

MATSHITA ELECTRONICS CORPORATION
TAKATSUKI JAPAN



E I A

Type 3BWP1

REGISTRATION DATA

Date issued October 21, 1961

National 3BWP1 is a 3-inch oscilloscope tube with flat face, single gun, electrostatic focus and electrostatic symmetrical deflections.

The tube has the following main features.

Very high deflection sensitivity, permitting the use of smaller amplifiers both for the time-base and the signal examination.

High brilliancy at small spot dimensions is achieved by high-grade phosphor screen.

As a result of these characteristics, the tube is an outstanding type for measuring equipment with a high standard of accuracy.

ELECTRICAL DATA

Heater Voltage	6.3 Volts
Heater Current at 6.3 Volts	0.3 $\pm$ 10% Amperes
Focusing Method	Electrostatic
Deflection Method	Electrostatic
Direct Interelectrode Capacitances Approximate	
Grid No. 1 to all other electrodes	6.6 $\mu\mu$ F
Cathode to all other electrodes	4.0 $\mu\mu$ F
D ₁ to D ₂	2.6 $\mu\mu$ F



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D ₃ to D ₄	2.0 $\mu\mu\text{F}$
D ₁ to all other electrodes	6.0 $\mu\mu\text{F}$
D ₂ to all other electrodes	6.0 $\mu\mu\text{F}$
D ₃ to all other electrodes	5.8 $\mu\mu\text{F}$
D ₄ to all other electrodes	5.8 $\mu\mu\text{F}$

OPTICAL DATA

Phosphor Number	P 1
Fluorescent Color	Green
Phosphorescent Color	Green
Persistence	Medium

MECHANICAL DATA

Overall Length	11 1/2 $\pm$ 1/8 Inches
Greatest Diameter of Bulb	3 $\pm$ 1/16 Inches
Minimum Useful Screen Diameter	2 3/4 Inches
Base	B 12 — 43
Base Alignment	
D ₃ — D ₄ trace aligns with pin No. 6 and tube axis $\pm$ 10 degrees.	
Positive voltage on D ₁ deflects beam approximately toward pin No. 3.	
Positive voltage on D ₃ deflects beam approximately toward pin No. 12.	
Angle between D ₁ — D ₂ and D ₃ — D ₄ trace	90 $\pm$ 1.5 degrees

MAXIMUM RATING

Accelerator Voltage	2500 Max. Volts DC
Accelerator Input	6 Max. Watts
Grid No. 3 (Focusing Electrode) Voltage	1000 Max. Volts DC
Grid No. 1 Voltages	
Negative-Bias Value	200 Max. Volts DC
Positive-Bias Value	0 Max. Volts DC
Positive Peak Value	2 Max. Volts
Peak Heater-Cathode Voltages	
Heater Negative with Respect to Cathode	180 Max. Volts
Heater Positive with Respect to Cathode	180 Max. Volts



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Peak Voltage between Accelerator and any Deflection Electrode 500 Max. Volts

TYPICAL OPERATING CONDITIONS

Accelerator Voltage 1500 Volts

Grid No. 3 Voltage (Focusing Voltage) 247 to 397 Volts

Grid No. 1 Voltage (Note 1) -40 to -80 Volts

Deflection Factor :

D_1 and D_2 62.3 to 75.8 Volts DC per Inch

D_3 and D_4 42.8 to 52.5 Volts DC per Inch

Useful Scan $D_1 - D_2$ $2\frac{1}{2}$ Inches

Useful Scan $D_3 - D_4$ $2\frac{1}{4}$ Inches

Focusing Electrode Current for any Operating Condition: -15 to +10 Microamperes

Spot position (undeflected) (Note 2) $\frac{3}{16}$ Inches

For accelerator voltage not shown in the preceding table, the following can be as a guide.

Focusing Voltage 16.5% to 26.5% of Accelerator Voltage

Grid No. 1 Voltage -2.7% to -5.3% of Accelerator Voltage

Deflection Factor

D_1 and D_2 41.5 to 50.5 Volts DC per Inch per Kilovolt of Accelerator

D_3 and D_4 28.5 to 30 Volts DC per Inch per Kilovolt of Accelerator

MAXIMUM CIRCUIT VALUES

Grid No. 1 Circuit Resistance 1.5 Max. Megohms

Resistance in any Deflection-Electrode Circuit (Note 3) 5 Max. Megohms

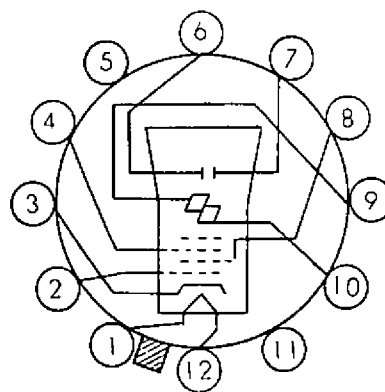
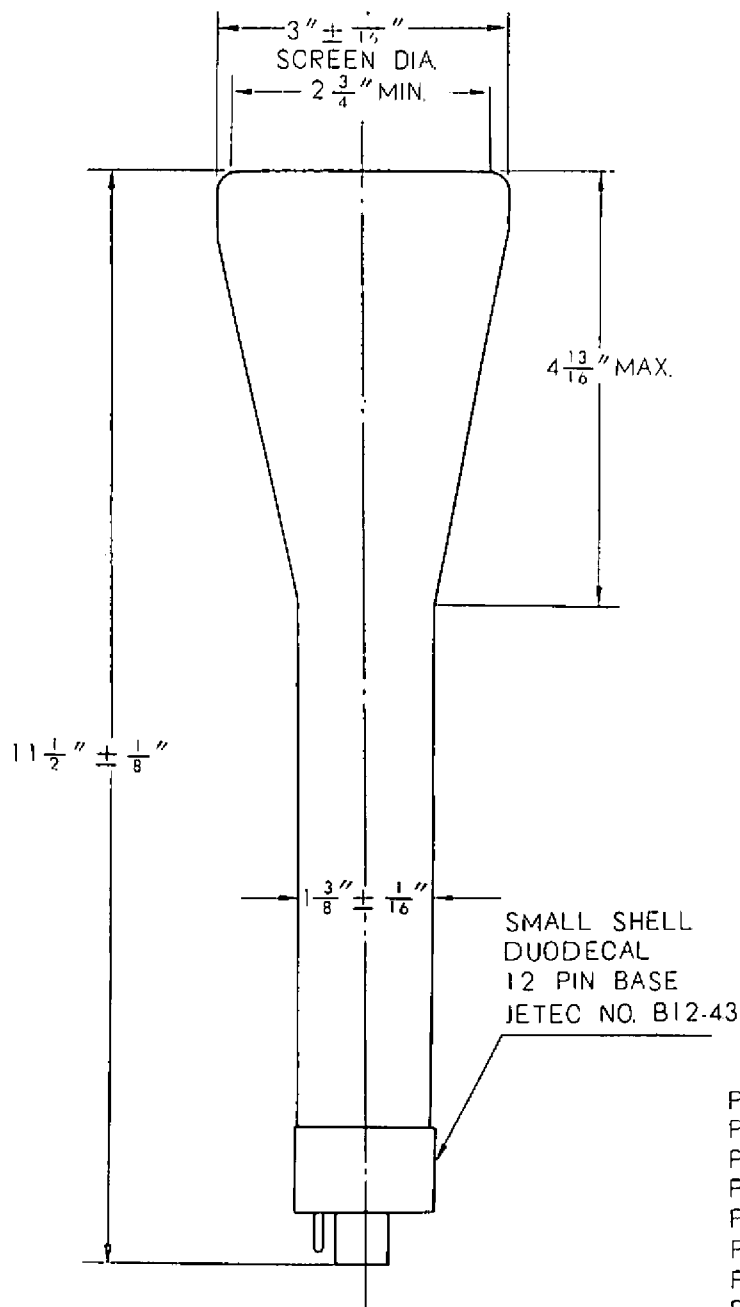
Notes:

1. Visual extinction of undeflected focused spot.
2. Connect free deflecting electrode to anode.
3. It is recommended that the deflecting-electrode-circuit resistances are approximately equal.



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BOTTOM VIEW OF BASE
CONNECTION

- PIN 1 —Heater
- PIN 2 —Grid No. 1
- PIN 3 —Cathode
- PIN 4 —Grid No. 3 (Focusing Electrode)
- PIN 5 —N. C.
- PIN 6 —Deflecting Electrode D1
- PIN 7 —Deflecting Electrode D2
- PIN 8 —Accelerator (Grid No. 2 Grid No. 4)
- PIN 9 —Deflecting Electrode D4
- PIN 10 —Deflecting Electrode D3
- PIN 11 —N.C.
- PIN 12 —Heater

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E I A

Type **5DQP2**

REGISTRATION DATA

Date issued October 21, 1961

National 5DQP2 is a 5-inch flat face oscilloscope tube with single gun, electrostatic focus electrostatic symmetrical deflection, helical post acceleration, metal backed screen and very high deflection sensitivity.

The metal backing of screen further improves the high brightness, and a combination of high deflection sensitivity, the tube can very well be used for high frequency and high writing-speed applications.

ELECTRICAL DATA

Heater Voltage	6.3 Volts
Heater Current	0.3 $\pm$ 10% Amperes
Focusing Method	Electrostatic
Deflection Method	Double Electrostatic
D ₁ — D ₂	Symmetric
D ₃ — D ₄	Symmetric
Direct Interelectrode Capacitances Approximate	
Grid No. 1 to All Other Electrodes	6.4 $\mu\mu$ F
Cathode to All Other Electrodes	4.6 $\mu\mu$ F
D ₁ to D ₂	1.9 $\mu\mu$ F
D ₃ to D ₄	1.5 $\mu\mu$ F
D ₁ to All Other Electrodes	3.5 $\mu\mu$ F
D ₂ to All Other Electrodes	3.5 $\mu\mu$ F
D ₃ to All Other Electrodes	2.8 $\mu\mu$ F
D ₄ to All Other Electrodes	2.8 $\mu\mu$ F
Helical Post Accelerator Resistance	200 to 1000 Megohms

OPTICAL DATA

Phosphor Number	P ₂
Fluorescent Color	Green.. ..



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Phosphorescent Color

Green

Persistence

Long

MECHANICAL DATA

Overall Length	18 1/4 ± 3/16	Inches
Greatest Diameter of Bulb	5 1/4 ± 3/32	Inches
Minimum Useful Screen Diameter	4 1/2	Inches
Base (Medium Shell Diheptal 12 Pin)	B 12	— 37
Basing		
Base Alignment		
D ₃ — D ₄ trace aligns with pin No. 1 and tube axis	± 10 degrees.	
Positive voltage on D ₁ deflects beam approximately toward pin No. 11.		
Positive voltage on D ₃ deflects beam approximately toward pin No. 8.		
Bulb Contact	J ₁ — 21	
Bulb Contact Alignment		
J ₁ — 21 Contact aligns with trace of D ₁ — D ₂	± 10 degrees.	
J ₁ — 21 Contact is on same side as pin No. 4		
Angle between D ₁ — D ₂ and D ₃ — D ₄ Trace	90 ± 2	degrees

MAXIMUM RATING

Post-Accelerator Voltage	12000 Max. Volts DC
Accelerator Voltage	2100 Max. Volts DC
Accelerator Input	6 Max. Watts
Ratio Post-Accelerator Voltage to	
Accelerator Voltage	6 Max.
Isolation-Shield Voltage	2200 Max. Volts DC
Deflection Plate-Shield Voltage	2100 Max. Volts DC
Grid No. 3 (Focusing Electrode) Voltage	800 Max. Volts DC
Grid No. 1 Voltages	
Negative-Bias Value	200 Max. Volts DC
Positive-Bias Value	0 Max. Volts DC
Positive Peak Value	2 Max. Volts
Peak Heater-Cathode Voltages	
Heater Negative with Respect to Cathode	200 Max. Volts
Heater Positive with Respect to Cathode	125 Max. Volts
Peak Voltage between Accelerator and any Deflection Electrode	500 Max. Volts

TYPICAL OPERATING CONDITIONS

Post Accelerator Voltage (Note 1)	10000 Volts DC
Isolation-Shield Voltage (Note 2)	1500 to 1870 Volts DC
Deflection Plate-Shield Voltage (Note 3)	1580 to 1760 Volts DC
Accelerator Voltage (Note 1)	1670 Volts DC



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Grid No. 3 (Focusing Electrode) Voltage 180 to 590 Volts DC
Grid No. 1 Voltage -50 to -80 (Note 4) Volts DC
Deflection Factor D_1 and D_2 70 to 85 Volts DC per Inch
Deflection Factor D_3 and D_4 15.0 to 18.3 Volts DC per Inch
Useful Scan $D_1 - D_2$ 4 Inches
Useful Scan $D_3 - D_4$ 1 5/8 Inches
Focusing Electrode Current for any Operating Condition -15 to +10 Microamperes
Spot Position (Undelected) (Note 5) $\frac{3}{8}$ Inches
For accelerator voltage (Note 1) not shown in the preceeding table, the following can be used as a guide.

