

AN6876

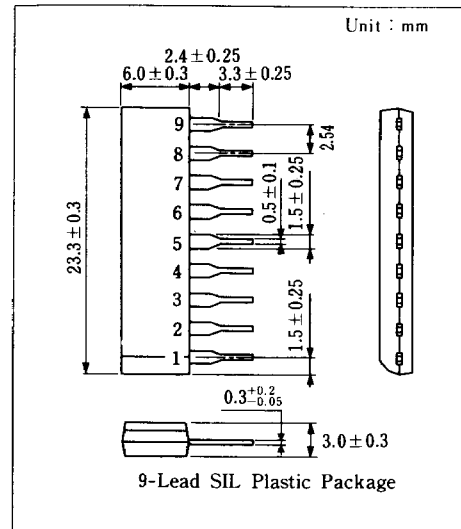
5-Dot LED Driver Circuit

■ Outline

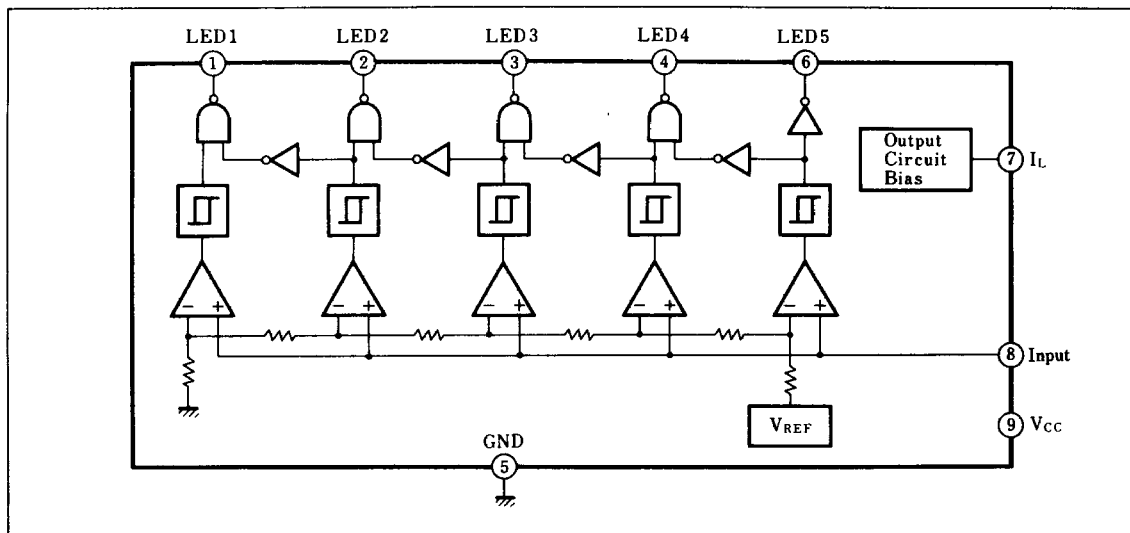
The AN6876 is an integrated circuit designed for driving 5-dot LED so that LED may light linearly for input signal. Because the adjust pin for output current is provided, the brightness of LED can be controlled.

■ Features

- 5-LED bar graph or dot display drive
- Linear response with respect to input
- Brightness externally adjustable
- High output current, suitable for green LED drive
- Lamp ON/OFF hysteresis, no flickering by noise



■ Block Diagram



■ Pin

Pin No.	Pin Name	Pin No.	Pin Name
1	LED1 Output	6	LED5 Output
2	LED2 Output	7	LED Current Set Input
3	LED3 Output	8	Non Inverting Input
4	LED4 Output	9	V _{CC}
5	GND		

■ Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Rating		Unit
		Min	Max	
Voltage	Supply Voltage	V _{CC}	-0.5 +18	V
	Circuit Voltage	V ₈₋₅	-0.5 +16	V
	Load Current Set Input Voltage	V ₇₋₅	+16	V
	Output Voltage*1	V _o	-0.5 +16	V
Current	Supply Current*1	I _{CC}	18	mA
	Load Current Set Input Current*2	I ₇	5	mA
	Output Current*1	I _o	20	mA
Power Dissipation (T _a =75°C)		P _D	550	mW
Temperature	Operating Ambient Temperature	T _{opr}	-20 ~ +75	°C
	Storage Temperature	T _{stg}	-55 ~ +150	°C

*1 Output pins ①, ②, ③, ④ and ⑤

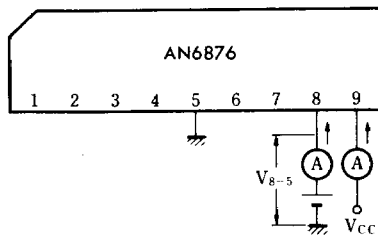
*2 I₇ which can be set I_o=20mA is assumed to be the absolute rated value.

