

AN6875

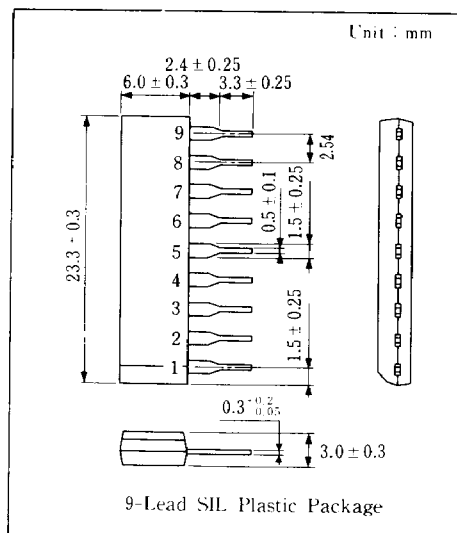
5-Dot LED Driver Circuit

Outline

The AN6875 is an integrated circuit designed for driving 5-dot LED so that LED may light logarithmically (dB) for input signal. Because the adjust pin for output current is provided, the brightness of LED can be controlled.

Features

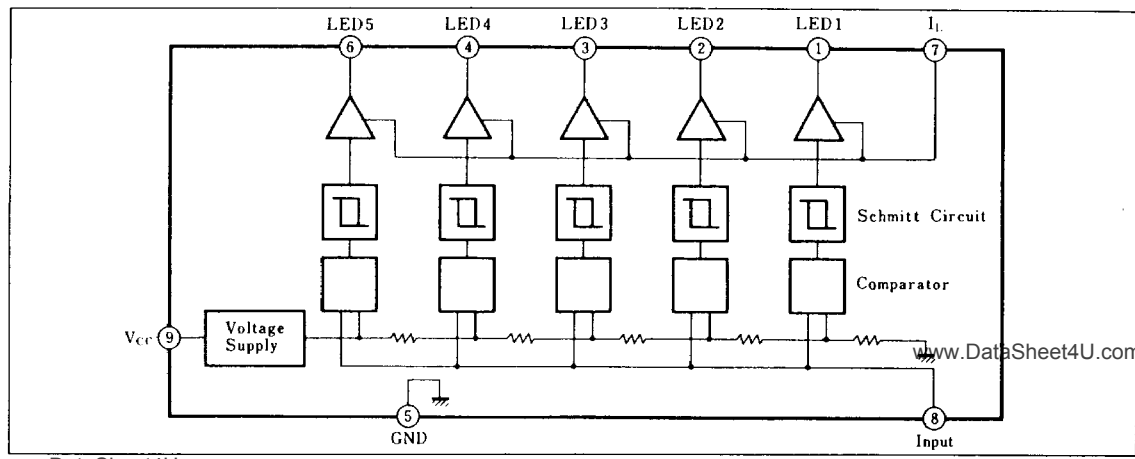
- 5-LED bar graph or dot display drive
- Logarithmic response with respect to input signal
- Brightness externally adjustable
- High output current, suitable for green LED drive
- Lamp ON/OFF hysteresis, no flickering by noise



Pin

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

Block Diagram



■ Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	Rating		Unit
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	I _{CC}	18		mA
	Load Current Set Input Current	I ₇	4.25		mA
	Output Current	I _O	20		mA
Power Dissipation		P _D	550		mW
Temperature	Operating Ambient Temperature	T _{opr}	-20 ~ +75		°C
	Storage Temperature	T _{stg}	-55 ~ +150		°C

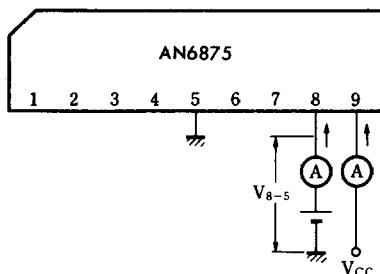
*1 Output pins ①, ②, ③, ④ and ⑥

■ Electrical Characteristics (Ta = 25°C)