Isolation-Shield voltage (Note 2) 90 to 110% of Accelerator Voltage
Deflection Plate-Shield Voltage (Note 3) 95 to 105% of Accelerator Voltage
Grid No. 3 (Focusing Electrode) Voltage 10.8 to 35.3% of Accelerator Voltage
Grid No. 1 Voltage (Note 4) -3.0 to -4.8% of Accelerator Voltage
Deflection Factors

Post Accelerator Voltage = 6 Accelerator Voltage

D_1 and D_2 42 to 51 Volts DC per Inch per Kilovolt of Accelerator
 D_3 and D_4 9 to 11 Volts DC per Inch per Kilovolt of Accelerator

Useful Scan

Post Accelerator Voltage = 6 Accelerator Voltage

$D_1 - D_2$ 4 Inches
 $D_3 - D_4$ 1 5/8 Inches

MAXIMUM CIRCUIT VALUE

Grid No. 1 Circuit Resistance 1.5 Max. Megohms
Resistance in any Deflection Electrode Circuit (Note 6) 5 Max. Megohms

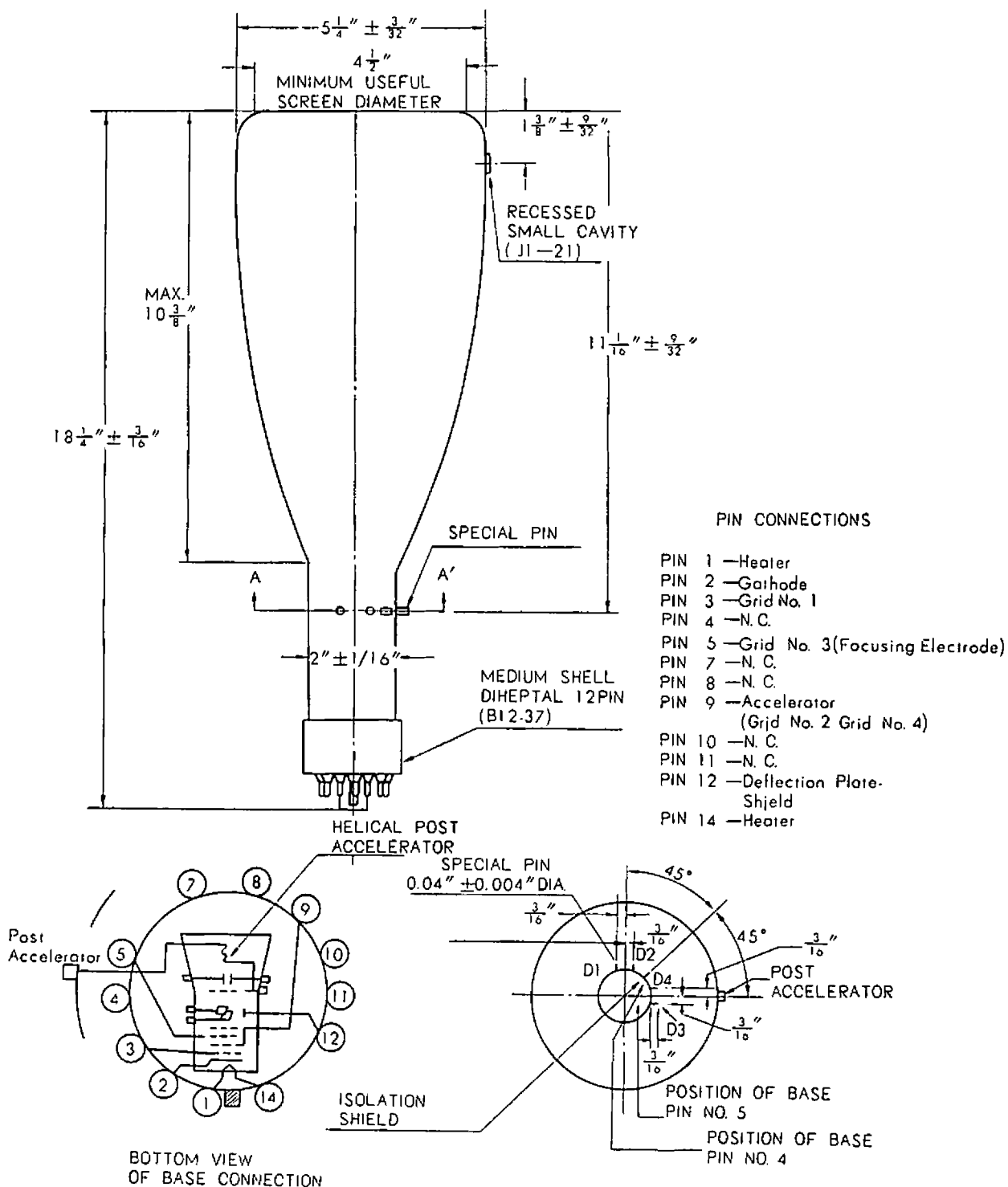
NOTES

1. It is recommended that the post-accelerator voltage is not less than 6000 volts and the accelerator voltage is not less than 1000 volts, in order to obtain the high light output, because screen of this tube is metalbacked.
2. The isolation-shield and lower end of the helical post-accelerator are connected together in the tube. In general the isolation-shield voltage and the average potential of the deflection plates should be equal. Variation of the isolation-shield voltage serves to correct pin-cushion and barrel-pattern distortion.
3. In general the deflection plate-shield voltage and the average potential of the deflection plates should be equal. Adjustment of the deflection plate-shield voltage provides improved linearity of the vertical deflection.
4. Visual extinction of undeflected focused spot.
5. Connect free deflecting electrode to accelerator.
6. It is recommended that the deflecting circuit resistances are approximately equal.



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E I A

Type 27WP4

REGISTRATION DATA

Date issued March 18, 1959

National 27WP4 is a direct view picture tube with 27" diagonal rectangular filterglass screen and with external conductive coating.

The tube has electrostatic focusing, magnetic deflection and incorporates an iontrap.

This tube has an aluminized P4 screen with medium persistence and excellent brightness.

HEATER DATA

Heater voltage 6.3 volts
Heater current at 6.3 volts 0.3 amp. $\pm 10\%$

DIRECT INTERELECTRODE CAPACITANCES

Grid No. 1 to all other electrodes $7 \mu\mu F$
Cathode to all other electrodes $4 \mu\mu F$
External conductive coating to grids No. 4 and 6
Mox. $2000 \mu\mu F$
Min. $750 \mu\mu F$



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SCREEN

Phosphor number (JETEC registration)	P. 4
Fluorescent color	White
Phosphorescent color	White
persistence	Medium
Light transmission at center	68 %
Usefull length of diagonal	Min. 25 $\frac{3}{4}$ "
Useful width	Min. 24"
Useful height	Min. 18 $\frac{1}{2}$ "

FOCUSING METHOD Electrostatic

DEFLECTION METHOD Double magnetic

Deflection angle, horizontal	85°
Deflection angle, diagonal	90°

MOUNTING POSITION Any

RATINGS (Design Center Values)

Grids No. 4 and 6 voltage	20000 max. volts D. C.
Positive grids No. 3 and 5 voltage	500 max. volts D. C.
Negative grids No. 3 and 5 voltage	-500 max. volts D. C.
Grid No. 2 voltage	500 max. volts D. C.
Negative grid No. 1 voltage	125 max. volts D. C.
Positive grid No. 1 voltage	0 max. volts D. C.
Positive grid No. 1 peak voltage	2 max. volts
Heater to cathode voltage	
Heater positive with respect to cathode	125 max. volts
Heater negative with respect to cathode	200 max. volts
Peak value during a warm-up period not exceeding 45 sec.: heater negative	410 max. volts

MAXIMUM CIRCUIT VALUES

Grid No. 1 circuit resistance	1.5 max. megohms
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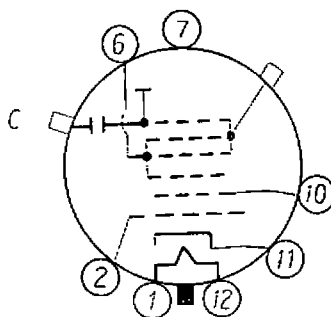
TYPICAL OPERATING CONDITIONS

Grid No. 4 and 6 voltage	18000 volts D. C.
Grid No. 3 and 5 voltage	-60 to 350 volts D. C.
Grid No. 2 voltage	300 volts D. C.
Grid No. 1 voltage for visual extinction of focused raster	-40 to -80 volts D. C.

MECHANICAL DATA

Overall length	22 3/32" $\pm$ 3/8"
Greatest dimensions of bulb	
Diagonal	26 13/16" $\pm$ 1/8"
Width	25 9/32" $\pm$ 1/8"
Height	20 7/32" $\pm$ 1/8"
Neck length	6 1/2"
Bulb number (ASA designation)	J 171
Bulb contact (JETEC designation)	J 1-21
Base	Small Shell Duodecal 7-Pin
Basing	—
Bulb contact alignment, contact aligns with pin position 6	$\pm$ 15°
Pin connections	

Pin No. 1 - Heater	Pin No. 10 - Grid No. 2
Pin No. 2 - Grid No. 1	Pin No. 11 - Cathode
Pin No. 6 - Grid No. 3 and 5	Pin No. 12 - Heater
Pin No. 7 - Internal con. Do not use	
Bulb contact - Grid No. 4 and 6, Collector	
C - External Conductive Coating	

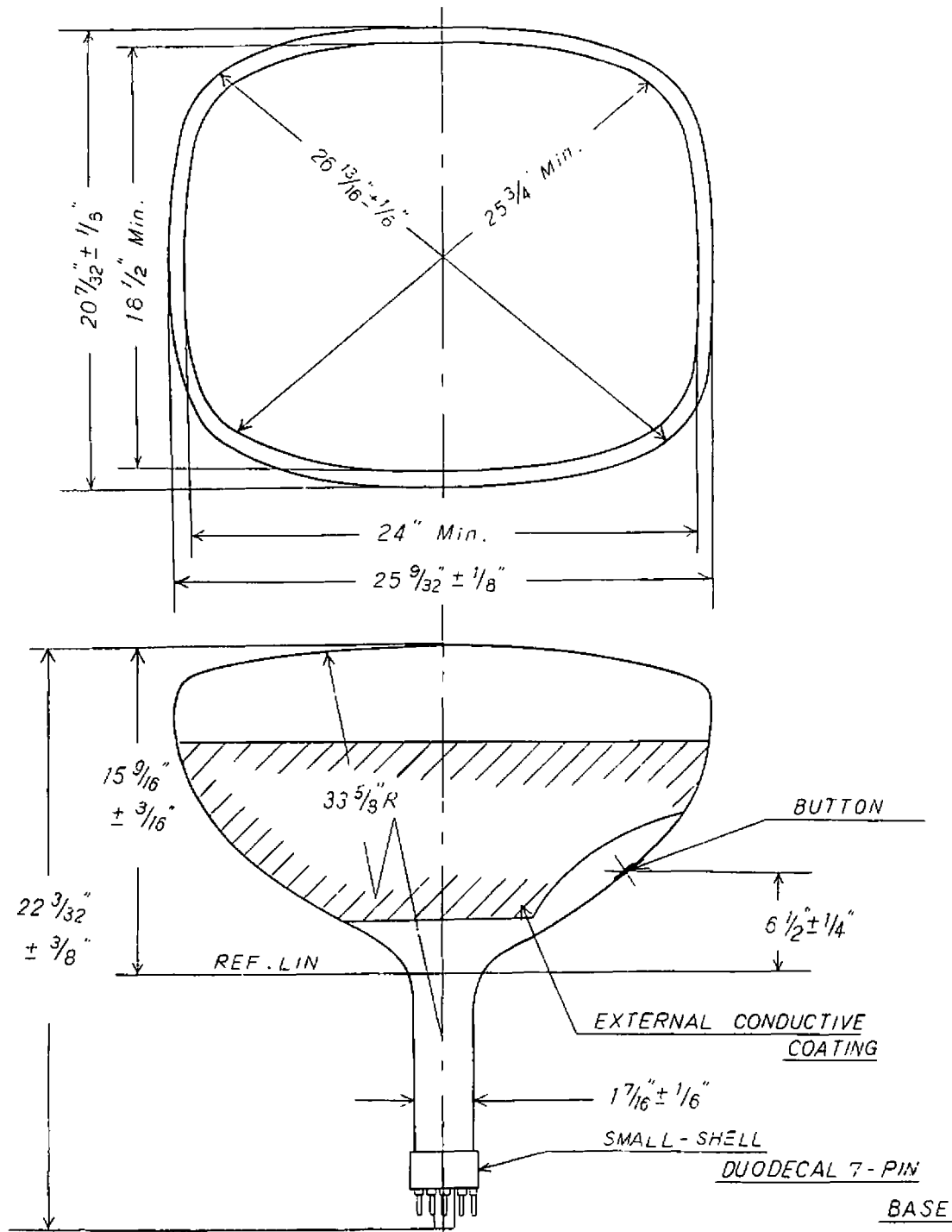


BOTTOM VIEW
12AJ



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34R3

DAMPER DIODE TUBE

The Matsushita's 34R3 is an indirectly heated miniature damper diode especially designed for using in horizontal output circuits of television receivers.

