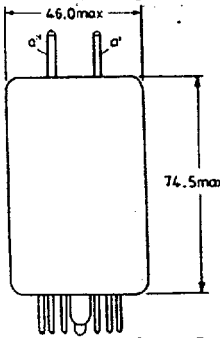


BRITISH STANDARDS INSTITUTION 2, PARK STREET, LONDON, W1A 2BS		BS CECC 45 003-005 CECC 45 003-005 ISSUE 1, OCTOBER 1978																	
Specification available from:- MULLARD LIMITED Mullard House, Torrington Place, London, WC1E 7HD TELEPHONE: 01-580 6633		As shown in PD 9002 CECC 00 200																	
ELECTRONIC COMPONENTS OF ASSESSED QUALITY DETAIL SPECIFICATION IN ACCORDANCE WITH BS CECC 45 000: 1977		MANUFACTURER'S TYPE NUMBER QQV06-40A or CV2797 See PD9002 and CECC 00200																	
Outline and dimensions Third angle projection		For ordering information see clause 2.2																	
 <table><tr><td>Pin number</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr><tr><td>Element</td><td>h</td><td>g1'</td><td>g2</td><td>k, bp, s</td><td>h_{ct}</td><td>g1''</td><td>h</td></tr></table> Base connections (BS448-B7A) For detail dimensions see Inspection drawing		Pin number	1	2	3	4	5	6	7	Element	h	g1'	g2	k, bp, s	h _{ct}	g1''	h	V.H.F. POWER DOUBLE TETRODE GLASS ENVELOPE NATURAL COOLING (SEE CLAUSE 1.1)	
Pin number	1	2	3	4	5	6	7												
Element	h	g1'	g2	k, bp, s	h _{ct}	g1''	h												
Marking information see clause 2.1		FULL ASSESSMENT																	
All dimensions in millimetres																			

1. DATA (not for inspection purposes)

1.1 General and mechanical data

	Min.	Nom.	Max.	Unit
Weight		65		g
Mounting position:				
Vertical base up or down				
Horizontal with anode pins in horizontal plane (fixed station operation only)				
Cooling (see Fig.9)				
Anode temperature (not applicable, see Note B)				
Anode seal temperature			200	°C
Base pin seal temperature			180	°C
Shock (tube not operating)				
Peak acceleration (see Note A)			392	m/s ²
Time duration			3	ms
Vibration (continuous)				
Acceleration			24.5	m/s ²
Frequency range	55		500	Hz

Notes: A. The waveform is half sinewave and the rating applies in any direction.
 B. Not applicable as the tube does not have an external anode.

Refer to Qualified Products List PD 9002 and/or CECC 00200 for details of manufacturers approved to this specification.

1.2 Electrical Data — Nominal values

		Nom.	Unit
	Capacitance		
$C_{gi(a)}$	Input (two sections in push-pull)	6.7	pF
$C_{a(g1)}$	Output (two sections in push-pull)	2.9	pF
C_{ag1}	Anode-grid 1 (each section)	0.06	pF
μ_{g1g2}	Inner μ at $V_a = 600$ V, $V_{g2} = 200$ to 250 V, $I_a = 40$ mA	7.5	
g_m	Mutual conductance (each section) at $V_a = 600$ V, $V_{g2} = 250$ V, $I_a = 40$ mA	4.5	mA/V

Characteristic curves

- (1) See Figs.1 and 2 for curves of anode current as a function of anode voltage for stated values of control grid and screen grid voltages.
- (2) See Figs.3 and 4 for curves of screen grid current as a function of anode voltage for stated values of control grid and screen grid voltages.
- (3) See Figs.5 and 6 for curves of control grid current as a function of anode voltage for stated values of control grid and screen grid voltages.
- (4) See Figs.7 and 8 for curves of control grid voltage as a function of anode voltage for stated values of screen grid voltage and anode current, screen grid current and control grid current. Constant current curves.
- (5) See Fig.9 for Frequency Characteristics for operating conditions as a push-pull r.f. power amplifier (Class 'C' Telephony or f.m. telephony). Anode voltage versus frequency with natural and forced air cooling.
- (6) See Fig.10 for Frequency Characteristics for operating conditions as a push-pull r.f. power amplifier (Class 'C' Telephony or f.m. telephony). Power versus frequency.

Typical operating conditions

f	200	200	400	400	MHz
V_a	400	600	400	540	V
V_{g2}	250	250	250	250	V
V_{g1}	-60	-80	-50	-55	V
I_a	2×100	2×100	2×100	2×100	mA
I_{g2}	2×8.0	2×9.0	2×5.0	2×7.0	mA
I_{g1}	2×3.0	2×3.5	2×2.0	2×1.5	mA
$P_{load(driver)}$	3.0	3.0	11	12	W
P_a	2×12	2×15	2×15	2×20	W
P_{out}	56	90	50	70	W
η	70	75	63	65	%
P_{load}	47	78	42	59	W
f			475	475	MHz
V_a			350	500	V
V_{g2}			250	250	V
V_{g1}			-45	-50	V
I_a			2×100	2×100	mA

Typical operating conditions (contd.)

