

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	$V_{h-k(max)}$	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)	$R_{g1-k(max)}$	50† kΩ
Maximum Control Grid/Cathode Resistance (automatic bias)	$R_{g1-k(max)}$	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	$V_{h-k(max)}$	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	$V_a(\text{max})$	600	V
Maximum Screen Grid Voltage	$V_{g2}(\text{max})$	300	V
Maximum Negative Control Grid Voltage	$V_{g1}(\text{max})$	-200	V
Maximum Heater/Cathode Voltage	$V_{h-k}(\text{max})$	100	V
Maximum Anode Dissipation	$P_a(\text{max})$	10†	W
Maximum Screen Grid Dissipation	$P_{g2}(\text{max})$	1.5†	W
Maximum Control Grid Dissipation	$P_{g1}(\text{max})$	0.5†	W
Maximum Peak Cathode Current	$i_k(\text{pk})\text{max}$	275†	mA
Maximum Mean Cathode Current	$i_k(\text{av})\text{max}$	50†	mA
Maximum Control Grid/Cathode Resistance (fixed bias)	$R_{g1-k}(\text{max})$	50†	k Ω
Maximum Control Grid/Cathode Resistance (automatic bias)	$R_{g1-k}(\text{max})$	100†	k Ω
Maximum Mean Control Grid Current	$i_{g1}(\text{av})\text{max}$	2.5†	mA

† Each section.

RATING—Absolute values

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

Maximum Anode Voltage	$V_a(\text{max})$	600	V
Maximum Screen Grid Voltage	$V_{g2}(\text{max})$	300	V
Maximum Negative Control Grid Voltage	$V_{g1}(\text{max})$	-75	V
Maximum Heater/Cathode Voltage	$V_{h-k}(\text{max})$	100	V
Maximum Anode Dissipation	$P_a(\text{max})$	10†	W
Maximum Screen Grid Dissipation	$P_{g2}(\text{max})$	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)	$R_{g1-k}(\max)$	50† kΩ
Maximum Control Grid/Cathode Resistance (automatic bias)	$R_{g1-k}(\max)$	100† kΩ

† Each section

INTER-ELECTRODE CAPACITANCES

Anode/Grid 1 *†	c_{a-g1}	0.04 pF
Grid 1/All other electrodes†	c_{g1-all}	7.5 pF
Anode/All other electrodes†	c_{a-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	μ_{g1-g2}	8.0

† Each section.

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

DIMENSIONS

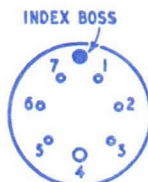
Maximum Overall Length	85 mm
Maximum Diameter	47 mm
Maximum Seated Height	73 mm
Approximate Net Weight	2 oz

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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	hct
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"

