MAZDA

30C13

TRIODE PENTODE V.H.F. CHANGER

Indirectly heated—for series operation

TENTATIVE

GENERAL

The 30C13 is a miniature based indirectly heated Triode Pentode Frequency Changer. The base connections are arranged for maximum suitability in Printed Circuit applications, and give the pentode cathode lead a minimum of inductance. It is intended for use in V.H.F. Printed Circuits in AC or DC powered Television Receivers having series connected heater chains.

RATING

			Triode	Pentode
Heater Current	(amps)	I_h	0.3	
Heater Voltage	(volts)	V_h	9.0	
Maximum Anode Voltage	(volts)	$V_{a(max)}$	250	250
Maximum Screen Voltage	(volts)	$V_{g2(max)}$		175
Maximum Cathode Current	(mA)	$I_{k(max)}$	14	14
Maximum Anode Dissipation	(watts)	$P_{a(max)}$	1.5	1.7
Maximum Screen Dissipation	(watts)	$P_{g2(max)}$		0.5
Mutual Conductance	(mA/V)	g_m	5.0*	6.2†
Amplification Factor		μ	20	
Maximum Heater/Cathode Voltage	(volts)	$V_{h,k(max)}$	200	

* Measured at $V_a = 100$ V. $I_a = 14$ mA.

† Measured at $V_a = 170$ V. $V_{g2} = 170$ V. $I_a = 10$ mA.

INTER-ELECTRODE CAPACITANCES (pF)

		§	†
Grid 1/All	$c_{g1\text{-}all}$	6.3	7.4
Anode Pentode/All	$c_{ap\text{-}all}$	5.2	6.35
Grid 1/Anode Pentode	$c_{g1\text{-}ap}$	0.016	0.019
Grid Triode/All	$c_{gt\text{-}all}$	3.5	4.3
Anode Triode/All	$c_{at\text{-}all}$	3.3	4.1
Grid Triode/Anode Triode	$c_{gt\text{-}at}$	1.7	2.0
Grid Triode/Anode Pentode	$c_{gt\text{-}ap}$	0.004	0.006
Grid 1/Anode Triode	$c_{g1\text{-}at}$	0.009	0.016
Anode Pentode/Anode Triode	$c_{ap\text{-}at}$	0.019	0.026
Grid 1/Grid 2	$c_{g1\text{-}g2}$	2.25	2.25
Grid 1/Grid Triode	$c_{g1\text{-}gt}$	0.027	0.059

§ Capacities with holder capacity balanced out but with a cylindrical screening can.

† Total capacity including a B9A Nylon Phenolic Printed Circuit holder with a cylindrical screen (Ediswan Clix VH9/1).

30C13

MAZDA

30C13

TRIODE PENTODE V.H.F. CHANGER

Indirectly heated—for series operation

TENTATIVE

DIMENSIONS

Maximum Overall Length	(mm)	56
Maximum Diameter	(mm)	22.2
Maximum Seated Height	(mm)	49

MOUNTING POSITION — Unrestricted

TYPICAL OPERATION — As Frequency Changer with Oscillator Volts applied to Grid 1.

Pentode				
Supply Voltage	(volts)	$V_{a(b)}$	200	200
Anode Voltage (Decoupling Resistance 4.7 kΩ)	(volts)	V_a	170	170
Screen Voltage (R_{g2} 27 kΩ)	(volts)	V_{g2}	145	150
Grid 1 Resistance for Grid Current Bias	(kΩ)	R_{g1}	33	100
Grid 1 Current	(μA)	I_{g1}	130	42
Conversion Conductance	(μA/V)	g_c	2000	2150
Heterodyne Volts Peak		$V_{het(pk)}$	5.0	4.5
Anode Current (approx)	(mA)	I_a	6.8	6.3
Screen Current (approx)	(mA)	I_{g2}	2.0	1.9
Triode				
Anode Voltage	(volts)	V_a	120	120
Anode Current (mean)	(mA)	I_a	6.0	6.0

MAZDA

30C13

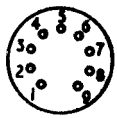
TRIODE PENTODE V.H.F. CHANGER

Indirectly heated—for series operation

TENTATIVE

BULB—Clear

BASE—NOVAL (B9A)



Viewed from Free End of Pins

VALVE HOLDER

Ediswan Clix : Printed Circuit Type : VH9/1
" " Standard Circuit Types : VH499/9 and VH599/9 series.

CONNECTIONS

Pin 1	Pentode Cathode and Pin 8	k_p and Pin 8
Pin 2	Pentode Grid 2	g_{2p}
Pin 3	Pentode Anode	a_p
Pin 4	Heater	h
Pin 5	Heater	h
Pin 6	Triode Anode	a_t
Pin 7	Triode Grid	g_{1t}
Pin 8	Triode Cathode, Shield, Pentode Cathode and Grid 3	k_t, g_{3p}, s, k_p
Pin 9	Pentode Grid 1	g_{1p}

The basing has been specially arranged to minimise pentode cathode lead inductance effects.