

**FOR RF AND IF AMPLIFIER APPLICATIONS IN  
AUTOMOBILE RECEIVERS**

## DESCRIPTION AND RATING

The 12EK6 is a miniature pentode intended for use as a radio-frequency or intermediate-frequency amplifier in automobile radio receivers. The tube is specially designed to operate with its plate and screen voltages supplied directly from a 12-volt storage battery.

### GENERAL

#### ELECTRICAL

Cathode—Coated Unipotential		
Heater Voltage, AC or DC	12.6*	Volts
Heater Current	0.19	Amperes
Direct Interelectrode Capacitances†		
Grid-Number 1 to Plate, maximum	0.032	$\mu\mu\text{f}$
Input	10	$\mu\mu\text{f}$
Output	5.5	$\mu\mu\text{f}$

#### MECHANICAL

Mounting Position—Any  
Envelope—T-5½, Glass  
Base—E7-1, Miniature Button 7-Pin

### MAXIMUM RATINGS

#### DESIGN-MAXIMUM VALUES

Plate Voltage	16	Volts
Screen Voltage	16	Volts
Positive DC Grid-Number 1 Voltage	0	Volts
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode	16	Volts
Heater Negative with Respect to Cathode	16	Volts
Grid-Number 1 Circuit Resistance	10	Megohms

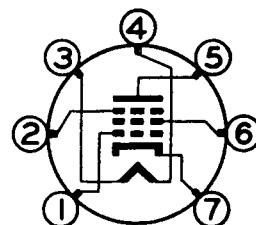
Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey tube of a specified type as defined by its published data, and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, taking responsibility for the effects of changes in operating conditions due to variations in tube characteristics.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, and environmental conditions.

The tubes and arrangements disclosed herein may be covered by patents of General Electric Company or others. Neither the disclosure of any information herein nor the sale of tubes by General Electric Company conveys any license under patent claims covering combinations of tubes with other devices or elements. In the absence of an express written agreement to the contrary, General Electric Company assumes no liability for patent infringement arising out of any use of the tubes with other devices or elements by any purchaser of tubes or others.

### BASING DIAGRAM

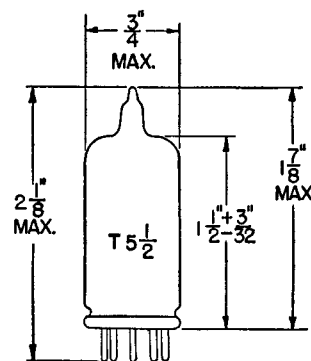


EIA 7BK

### TERMINAL CONNECTIONS

- Pin 1—Grid Number 1
- Pin 2—Grid Number 3 (Suppressor)
- Pin 3—Heater
- Pin 4—Heater
- Pin 5—Plate
- Pin 6—Grid Number 2 (Screen)
- Pin 7—Cathode

### PHYSICAL DIMENSIONS



EIA 5-2

## CHARACTERISTICS AND TYPICAL OPERATION

### AVERAGE CHARACTERISTICS

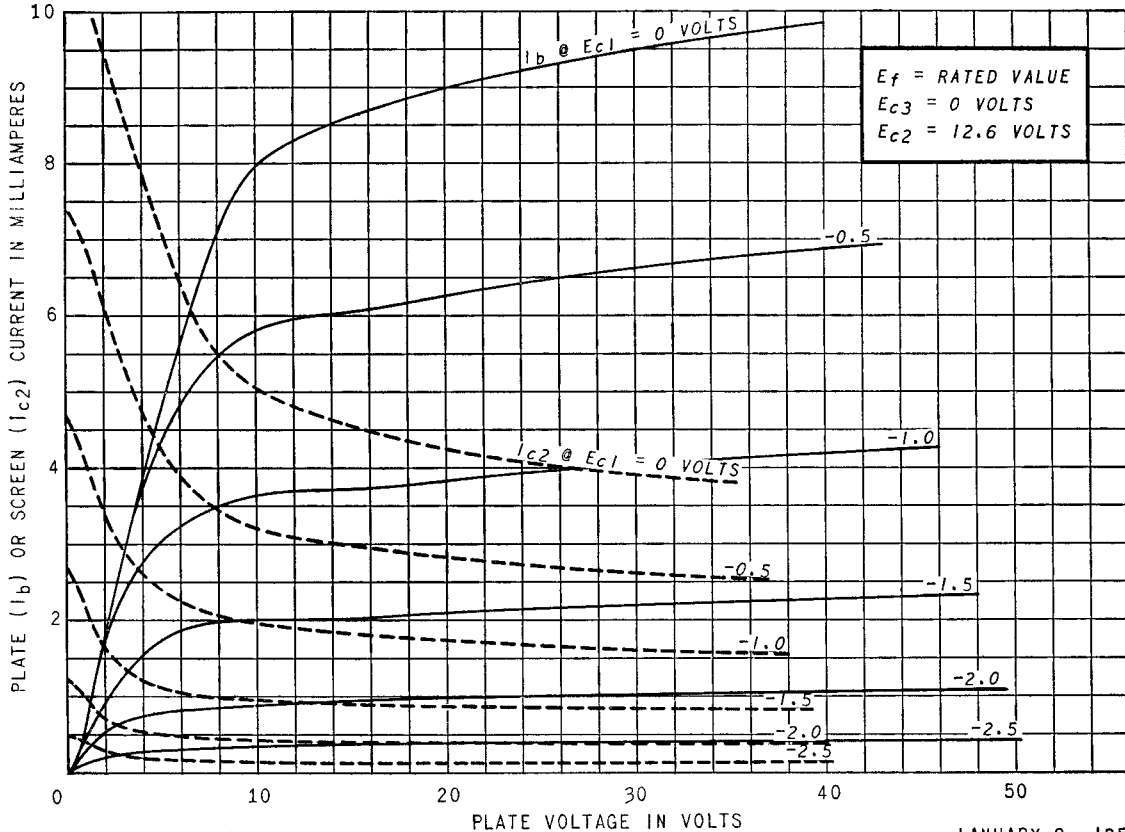
Plate Voltage .....	12.6	Volts
Suppressor Voltage .....	0	Volts
Screen Voltage .....	12.6	Volts
Grid-Number 1 Voltage .....	‡	Volts
Grid-Number 1 Resistor .....	2.2	Megohms
Plate Resistance, approximate .....	40000	Ohms
Transconductance .....	4200	Micromhos
Plate Current .....	4.4	Milliamperes
Screen Current .....	2.0	Milliamperes
Grid-Number 1 Voltage, approximate $I_b = 10$ Microamperes .....	-4	Volts

