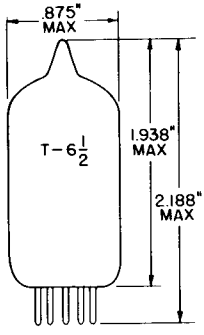
TUNG-SOL

TRIODE PENTODE
MINIATURE TYPE



GLASS BULB

MINIATURE BUTTON
9 PIN BASE E9-1
OUTLINE DRAWING
JEDEC 6-2

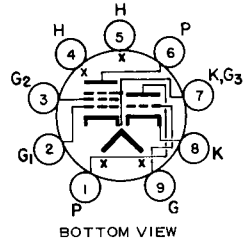
COATED UNIPOTENTIAL CATHODE

FOR

APPLICATION IN FM

OR TV RECEIVERS

ANY MOUNTING POSITION



BOTTOM VIEW

BASING DIAGRAM
JEDEC 9AE

THE 5U8 COMBINES TWO ELECTRICALLY INDEPENDENT SECTIONS-A TRIODE AND A PENTODE IN THE 9 PIN MINIATURE CONSTRUCTION. BOTH UNITS ARE CAPABLE OF GOOD PERFORMANCE AT THE HIGH FREQUENCIES. THE TUBE MAY BE USED AS A LOCAL OSCILLATOR-PENTODE MIXER IN FM OR TELEVISION RECEIVERS OR IN THE MANY COMBINED FUNCTIONS OF SUCH RECEIVERS. IN

DIRECT INTERELECTRODE CAPACITANCES

	WITH SHIELD [A]	WITHOUT SHIELD	
PENTODE GRID 1 TO PENTODE PLATE: (PG1 TO PP) MAX.	→ 0.007	→ 0.015	pf
PENTODE INPUT: PG1 TO (H+PK+PG2+PG3+I.S.)	5.0	5.0	pf
PENTODE OUTPUT: PP TO (H+PK+PG2+PG3+I.S.)	3.5	2.6	pf
PENTODE CATHODE TO HEATER: H TO (PK+PG3+I.S.)	3.0[B]	3.0	pf
TRIODE GRID TO TRIODE PLATE: (TG TO TP)	1.8	1.8	pf
TRIODE INPUT: TG TO (TK+H+PK+PG3+I.S.)	2.8	2.8	pf
TRIODE OUTPUT: TP TO (TK+H+PK+PG3+I.S.)	2.0	1.5	pf
TRIODE CATHODE TO HEATER (TK TO H)	3.0[B]	3.0	pf
PENTODE GRID TO TRIODE PLATE (PG TO TP) (MAX.)	0.20	0.2	pf
PENTODE PLATE TO TRIODE PLATE (PP TO TP) (MAX.)	0.02	0.1	pf

HEATER CHARACTERISTICS AND RATINGS
DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239

AVERAGE CHARACTERISTICS	4.7 VOLTS	600	MA.
HEATER WARM-UP TIME [C]		11	SECONDS
HEATER SUPPLY LIMITS: CURRENT OPERATION		600±40	MA.
MAXIMUM HEATER CATHODE VOLTAGE: (EACH UNIT)			
HEATER NEGATIVE WITH RESPECT TO CATHODE			
TOTAL DC AND PEAK		200	VOLTS
HEATER POSITIVE WITH RESPECT TO CATHODE			
DC		100	VOLTS
TOTAL DC AND PEAK		200	VOLTS

PRINTED IN U.S.A.

CONTINUED FROM PRECEDING PAGE

→ MAXIMUM RATINGS

DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239

PENTODE PLATE VOLTAGE	330	VOLTS
TRIODE PLATE VOLTAGE	330	VOLTS
GRID 2 SUPPLY VOLTAGE	330	VOLTS
GRID 2 VOLTAGE	SEE RATING CHART	
PENTODE PLATE DISSIPATION	3.0	WATTS
GRID 2 DISSIPATION: *		
FOR VOLTAGES UP TO 165 VOLTS	0.55	WATTS
FOR VOLTAGES BETWEEN 165 & 330 VOLTS	SEE RATING CHART	
POSITIVE DC GRID 1 VOLTAGE	0	VOLTS
POSITIVE DC TRIODE GRID VOLTAGE	0	VOLTS
TRIODE PLATE DISSIPATION	2.5	WATTS
PENTODE GRID 1 CIRCUIT RESISTANCE:*		
WITH CATHODE BIAS	1.0	MEGOHM
WITH FIXED BIAS	0.5	MEGOHM

