



12EK6

SHARP-CUTOFF PENTODE

For Use in "Hybrid" Automobile Receivers Operating
Directly From 12-Volt Storage Batteries

7-Pin Miniature Type

TENTATIVE DATA

RCA-12EK6 is a sharp-cutoff pentode of the 7-pin miniature type. It is intended for use as an intermediate-frequency amplifier tube in "hybrid" automobile receivers in which the tube and transistor electrode voltages are obtained directly from a 12-volt storage battery. The 12EK6 may also be used as a radio-frequency amplifier tube at frequencies up into the vhf range.

GENERAL DATA

Electrical:

Heater, for Unipotential Cathode:

Voltage Range (AC or DC) 10.0 to 15.9 volts

This voltage range is on an absolute basis. For longest life, it is recommended that the heater be operated within the voltage range of 11 to 14 volts.

Current (Approx.) at 12.6 volts 0.19 amp

Direct Interelectrode Capacitances
(Without external shield):

Grid No.1 to plate. 0.032 max. μ f

Grid No.1 to cathode, grid No.2,
grid No.3 and internal shield,
and heater. 10 μ f

Plate to cathode, grid No.2,
grid No.3 and internal shield,
and heater. 5.5 μ f

Mechanical:

Operating Position. Any

Maximum Overall Length. 2-1/8"

Maximum Seated Length. 1-7/8"

Length from Base Seat to Bulb Top
(Excluding tip) 1-1/2" $\pm$ 3/32"

Diameter:

Minimum 0.650"

Maximum 0.750"

Bulb. T-5-1/2

Base. Small-Button Miniature 7-Pin (JETEC No.E7-1)

AMPLIFIER — Class A₁

Maximum Ratings, Design-Center Values:

PLATE VOLTAGE 16 max. volts

GRID-NO.3 (SUPPRESSOR-GRID) VOLTAGE 0 max. volts

GRID-NO.2 (SCREEN-GRID) VOLTAGE 16 max. volts

GRID-NO.1 (CONTROL-GRID) VOLTAGE:
Positive bias value 0 max. volts

PEAK HEATER-CATHODE VOLTAGE:

Heater negative with respect
to cathode. 16 max. volts

Heater positive with respect
to cathode. 16 max. volts

Characteristics with 12.6 Volts on Heater:

Plate Voltage 12.6 volts

Grid-No.3 Connected to cathode at socket

Grid-No.2 Voltage 12.6 volts

Grid-No.1 Supply Voltage. 0 volts

Grid-No.1 Resistor (Bypassed) 2.2 megohms

Plate Resistance (Approx.) 40000 ohms

Transconductance. 4200 μ hos

Grid-No.1 Voltage (Approx.) for
plate current = 10 μ a -4 volts

Plate Current 4.4 ma

Grid-No.2 Current 2 ma

Maximum Circuit Values:

Grid-No.1 Circuit Resistance. 10 max. megohms

OPERATING CONSIDERATIONS

The *maximum ratings* in the tabulated data are established in accordance with the following definition of the *Design-Center Rating System* for rating electron devices:

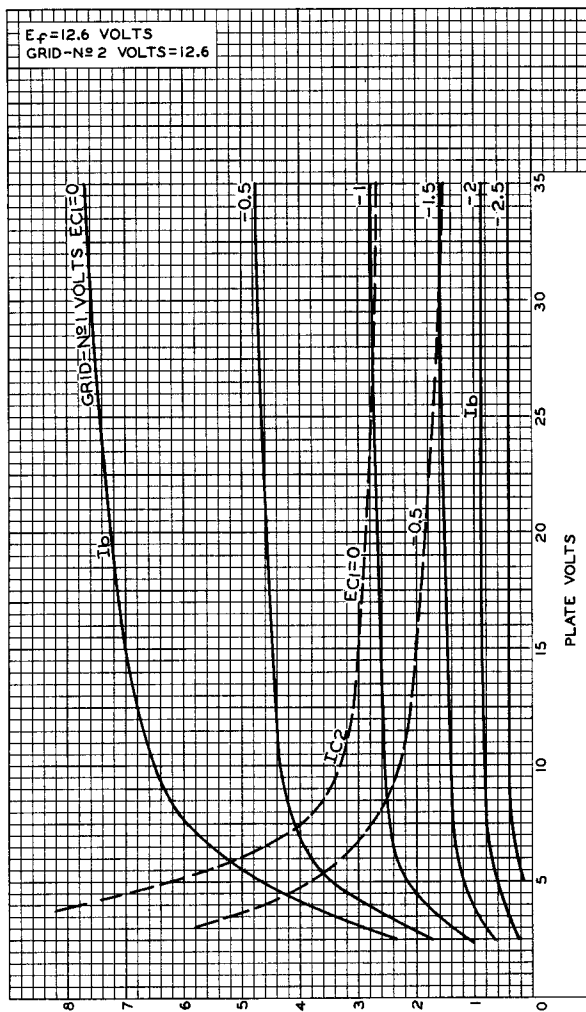
Design-Center ratings are limiting values of operating and environmental conditions applicable to a bogey electron device of a specified type as defined by its published data, and should not be exceeded under normal conditions.

