TA7366P
TA7367P

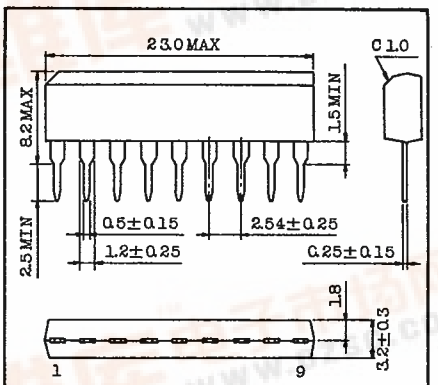
T-77-21

5-LED LEVEL METER DRIVER

The TA7366P and TA7367P are designed for 5 LED level meter driver.
Which are consist of one input amplifier and five comparators for LED level indication.

- Low Spurious Noise Operation.
- Constant Driving Current : I_O=8mA(Typ.)
- Indication Level Steps
  - : TA7366P 5dB, 5dB, 3dB, 3dB
  - : TA7367P 2dB, 2dB, 2dB, 2dB
- Wide Operating Supply Voltage Range
  - : V_{CC}=4～12V
- Variable Input Amplifier Gain : G_V=0～20dB

Unit in mm



Lead pitch is 2.54 and tolerance is ±0.25 against theoretical center of each lead that is obtained on the basis of No.1 lead.

JEDEC	—
TOSHIBA	S9A-P

Weight : 0.92g

MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	14	V
LED Driving Terminal Voltage (Note 1)	V_L	15	V
Power Dissipation (Note 2)	P_D	600	mW
Operating Temperature	Topr	-25～75	°C
Storage Temperature	Tstg	-55～150	°C

Note 1 : For Pin 1～4 and 6

2 : Derated above Ta=25°C in the proportion of 4.8mW/°C.

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ELECTRICAL CHARACTERISTICS

(Unless otherwise specified, V_{CC}=9V, f=1kHz, Ta=25°C)

CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I_{CCQ}	-	V_{IN}=0V	-	3	5	mA
Output Current	$I_{O(1\sim5)}$	-		5	8	10	mA
Output Leak Current	$I_{O(OFF)}$	-		-	-	50	μA
Sensitivity	$V_{LD5(ON)}$	-	R_S=24kΩ, R_f=100kΩ	-	230	-	mV_{rms}

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LED Turn-on Input Level	LD_5	-	R_S=24kΩ, R_f=100kΩ, I_O=1mA	-1	0	1	dB
	LD_4	-		-4	-3	-2	dB
	LD_3	-		-7.5	-6	-4.5	dB
	LD_2	-		-13	-11	-9	dB
	LD_1	-		-19	-16	-13	dB

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LED Turn-on Input Level	LD_5	-	R_S=24kΩ, R_f=100kΩ, I_O=1mA	-1	0	1	dB
	LD_4	-		-3	-2	-1	dB
	LD_3	-		-5	-4	-3	dB
	LD_2	-		-7	-6	-5	dB
	LD_1	-		-9	-8	-7	dB

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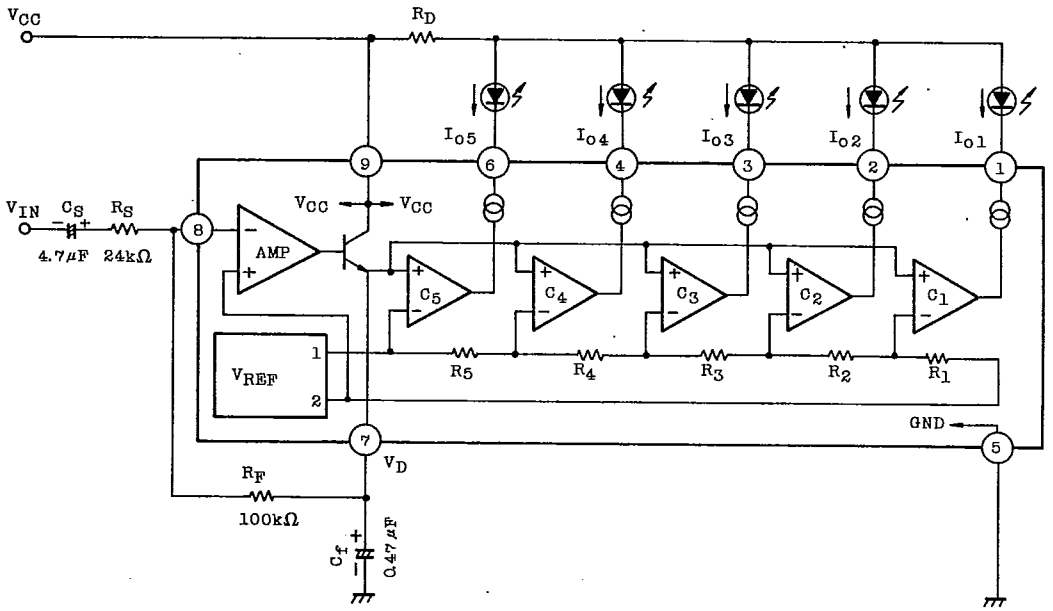
TEST CIRCUIT/BLOCK DIAGRAM



