

T O K Y O S H I B A U R A E L E C T R I C C O . , L T D .
KAWASAKI JAPAN

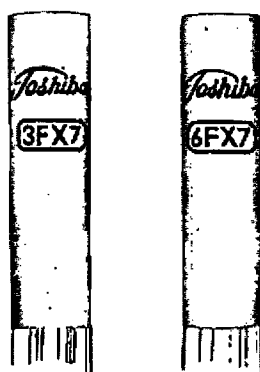
Toshiba

E I A

REGISTRATION DATA

Type **3FX7, 6FX7**

Date issued Mar. 31 1962



Toshiba 3FX7, 6FX7 are 8 pin subminiature, with shield can having indexing lugs, medium Mu twin triode, with high transconductance, low noise and low interelectrode capacitance, designed for use as a cascode amplifier in high gain tuners for television receivers.

Toshiba 3FX7 is like Toshiba 6FX7 except that it has a 3.5-volt/600-milliampere heater for use in series string circuit.

GENERAL DATA

Electrical:

Heater, for unipotential cathode:	6 FX 7	3 FX 7	
Voltage (AC and DC)	6.3	3.5	Volts
Current	300	600	ma
Heater warm up time	—	Approx. 11	sec.
Direct Interelectrode capacitances (with shield can)	Unit 1	Unit 2	
Grid to plate: (g to p)	2.05	1.45	$\mu\mu f$
Input: g to (h+k+is+sd)	—	3.1	$\mu\mu f$
Input: 1K to (h+lg+is+sd) Grounded Grid	5.5	—	$\mu\mu f$
Output: p to (h+k+is+sd)	—	1.05	$\mu\mu f$
Output: 1P to (h+lg+is+sd) Grounded Grid	2.95	—	$\mu\mu f$
Plate to Cathode: p to k	0.16	—	$\mu\mu f$
Heater to Cathode: h to k	2.3	2.5	$\mu\mu f$



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Mechanical :

Operating position	Any
Maximum overall length	1.772"
Maximum Diameter	0.512"
Bulb.....	T 3
Base	E 8—9

Maximum Ratings (Design Maximum Values) :

Plate Supply Voltage with Cut off Bias	300 Volts
Plate Voltage } each section	100 Volts
Plate Dissipation }	1.7 Watts
Plate Dissipation (unit 1, Unit 2)	3.2 Watts
Cathode Current	20 ma
Circuit Values : Grid Circuit Resistance (each section)	0.5 Megohms
Heater Cathode Voltage	
Heater Negative with Respect to Cathode, DC	200 Volts
Total, DC and peak.....	200 Volts
Heater Positive with Respect to Cathode, DC	100 Volts
Total, DC and peak.....	200 Volts

Typical Operating Conditions and Characteristics :

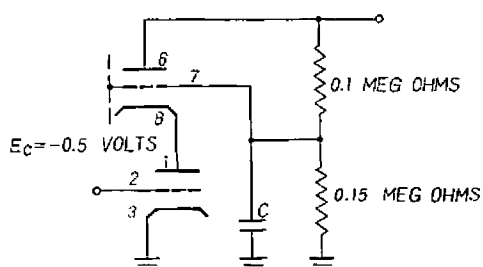
Class A1 Amplifier (each section)	
Plate Voltage	90 Volts
Grid Voltage	— 1 Volts
Amplification Factor	36
Plate Resistance.....	3800 Ohms
Transconductance.....	9500 μ mhos
Plate Current	9.0 ma
Grid Voltage, Approximate for $I_b = 10 \mu a$	— 4 Volts

Cascode Amplifier (see typical operating circuit) :