The type 34R3 is identical with the 6R3 as registered in J EDEC Release No.1699 except for the following :

General Data

Electrical

Heater voltage	34	volts
Heater current	150	ma

●6C-A10 50C-A10 (暫定規格)

低周波電力増幅用発熱形T12デュオデカル3極管
T12 Duodecal triode - Indirect heated type - for audio power amplifier

Outline 外形	38-59	
Length 全長	92.07	mm Max
Max.Diameter 最大部直径	39.6	mm Max
Heater ヒータ		
	6C-A10	50C-A10
Volts 電圧	6.3	50 V
Currents 電流	1.5	0.175 A

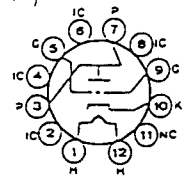


Plate Dissipation プレート損失	30	W
Cathode Current カソード電流	200	mA
Grid circuit Resistor グリッド回路抵抗		
{ 固定バイアス時 Fixed bias	0.25	MΩ
{ 自己バイアス時 Self bias	0.5	MΩ

Heater to Cathode Voltage ヒータ・カソード間電圧		
{ ヒータがカソードに対し正の時 (NOTE 1)	200	V
{ ヒータがカソードに対し負の時	200	V
Valve Temperature (NOTE 2)	225	C

Static Characteristics 静特性		
プレート電圧 PLATE VOLTS	250	V
グリッド電圧 GRID VOLTS	-22	V
プレート電流 PLATE CURRENT	80	mA
相互コンダクタンス Mutual Conductance	14000	μU
プレート内部抵抗 PLATE RESISTANCE	620	Ω
増幅率 Amplification Factor	8.0	-

特長および主な用途

電力増幅用3極管で、プレート損失が30Wと非常に大きくシングルで約6W、プッシュプルで30W以上の出力が得られる。

3極管の特長として内部抵抗が低いので、ダンピングが改善され、また直線性が良好であるためひずみの少ない澄んだ音が得られるので大出力のHi-Fi増幅器の出力管として好適である。

また50C-A10はヒータ電圧が2本直列で100Vになるので、商用電源から直接ヒータを点火できるので、ヒータトランスが省略でき経済的である。

Max Rating (Design Maximum)
最大定格 (設計最大値)

PLATE VOLTS プレート電圧 (カットオフ時)	900	V
PLATE Supply Volts プレート供給電圧	450	V
GRID Positive Volts グリッド正電圧	0	V

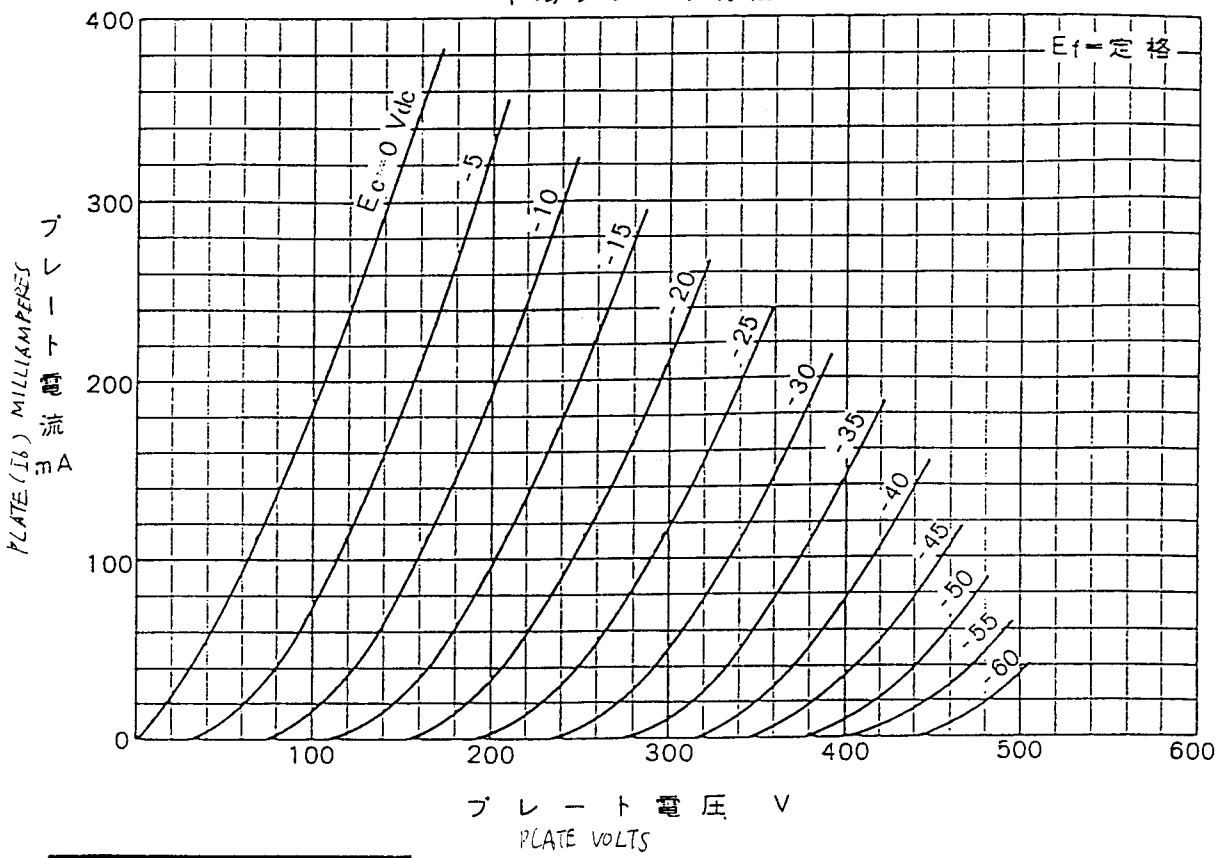
6C-A10-50C-A10

	A class Single A 級 シングル		AB1 class Push Pull A B ₁ 級 プッシュプル			unit 単位
PLATE VOLTS プレート電圧	250	250	300	350	400	V
GRID VOLTS グリッド電圧	-22	-	-30	-37	-43	V
CATHODE RESISTOR カソード抵抗	-	200	-	-	-	Ω
INPUT SIGNAL VOLTS 入力信号電圧	15.5	14	42 [†]	52 [†]	60 [†]	V rms.
PLATE VOLTS AT ZERO SIGNAL プレート電流 (零信号時)	80	90	100 [○]	100 [○]	100 [○]	mA
PLATE CURRENT AT MAX. SIGNAL プレート電流 (最大信号時)	95	95	148 [○]	150 [○]	150 [○]	mA
LOAD RESISTANCE 負荷抵抗	1500	1500	3200 [▲]	4000 [▲]	5000 [▲]	Ω
OUTPUT POWER 出力	6	5.5	24	28	34	W
DISTORTION 歪率	7.5	7.0	2.5	2.5	2.5	%

† グリッド・グリッド間、 ▲ プレートプレート間、 ○ 2本分の値
GRID TO GRID PLATE TO PLATE VALUE FOR 2 TUBES

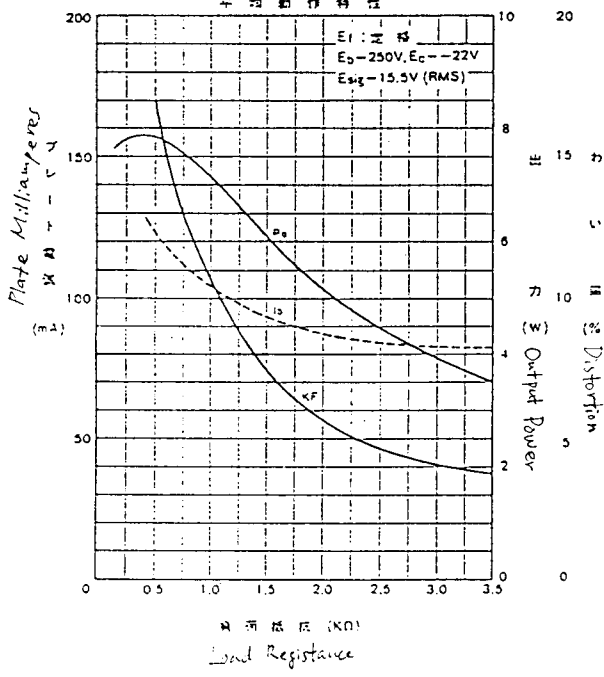
AVERAGE PLATE CHARACTERISTICS 平均プレート特性

6C-A10 · 50C-A10

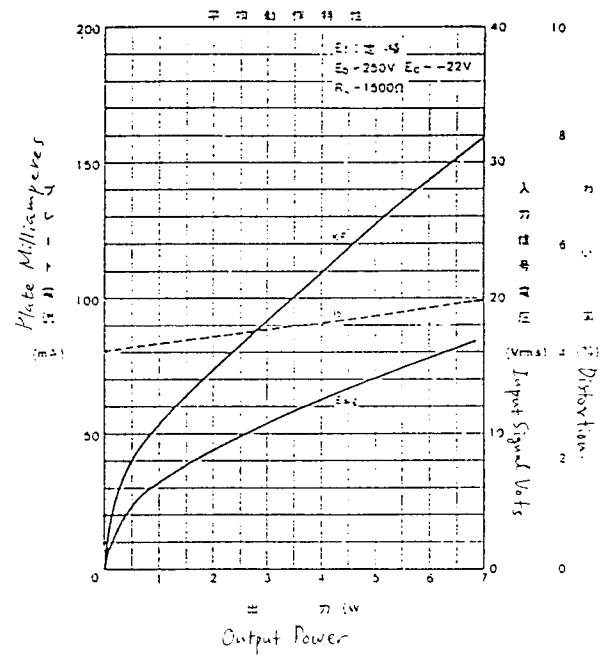


6C-A10 · 50C-A10

Average Operation Characteristics 平均動作特性



Average Operation Characteristics



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50E5

BEAM POWER TUBE

The Matsushita's 50E5 are beam power amplifiers designed for using as horizontal deflection amplifiers in television applications.

The type 50E5 is identical with the 25E5 as registered in JEDEC Release No.1663B except for the following :

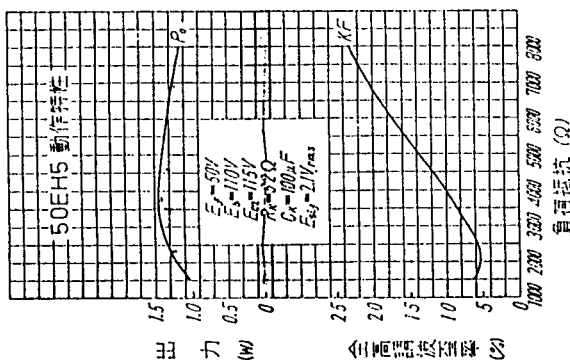
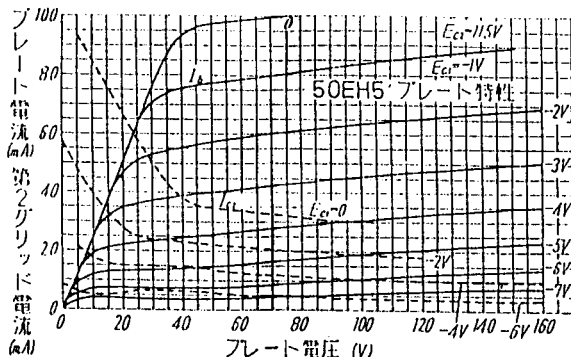
General Data

Electrical

Heater voltage	50	volts
Heater current	150	ma



50EH5, 50H-B26



50H-B26

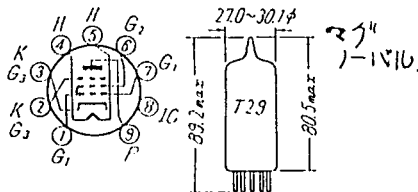
6 H - B 2 6

(暫定規格)

電力増幅用ビーム管

Beam Tube for Power Amplifier.

