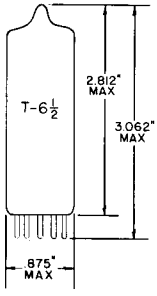
TUNG-SOL

PENTODE

MINIATURE TYPE



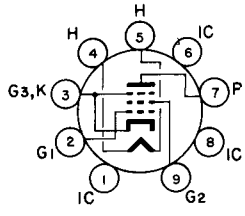
GLASS BULB

BASE E9-1
OUTLINE DRAWING
JEDEC 6-4

COATED UNIPOTENTIAL CATHODE

AUDIO OUTPUT TUBE

ANY MOUNTING POSITION



BOTTOM VIEW
BASING DIAGRAM
JEDEC 9CV

THE 15CW5 IS AN A.F. OUTPUT PENTODE IN THE 9 PIN MINIATURE CONSTRUCTION. IT IS INTENDED FOR USE IN COMBINED PHASE INVERTER AND PUSH-PULL APPLICATIONS.

DIRECT INTERELECTRODE CAPACITANCES

GRID #1 TO ALL OTHER ELEMENTS EXCEPT PLATE	11.8	pf
PLATE TO ALL OTHER ELEMENTS EXCEPT GRID #1	6.0	pf
PLATE TO GRID #1 (MAX.)	0.6	pf
GRID #1 TO HEATER (MAX.)	0.25	pf

HEATER CHARACTERISTICS AND RATINGS

AVERAGE CHARACTERISTICS	15 VOLTS	300	MA.
HEATER SUPPLY LIMITS:			
CURRENT OPERATION		300±20	MA.

MAXIMUM RATINGS

DESIGN CENTER VALUES - SEE EIA STANDARD RS-239

PLATE VOLTAGE	250	VOLTS
PLATE VOLTAGE WITHOUT PLATE CURRENT	550	VOLTS
PLATE DISSIPATION	12	WATTS
GRID #2 VOLTAGE	200	VOLTS
GRID #2 VOLTAGE WITHOUT CURRENT	550	VOLTS
GRID #2 DISSIPATION	1.75	WATTS
GRID #2 PEAK DISSIPATION	6	WATTS
CATHODE CURRENT	100	MAMPS
GRID #1 CIRCUIT RESISTANCE WITH AUTOMATIC BIAS	1	MEGOHM
VOLTAGE BETWEEN HEATER AND CATHODE	200	VOLTS
PEAK VOLTAGE BETWEEN HEATER AND CATHODE (CATHODE POSITIVE WITH RESPECT TO HEATER)[A]	300	VOLTS
CIRCUIT RESISTANCE BETWEEN CATHODE AND HEATER	20 000	OHMS

[A] FOR SINGLE-ENDED PUSH-PULL APPLICATIONS: DC COMPONENT MAX. 150 VOLTS.

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TYPICAL CHARACTERISTICS

PLATE VOLTAGE	100	170	200	VOLTS
GRID #2 VOLTAGE	100	170	---	VOLTS
GRID #2 SUPPLY VOLTAGE	---	---	200	VOLTS
GRID #2 SERIES RESISTOR (NOT BYPASSED)	---	---	470	OHMS
GRID #1 BIAS	-6.7	-12.5	-17.3	VOLTS
PLATE CURRENT	43	70	60	MAMPS
GRID #2 CURRENT	3.0	5.0	4.1	MAMPS
TRANSCONDUCTANCE	9 000	10 000	8 800	μMHOS
PLATE RESISTANCE	23 000	23 000	28 000	OHMS
AMPLIFICATION FACTOR OF GRID #2 WITH RESPECT TO GRID #1	8	8	8	

OPERATING CHARACTERISTICS

CLASS A

ONE TUBE

PLATE VOLTAGE	100	170	200	VOLTS
GRID #2 VOLTAGE	100	170	---	VOLTS
GRID #2 SUPPLY VOLTAGE	---	---	200	VOLTS
GRID #2 SERIES RESISTOR (NOT BYPASSED)	---	---	470	OHMS
GRID #1 BIAS	-6.7	-12.5	-17.3	VOLTS
PLATE LOAD RESISTANCE	2400	2400	2400	OHMS
INPUT AF GRID #1 VOLTAGE, RMS	4.3	7.0	7.8	VOLTS
ZERO-SIGNAL PLATE CURRENT	43	70	60	MAMPS
MAX.-SIGNAL PLATE CURRENT	43	70	62.5	MAMPS
ZERO-SIGNAL GRID #2 CURRENT	3.0	5.0	4.1	MAMPS
MAX.-SIGNAL GRID #2 CURRENT	11	22	12.5	MAMPS
TOTAL HARMONIC DISTORTION	10	10	10	PERCENT
POWER OUTPUT	1.9	5.6	5.2	WATTS

