



ELECTRONIC TUBE REFERENCE

6SK7

Voltage Pentode - Remote Cutoff (single) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

PENTODE

Remote-cutoff pentode designed for RF and IF amplifier service. Its variable-mu characteristic provides smooth automatic gain control, making it a standard controlled-gain receiver signal tube.

GENERAL CHARACTERISTICS

BASE DESIGNATION	RTMA 8N	BASE PINS	8
NOMINAL HEATER	6.3 V / 300 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Pentode	
PLATE RESISTANCE	800000 Ω
TRANSCONDUCTANCE	0.002 S
MAXIMUM PLATE VOLTAGE	300 V
MAXIMUM SCREEN VOLTAGE	125 V
MAXIMUM PLATE DISSIPATION	4 W
MAXIMUM SCREEN DISSIPATION	0.4 W

RCA 6SK7 remote-cutoff metal single-ended RF/IF amplifier pentode suitable for AVC; RMA 1938 and JETEC 1950. Heater 6.3 V 0.3 A, coated unipotential cathode, octal 8-pin, basing 8N. Pins 1 shell/internal shield, 2 heater, 3 suppressor grid3, 4 control grid1, 5 cathode, 6 screen grid2, 7 heater, 8 plate. 1938 at V_a 250 V V_{g2} 100 V: plate current 9.2 mA, screen current 2.4 mA, gm 2000 μ mhos (0.002 A/V), rp 0.8 M Ω ; at V_a 100 V: I_a 8.9 mA, I_{g2} 2.6 mA, gm 1900 μ mhos, rp 0.25 M Ω . Grid bias about -35 V for gm 10 μ mhos. Grid-plate capacitance max ~0.005 pF (1938), 1950 ~0.003 pF; input 6 pF, output 7 pF. JETEC max plate 300 V, screen supply max 300 V subject to operating restrictions, screen dissipation 0.4 W. Suppressor externally tied to cathode at socket.

The 6SK7 is a Pentode intended for remote-cutoff RF/IF amplifier service. Published ratings, characteristics and typical operating data from the supplied datasheet were captured.

SOURCE OPERATING CONDITIONS

1940 RCA

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1940 RCA

Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
The 65J7 and the 65Kk7 are two new metal r~f amplifier pentodes featur	65	The 65J7 and the 65Kk7 are two new metal r~f amplifier pentodes featur-
amplifier operation, (5) greater uniformity of ain in amplifiers,(6) hn?her	6	amplifier operation, (5) greater uniformity of ain in amplifiers,(6) hn?her
HEATER VOLTAGE (A.C. or D.C.)	6.3 V	HEATER VOLTAGE (A.C. or D.C.) 6.3 Volts
HEATER CURRENT o	300 mA	HEATER CURRENT o 0.3 Ampere
Grid to Plate 0.005 max. uuf	0.005 pF	Grid to Plate 0.005 max. uuf
Heater Voltage 6.3	6.3 V	Heater Voltage 6.3 6.3 Volts
Plate vVoltage 100 250 max. Volts	250 V	Plate vVoltage 100 250 max. Volts
screen voltage 100 max. 100 max. Volts	100 V	screen voltage 100 max. 100 max. Volts
Grid voltage -3 - Volts	-3 V	Grid voltage -3 - Volts
Plate Current 2.9	3 mA	Plate Current 2.9 3.0 Milliamperes
screen Current 0.9	0.8 mA	screen Current 0.9 0.8 Milliamperes
Amplification Factor (Approx.)	2500	Amplification Factor (Approx.) 1100 2500
HEATER CURRENT ° 0,	3 A	HEATER CURRENT ° 0,3 Ampere
Grid to Plate 0,005 sax. uuf	5 pF	Grid to Plate 0,005 sax. uuf
Plate voltage 100 250 max., Volts	250 V	Plate voltage 100 250 max., Volts
screen vVoltage 100 sax. 100 max. Volts	100 V	screen vVoltage 100 sax. 100 max. Volts

