

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

TA8427K

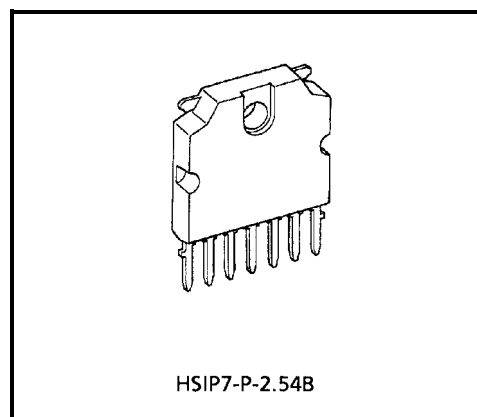
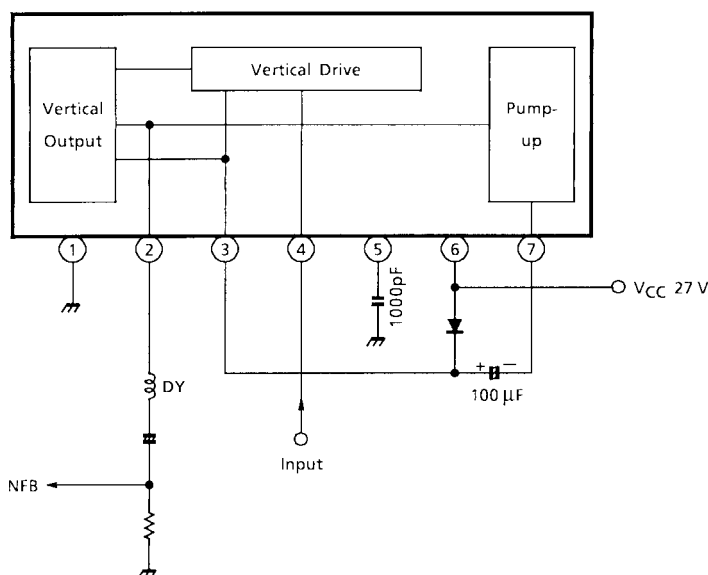
POWER AMPLIFIER FOR DRIVING A DEFLECTION CIRCUIT OF A COLOR TELEVISION

TA8427K is a power amplifier for driving a deflection circuit of a large and medium screen size color television. TA8427K is available for constructing a stable deflection circuit with small number parts in an application with a single chip signal processing IC TA8879N.

FEATURES

- Large output current ; $2.2A_{p-p}$ (Max.)
- Small power dissipation with a pump-up circuit
- Small number external parts

BLOCK DIAGRAM



HSIP7-P-2.54B

Weight : 2.2g (Typ.)

TERMINAL NAME

1. GND
2. Vertical Output
3. Pump-up Power Supply
4. Input
5. Phase Compensation
6. Power Supply
7. Pump-up Output

000707EBA2

• TOSHIBA is continually working to improve the quality and reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to comply with the standards of safety in making a safe design for the entire system, and to avoid situations in which a malfunction or failure of such TOSHIBA products could cause loss of human life, bodily injury or damage to property.

In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent TOSHIBA products specifications. Also, please keep in mind the precautions and conditions set forth in the "Handling Guide for Semiconductor Devices," or "TOSHIBA Semiconductor Reliability Handbook" etc..