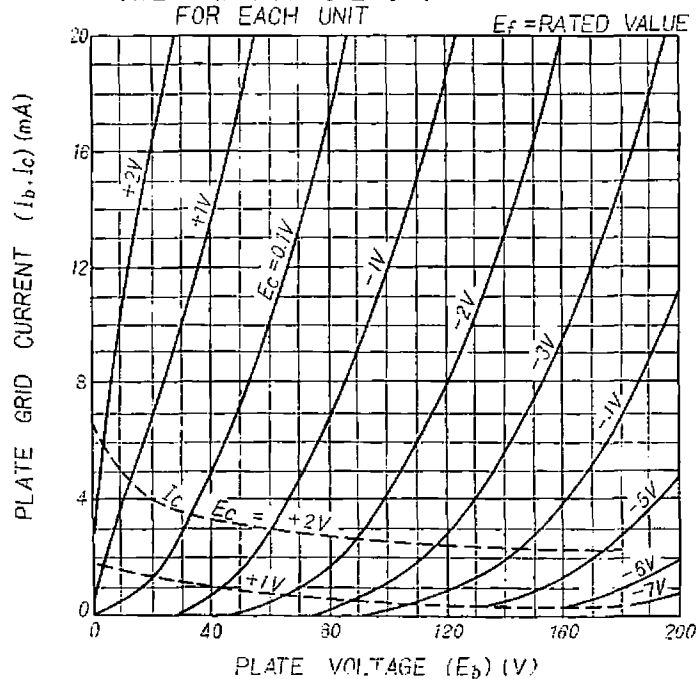
Plate Voltage.....	165 Volts
Grid Voltage.....	— 0.5 Volts

Transconductance 13000 μ mhos
Plate Current 16.5 ma
Grid Voltage, Approximate for $g_m = 50 \mu$ mhos -5 Volts