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid voltage -3 min, -3 ain, Volts	-3 V	Grid voltage -3 min, -3 ain, Volts
Plate Current 8.9	9.2 mA	Plate Current 8.9 9.2 Milliamperes
screen Current 2.6	2.4 mA	screen Current 2.6 2.4 Milliamperes
Amplification Factor (Approx.)	1600	Amplification Factor (Approx.) 875 1600
ductance = 10 micromhos	-35 V	ductance = 10 micromhos - -35 volts
E; 6.3 VOLTS "SCREEN VOLTS	6.3 V	E; 6.3 VOLTS "SCREEN VOLTS
SUPPRESSOR VOLTS =	0 V	SUPPRESSOR VOLTS = 0
©_® o o o o 603	603 V	©_® o o o o 603 603 volts
Heater VOl&ge (ac or dc)o	90 V	Heater VOl&ge (ac or dc)o 90 volts
Maximum heater=-cathode vOltag e . «	300 V	Maximum heater=-cathode vOltag e . « 300 volts
o o o o ¢ o o o Plate	300 V	o o o o ¢ o o o Plate 300 volts
Meaximum grid #2 supply VOltag e . « ¢ « o See J	2 V	Meaximum grid #2 supply VOltag e . « ¢ « o See J5-Ch
Meximum grid #2 vOltag e . . o « o « o o ¢ o« Pip #3 conected toi. o o s o s o o o o o Plate Catho	3 V	Meximum grid #2 vOltag e . . o « o « o o ¢ o« Pip #3 conected toi. o o s o s o o o o o Plate Cathode
Maximum grid #3 voltage, o ¢ o o o o 0 (o} volts	2.5 V	Maximum grid #3 voltage, 2.5 watts
Maximm positive dc grid #1 voltage. . . ¢ o 1.0 l,	0 V	Maximm positive dc grid #1 voltage. . . ¢ o 1.0 1,0 megohm
Heator voltage. . ¢ « ¢ ¢ ¢ o o o 6.3 6-3 603	603 V	Heator voltage. . ¢ « ¢ ¢ ¢ o o o 6.3 6-3 603 603 volts
Plate VOl&AEE o « o« o o o o o o » 180 250 100	250 V	Plate VOl&AEE o « o« o o o o o o » 180 250 100 250 volts
Grid #2 voltage . . . « « « o« « o Plate Plate 100	1100 V	Grid #2 voltage . . . « « « o« « o Plate Plate 100 1,100 volts
Grid #l VOItage . ¢« ¢« ¢ ¢ o o o N ~6 "805 -3	-3 V	Grid #1 VOItage . ¢« ¢« ¢ ¢ o o o N ~6 "805 -3 -3 volts
Grid #3 voltage,. . « » « « » « o Plate Plate Pin #3 connected to pin #	5 V	Grid #3 voltage,. . « » « « » « o Plate Plate Pin #3 connected to pin #5
Trangconductance, . « « « « « o 2300 2500 157	1650 µS	Trangconductance, . « « « « « o 2300 2500 157 1650 pmhos

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Platoctu'rent.....6 902 209	3 mA	Platoctu'rent.....6 902 209 3 ma
, . o e ¢ o ¢ o o = - 0.9	8 mA	, . o e ¢ o ¢ o o = - 0.9 . 008 ma
Grid #1 voltage (approx)for	1 V	Grid #1 voltage (approx)for
= 10ua +8	-8 V	= 10ua +8 -8 volts
Heater voltage (ac or dC) @ o 6 6 6 6 6 @ & 8 0 0 8 0 0 ¢ 0 o s 0 e . «	6.3 V	Heater voltage (ac or dC) @ o 6 6 6 6 6 @ & 8 0 0 8 0 0 ¢ 0 o s 0 e . « 6.3 voOlts
VOLt&Z® . « « o « » o ¢« ¢« s s s s s o ¢« o o o «	0 V	VOLt&Z® . « « o « » o ¢« ¢« s s s s s o ¢« o o o « 0 volts
LJ L] L] L] * ® @ L] * ® [d * L] L4 * . *] *	300 V	LJ L] L] L] * ® @ L] * ® [d * L] L4 * . *] * 300 volts
Maxm 31'1(1 #2 Bupply VOltag e 0 o6 @ & o ¥ 06 o 0 © o 6 o o o	300 V	Maxm 31'1(1 #2 Bupply VOltag e 0 o6 @ & o ¥ * 6 06 o 0 © o 6 o o o 300 volts
Ma-xmm grid#e Voltage. ® o @ °® @ & 6 ¢ ® o 6 o © & o 6 0 o ° ¢ o o o see J	0 V	Ma-xmm grid#e Voltage. ® o @ °® @ & 6 ¢ ® o 6 o © & o 6 0 o ° ¢ o o o see J5-Ch
Maximum grid #2 digspiation. . ¢« ¢ o o ¢ ¢ o ¢ o o s 0 o 0 o o o oo o	4 W	Maximum grid #2 digspiation. . ¢« ¢ o o ¢ ¢ o ¢ o o s 0 o 0 o o s 0 0 o o o oo o 04 watts
Maximun pogitive dc grid #1 vOlTBgE. « & « o ¢ o ¢ s ¢ ¢ 6 o o o o o o 0 volts	6 V	Maximun pogitive dc grid #1 vOlTBgE. « & « o ¢ o ¢ s ¢ ¢ o ¢ s ¢ ¢ 6 o o o o o o 0 volts
Heater vOltag e o « « o o ¢ ¢ ¢ ¢ o ¢ ¢ ¢ 6 06 6 06 0 0 0.0 0 00 . 6.3 6,	3 V	Heater vOltag e o « « o o ¢ ¢ ¢ ¢ o ¢ ¢ ¢ 6 06 6 06 0 0 0.0 0 00 . 6.3 6,3 volts
Phte voltage. * L] [] L] * L4 L L4 Ld LJ L] ® L4 * ® L] [J L] L [* LJ Ld L] L] lw	250 V	Phte voltage. * L] [] L] * L4 L L4 Ld LJ L] ® L4 * ® L] [J L] L [* LJ Ld L] L] lw 250 volta
Grid #2 voltaseo @€ ¢ 6 6 0 6 6 6 © ° 0 0 & 0 6 0 0 0 0 s 9 2 s 0 100	100 V	Grid #2 voltaseo @€ ¢ 6 6 0 6 6 6 © ° 0 0 & 0 6 0 0 0 0 s 9 2 s 0 100 100 volts
Grid #1 v°ltage e ¢ 0 ® ¢ ¢ 0 0 ® 0 0 0 @ 6 ° 0 0 v 0 o 0 -1	-3 V	Grid #1 v°ltage e ¢ 0 ® ¢ ¢ 0 0 ® 0 0 0 @ 6 ° 0 e 0 0 0 0 v 0 o 0 -1 . -3 volts