TYPICAL OPERATING CHARACTERISTICS

CLASS A_1 AMPLIFIER

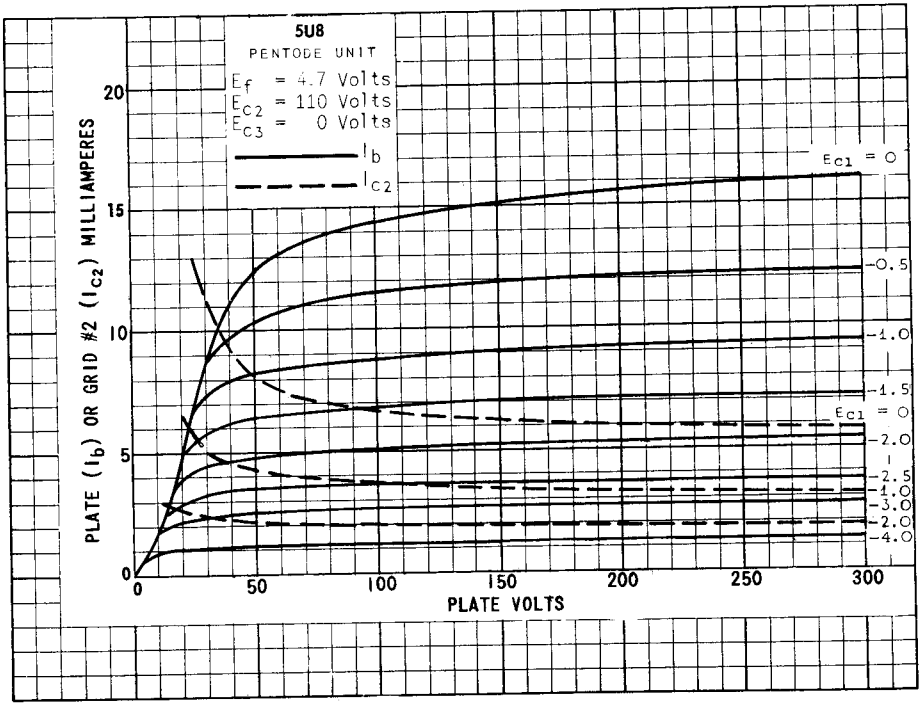
	TRIODE	PENTODE	
PLATE VOLTAGE	125	125	VOLTS
GRID 2 VOLTAGE	----	110	VOLTS
GRID 1 VOLTAGE	-1.0	-1.0	VOLTS
TRANSCONDUCTANCE	7500	5000	μMHOS
PLATE CURRENT	13.5	9.5	MA.
GRID 2 CURRENT	----	3.5	MA.
PLATE RESISTANCE (APPROX.)	----	0.2	MEGOHM
AMPLIFICATION FACTOR	40	----	
GRID 1 VOLTAGE (APPROX.) FOR Ib=20 μA	-9	-8	VOLTS
ZERO BIAS TRANSCONDUCTANCE (WITH Eb=100 V; Ec2=70 V)*	----	5500	μMHOS