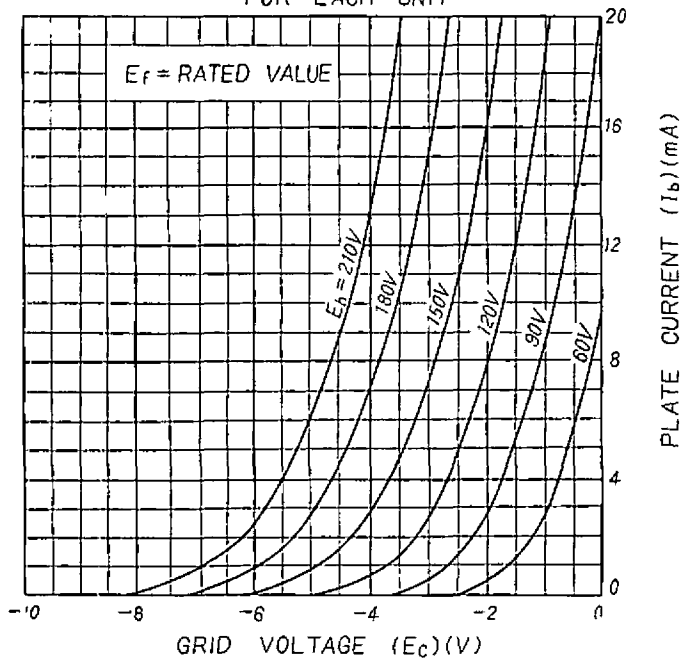
TYPICAL OPERATING CIRCUIT



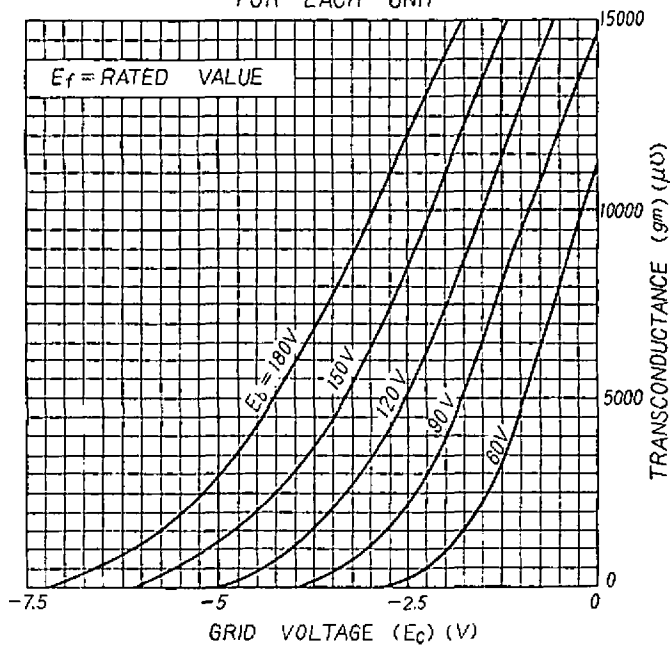
3F7.6F7
AVERAGE CHARACTERISTICS
FOR EACH UNIT

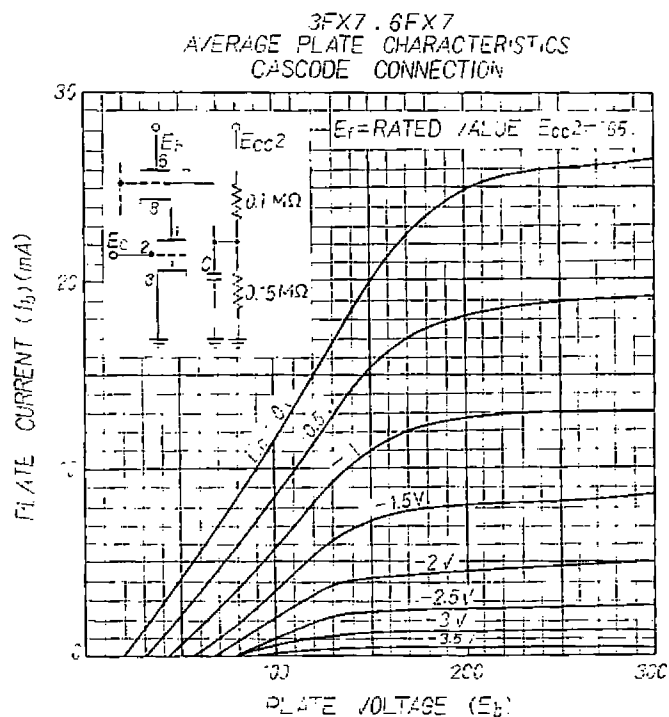
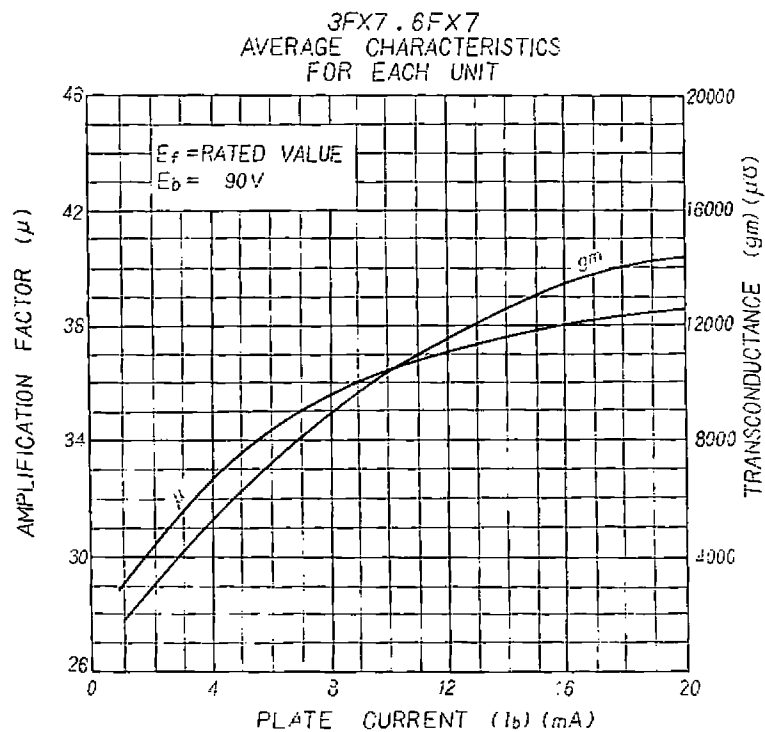