INTERNAL RESISTANCE VALUE

	TA7366P	TA7367P	UNIT
R_1	1.36	3.66	kΩ
R_2	1.08	0.948	kΩ
R_3	1.89	1.19	kΩ
R_4	1.78	1.50	kΩ
R_5	2.50	1.89	kΩ

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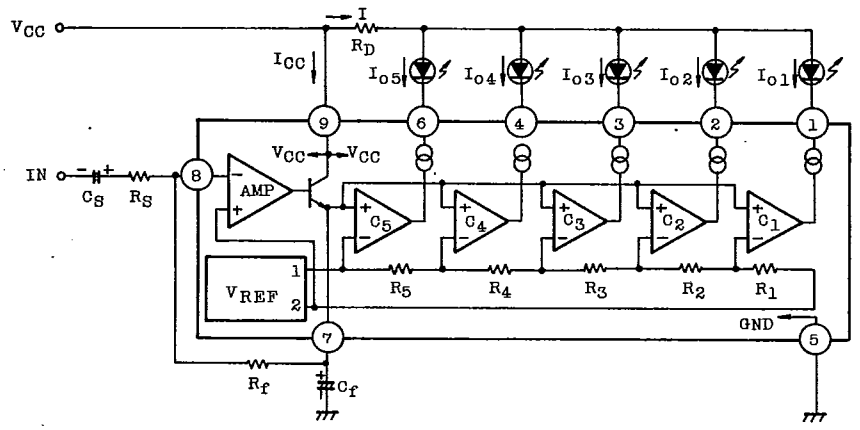
PRECAUTION FOR USE AND APPLICATION METHOD



1. Setting of Turn-on Level

Turn-on input level can be set through changing the voltage gain (G_V) of the input amplifier. This voltage gain is determined by the external resistor (R_S,R_f) and obtained by the equation below.

$$G_V = 20\log \frac{R_f}{R_S}$$ (Use in the range of G_V=0 ~ 20dB)

When G_V=0dB (R_S=R_f=100kΩ), the turn-on level at fifth LED is 958.3mVrms(Typ.). For turning on the fifth LED with the arbitrarily set input level (V_{IN}), use the following equation to set R_S and R_f.

$$\frac{R_f}{R_S} = \frac{958.3mV_{rms}}{V_{IN}}$$ (Use the resistor of R_f=56kΩ or over)

2. Setting of Power Dissipation and Limiting Resistor

Since the output of this IC is driver by constant current, all the output current ($I_{O1 \sim 5}$) are dissipated in the IC. Therefore, set the limiting resistor (R_D) so that the power dissipation (P_D) may not exceed the maximum rating because of the ambient temperature.

$P_D = V_{CC} \cdot I_{CC} + (V_{CC} - R_D \cdot I - V_F) I_{O1} + \cdots\cdots + (V_{CC} - R_D \cdot I - V_F) I_{O5}$