■ Electrical Characteristics (Ta=25°C)

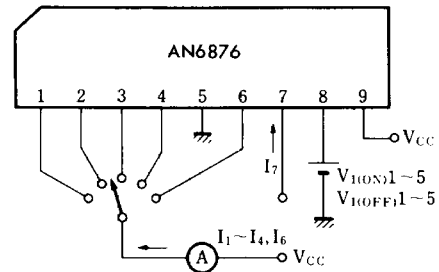
Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Input Voltage (LED ON)	LED1	V _{I(ON)1}	V _{CC} = 16V	1.63	1.83	2.00	V
	LED2	V _{I(ON)2}		2.20	2.43	2.64	V
	LED3	V _{I(ON)3}		2.80	3.03	3.27	V
	LED4	V _{I(ON)4}		3.38	3.64	3.88	V
	LED5	V _{I(ON)5}		3.92	4.14	4.37	V
Load Current	Pin6	I ₆	V _{CC} = 16V, V _o = 1.2V, I ₇ = 4.25mA	13	16		mA
	Pin1~4	I ₁ ~I ₄	V _{CC} = 16V, V _o = 2.5V, I ₇ = 4.25mA	13	16		mA
	Pin1~4,6	I ₁ ~I ₄ , I ₆	V _{CC} = 16V, V _o = 16V, I ₇ = 4.25mA		16	19	mA
Input Current		I ₈	V _{CC} = 16V, V ₈₋₅ = 8.5V			50	μA
		I ₈	V _{CC} = 16V, V ₈₋₅ = 16V			5	mA
Supply Current		I ₉	V _{CC} = 16V, V ₈₋₅ = 16V			18	mA
Output Pin Leakage Current		I ₁ ~I ₄ , I ₆	V _{CC} = 16V, V _o = 16V			15	μA

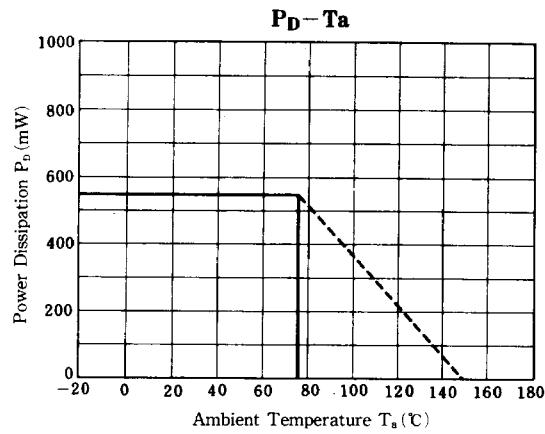
Note) Operating Supply Voltage Range : V_{CC(oper)} = 12~16V

Test Circuit 1 (I₈, I₉)



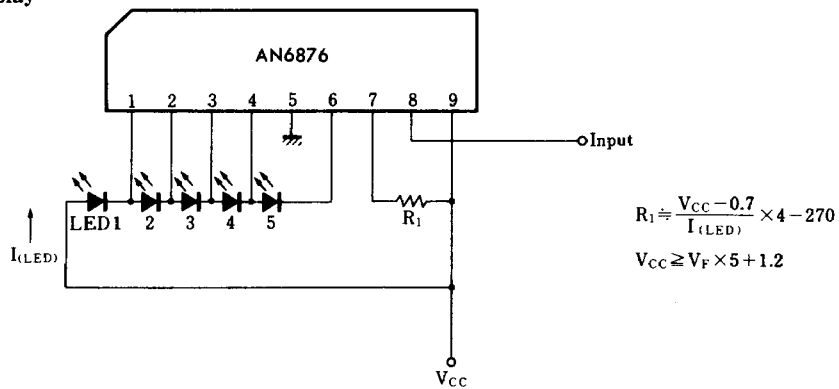
Test Circuit 2 (V_{I(ON)1-5}, V_{I(OFF)1-5}, I₆, I₁~I₄)





■ Application Circuit

1. Bar Display



Note) When the voltage of Pin ⑧ is high for 5-dot LED ON, insert the resistor into the anode of LED, to reduce P_D.

2. Dot Display