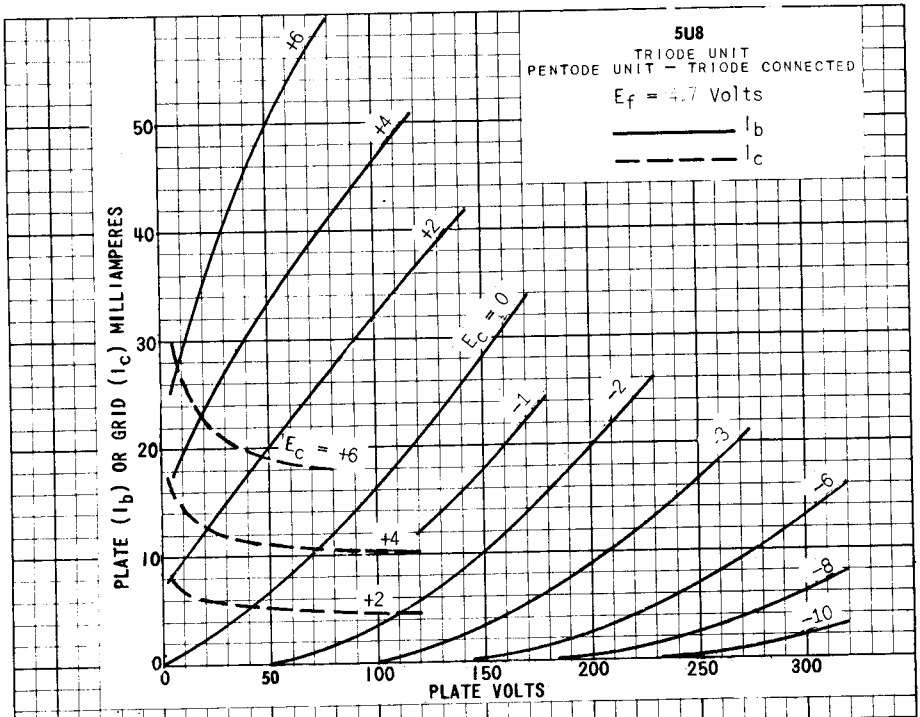
A
EXTERNAL SHIELD 315 CONNECTED TO PIN 4.

B
EXTERNAL SHIELD 315 CONNECTED TO PIN 6.

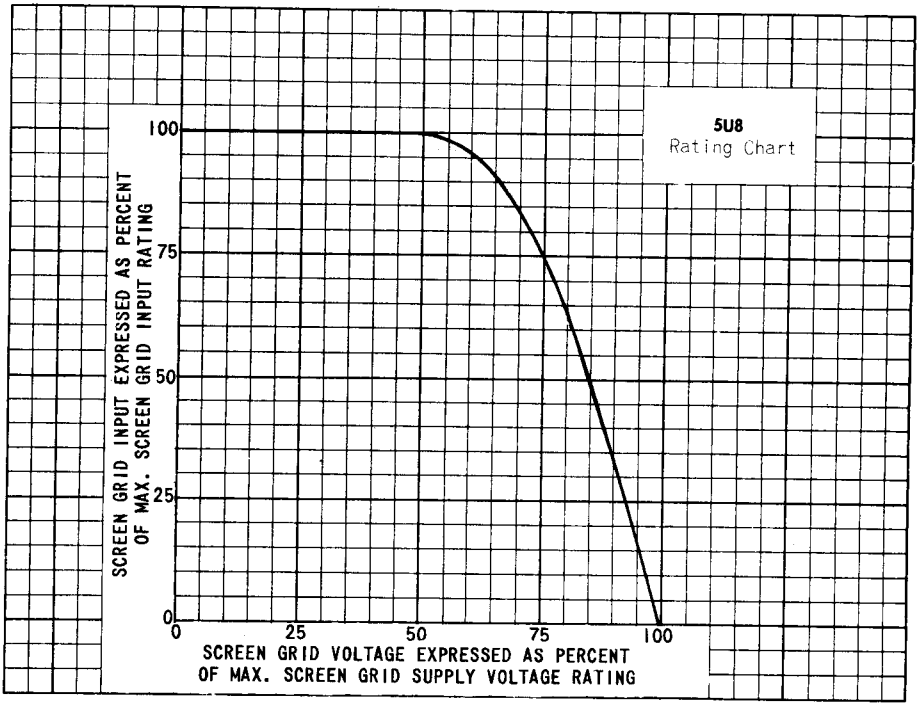
C
HEATER WARM-UP TIME IS DEFINED AS THE TIME REQUIRED FOR THE VOLTAGE ACROSS THE HEATER TO REACH 80% OF ITS RATED VOLTAGE AFTER APPLYING 4 TIMES RATED HEATER VOLTAGE TO A CIRCUIT CONSISTING OF THE TUBE HEATER IN SERIES WITH A RESISTANCE OF VALUE THREE TIMES THE NOMINAL HEATER OPERATING RESISTANCE.