OPERATING CHARACTERISTICS

TWO TUBES

	CLASS B PUSH PULL		CLASS AB PUSH PULL		
PLATE VOLTAGE	100	170	100	170	VOLTS
GRID #2 VOLTAGE	100	170	100	170	VOLTS
GRID #1 BIAS	-11.4	-20.5			OHMS
COMMON CATHODE RESISTOR			135	120	OHMS
LOAD RESISTANCE PLATE TO PLATE	3500	3500	3500	3500	OHMS
INPUT AF GRID #1 VOLTAGE, RMS	7.9	14.6	7.0	13.1	VOLTS
ZERO-SIGNAL PLATE CURRENT	2x10	2x15	2x29	2x56.5	MAMPS
MAX.-SIGNAL PLATE CURRENT	2x30.5	2x57.5	2x31	2x57.5	MAMPS
ZERO-SIGNAL GRID #2 CURRENT	2x0.55	2x0.7	2x1.6	2x3.0	MAMPS
MAX.-SIGNAL GRID #2 CURRENT	2x7.1	2x20.5	2x7,0	2x20.5	MAMPS
TOTAL HARMONIC DISTORTION	2.8	4.8	3.0	4.5	PERCENT
POWER OUTPUT	3.7	13.5	3.6	13.0	WATTS

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TUNG-SOL

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OPERATING CHARACTERISTICS IN TRIODE CONNECTION

CLASS A

ONE TUBE

(GRID #2 CONNECTED TO PLATE)

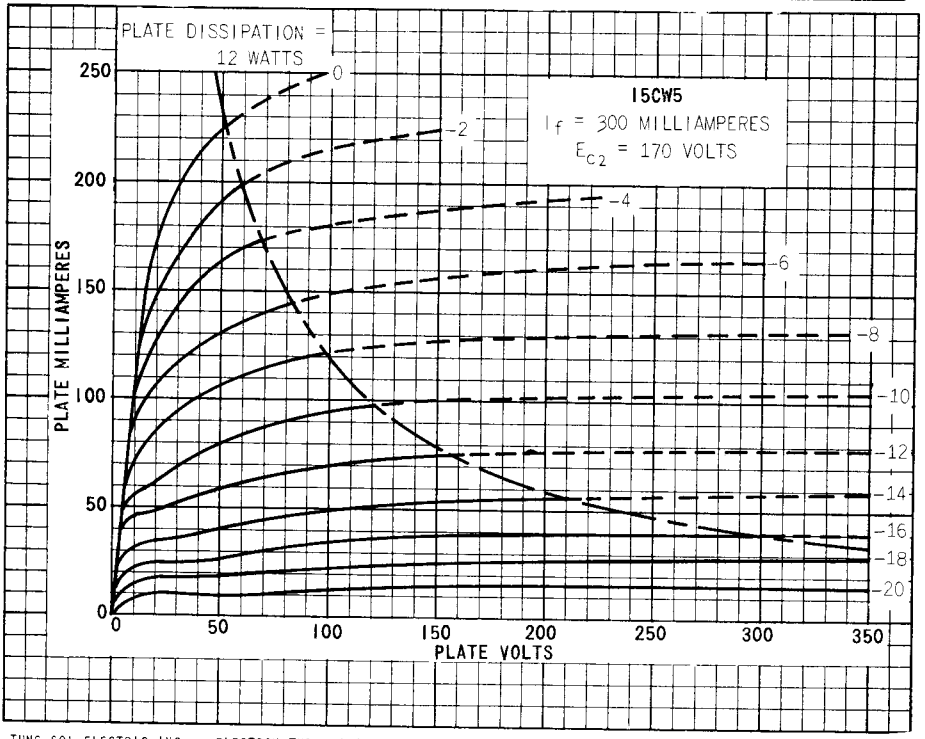
PLATE VOLTAGE	100	170	VOLTS
GRID BIAS	-8.0	-15.1	VOLTS
PLATE LOAD RESISTANCE	1200	1200	OHMS
INPUT AF GRID VOLTAGE, RMS	5.7	10.8	VOLTS
ZERO-SIGNAL PLATE CURRENT	30	50	MAMPS
MAX.-SIGNAL PLATE CURRENT	36.1	62	MAMPS
TOTAL HARMONIC DISTORTION	10	10	PERCENTS
POWER OUTPUT	0.52	2.1	WATTS