低B電圧で、パービヤンスが高く、また電力感度が高い出力管で、B電圧130Vのシングルで出力8W、又ブッシュアップで47Wの出力が得られます。今までに開発された30M-P23, 30M-P27, 50R-P25, 7591, 7659などに比べ同等あるいは一段と高出力になっています。





50H-B26



とくに 50H-B26 はヒータ電圧が 2 本で 100V になり、商用電源から直接ヒータを点火できるため、ステレオ、OTL、プッシュプルアンプを作るのに好適です。

Cathod Indirect カソード 傍熱形

		6H-B26	50H-B26	
Heater Volt	ヒータ電圧	6.3	50	V
Heater Current	ヒータ電流	1.25	0.15	A
Cap. between Electrodes	電極間静電容量 (外部シールドなし) (without shield)			
	第1グリッドとプレート間 Grid (1 and Plate)	最大	1.1	pF
	入力側 Input		17.3	pF
	出力側 Output		7.7	pF
	第1グリッドとヒータ間 Grid and heater	最大	0.25	pF
Typical Characteristics and Operational Example 代表特性および動作例				
		A ₁ Class Amplifier A ₁ 級増幅用		
Plate Volts	プレート電圧	130	130	V
G ₂ Volts	第2グリッド電圧	130	130	V
G ₁ Volts	第1グリッド電圧	-12	—	V
Cathod Resistor	カソード抵抗	—	68	Ω
Mut. Conductance	相互コンダクタンス	15000	—	μU
Plate Resistance	内部抵抗 (約) (about)	4.0	—	kΩ
G ₂ -G ₁ Amplification Factor	G ₂ -G ₁ 間増幅率	5.7	—	
Load Resistor	負荷抵抗	800	800	Ω
Input Signal Volts	入力信号電圧	0 8.5	0 7.1	V _{rms}
Plate Current	プレート電流	123 132	130 127	mA
G ₂ Current	第2グリッド電流	8.5 26	9.0 20	mA
Output Power	出力	0 8.0	0 6.2	W
Total Harmonic Distortion	全高調波歪率	11	— 9.5	%
		Push-pull AB ₁ Class Amplifier プッシュプル AB ₁ 級増幅用		
Plate Volts	プレート電圧	200	300	V
G ₂ Volts	第2グリッド電圧	110	150	V
G ₁ Volts	第1グリッド電圧	-14	-26	V
Load Resistor (PLATE-PAIR)	負荷抵抗 (両プレート間)	2.9	3.2	kΩ
Input Signal Volts	入力信号電圧	0 10	0 18.5	V _{rms}
Plate Currents	プレート電流	2×70 2×100	2×29 2×112	mA
G ₂ Currents	第2グリッド電流	2×1.7 2×10	2×0.8 2×22	mA
Power Output	出力	0 25	0 47	W
Total Harmonic Distortion	全高調波歪率	— 5.5	— 4.5	%
	最大定格 (設計最大値) (Design Maximum)			
Max. Rating	プレート電圧 PLATE VOLT	最大 max	350	V



50H-B26

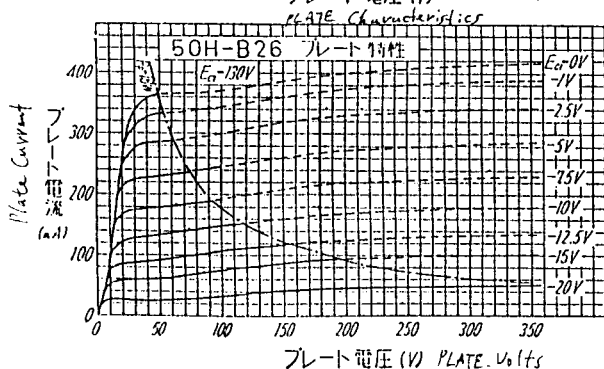
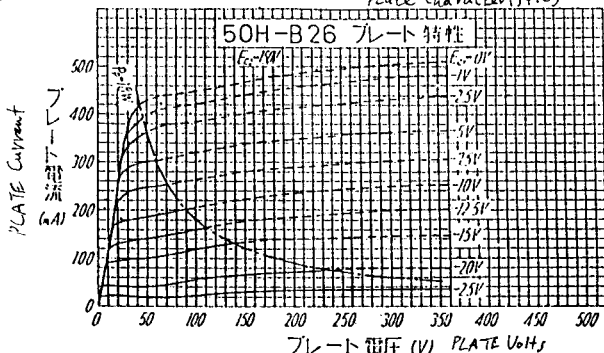


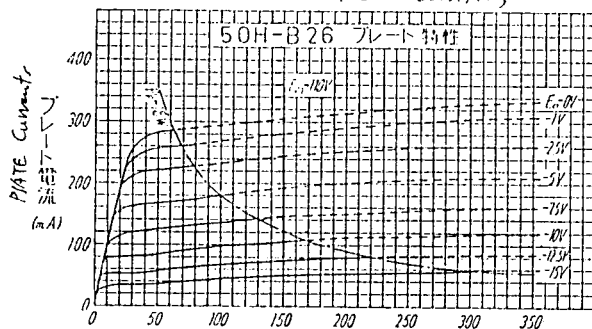
G ₂ Volts	第2グリッド電圧	最大	300	V
Plate Dissipation	プレート損失	最大	18	W
G ₂ Dissipation	第2グリッド損失	最大	5	W
Peak G ₂ Dissipation	尖頭第2グリッド損失	最大	7	W
Cathod Current	カソード電流	最大	220	mA
G ₁ Circuit Register	第1グリッド回路抵抗	Fixed Bias カソード・バイアス時	最大	0.35 MΩ
Heater-Cathod Volts	ヒータ、カソード間電圧	Cathod Bias カソード・バイアス時	最大	0.7 MΩ
Cathod (positive)	カソード正	直流・D.C. DC + peak 直流+尖頭値	最大	180 V
			最大	385 V
	カソード負	直流・D.C. DC + peak 直流+尖頭値	最大	150 V
	(Negative)		最大	385 V

Valve Temperature 温度

NOTE 1) 十分通気性をよくしてご使用下さい。

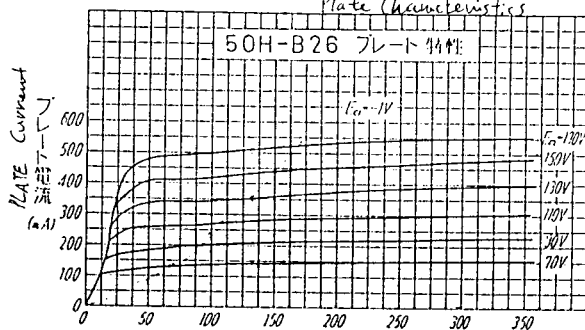
Plate Characteristics



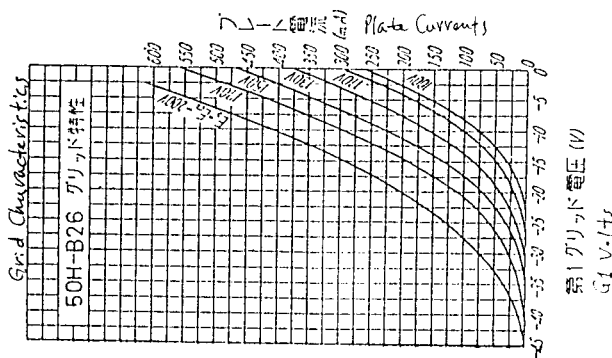


プレート電圧 (V) PLATE Volts

Plate Characteristics



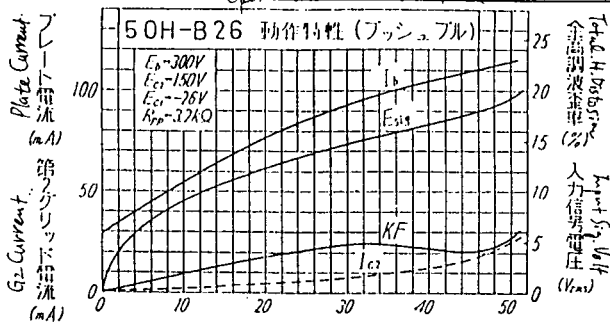
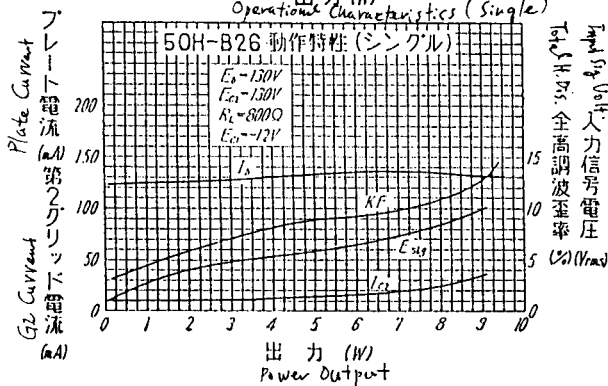
プレート電圧 (V) PLATE Volts





50H-B26 (50JY6)

Operational Characteristics (Push-Pull)

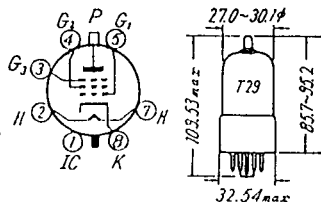
POWER OUTPUT
出力 (W)
Operational Characteristics (Single)

50JY6

水平偏向出力用ビーム管

25E5のヒータ定格を50V, 0.15Aに変え、カソードと第3グリッドを分離独立させ、第3グリッドに正電圧を加えることにより、BK振動やスニペット妨害を防止するように設計しています。

ヒータが2本で100Vになりますのでアンプの出力用としても好適です。



ベース接続図中のICは、管内で電極に接続されることがありますから、中継端子として使用してはなりません。



カソード 傍熱形

ヒータ電圧	50	V
ヒータ電流	0.15	A

電極間静電容量

代表特性および動作例 } は 25 E 5 (P. 262) をご参照ください。

特性曲線

最大定格 (設計最大定格)

プレート電圧 (カットオフ時)	最大	600	V
プレート電圧	最大	275	V
尖頭プレート電圧 ¹⁾	最大	7.7	kV
尖頭プレート負電圧 ¹⁾	最大	1.65	kV
第3グリッド電圧	最大	70	V
第2グリッド電圧 (カットオフ時)	最大	600	V
第2グリッド電圧	最大	275	V
尖頭第1グリッド負電圧 ¹⁾	最大	1.1	kV
カソード電流	最大	220	mA
プレート損失		13	W
第2グリッド損失		5.5	W
第1グリッド回路抵抗 ²⁾	最大	0.5	MΩ
ヒータ, カソード間電圧 ³⁾	最大	250	V _{rms}

注 1) 水平偏向出力回路に使用する場合の最大パルス持続時間は1サイクルの22%で18μsecを超えてはなりません。

2) 水平偏向出力管として使用する場合にのみ最大2.2MΩが許されます。

3) カソード負のとき、直流成分は最大200Vです。

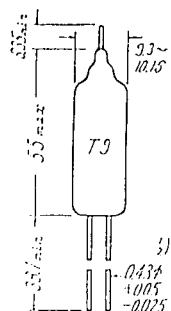
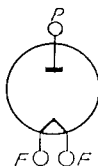
使用上の注意

BK振動やスニベツ (Snivets) 妨害を効果的に抑圧するためには、第3グリッドへは15~40Vの正の電圧を印加してください。この第3グリッドへの電流は、プレート負荷によっても左右され、0.5~2mAの間変化します。

5642

高圧整流用2極管

高電圧、低電流整流用のサブ・ミニチュア形半波整流管で、小形軽量で耐振動構造のため、ポータブル形トランジスタ・テレビ受像機をはじめ、オシロスコープなどの高圧電源整流用に好適です。



Matsushita Electronics Corporation

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Telex: OS 3461 MECTRON

Cable Address
"MECTRON" TAKATSUKI

8 3 5 8

TWIN BEAM POWER TUBE

The MATSUSHITA 8358 is a miniature twin beam power with a directly heated cathode and consequently a short warm up time, for communications equipment operating at frequencies up to 500MC as a push-pull RF power amplifier or as a frequency multiplier tube.