Total output current; $I = I_{O1} + I_{O2} + I_{O3} + I_{O4} + I_{O5}$

LED forward voltage ; V_F=1.5V

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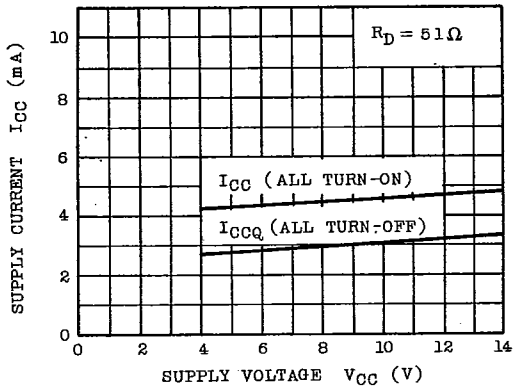
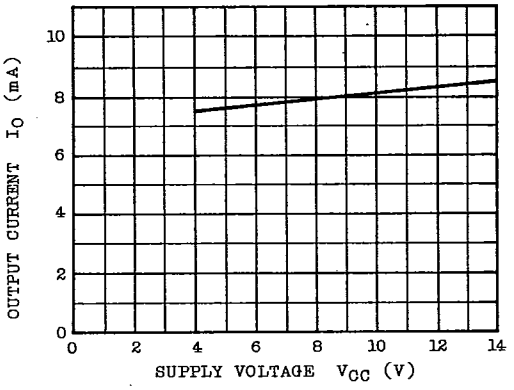
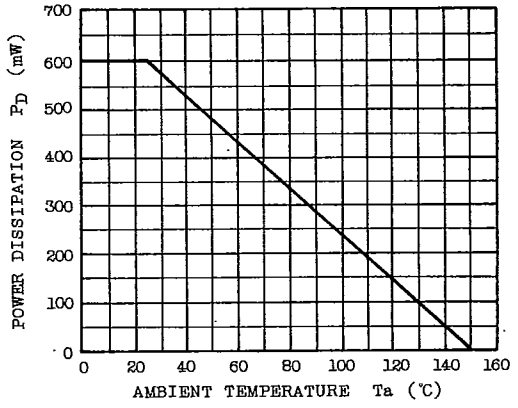
I_{CC} – V_{CC}



I_O – V_{CC}



P_D – Ta



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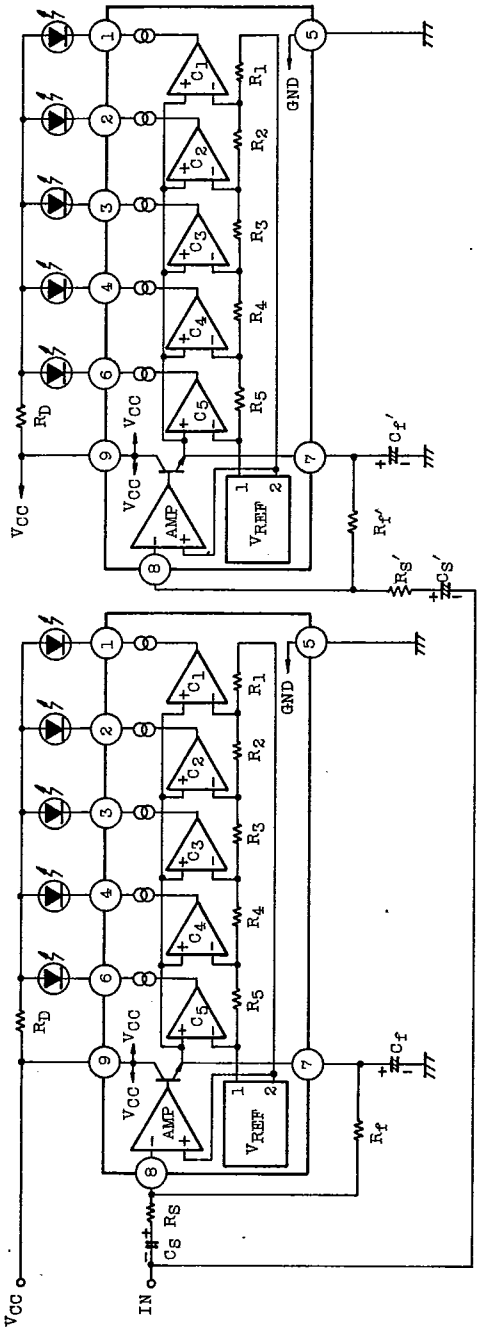
APPLICATION

RANGE EXTENSION (10 LEDs, TA7366P+TA7367P)

Intervals of Turn-ON Level (dB)	2	2	2	2	≒ 2	5	5	5	5
Turn-ON input levels (mV_{rms})	77.8	61.6	49.4	39.3	31.0	22.6	17.3	11.6	5.07	3.59



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R_S=47kΩ, R_f=56kΩ

C_S=4.7μF, C_f=0.47μF

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R_S'=20kΩ, R_f'=82kΩ

C_S'=4.7μF, C_f'=0.47μF