3FX7. 6FX7
AVERAGE CHARACTERISTICS
FOR EACH UNIT

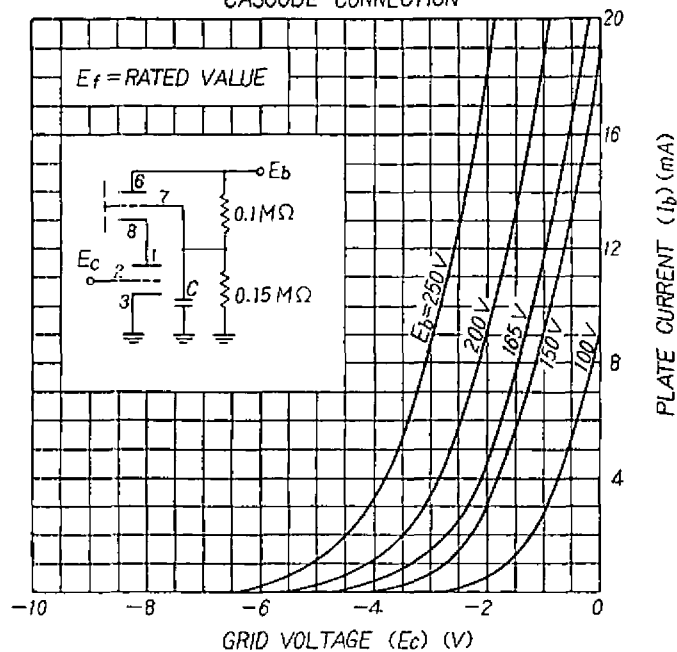


3FX7. 6FX7
AVERAGE CHARACTERISTICS
FOR EACH UNIT

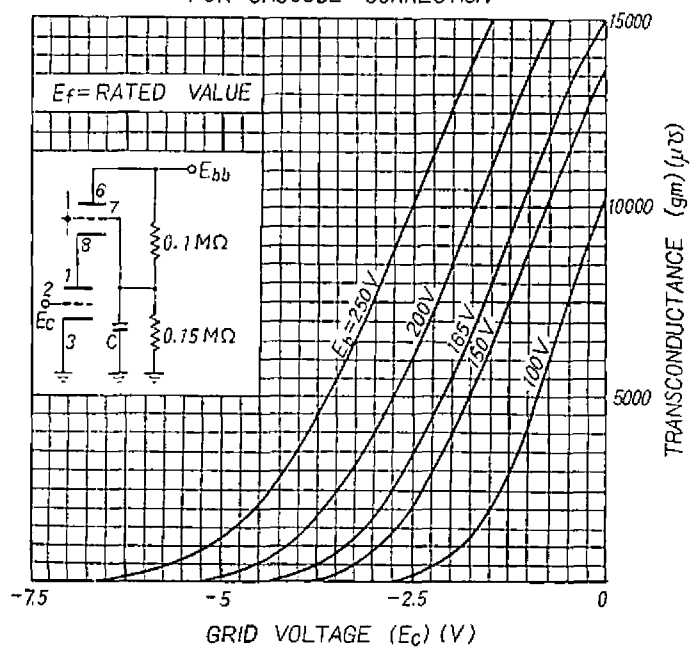




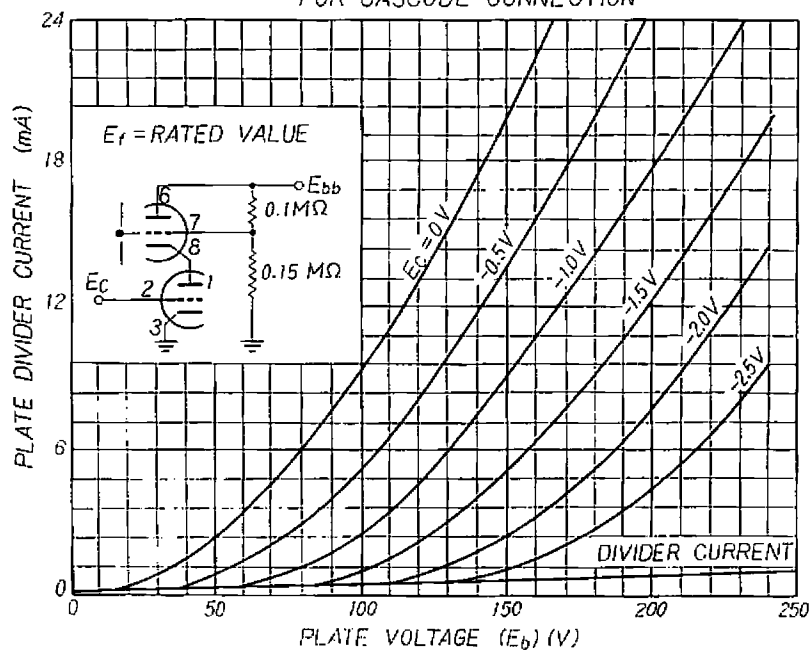
3FX7 . 6FX7
AVERAGE PLATE CHARACTERISTICS
CASCODE CONNECTION



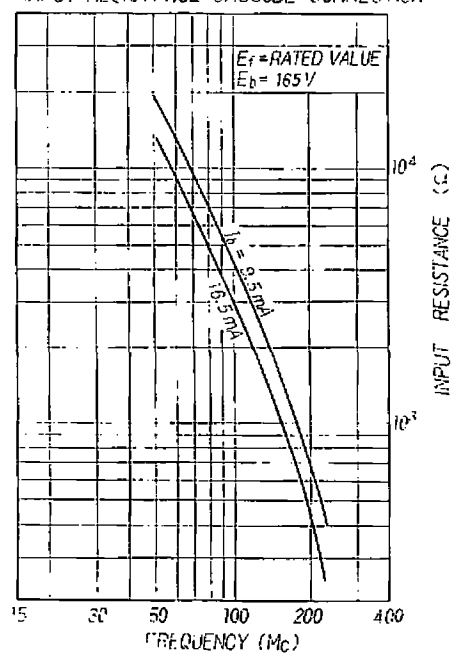
3FX7 . 6FX7
AVERAGE CHARACTERISTICS
FOR CASCODE CONNECTION



3FX7, 6FX7
AVERAGE CHARACTERISTICS
FOR CASCODE CONNECTION



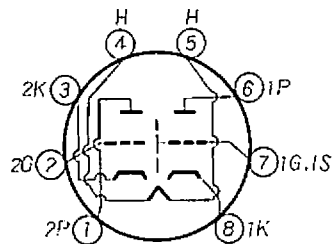
3FX7, 6FX7
AVERAGE CHARACTERISTICS
INPUT RESISTANCE CASCODE CONNECTION