The type 8358 has the same construction as 6939 except for the heater construction being directly heated cathode type. Characteristics of type 8358 are nearly same as type 6939's.

General Data

Electrical

Cathode:

Heating:

Voltage 1) 1.9 volts

Current 3.15 amp.

Heating time 2)..... 0.85 sec.

Transconductance (each unit)

for dc plate volts = 150, dc grid No.2 volts = 150,
and dc plate ma = 25 10000 μ mhos

Mu-Factor (each unit)

Grid No.2 to Grid No.1 (Each unit) for dc plate
volts = 150, dc grid No.2 volts = 150, and dc plate
ma = 25 30

Direct interelectrode capacitances 3)

(Approx, Each unit) *

Grid No.1 to plate 0.15 μ F

Grid No.1 to cathode & grid No.3, Grid No.2, and
filament 8.0 μ F

plate to cathode & grid No.3, Grid No.2,
and filament 2.0 μ F

Mechanical

Mounting position

If the tube is mounted with its main axis deviating from the vertical it is recommended that the pins 2 and 7 are placed in a vertical plane.

Cooling

Radiation and convection. The use of a closed screening can is not permissible.

Maximum overall length 2-5/8"

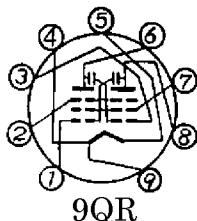
Maximum seated length 2-3/8"

Length, Base seat to bulb top (Excluding tip) $2'' \pm 3/32''$
Diameter $0.750''$ to $0.875''$
Bulb T6- $\frac{1}{2}$

Base Small-bottom Noval 9-pin (JEDEC No. E9-1)

Basing Designation for BOTTOM VIEW.

Pin 1-Grid No.1
of unit No.2
Pin 2-Grid No.3
Pin 3-grid No.1
of unit No.1
Pin 4-filament (+)



Pin 5-filament (-)
Pin 6-Plate of unit No.2
Pin 7-grid No.2
Pin 8-Plate of unit No.1
Pin 9-filament (+)

PUSH-PULL RF POWER AMPLIFIER & OSCILLATOR-CLASS C Telegraphy
and

PUSH-PULL RF POWER AMPLIFIER-Class C FM Telephony

Values are on a per-tube basis unless otherwise specified.

Maximum Ratings, Absolute - Maximum Values:

ICAS ** (up to 500 MC)

DC plate voltage	250 max volts
DC Grid No.2 voltage	200 max volts
DC Grid No.1 voltage	-100 max volts
DC plate current	100 max ma
DC Grid No.1 current	8 max ma
DC cathode current	120 max ma
Plate input	14 max watts
Grid No.2 input	3.5 max watts
Grid No.1 input	0.24max watts
Plate dissipation	7.5 max watts

Bulb temperature

(At the hottest point on bulb surface) 225 max °C

Typical operation

(At 500 MC)

DC plate voltage	180 volts
DC grid-No.2 voltage	180 volts
DC grid-No.1 voltage	-20 volts
From grid resistor for each grid No.1 of	27000 ohms

Peak -to-peak RF

Grid-No.1 voltage	50 volts
DC Plate current	50 ma
DC grid-No.2 current	11.5 ma
DC grid-No.1 current	1.5 ma
Driver power output	1.2 watts
(APPROX.)	
Useful power output ***	4.5 watts
(Approx.)	

Remarks

1. Filament supply from a dc / ac inverter is recommended. The permissible deviation from the filament voltage is $\pm 10\%$. If the dc / ac inverter is fed from a 12,6 volts battery that is charged during operation (driving vehicle) the design center value for the supply voltage should be considered to be 14 volts.
2. It is defined as the time between switching-the heater voltage and the moment when useful power output has reached 70% of the final useful power output.
3. The tube is internally neutralized.

* Without external shield.

** Intermittent commercial and amateur service.

*** This value of useful power is measured at the load of output circuit.



MATSUSHITA

NEWVICON

2/3 INCH TYPE S4075

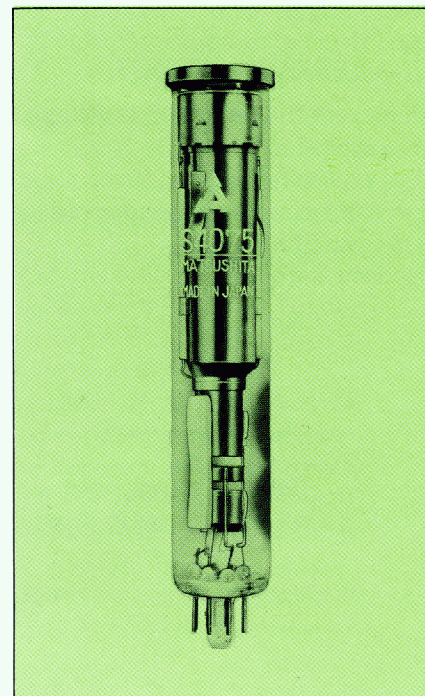
The S4075 is a 2/3 inch Newvicon camera tube having magnetic focusing and magnetic deflection with separate mesh construction.

- * Extremely high sensitivity
- * Extended sensitivity range from 400 nm to 850 nm
- * Low lag
- * Very low dark current
- * Burning-in free
- * No blooming
- * Very small tube dimensions
- * Very small heater power consumption

Applications:

Low light level cameras for security and surveillance.

TV phone, door vision, warehouse, car parking area, night security, etc.



General Data:

Heater for unipotential cathode:

Voltage (AC or DC) $6.3 \pm 10\%$ V

Current at 6.3 volts:

Typical value 95 mA

Maximum value 105 mA

Minimum value 85 mA

Direct interelectrode capacitance:

Target to all other electrodes 2.0 pF (1)

Spectral response see Fig. 1

Photoconductive layer:

Maximum useful diagonal of rectangular image

(aspect ratio 3:4) 11 mm

Orientation of quality rectangle: Proper orientation is obtained when the horizontal scan is essentially parallel to the plane passing through the tube axis and pin 4.

Focusing method Magnetic

Deflection method Magnetic

Overall length Max. 108 mm

Greatest diameter 19.6 ± 0.2 mm

Bulb T-18

Base Special miniature 7-pin (JEDEC No. E7-1)

Yoke assembly CHUOMUSEN No. KV-12 or equivalent

Operating position Any

Weight Approx. 23 g.

Maximum Ratings (Absolute-maximum values) (2)

For scanned area of $6.6 \times 8.8 \text{ mm}^2$

Grid No. 4 voltage Max. 750 V

Grid No. 3 voltage Max. 750 V

Grid No. 2 voltage Max. 350 V

Grid No. 1 voltage:

Negative bias value Max. 300 V

Positive bias value Max. 0 V

Peak heater-cathode voltage:

Heater negative with respect to cathode Max. 125 V

Heater positive with respect to cathode Max. 10 V

Target voltage Max. 50 V (3)

Peak output current Max. $0.8 \mu\text{A}$ (4)

Faceplate:

Illumination Max. 10,000 lx (5)

Temperature Max. 70°C

MATSUSHITA ELECTRONICS CORPORATION

Takatsuki, Osaka, Japan.

Telephone No. TAKATSUKI (0726) 82-5521

Cable Address: "MECTRON" TAKATSUKI Telex Address: MECTRON OS3461

Typical Operation and Performance:

S4075

For scanned area of $6.6 \times 8.8 \text{ mm}^2$, faceplate temperature of $25 \sim 35^\circ\text{C}$ and standard TV scanning rate.

Grid No. 4 (Decelerator) voltage 400 V (6)
 Grid No. 3 (Beam focus electrode) voltage 300 V (7)
 Grid No. 2 (Accelerator) voltage 300 V
 Grid No. 1 voltage for picture cutoff $-35 \sim -80 \text{ V}$ (8)
 Average "Gamma" of transfer characteristic Approx. 1.0
 Visual equivalent signal-to-noise ratio Approx. 300 : 1

Minimum peak-to-peak blanking voltage:

When applied to grid No. 1 75 V

When applied to cathode 20 V

Field strength at center of focusing coil $50 \sim 56$ Gauss

Field strength of adjustable alignment coil or magnet $0 \sim 4$ Gauss

Faceplate illumination 1 lx
 Target voltage $10 \sim 25 \text{ V}$ (9)

Dark current:

Typical value at 25°C 5 nA

Signal current:

Typical value 260 nA

Minimum value 200 nA

Lag: Percent of initial value of signal current 1/20

second after illumination is removed:

Typical value 10 % (10)

Limiting resolution:

At center of picture:

Typical value 650 TV lines (11)

Minimum value 550 TV lines (11)

At corner of picture:

Typical value 450 TV lines (11)

Minimum value 350 TV lines (11)

Spurious Signal Specification (12)

This test is performed using an uniformly diffused white test chart that is separated into three zones as shown below.

Fig. 1

Spurious Signal Test Chart

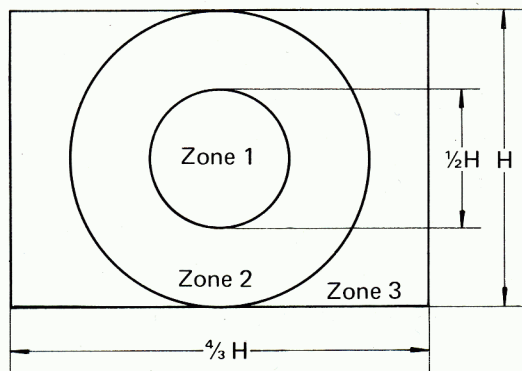


Table 1

Allowable Spot Size for each zone (based on 525 TV line system)

Spot Size (Equivalent TV Lines)	Zone 1 Allowed Spots	Zone 2 Allowed Spots	Zone 3 Allowed Spots
1 and under	*	*	*
2 to but not including 1	4	6	10
4 to but not including 2	1	3	5
7 to but not including 4	1	1	2

* Spots of this size are allowed unless concentration causes a smudged appearance.

- a) In each zone, a spot having a contrast ratio greater than 2 : 1 shall be considered as a fault. In case number of the above mentioned fault exceeds the allowed number of spots shown in Table 1; the tube is rejected.
- b) In each zone, spots having contrast ratio falling in between greater than 1.5 : 1 and smaller than 2 : 1 shall be counted as $\frac{1}{2}$ of the spot having contrast greater than 2 : 1. In case number of the spots counted in accordance with the above calculation exceeds the number in Table 1, the tube is rejected.
- c) In each zone, any spot having contrast ratio below 1.5 : 1 shall not be considered as a fault.
- d) Tubes are rejected for smudge, lines, streaks, mottled background, grainy background, or uneven background having contrast ratio greater than 1.5 : 1.

Notes

- (1) This capacitance, which effectively is the output impedance of the S4075 is increased when the tube is mounted in the yoke assembly. The resistive component of the output impedance is in the order of 100 megohms.
- (2) The maximum ratings in the tabulated data are established in accordance with the following definition of the Absolute-Maximum Rating System for rating electron devices. Absolute-Maximum Rating are limiting values of operating and environmental conditions applicable to any electron device of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.
- (3) Newvicon tubes do not permit automatic sensitivity control by means of regulation of the signal electrode voltage. Adequate control is therefore to be achieved by other means (iris control and neutral density filters). If the tube is applied in cameras originally designed for vidicon tubes, the automatic sensitivity control circuitry should be made inoperative and the signal electrode voltage set to the value indicated in note(9).
- (4) Video amplifiers must be designed properly to handle output current of this magnitude to avoid amplifier overloaded or picture distortion.
- (5) For conditions where "white light" is uniformly diffused over entire tube face. Care must be taken not to focus the solar image on the target through a lens opening wider than F/11 to avoid instantaneous break down.
- (6) Grid No. 4 voltage must always be greater than grid No. 3 voltage. The recommended ratio of grid No. 4 to grid No. 3 voltage both for best geometry and most uniform signal output depends upon the type of yoke assembly used and will be 4 : 3 for the yoke assemblies mentioned under "General Data".
- (7) Resolution decreases with decreasing grid No. 3 voltage. In general grid No. 3 should be operated above 250 volts.
- (8) With no blanking voltage on grid No. 1.
- (9) The target voltage adjusted to the value indicated by the tube manufacturer on the test sheet as delivered with each tube.
- (10) For initial output current of 0.2 μA .
- (11) On RETMA resolution test chart, faceplate illumination adjusted for peak output current of 0.2 μA .
- (12) Adjust faceplate illumination to give 0.2 μA output current. Adjust beam current to discharge highlights.