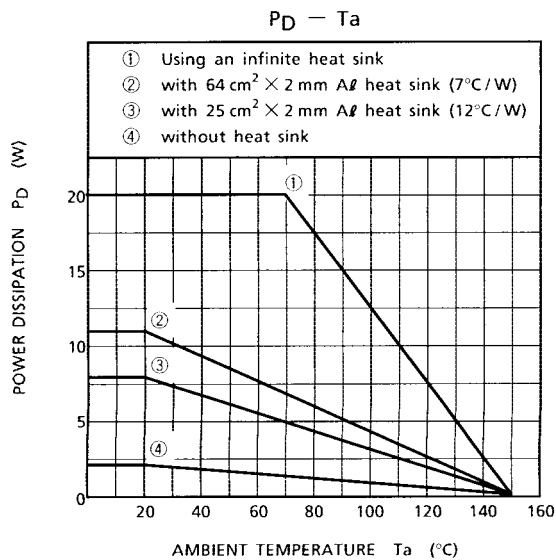
• The TOSHIBA products listed in this document are intended for usage in general electronics applications (computer, personal equipment, office equipment, measuring equipment, industrial robotics, domestic appliances, etc.). These TOSHIBA products are neither intended nor warranted for usage in equipment that requires extraordinarily high quality and/or reliability or a malfunction or failure of which may cause loss of human life or bodily injury ("Unintended Usage"). Unintended Usage include atomic energy control instruments, airplane or spaceship instruments, transportation instruments, traffic signal instruments, combustion control instruments, medical instruments, all types of safety devices, etc.. Unintended Usage of TOSHIBA products listed in this document shall be made at the customer's own risk.

MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Power Supply Voltage	V_{CC}	30	V
Pump-up Power Supply Voltage	V_{Vt}	60	V
Terminal Voltage	E_{in}	GND $-0.3 \sim V_{Vt}$ $+0.3$	V
Input Signal Voltage	e_{in}	0 ~ 1.2	V
Deflection Current	i_d	± 1.5 (Note 1:)	A
Power Dissipation	P_D	20 (Note 2:)	W
Operating Temperature	T_{opr}	$-20 \sim 85$	$^\circ\text{C}$
Storage Temperature	T_{stg}	$-55 \sim 150$	$^\circ\text{C}$

Note 1: Power on time ; 2ms, $V_{CEO} = 60\text{V}$

Note 2: Using an infinite heat sink



Thermal resistance
 $\theta_{jc} = 4^\circ\text{C/W}$

RECOMMENDED OPERATING CONDITION

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Power Supply	V_{CC}	—	27	29	V
Deflection Output Current	I_{2p-p}	—	—	2.2	A_{p-p}

000707EBA2

- The products described in this document are subject to the foreign exchange and foreign trade laws.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.
- The information contained herein is subject to change without notice.

ELECTRICAL CHARACTERISTICS (Ta = 25°C, V_{CC} = 24V)

CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Saturation Voltage Of The Vertical Output Transistor (1)	V _{V (sat) 1}	1	Note 1:	0.3	0.5	1.0	V
Saturation Voltage Of The Vertical Output Transistor (2)	V _{V (sat) 2}	1	Note 2:	1.0	1.8	3.6	V
Saturation Voltage Of The Pump-up Output Transistor (1)	V _{P (sat) 1}	1	Note 3:	1.0	2.0	3.0	V
Saturation Voltage Of The Pump-up Output Transistor (2)	V _{P (sat) 2}	1	Note 4:	0.2	0.8	1.6	V
Output Current With No Input	I _b	1	Note 5:	—	26.0	—	mA
Center Output Voltage	V _{center}			10.0	12.0	14.0	V

Note 1: SW₁ : ON, SW₂ : C, SW₃ : ON, SW₄ : B, SW₅ : A, SW₆ : A
Measure the voltage of pin 2.

Note 2: SW₁ : ON, SW₂ : C, SW₃ : ON, SW₄ : A, SW₅ : A, SW₆ : B
Measure the voltage of pin 2, V₂. V_{V (sat) 2} = V_{CC} - V₂

Note 3: SW₁ : ON, SW₂ : B, SW₃ : OFF, SW₄ : A, SW₅ : C, SW₆ : A
Measure the voltage of pin 7, V₇. V_{P (sat) 1} = V_{CC} - V₇

Note 4: SW₁ : OFF, SW₂ : C, SW₃ : OFF, SW₄ : A, SW₅ : B, SW₆ : B
Measure the voltage of pin 7.

Note 5: SW₁ : ON, SW₂ : A, SW₃ : ON, SW₄ : C, SW₅ : A, SW₆ : B
Measure the sink current into pin 3.
Measure the voltage of pin 2.