\* When used in automobile service from a 12-volt source, under no circumstances should the heater voltage be less than 10.0 volts or more than 15.9 volts. These extreme variations in heater voltage may be tolerated for short periods; however, operation at or near these absolute limits in heater voltage necessarily involves sacrifice in performance at low heater voltage and in life expectancy at high heater voltage. Equipment reliability can be significantly increased with improved supply-voltage regulation.

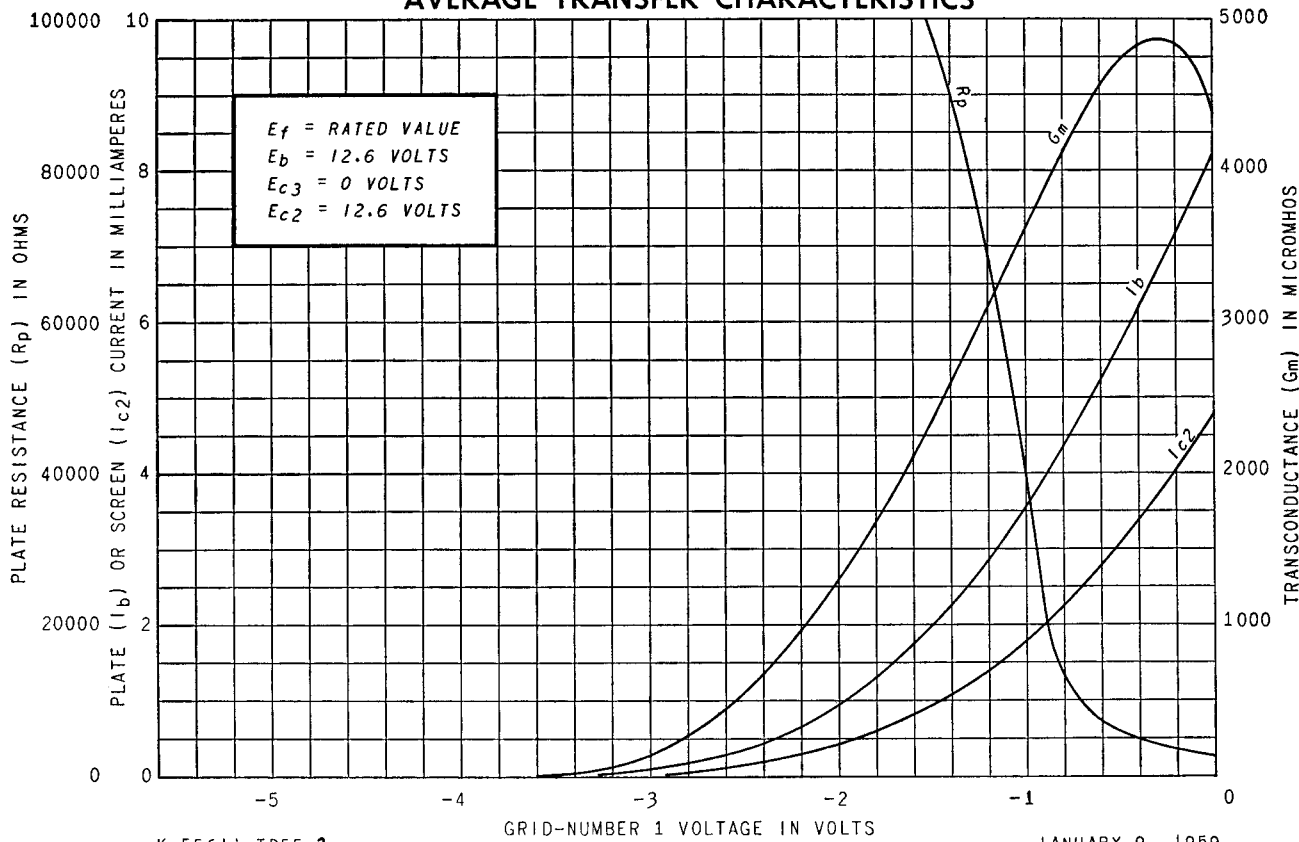
† Without external shield.

‡ Average contact potential developed across 2.2-megohm grid resistor.

### AVERAGE PLATE CHARACTERISTICS



**AVERAGE TRANSFER CHARACTERISTICS**



K-55611-TD55-2

JANUARY 9, 1959