11E16

H.F. DOUBLE TETRODE

Indirectly heated

TENTATIVE

GENERAL

The 11E16 is an internally neutralised h.f. double tetrode. It has a centre tapped heater and is intended for use as a push-pull amplifier or frequency trebler at frequencies up to 600 Mc/s.

RATING§

Heater Voltage	V_h	12·6 6·3	V
Heater Current	I_h	0·65 1·3	A
Maximum Operating Frequency	$f_{(max)}$	600	Mc/s
Maximum Permissible Temperature of hottest part of bulb		200	°C
Maximum Permissible Temperature of the base pins		180	°C

§ All limiting values are Absolute, not Design Centres.

RATING—Absolute values.

Class " C " r.f. push-pull power amplifier for c.w. telegraphy or f.m. telephony.

Maximum Anode Voltage	$V_{a(max)}$	600*	V
Maximum Screen Grid Voltage	$V_{g2(max)}$	300	V
Maximum Negative Control Grid Voltage	$V_{g1(max)}$	−75	V
Maximum Heater/Cathode Voltage	$V_{h\text{-}k(max)}$	100	V
Maximum Anode Dissipation	$P_{a(max)}$	10†	W
Maximum Screen Grid Dissipation	$P_{g2(max)}$	1·5†	W
Maximum Control Grid Dissipation	$P_{g1(max)}$	0·5†	W
Maximum Peak Cathode Current	$i_{k(pk)max}$	260†	mA

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Maximum Mean Cathode Current	$I_{k(av)max}$	55†	mA
Maximum Control Grid Cathode Resistance (fixed bias)	$R_{g1\text{-}k(max)}$	50*	kΩ
Maximum Control Grid Cathode Resistance (automatic bias)	$R_{g1\text{-}k(max)}$	100†	kΩ
Maximum Mean Control Grid Current	$I_{g1(av)max}$	2·5†	mA

* For natural cooling $V_{a(max)}$ = 600V up to 150 Mc/s but is limited to 250V at 600 Mc/s. For forced air cooling $V_{a(max)}$ = 600V up to 300Mc/s but is limited to 400V at 600 Mc/s.

† Each section.

RATING—Absolute values.

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

Maximum Anode Voltage	$V_{a(max)}$	600*	V
Maximum Screen Grid Voltage	$V_{g2(max)}$	300	V
Maximum Negative Control Grid Voltage	$V_{g1(max)}$	−100	V
Maximum Heater/Cathode Voltage	$V_{h\text{-}k(max)}$	100	V
Maximum Anode Dissipation	$P_{a(max)}$	6·7†	W
Maximum Screen Grid Dissipation	$P_{g2(max)}$	1·2†	W
Maximum Control Grid Dissipation	$P_{g1(max)}$	0·5†	W
Maximum Peak Cathode Current	$i_{k(pk)max}$	400†	mA
Maximum Mean Cathode Current	$I_{k(av)max}$	50†	mA
Maximum Mean Control Grid Current	$I_{g1(av)max}$	2·5†	mA

* For natural cooling $V_{a(max)}$ = 600V up to 150 Mc/s but is limited to 250V at 600 Mc/s. For forced air cooling $V_{a(max)}$ = 600V up to 250 Mc/s but is limited to 440V at 600 Mc/s.

† Each section.

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RATING—Absolute values.

Frequency Trebler.

Maximum Anode Voltage	$V_{a(max)}$	600	V
Maximum Screen Grid Voltage	$V_{g2(max)}$	300	V
Maximum Negative Control Grid Voltage	$V_{g1(max)}$	−200	V
Maximum Heater/Cathode Voltage	$V_{h\text{-}k(max)}$	100	V
Maximum Anode Dissipation	$P_{a(max)}$	10†	W
Maximum Screen Grid Dissipation	$P_{g2(max}$	1·5†	W
Maximum Control Grid Dissipation	$P_{g1(max)}$	0·5†	W
Maximum Peak Cathode Current	$i_{k(pk)max}$	275†	mA
Maximum Mean Cathode Current	$I_{k(av)max}$	50†	mA
Maximum Control Grid/Cathode Resistance (fixed bias)	$R_{g1\text{-}k(max)}$	50†	kΩ
Maximum Control Grid/Cathode Resistance (automatic bias)	$R_{g1\text{-}k(max)}$	100†	kΩ
Maximum Mean Control Grid Current	$I_{g1(av)max}$	2·5†	mA

† Each section.

RATING—Absolute values

Class " B " a.f. power amplifier or modulator.

Maximum Anode Voltage	$V_{a(max)}$	600	V
Maximum Screen Grid Voltage	$V_{g2(max)}$	300	V
Maximum Negative Control Grid Voltage	$V_{g1(max)}$	−75	V
Maximum Heater/Cathode Voltage	$V_{h\text{-}k(max)}$	100	V
Maximum Anode Dissipation	$P_{a(max)}$	10†	W
Maximum Screen Grid Dissipation	$P_{g2(max)}$	1·5†	W

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Maximum Control Grid Dissipation	$P_{g1(max)}$	0·5† W
Maximum Peak Cathode Current	$i_{k(pk)max}$	120† mA
Maximum Mean Cathode Current	$I_{k(av)max}$	55† mA
Maximum Control Grid/Cathode Resistance (fixed bias)	$R_{g1\text{-}k(max)}$	50† kΩ
Maximum Control Grid/Cathode Resistance (automatic bias)	$R_{g1\text{-}k(max)}$	100† kΩ

† Each section

INTER-ELECTRODE CAPACITANCES

Anode/Grid 1 *†	$c_{a\text{-}g1}$	0·04 pF
Grid 1/All other electrodes†	$c_{g1\text{-}all}$	7·5 pF
Anode/All other electrodes†	$c_{a\text{-}all}$	2·6 pF
Input Capacitance‡	c_{in}	4·4 pF
Output Capacitance‡	c_{out}	1·6 pF

* Internally neutralised for push-pull operation.

† Each section.

‡ 2 sections in push-pull.

CHARACTERISTICS†‡

Mutual Conductance	g_m	3·0 mA/V
Inner Amplification Factor	$\mu_{g1\text{-}g2}$	8·0

† Each section.

‡ At $V_a = 300V$, $V_{g2} = 250V$, $I_a = 20mA$.

DIMENSIONS

Maximum Overall Length	85 mm
Maximum Diameter	47 mm
Maximum Seated Height	73 mm
Approximate Net Weight	2 oz

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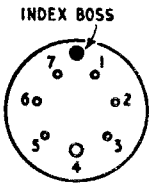
MOUNTING POSITION—Mobile operation ; vertical, base up or down. Fixed station operation ; vertical, base up or down. Horizontal ; anode pins in horizontal plane.

CAPS—Wire 2mm dia.

BASE—B7A



Viewed from free end of pins

CONNECTIONS

Pin 1	Heater	h
Pin 2	Control Grid, Section 1	g1′
Pin 3	Screen Grid	g2′ g2″
Pin 4	Cathode, Beam Plates, Shield	k,bp,s
Pin 5	Heater Centre Tap	h_{ct}
Pin 6	Control Grid, Section 2	g1″
Pin 7	Heater	h
Cap No. 1	Anode, Section 1	a′
Cap No. 2	Anode, Section 2	a″

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