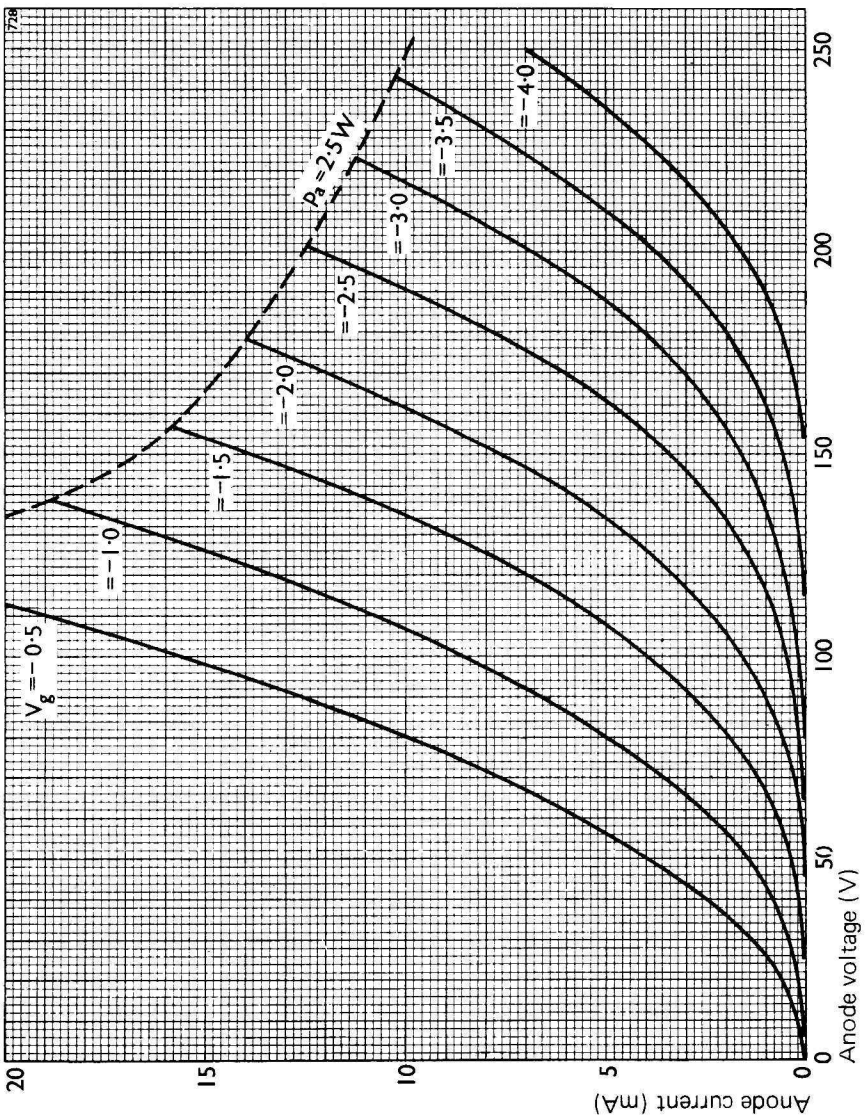
The valve may be mounted in any position.
If a screening can is used it should be blackened inside and out.
Free air cirulation around the bulb or the screening can is desirable.
A detailed Application Report is available upon request.

BASE CONNECTIONS AND VALVE DIMENSIONS



View from underside of base.

Base:	B9A
Bulb:	Tubular
Max. overall length:	56 mm
Max. seated length:	49 mm
Max. diameter:	22.2 mm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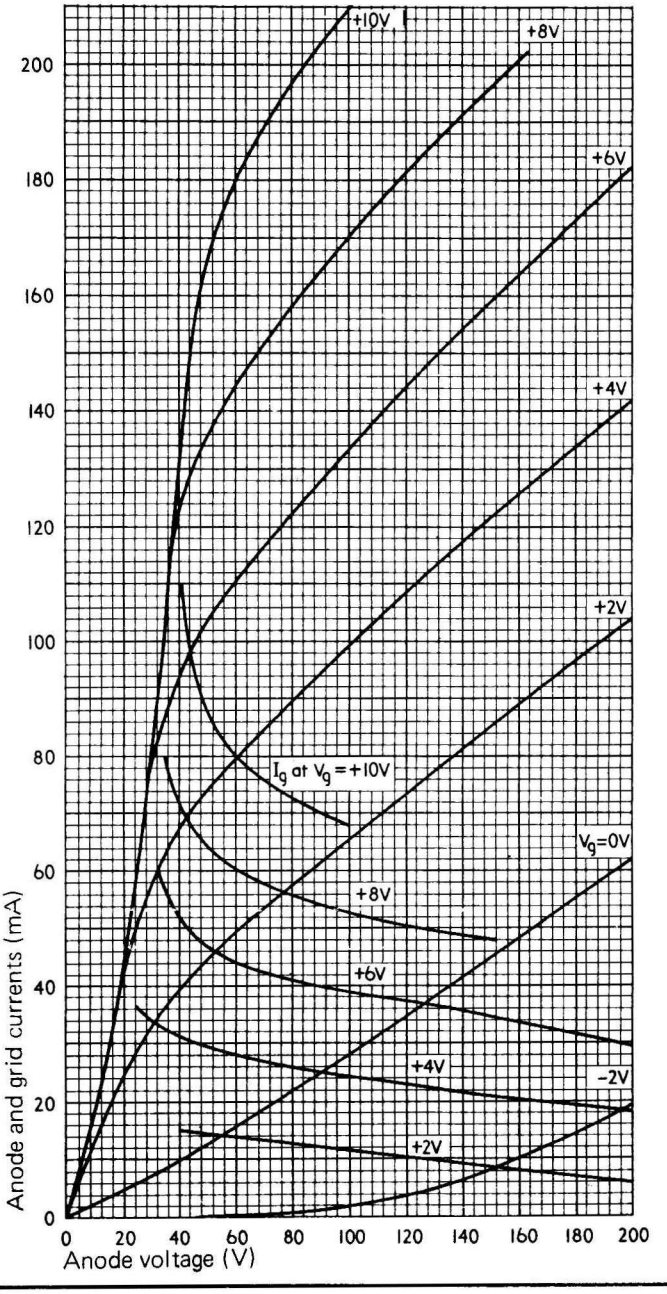
$V_g = -0{\cdot}5$
$= -1{\cdot}0$
$= -1{\cdot}5$
$= -2{\cdot}0$
$= -2{\cdot}5$
$= -3{\cdot}0$
$= -3{\cdot}5$
$= -4{\cdot}0$
$P_a = 2{\cdot}5W$
Anode current (mA)
20
15
10
5
0
0
50
100
150
200
250
Anode voltage (V)



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