I_{g2}	2×4.5	2×4.5	mA
I_{g1}	2×2.0	2×2.0	mA
$P_{load(driver)}$	10	12	W
P_a	2×15	2×20	W
P_{out}	40	60	W
η	57	60	%
P_{load}	33	51	W

1.3 Electrical Data — Limiting values. Absolute maximum rating system in accordance with IEC 134

	Min.	Max.	Unit
Cathode heating time	120		s
Heater surge current		6.0	A
Limiting value of heater current for nominal value of heater voltage ($V_f = 6.3$ V)		2.0	A
Control grid current with grid resistance $20\text{ K}\Omega$ (Class C)		2×2.5	mA
Control grid external resistance (fixed bias)		50	$\text{K}\Omega$
Heater to cathode peak voltage		100	V

Limiting values at $f = 250$ MHz. Absolute maximum rating system in accordance with IEC 134

	Min.	Max.	Unit
V_f Operating tolerance of heater voltage	6.14	6.46	V
V_a Anode voltage		600	V
V_{g2} Screen grid voltage		300	V
$-V_{g1}$ Negative control grid voltage		175	V
I_a Mean anode current		2×110	mA
I_k Mean cathode current		2×120	mA
$I_{k(pk)}$ Peak cathode current		2×700	mA
I_{g2} Mean screen grid current		2×9.0	mA
P_a Anode power dissipation		2×20	W
P_{g1} Total control grid power dissipation		2×1.0	W
I_{g1} Mean control grid current		2×5.0	mA
P_{g2} Screen grid dissipation		2×3.5	W

2. SUPPLEMENTARY INFORMATION

2.1 Marking

Each tube shall bear the following marking:

- Type number
- Factory identification code
- Date code
- BS CECC 45 003-005

Each package containing one or more of these tubes shall bear all the above markings.

BS CECC 45 003-005
Issue 1, October 1978

2.2 Ordering information

Orders for components to this specification shall include the following minimum information:

Quantity. Tube type QVV06-40A or CV2797 to CECC 45 003-005

2.3 Related documents

BS 448	Dimensions of electronic valves and tubes
BS 6001	Sampling procedures and tables for inspection by attributes
BS CECC 45 000	Generic specification for space-charge controlled tubes
BS E9000	General requirements for electronic components of assessed quality
CECC 00 109	Certified test records
CECC 00 200	Qualified products list
IEC 100	Methods for the measurement of direct interelectrode capacitances of electronic tubes
IEC 134	Rating systems for electronic tubes and valves and analogous semiconductor devices
PD 9002	BS 9000 Component selection guide

2.4 Certified test records

Certified test records will be prepared on the r.f. power output measurements data from Subgroup A2 in accordance with CECC 00 109.

3. TEST CONDITIONS AND INSPECTION REQUIREMENTS

Test conditions (unless otherwise stated in the following conditions of test)

V_h V_a I_a V_{g2} V_{g1}
6.3 600 Adj 250 Adj
V V mA V V

cooling – natural

D = Destructive test
ND = Non-destructive test

GROUP A – Lot by lot

Examination or test	CECC 45 000 Ref.	Conditions of test	Inspection requirements					
			Limits		Units	Levels	IL	AQL %
			Min.	Max.				
Subgroup A0								
Visual examination (ND)	4.3	See 4.3					100 %	
Subgroup A1								
Heater current (ND)	4.5.1	$V_h = 6.3$ V only	1.6	2.0	A		II	1.0
Anode current (ND)	4.5.4	$V_{g1} = -24$ V (note 1)	15	55	mA		II	1.0
Total grid negative current (ND)	4.5.2	$I_a = 2 \times 40$ mA (note 2)	—	6	μ A		II	1.0
Screen grid current (ND)	4.5.5	$V_{g1} = \text{Adj.}$ (note 1) for $I_a = 40$ mA	—	6	mA		II	1.0
Subgroup A2								
Pulse emission (ND)	4.5.7	Pulse amplitude = 225 V max. $P_{RF} = 50$ Hz Pulse duration = 5 μ s max. (note 3)	3.0	—	A		II	2.5
R.F. power output (ND)	4.5.15	$f = 300$ MHz min. $P_i = 6$ W max. $V_a = 400$ V $I_a = 200$ mA max. $V_{g2} = 250$ V max. $I_{g2} = 18$ mA max. $V_{g1} = -60$ V $I_{g1} = 2$ to 8 mA Note: V_{g1} may be obtained wholly or partly by a com- bination of R_{g1} and I_{g1} (see notes 4 and 5)	35	—	W		II	2.5
Subgroup CTR (ND)								
		R.F. power output measurements data for subgroup A2						
Subgroup A3								
Dimensions for interchangeability (ND)	4.4	In accordance with Group B dimensions and gauges specified on the inspection drawing					I	2.5
Insulation of electrodes (ND)	4.5.13	$V_{g1} = -300$ V, $R = 5$ M Ω (note 6)		20	μ A		I	4.0