The device manufacturer chooses those values to provide acceptable serviceability of the device in average applications, taking responsibility for normal changes in operating conditions due to rated supply voltage variation*, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in device characteristics.

The equipment manufacturer should design so that initially no design-center value for the intended service is exceeded with a bogey device in equipment operating at the stated normal supply voltage.*

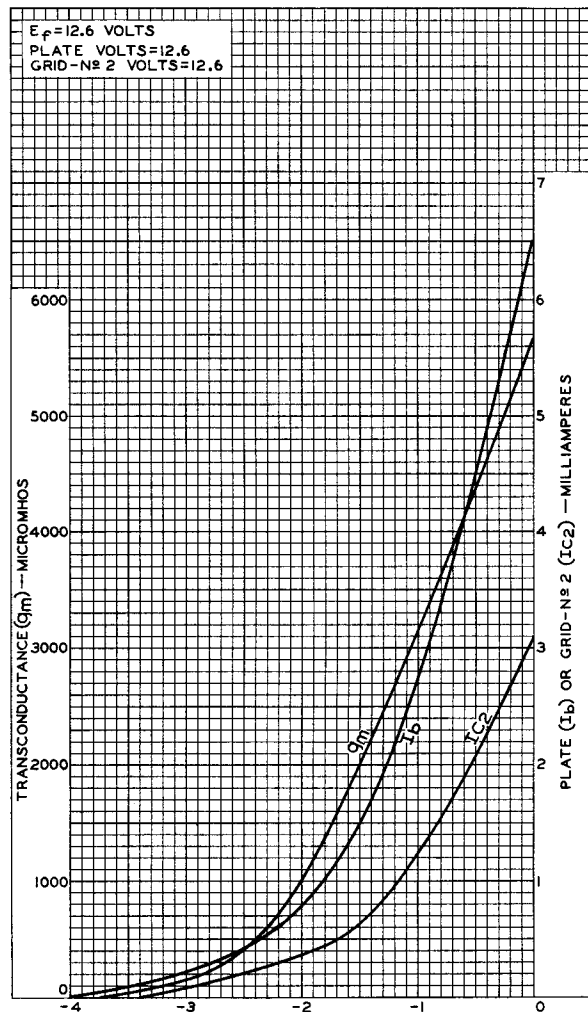
* For automotive equipment utilizing a 12-volt system, battery voltage range of 10.0 volts to 15.9 volts is accepted U.S.A. practice.

Devices and arrangements shown or described herein may use patents of RCA or others. Information contained herein is furnished without responsibility by RCA for its use and without prejudice to RCA's patent rights.



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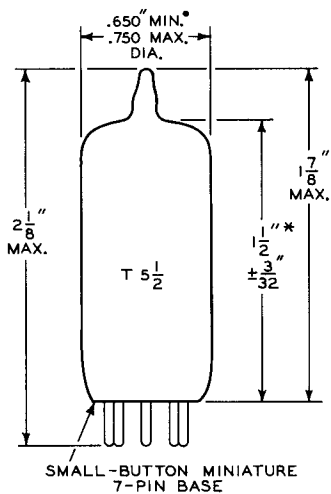
Fig. 1 - Average Characteristics for Type 12EK6.



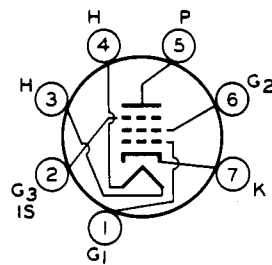
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Fig. 2 - Average Characteristics for Type 12EK6.

DIMENSIONAL OUTLINE



SOCKET CONNECTIONS Bottom View



7BK

- PIN 1 - GRID No.1
- PIN 2 - GRID No.3
- INTERNAL SHIELD
- PIN 3 - HEATER
- PIN 4 - HEATER
- PIN 5 - PLATE
- PIN 6 - GRID No.2
- PIN 7 - CATHODE

* APPLIES IN ZONE STARTING 0.375" FROM BASE SEAT.

* MEASURED FROM BASE SEAT TO BULB-TOP LINE AS DETERMINED BY RING GAUGE OF 7/16" I.D.