Fig. 2

Light Transfer Characteristic

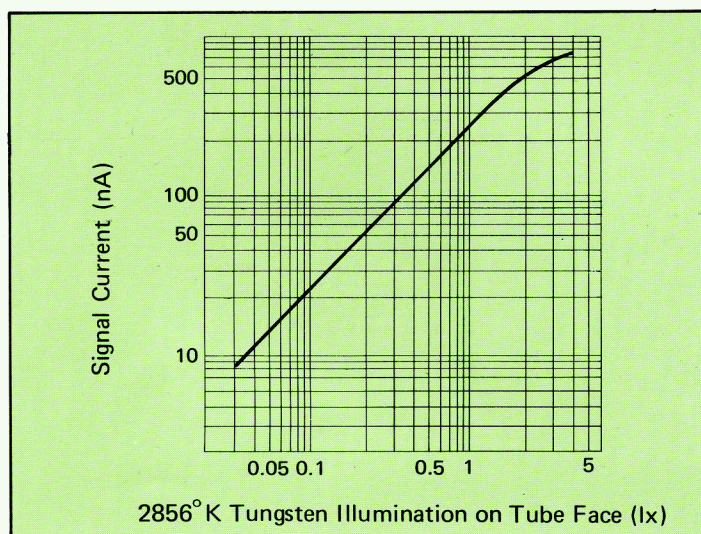


Fig. 3

Relative Spectral Response Characteristics

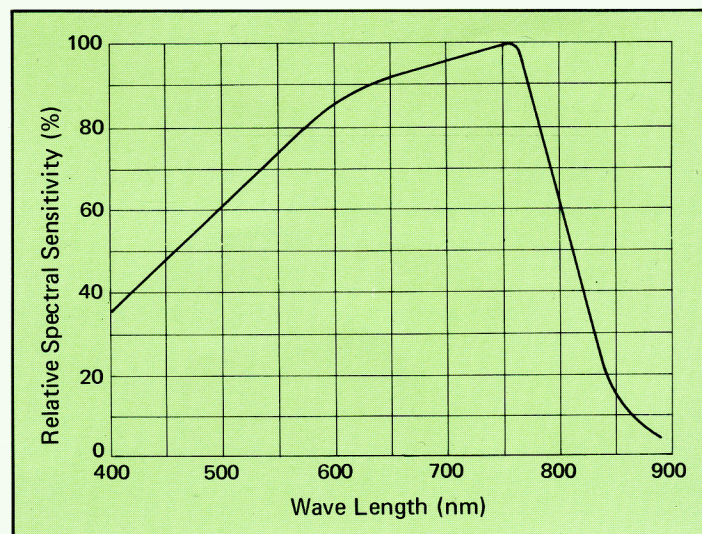


Fig. 4

Horizontal Square Wave Response

S4075

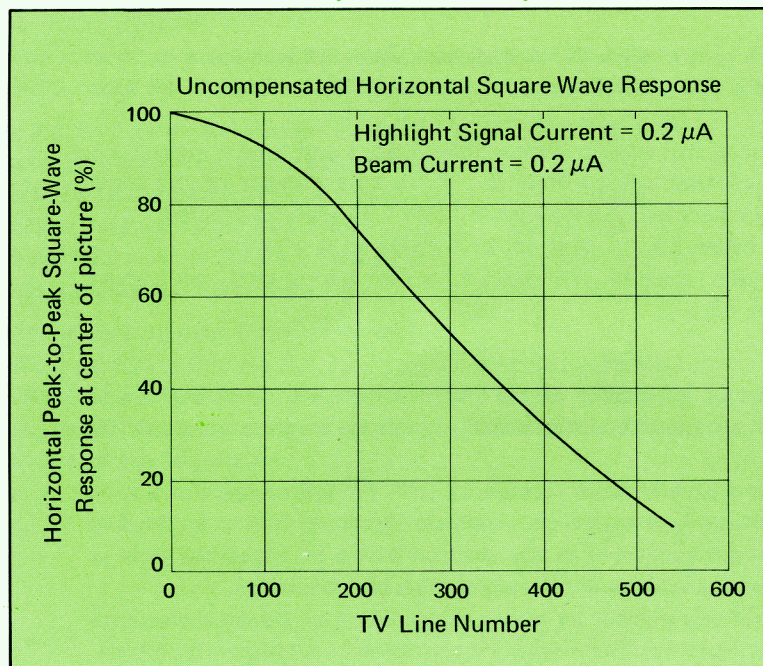
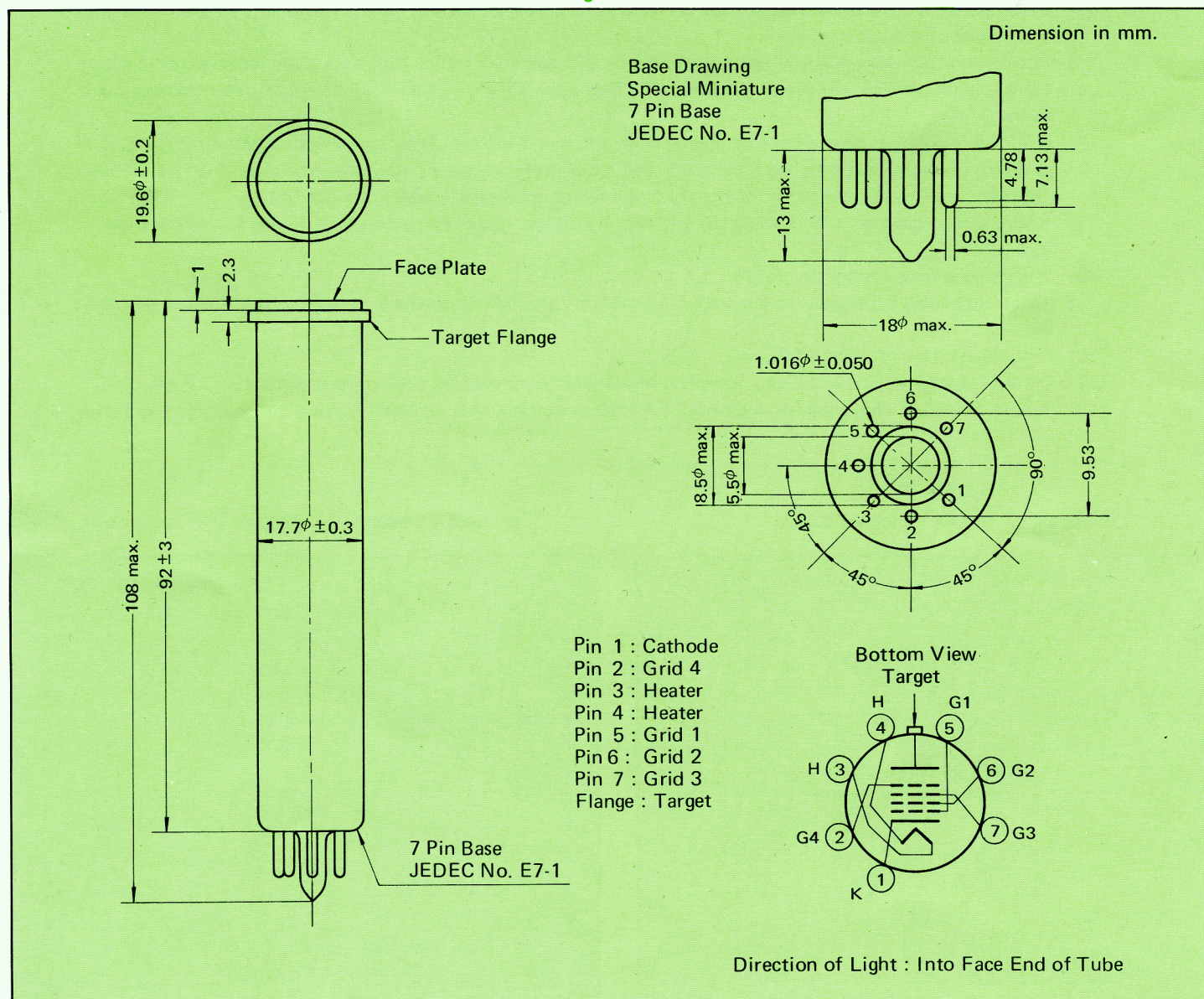


Fig. 5

Outline Drawings and Base Connections





MATSUSHITA

NEWVICON

1 INCH TYPE S4076

Newvicon, employing new photoconductive materials, provides 20times higher sensitivity than vidicon, and 2times than Silicon-vidicon.

The S4076 is a 1 inch diameter Newvicon camera tube with magnetic focusing, magnetic deflection and separate mesh connection.

Applications:

Low light level cameras for security and surveillance.

TVphone, door camera, warehouse, car parking area, night security, etc.

X-ray TV system.



S4076

General Data:

Heater for unipotential cathode:

Voltage (AC or DC) $6.3 \pm 10\%$ V

Current at 6.3 volts:

Typical value 95 mA

Maximum value 105 mA

Minimum value 85 mA

Direct interelectrode capacitance:

Target to all other electrodes 4.6 pF (1)

Spectral response See Fig. 3

Photoconductive layer:

Maximum useful diagonal of rectangular image

(aspect ratio 3 : 4) 16 mm

Orientation of quality rectangle : Proper orientation is obtained when the horizontal scan is essentially parallel to the plane passing through the tube axis and short index pin.

Focusing method Magnetic

Deflection method Magnetic

Overall length 159 ± 3 mm

Greatest diameter 28.6 ± 0.3 mm

Bulb T-8

Base Small-Button Ditetra 8-Pin(JEDEC No. E8-11)

Yoke assembly ... CHUOMUSEN No.KV-8 or equivalent

Operating position Any

Weight Approx. 60 g

Maximum Ratings (Absolute-maximum values) (2)

For scanned area of 9.5×12.7 mm²

Grid No. 4 voltage Max. 1.000 V

Grid No. 3 voltage Max. 1.000 V

Grid No. 2 voltage Max. 750 V

Grid No. 1 voltage:

Negative bias value Max. 300 V

Positive bias value Max. 0V

Peak heater-cathode voltage:

Heater negative with respect to cathode Max. 125 V

Heater positive with respect to cathode Max. 10 V

Target voltage Max. 50 V (3)

Peak output current Max. $0.8 \mu\text{A}$ (4)

Faceplate:

Illumination Max. 10.000 lx (5)

Temperature Max. 70°C

MATSUSHITA ELECTRONICS CORPORATION

Takatsuki, Osaka, Japan.

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Cable Address: "MECTRON" TAKATSUKI Telex Address: MECTRON OS3461

Typical Operation and Performance:

For scanned area of 9.5x12.7mm², faceplate temperature of 25 ~ 35°C and standard TV scanning rate.

Grid No. 4 (Decelerator) voltage 500 V (6)
 Grid No. 3 (Beam focus electrode) voltage 300 V (7)
 Grid No. 2 (Accelerator) voltage 300 V
 Grid No. 1 voltage for picture cutoff -45 ~ -100 V (8)
 Average "Gamma" of transfer characteristic for signal
 current between 0.02 μ A and 0.2 μ A Approx. 1.0
 Visual equivalent signal-to-noise ratio Approx. 300 : 1

Minimum peak-to-peak blanking voltage:

When applied to grid No. 1 75 V
 When applied to cathode 20 V

Field strength at center of focusing coil 38 ~ 44 G

Field strength of adjustable alignment
 coil or magnet 0 ~ 4 G

Faceplate illumination 0.5 lx
 Target voltage 10 ~ 25 V (9)

Dark current:

Typical value at 25°C 10 nA

Signal current:

Typical value 240 nA

Minimum value 200 nA

Lag: Percent of initial value of signal current 1/20

second after illumination is removed:

Typical value 20 % (10)

Limiting resolution:

At center of picture:

Typical value 800 TV lines (11)

Minimum value 650 TV lines (11)

At corner of picture:

Typical value 500 TV lines (11)

Minimum value 400 TV lines (11)

Spurious Signal Specification (12)

This test is performed using an uniformly diffused white test chart that is separated into three zones as shown below.