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Resistance (Approx.) 0.7	1.5 ohm	Plate Resistance (Approx.) 0.7 1.5 Megohms

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance 1575	1650 μ S	Transconductance 1575 1650 Micromhos
Plate Resistance (Approx. 0.25	0.8 ohm	Plate Resistance (Approx. 0.25 0.8 Megohm
Transconductance 1900	2000 μ S	Transconductance 1900 2000 Micromhos
Plate resistance. . « « « « « « o o 00082 .0076 6.7 >	1 ohm	Plate resistance. . « « « « « o o 00082 .0076 6.7 >1.0 megohm



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

SOURCE PDF

1948 Brimar Radio Valve Manual

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1948 BRIMAR RADIO VALVE MANUAL

Section 1 · Pentode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage	6.3 V	—
Heater Current	300 mA	—



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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1953 RFT Rundfunk Technik

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1953 RFT RUNDFUNK TECHNIK

Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HeaterVoltageNominal	6.3 V	Nominal
HeaterCurrentNominal	300 mA	Nominal
Maximum Plate Voltage	300 V	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum Screen Voltage	125 V	—
Maximum Plate Dissipation	4 W	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	2000 μ S	Typical
Plate Resistance	800000 ohm	Typical



195X General Electric Essential Characteristics

Published test conditions and operating points. Values on this page are preserved as reported by this source.

195X GENERAL ELECTRIC ESSENTIAL CHARACTERISTICS

Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	300 V	Published handbook rating
Maximum screen voltage	150 V	Published handbook rating
Plate voltage	250 V	ClassA OperatingPoint1
Screen voltage	100 V	ClassA OperatingPoint1
Control-grid bias	3 V	ClassA OperatingPoint1
Plate current	9.2 mA	ClassA OperatingPoint1
Screen current	2.6 mA	ClassA OperatingPoint1
Plate voltage	100 V	ClassA OperatingPoint2
Screen voltage	100 V	ClassA OperatingPoint2
Control-grid bias	1 V	ClassA OperatingPoint2
Plate current	13 mA	ClassA OperatingPoint2
Screen current	4 mA	ClassA OperatingPoint2

Characteristic		
Parameter	Published Value	Condition / Note
Plate resistance	800000 ohm	ClassA OperatingPoint1
Transconductance	2000 μ S	ClassA OperatingPoint1
Plate resistance	120000 ohm	ClassA OperatingPoint2
Transconductance	2350 μ S	ClassA OperatingPoint2
Heater voltage	6.3 V	Published heater rating
Heater current	300 mA	Published heater rating



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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1961 Tung Sol

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1961 TUNG SOL

Section 1 · Pentode

Characteristic		
Parameter	Published Value	Condition / Note
Plate Resistance	800000 ohm	AlternateOperatingPoint
Transconductance	2000 μ S	AlternateOperatingPoint



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SOURCE OPERATING CONDITIONS

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1966 Tung Sol Electronic Tubes 2 of 4

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1966 TUNG SOL ELECTRONIC TUBES 2 OF 4

Section 1 · Pentode

Other		
Parameter	Published Value	Condition / Note
Plate voltage	250 V	ClassA
Screen voltage	100 V	ClassA

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	2000 μ S	ClassA
Plate resistance	800000 ohm	ClassA
Plate_current	9.2 mA	ClassA
Screen_current	2.5 mA	ClassA

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Input capacitance	3 pF	Section1
Output capacitance	3 pF	Section1



SOURCE OPERATING CONDITIONS

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1968 General Electric Co

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1968 GENERAL ELECTRIC CO

Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	250 V	ClassA
Screen Voltage	100 V	ClassA
Grid Voltage	-3 V	ClassA

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Current	9.2 mA	ClassA
Screen Current	2.6 mA	ClassA