CLASS AB PUSH PULL

TWO TUBES

(GRID #2 CONNECTED TO PLATE)

PLATE VOLTAGE	100	170	VOLTS
CATHODE RESISTOR	270	270	OHMS
LOAD RESISTANCE, PLATE TO PLATE	3500	3500	OHMS
INPUT AF GRID VOLTAGE, RMS	7.3	13.4	VOLTS
ZERO-SIGNAL PLATE CURRENT	2x18	2x32.5	MAMPS
MAX.-SIGNAL PLATE CURRENT	2x20	2x36	MAMPS
TOTAL HARMONIC DISTORTION	3.2	3.8	PERCENTS
OUTPUT POWER	1.0	3.9	WATTS



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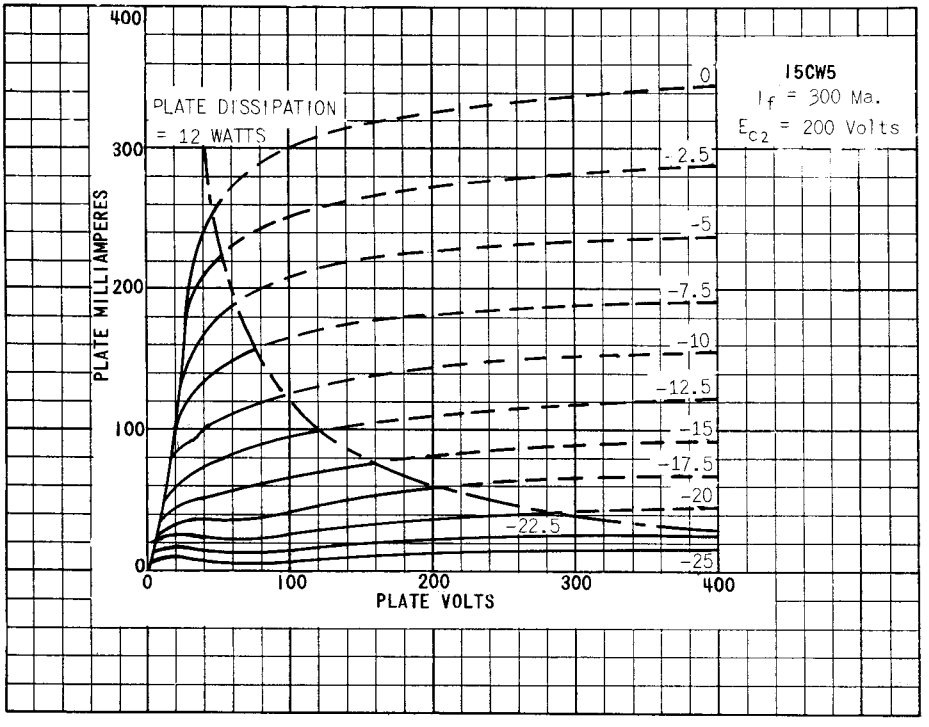