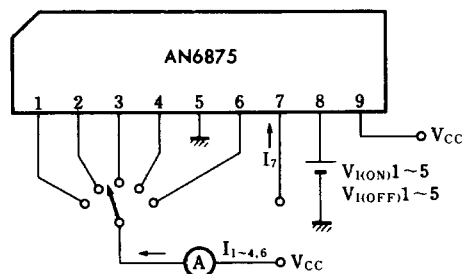
Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Input Voltage (LED ON)	LED1 V _{I(ON)1}	2	V _{CC} = 16V			1.12	V
	LED2 V _{I(ON)2}					1.86	V
	LED3 V _{I(ON)3}					3.10	V
	LED4 V _{I(ON)4}					5.18	V
	LED5 V _{I(ON)5}					8.66	V
Input Voltage (LED OFF)	LED1 V _{I(OFF)1}	2	V _{CC} = 16V	0.80			V
	LED2 V _{I(OFF)2}			1.49			V
	LED3 V _{I(OFF)3}			2.54			V
	LED4 V _{I(OFF)4}			4.28			V
	LED5 V _{I(OFF)5}			7.23			V
Load Current	Pin6 I ₆	2	V _{CC} = 16V, V _O = 1.2V, I ₇ = 4.25mA	13	16		mA
	Pin1 ~ 4 I ₁ ~ I ₄	2	V _{CC} = 16V, V _O = 2.5V, I ₇ = 4.25mA	13	16		mA
	Pin1 ~ 4, 6 I ₁ ~ I ₄ , I ₆	2	V _{CC} = 16V, V _O = 16V, I ₇ = 4.25mA		16	19	mA
Input Current	I _{I1}	1	V _{CC} = 16V, V ₈₋₅ = 8.7V			50	μA
	I _{I2}	1	V _{CC} = 16V, V ₈₋₅ = 16V			5	mA
Total Circuit Current	I _{tot}	1	V _{CC} = 16V, V ₈₋₅ = 16V			18	mA
Output Pin Leak Current	I ₁ ~ I ₄ , I ₆	2	V _{CC} = 16V, V _O = 16V			15	μA

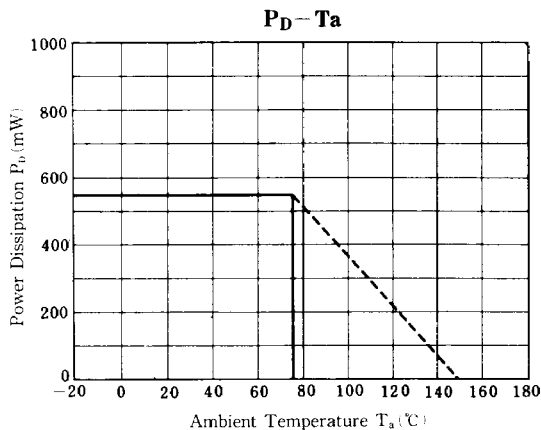
Note) Operating Supply Voltage Range : V_{CC(opp)} = 12 ~ 16V

Test Circuit 1 (I_{I1}, I_{I2}, I_{tot})



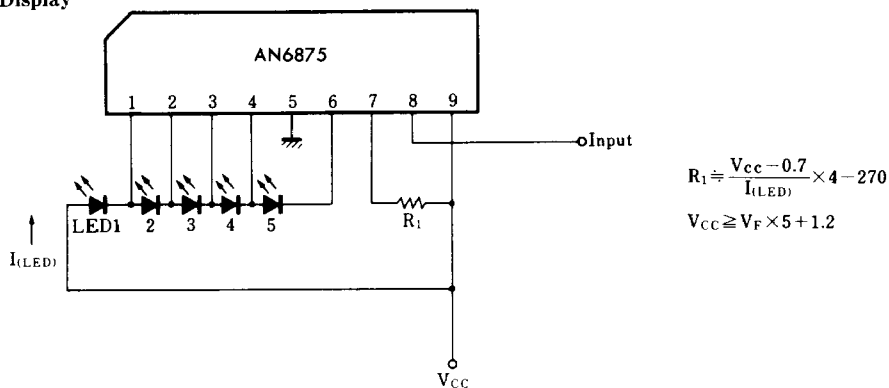
Test Circuit 2 (V_{I(ON)1-5}, V_{I(OFF)1-5}, I₁ ~ I₄, I₆)





■ Application Circuit

1) Bar Display



Note) When the voltage of Pin ⑥ is high for 5-dot LED ON, insert the resistor into the anode side of LED₁, to reduce P_D.

2) Dot Display