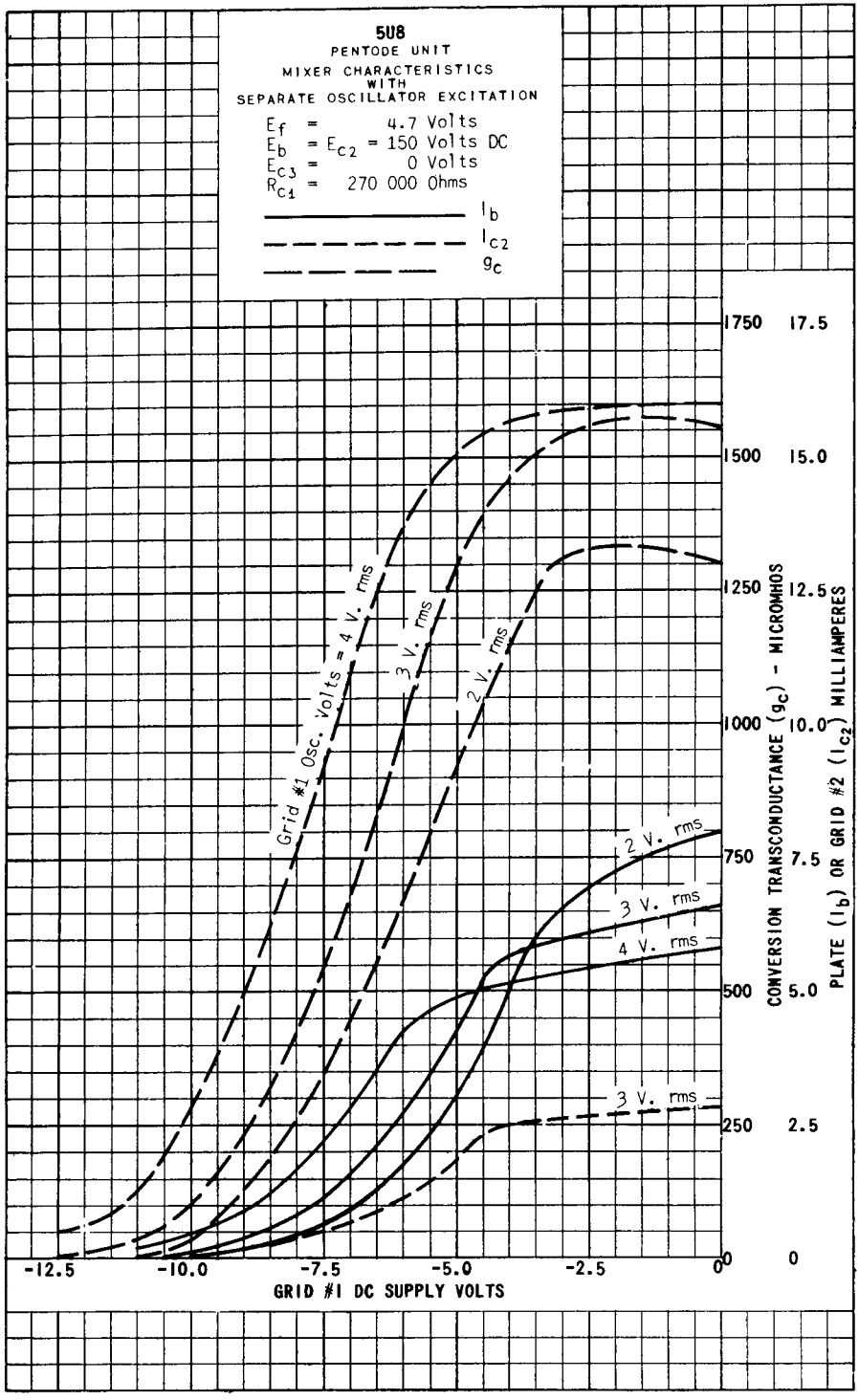
→ INDICATES A CHANGE.
* INDICATES AN ADDITION.

