

11E13

H.F. DOUBLE TETRODE

Indirectly heated

TENTATIVE**GENERAL**

The 11E13 is an indirectly heated, miniature based, h.f. double tetrode. It is internally neutralised and is intended for use as a push-pull amplifier at frequencies up to 225 Mc/s.

RATING§

Heater Voltage	V_h	6.3	12.6	V
Heater Current	I_h	0.83	0.42	A
Maximum Operating Frequency	$f_{(max)}$		225	Mc/s
Maximum Permissible Temperature of hottest part of bulb			225	°C
Maximum Permissible Temperature of the base pins			120	°C

§ All limiting values are Absolute, not Design Centres.

RATING—Absolute values

Class "C" r.f. amplifier for c.w. telegraphy or f.m. telephony.

Maximum Anode Voltage	$V_a(max)$	300	V
Maximum Screen Grid Voltage	$V_{g2(max)}$	200	V
Maximum Negative Control Grid Voltage	$V_{g1(max)}$	-150	V
Maximum Heater/Cathode Voltage	$V_{h-k(max)}$	100	V
Maximum Anode Dissipation	$P_a(max)$	5.0*	W
Maximum Screen Grid Dissipation	$P_{g2(max)}$	1.0*	W
Maximum Control Grid Dissipation	$P_{g1(max)}$	0.2*	W
Maximum Peak Cathode Current	$i_{k(pk)max}$	225*	mA
Maximum Mean Cathode Current	$I_{k(av)max}$	50*	mA
Maximum Mean Control Grid Current	$I_{g1(av)max}$	3.0*	mA

* Each section.

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TENTATIVE**RATING**—Absolute values

Class "C" r.f. amplifier with anode and screen grid modulation (carrier condition for use with modulation factor 1).

Maximum Anode Voltage	$V_a(\text{max})$	250	V
Maximum Screen Grid Voltage	$V_{g2}(\text{max})$	200	V
Maximum Negative Control Grid Voltage	$V_{g1}(\text{max})$	-150	V
Maximum Heater/Cathode Voltage	$V_{h-k}(\text{max})$	100	V
Maximum Anode Dissipation	$P_a(\text{max})$	3.3*	W
Maximum Screen Grid Dissipation	$P_{g2}(\text{max})$	0.65*	W
Maximum Control Grid Dissipation	$P_{g1}(\text{max})$	0.2*	W
Maximum Peak Cathode Current	$i_k(\text{pk})\text{max}$	180*	mA
Maximum Mean Cathode Current	$I_k(\text{av})\text{max}$	40*	mA
Maximum Mean Control Grid Current	$I_{g1}(\text{av})\text{max}$	3.0*	mA

* Each section.

RATING—Absolute values

Frequency Trebler.

Maximum Anode Voltage	$V_a(\text{max})$	300	V
Maximum Screen Grid Voltage	$V_{g2}(\text{max})$	200	V
Maximum Negative Control Grid Voltage	$V_{g1}(\text{max})$	-150	V
Maximum Heater/Cathode Voltage	$V_{h-k}(\text{max})$	100	V
Maximum Anode Dissipation	$P_a(\text{max})$	5.0*	W
Maximum Screen Grid Dissipation	$P_{g2}(\text{max})$	1.0*	W
Maximum Control Grid Dissipation	$P_{g1}(\text{max})$	0.2*	W
Maximum Peak Cathode Current	$i_k(\text{pk})\text{max}$	225*	mA
Maximum Mean Cathode Current	$I_k(\text{av})\text{max}$	35*	mA
Maximum Mean Control Grid Current	$I_{g1}(\text{av})\text{max}$	2.0*	mA

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TENTATIVE

INTER-ELECTRODE CAPACITANCES

Anode/Grid 1 (each section)*	c_{a-g1}	$<0.1 \text{ pF}$
Grid 1/All other electrodes (each section)	c_{g1-all}	6.2 pF
Anode/All other electrodes (each section)	c_{a-all}	2.6 pF
Input Capacitance ‡	c_{in}	5.0 pF
Output Capacitance ‡	c_{out}	1.5 pF

* Internally neutralised for push-pull operation.

‡ Two sections in push-pull.

CHARACTERISTICS †‡

Mutual Conductance	g_m	3.3 mA/V
Inner Amplification Factor	μ_{g1-g2}	7.5

† Each section.

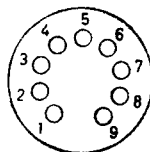
‡ At $I_a = 30 \text{ mA}$.

DIMENSIONS

Maximum Overall Length	78.5 mm
Maximum Diameter	22.2 mm
Maximum Seated Height	71.5 mm

MOUNTING POSITION—Unrestricted, but when mounted horizontally pins 2 and 7 must be in the same vertical plane.

BASE—Noval (B9A)



Viewed from free end of pins

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TENTATIVE**CONNECTIONS**

Pin 1	Control Grid, Section 1	$g1'$
Pin 2	Cathode, Shield	k,s
Pin 3	Control Grid, Section 2	$g1''$
Pin 4	Heater	h
Pin 5	Heater	h
Pin 6	Anode, Section 1	a'
Pin 7	Screen Grid	$g2', g2''$
Pin 8	Anode, Section 2	a''
Pin 9	Heater Centre Tap	h _{ct}