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3FX7. 6FX7
SOCKET CONNECTIONS
BOTTOM VIEW



PIN 1: Unit 2 Plate
PIN 2: Unit 2 Grid
PIN 3: Unit 2 Cathode
PIN 4: Heater
PIN 5: Heater

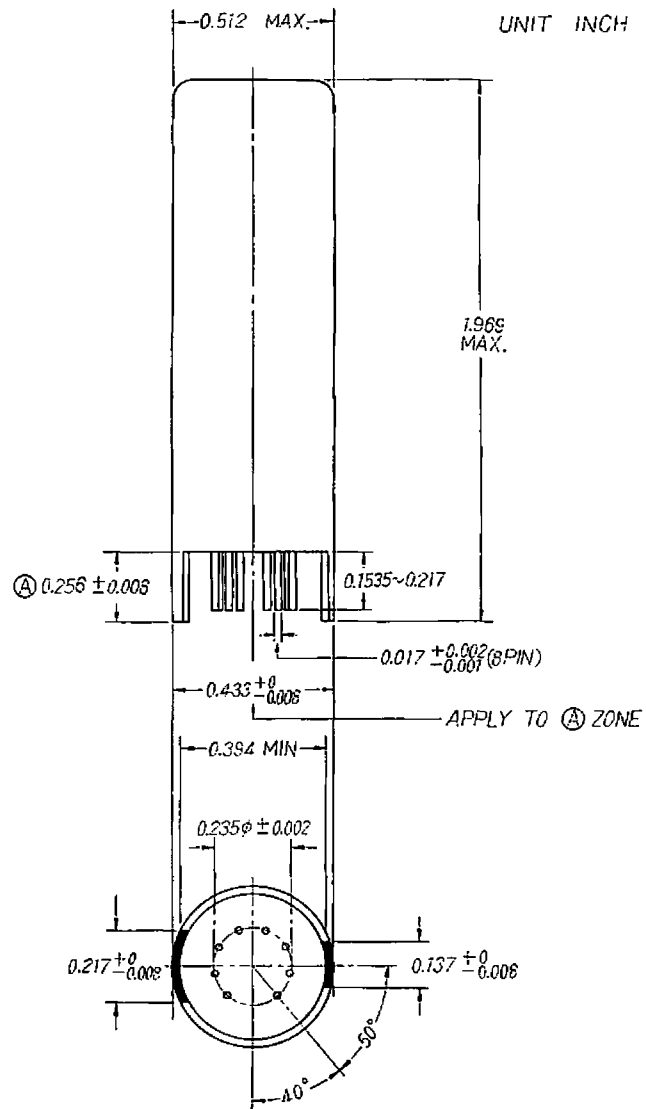
} Grounded Cathod
Input Section

PIN 6: Unit 1 Plate
PIN 7: Unit 1 Grid
PIN 8: Unit 1 Cathode

} Grounded Grid
Output Section

8LK

3FX7.6FX7
DIMENSIONAL OUTLINE





All inquiries as to the data should be addressed to Tokyo Shibaura Electric Co., Ltd., Lamp and Tube Manufacturing and Sales Division, 72 Horikawacho, Kawasaki, Kanagawa-ken, Japan.