Fig. 1

Spurious Signal Test Chart

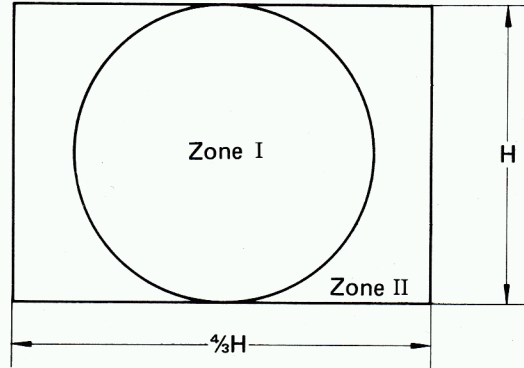


Table 1

Allowable Spot Size for each zone (based on 525 TV line system)

Spot Size (Equivalent TV Lines)	Zone I Allowed Spots	Zone II Allowed Spots
1 and under	*	*
2 to but not including 1	5	5
4 to but not including 2	4	5
7 to but not including 4	0	1
Total	6	8

* Spots of this size are allowed unless concentration causes a smudged appearance.

- a) In each zone, a spot having a contrast ratio greater than 2 : 1 shall be considered as a fault. In case number of the above mentioned fault exceeds the allowed number of spots shown in Table 1; the tube is rejected.
- b) In each zone, a spot having contrast ratio falling in between 1.5 : 1 and 2 : 1 shall be counted as $\frac{1}{2}$ of the spot having contrast greater than 2 : 1. In case number of the spots counted in accordance with the above calculation exceeds the number in Table 1, the tube is rejected.
- c) In each zone, any spot having contrast ratio below 1.5 : 1 shall not be considered as a fault.
- d) Tubes are rejected for smudge, lines, streaks, mottled background, grainy background, or uneven background having contrast ratio greater than 1.5 : 1.

Notes

- (1) This capacitance, which effectively is the output impedance of the S4076 is increased when the tube is mounted in the yoke assembly. The resistive component of the output impedance is in the order of 100 megohms.
- (2) The maximum ratings in the tabulated data are established in accordance with the following definition of the Absolute-Maximum Rating System for rating electron devices. Absolute-Maximum Rating are limiting values of operating and environmental conditions applicable to any electron device of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.
- (3) Newvicon tubes do not permit automatic sensitivity control by means of regulation of the signal electrode voltage. Adequate control is therefore to be achieved by other means (iris control and neutral density filters). If the tube is applied in cameras originally designed for vidicon tubes, the automatic sensitivity control circuitry should be made inoperative and the signal electrode voltage set to the value indicated in note (9).
- (4) Video amplifiers must be designed properly to handle output current of this magnitude to avoid amplifier overloaded or picture distortion.
- (5) For conditions where "white light" is uniformly diffused over entire tube face. Care must be taken not to focus the solar image on the target through a lens opening wider than F/11 to avoid instantaneous break down.
- (6) Grid No. 4 voltage must always be greater than grid No. 3 voltage. The recommended ratio of grid No. 4 to grid No. 3 voltage both for best geometry and most uniform signal output depends upon the type of yoke assembly used and will be 5 : 3 for the yoke assemblies mentioned under "General Data".
- (7) Resolution decreases with decreasing grid No. 3 voltage. In general grid No. 3 should be operated above 250 volts.
- (8) With no blanking voltage on grid No. 1.
- (9) The target voltage adjusted to the value indicated by the tube manufacturer on the test sheet as delivered with each tube.
- (10) For initial output current of $0.2 \mu\text{A}$.
- (11) On RETMA resolution test chart, faceplate illumination adjusted for peak output current of $0.2 \mu\text{A}$.
- (12) Adjust faceplate illumination to give $0.2 \mu\text{A}$ output current. Adjust beam current to discharge highlights.

Fig. 2

Light Transfer Characteristic

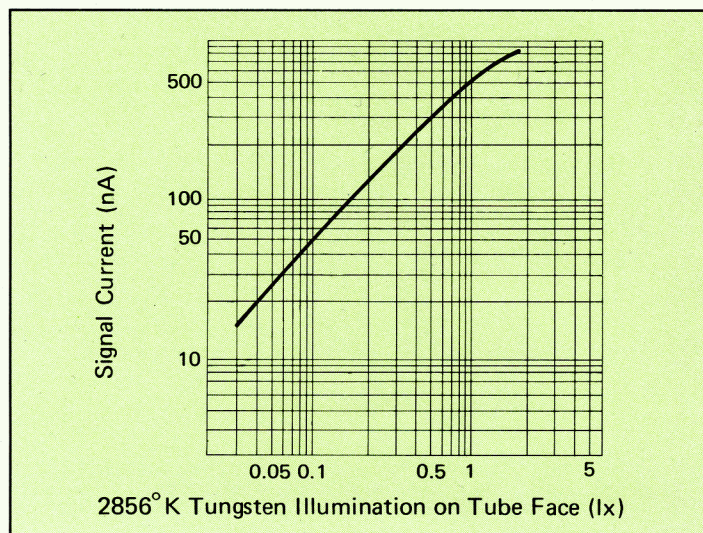


Fig. 3

Relative Spectral Response Characteristics

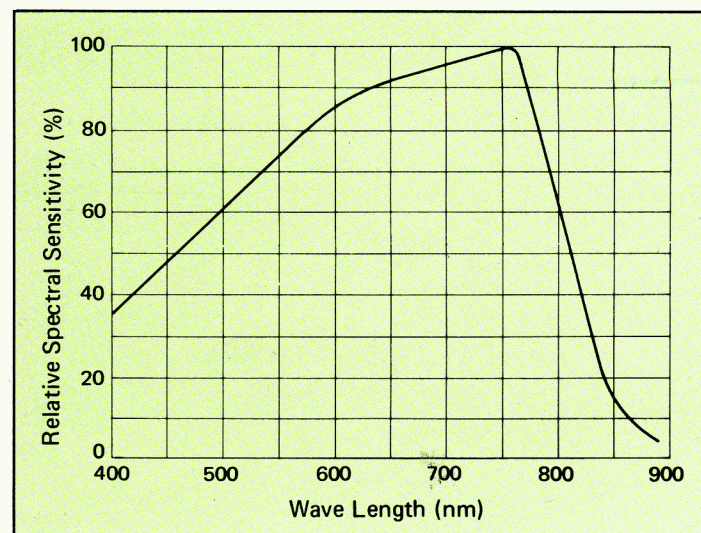


Fig. 4

Horizontal Square Wave Response

S4076

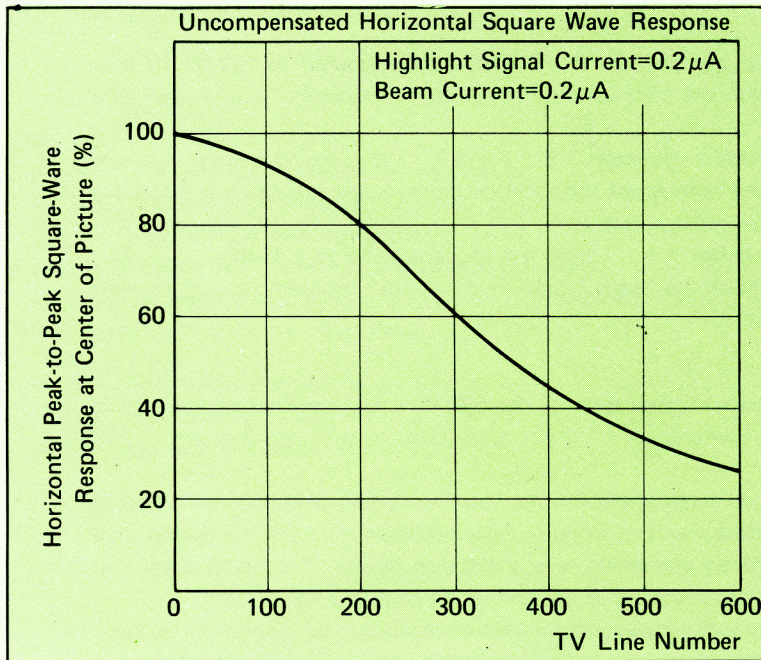
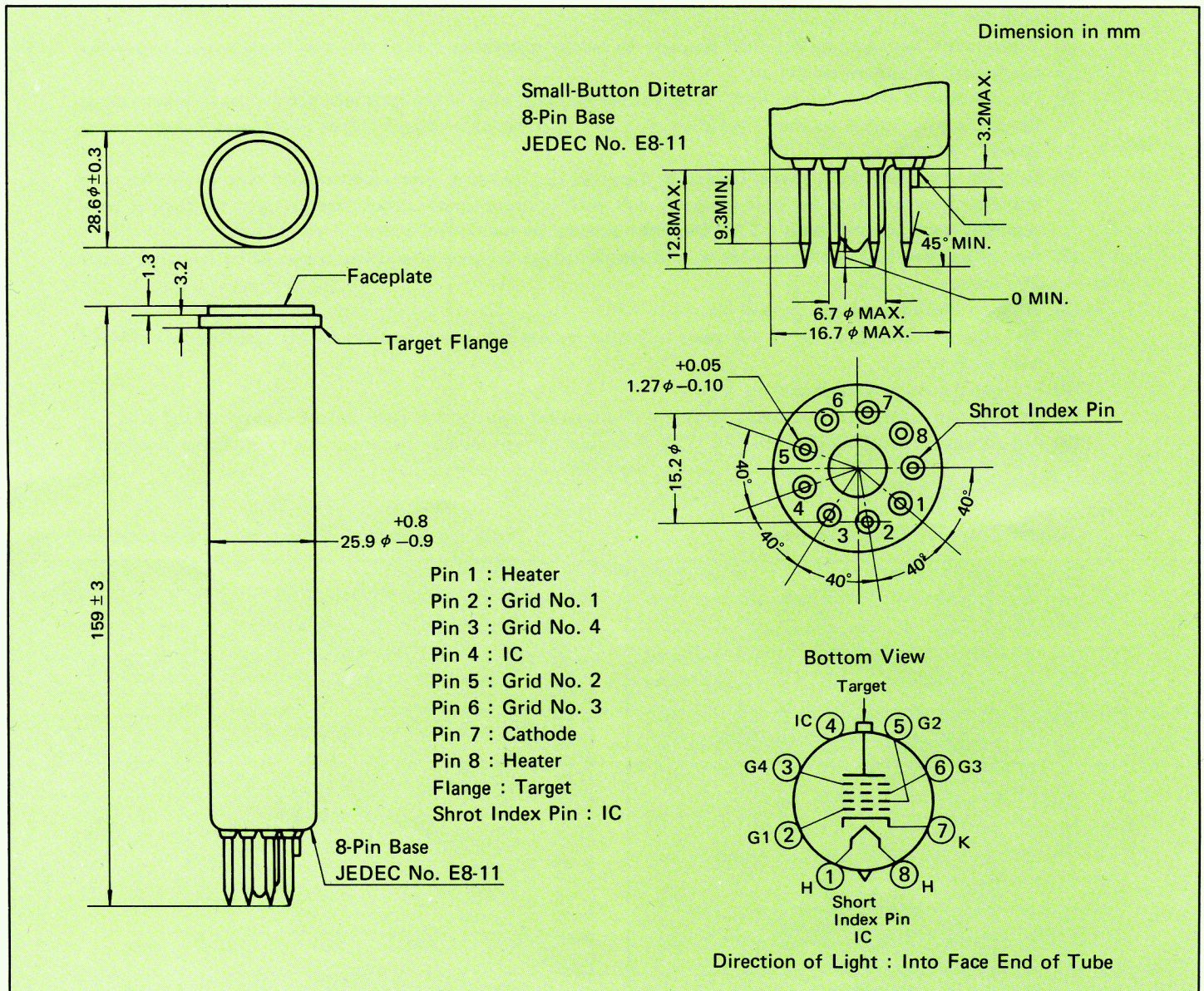


Fig. 5

Outline Drawings and Base Connections





MATSUSHITA

NEWVICON

2/3 INCH TYPE S4092

Newvicon, employing new photoconductive materials, provides 20times higher sensitivity than vidicon, and 2times than Silicon-vidicon.