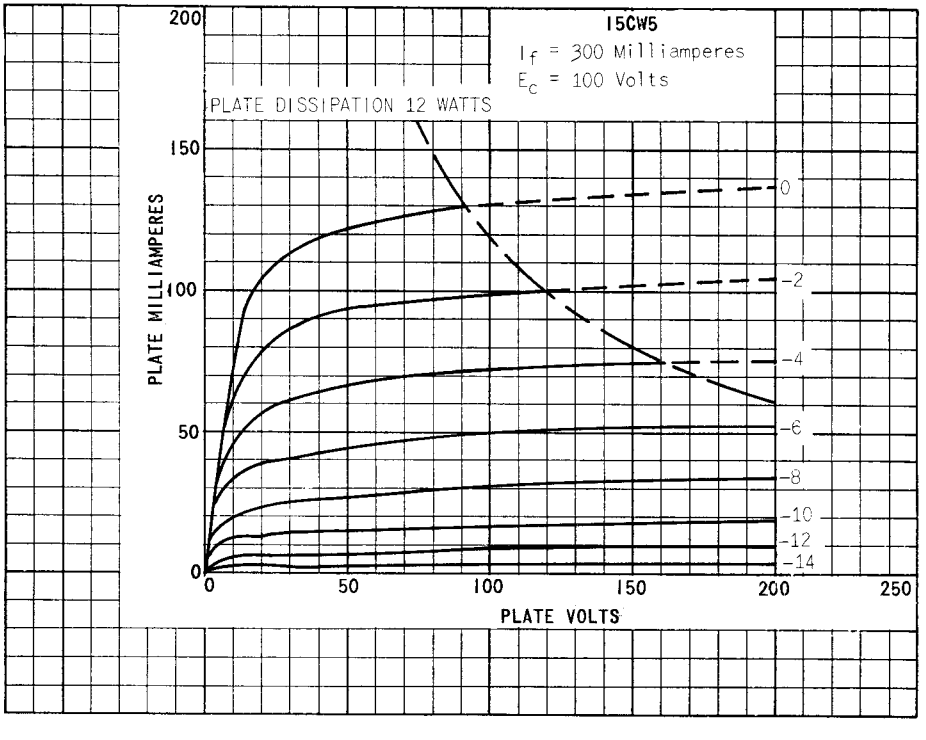
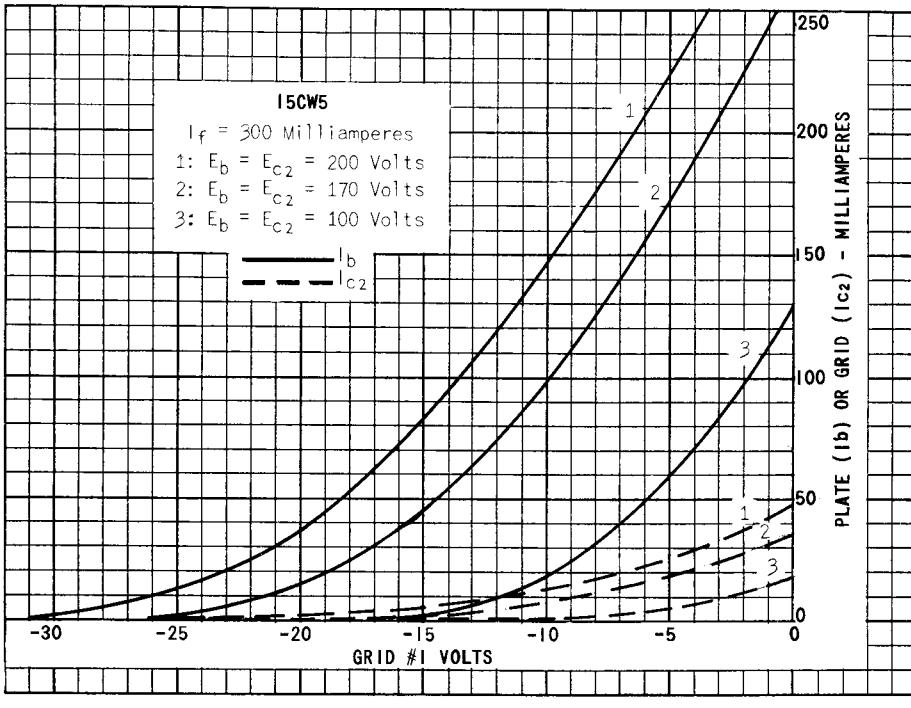

15CW5
I_f = 300 Ma.
E_{c2} = 200 Volts
PLATE DISSIPATION
= 12 WATTS
PLATE MILLIAMPERES
PLATE VOLTS
0
-2.5
-5
-7.5
-10
-12.5
-15
-17.5
-20
-22.5
-25
400
300
200
100
0
0
100
200
300
400


15CW5
I_f = 300 Milliamperes
E_c = 100 Volts
PLATE DISSIPATION 12 WATTS
PLATE MILLIAMPERES
PLATE VOLTS
0
-2
-4
-6
-8
-10
-12
-14
200
150
100
50
0
0
50
100
150
200
250



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