The schematic diagram illustrates a 7-bit digital-to-analog converter (DAC) labeled T A 8 4 2 7 K. The DAC is represented by a long horizontal block at the top with seven output terminals numbered 1 through 7. Terminal 1 is grounded. Terminals 2 through 7 are connected to a network of switches and resistors. Each output terminal (2-7) has a switch (SW1-SW5) and a resistor (100Ω, 34Ω/15W, 100Ω, 1.2kΩ, 34Ω/15W) connected to a common bus. The common bus is connected to the non-inverting input of an operational amplifier (op-amp). The op-amp is configured with a feedback resistor of 68 kΩ and a reference voltage of 11 V. The output of the op-amp is connected to a 12 V supply through a 1 kΩ resistor. The output of the DAC is connected to a 27 V supply through a 1 kΩ resistor. The output is also connected to a 1000 pF capacitor and a 0.022 μF capacitor. The output is labeled 27 V.

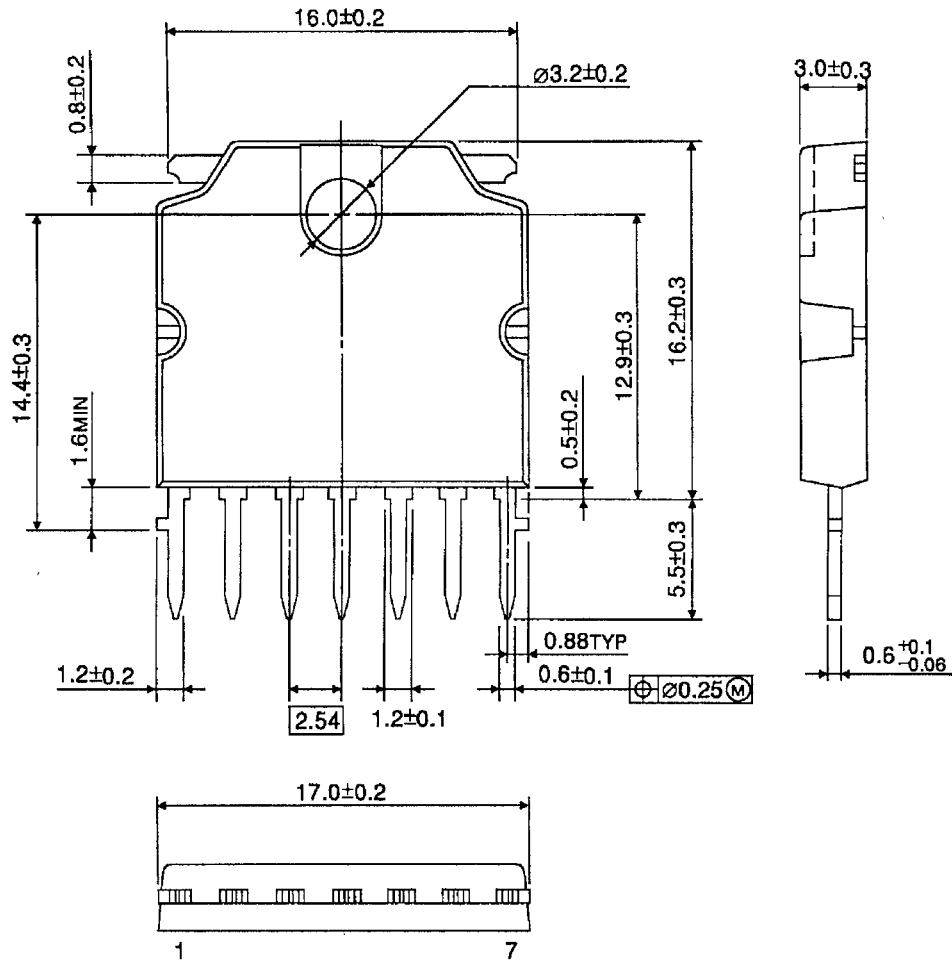
Component values and specifications:

- R: 1/4W ±5%
- C: 50V +80% -20%

PACKAGE DIMENSIONS

HSIP7-P-2.54B

Unit : mm



Weight: 2.2g (Typ.)