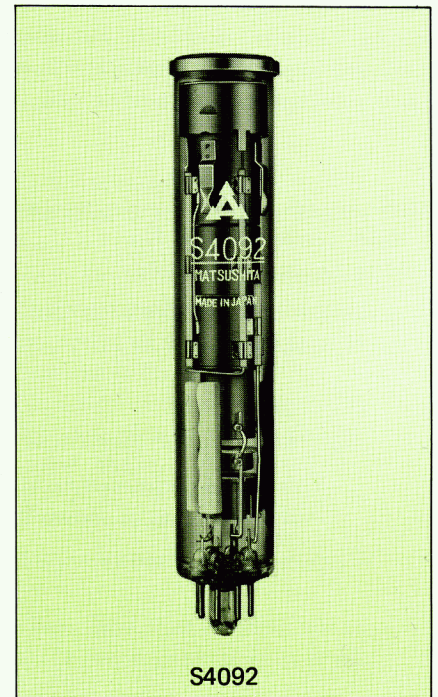
The S4092 is a 2/3 inch diameter Newvicon camera tube with electrostatic focusing, magnetic deflection and separate mesh connection.

Applications:

Low light level cameras for security and surveillance.

Ultra compact TV cameras with very light weight and very low power consumption.

Hand-held TV camera, TV phone, door camera, warehouse, car parking area, night security, etc.



S4092

General Data:

Heater for unipotential cathode:

Voltage (AC or DC) $6.3 \pm 10\%$ V

Current at 6.3 volts:

Typical value 95 mA

Maximum value 105 mA

Minimum value 85 mA

Direct interelectrode capacitance:

Target to all other electrodes 2.0 pF (1)

Spectral response See Fig. 1

Photoconductive layer:

Maximum useful diagonal of rectangular image

(aspect ratio 3:4) 11 mm

Orientation of quality rectangle: Proper orientation is obtained when the horizontal scan is essentially parallel to the plane passing through the tube axis and pin No. 4.

Focusing method Electro static

Deflection method Magnetic

Overall length Max. 108 mm

Greatest diameter 19.6 ± 0.2 mm

Bulb T-18

Base Special miniature 7-pin (JEDEC No. E7-1)

Yoke assembly. CHUOMUSEN No. KV 19B or equivalent

Operating position Any

Weight Approx. 25g

Maximum Ratings (Absolute-Maximum values) (2)

For scanned area of 6.6×8.8 mm²

Grid No. 6 voltage Max. 600 V

Grid No. 4 voltage Max. 350 V

Grid Nos, 2+3+5 voltage Max. 350 V

Grid No. 1 voltage :

Negative bias value Max. 300 V

Positive bias value Max. 0 V

Peak heater-cathode voltage:

Heater negative with respect to cathode. . . Max. 125 V

Heater positive with respect to cathode Max. 10 V

Target voltage. Max. 50 V (3)

Peak output current Max. 0.8μ A (4)

Faceplate:

Illumination Max. 10,000 lx (5)

Temperature Max. 70°C

MATSUSHITA ELECTRONICS CORPORATION

Takatsuki, Osaka, Japan.

Telephone No. TAKATSUKI (0726) 82-5521

Cable Address: "MECTRON" TAKATSUKI Telex Address: MECTRON OS3461

Typical Operation and Performance:

For scanned area of 6.6x8.8 mm²; faceplate temperature of 25 ~ 35°C and standard TV scanning rate.

Grid No. 6 (Decelerator) voltage 500 V (6)
 Grid No. 4 (Beam focus electrode) voltage 35 ~ 55 V
 Grid Nos. 2+3+5 voltage 300 V (7)
 Grid No. 1 voltage for picture cutoff -30 ~ -80 V (8)
 Average "Gamma" of transfer characteristic for signal
 current between 0.02μA and 0.2μA Approx. 1.0
 Visual equivalent signal-to-noise ratio Approx. 300 : 1

Minimum peak-to-peak blanking voltage:

When applied to grid No. 1 75 V
 When applied to cathode 20 V

Field strength of adjustable alignment

coil or magnet 0 ~ 4 G

Faceplate illumination 1 lx

Target voltage 10 ~ 25 V (9)

Dark current:

Typical value at 25°C 5 nA

Signal current:

Typical value 260 nA

Minimum value 200 nA

Lag: Percent of initial value of signal current 1/20

second after illumination is removed:

Typical value 12 % (10)

Limiting resolution:

At center of picture:

Typical value 600 TV lines (11)

Minimum value 500 TV lines (11)

At corner of picture:

Typical value 450 TV lines (11)

Minimum value 350 TV lines (11)

Spurious Signal Specification (12)

This test is performed using an uniformly diffused white test chart that is separated into three zones as shown below.

Fig. 1
Spurious Signal Test Chart

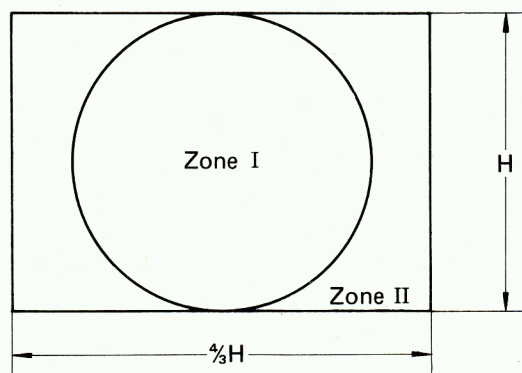


Table 1

Allowable Spot Size for each zone (based on 525 TV line system)

Spot Size (Equivalent TV Lines)	Zone I Allowed Spots	Zone II Allowed Spots
1 and under	*	*
2 to but not including 1	5	5
4 to but not including 2	4	5
7 to but not including 4	0	1
Total	6	8

*Spots of this size are allowed unless concentration causes a smudged appearance.

- a) In each zone, a spot having a contrast ratio greater than 2 : 1 shall be considered as a fault. In case number of the above mentioned fault exceeds the allowed number of spots shown in Table 1; the tube is rejected.
- b) In each zone, a spot having contrast ratio falling in between 1.5 : 1 and 2 : 1 shall be counted as $\frac{1}{2}$ of the spot having contrast greater than 2 : 1. In case number of the spots counted in accordance with the above calculation exceeds the number in Table 1, the tube is rejected.
- c) In each zone, any spot having contrast ratio below 1.5 : 1 shall not be considered as a fault.
- d) Tubes are rejected for smudge, lines, streaks, mottled background, grainy background, or uneven background having contrast ratio greater than 1.5 : 1.

Notes

- (1) This capacitance, which effectively is the output impedance of the S4092 is increased when the tube is mounted in the yoke assembly. The resistive component of the output impedance is in the order of 100 megohms.
- (2) The maximum ratings in the tabulated data are established in accordance with the following definition of the Absolute-Maximum Rating System for rating electron devices. Absolute-Maximum Rating are limiting values of operating and environmental conditions applicable to any electron device of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.
- (3) Newvicon tubes do not permit automatic sensitivity control by means of regulation of the signal electrode voltage. Adequate control is therefore to be achieved by other means (iris control and neutral density filters). If the tube is applied in cameras originally designed for vidicon tubes, the automatic sensitivity control circuitry should be made inoperative and the signal electrode voltage set to the value indicated in note(9).
- (4) Video amplifiers must be designed properly to handle output current of this magnitude to avoid amplifier overloaded or picture distortion.
- (5) For conditions where "white light" is uniformly diffused over entire tube face. Care must be taken not to focus the solar image on the target through a lens opening wider than F/11 to avoid instantaneous break down.
- (6) The geometry and uniformity of signal output depend upon the ratio of grid No. 6 to grid Nos. 2+3+5 voltage, and also depend upon the type of yoke assembly used.
The recommended voltage ratio is 5 : 3 for the yoke assemblies mentioned under "General Data."
- (7) Grids Nos. 2, 3 and 5 should be operated above 250 volts in order to provide sufficient beam current.
- (8) With no blanking voltage on grid No. 1.
- (9) The target voltage adjusted to the value indicated by the tube manufacturer on the test sheet as delivered with each tube.
- (10) For initial output current of $0.2\mu\text{A}$.
- (11) On RETMA resolution test chart, faceplate illumination adjusted for peak output current of $0.2\mu\text{A}$.
- (12) Adjust faceplate illumination to give $0.2\mu\text{A}$ output current. Adjust beam current to discharge highlights.

Fig. 2

Light Transfer Characteristic

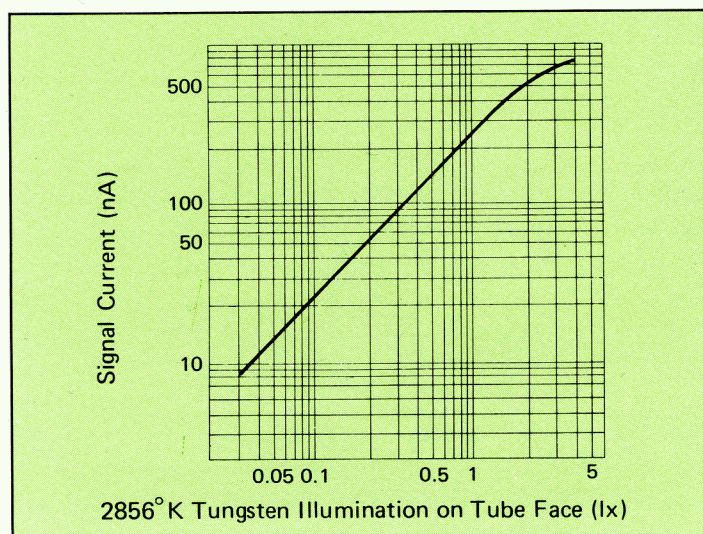


Fig. 3

Relative Spectral Response Characteristics

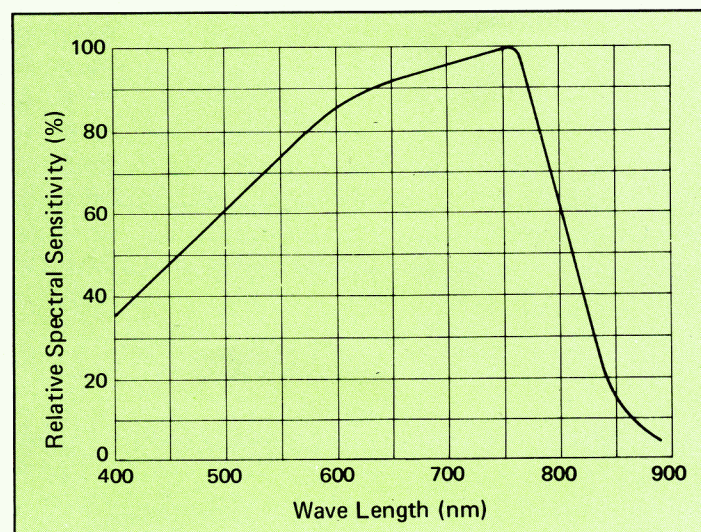


Fig. 4

Horizontal Square-Wave Response

S4092

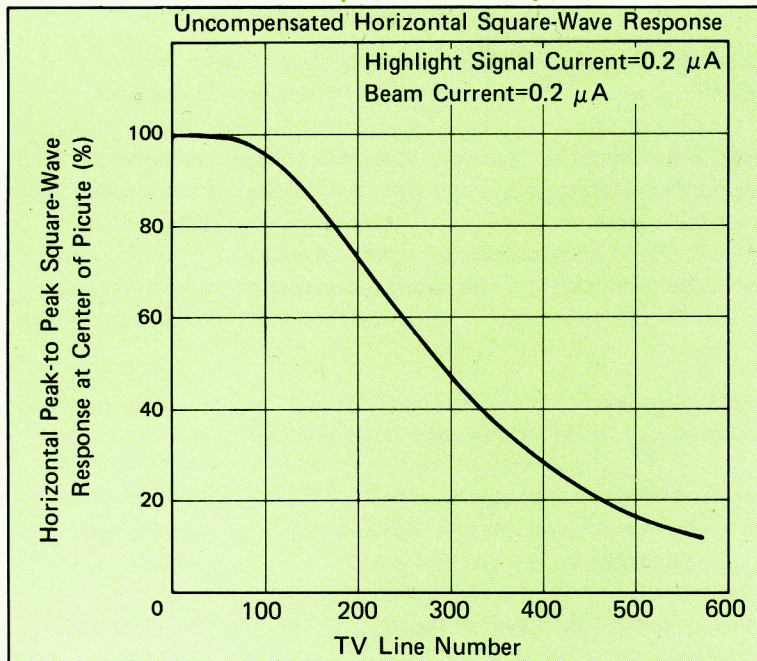


Fig. 5

Outline Drawings and Base Connections