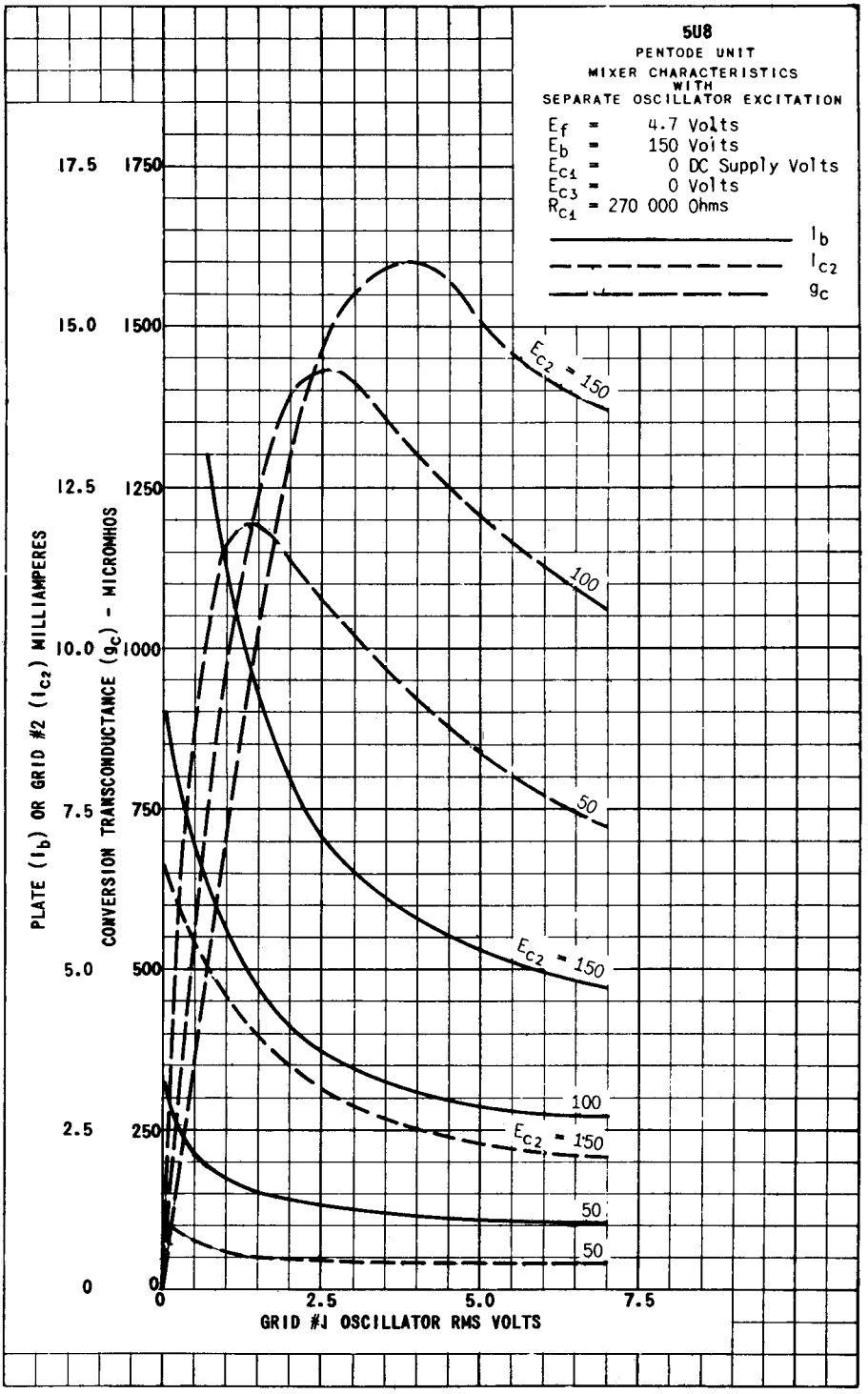




PRINTED IN U.S.A.


5U8
Rating Chart
SCREEN GRID INPUT EXPRESSED AS PERCENT OF MAX. SCREEN GRID INPUT RATING
100
75
50
25
0
0
25
50
75
100
SCREEN GRID VOLTAGE EXPRESSED AS PERCENT OF MAX. SCREEN GRID SUPPLY VOLTAGE RATING




5U8
PENTODE UNIT
MIXER CHARACTERISTICS
WITH
SEPARATE OSCILLATOR EXCITATION
Ef = 4.7 Volts
Eb = 150 Volts
Ec1 = 0 DC Supply Volts
Ec3 = 0 Volts
Rc1 = 270 000 Ohms
Ib
Ic2
gc
PLATE (Ib) OR GRID #2 (Ic2) MILLIAMPERES
CONVERSION TRANSCONDUCTANCE (gc) - MICROMHOS
GRID #1 OSCILLATOR RMS VOLTS
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0
1750
1500
1250
1000
750
500
250
0
2.5
5.0
7.5
Ec2 = 150
100
50
Ec2 = 150
100
Ec2 = 150
50
50