

LED level meter driver, 5-point, linear scale

BA6104

The BA6104 is a monolithic driver IC for LED level meters applications.

The IC has five comparators that operate in equally-spaced steps in response to the input voltage, and drive bar-display output LEDs.

When the reference voltage generator is not set (pin 7 open), the comparators operate in 200mV (approx.) steps, so an input level of about 1V lights all of the LEDs. By connecting external resistors between pin 7 and GND. and pin 7 and V_{cc} , this level can be adjusted over the range 0.5V to 3.0V.

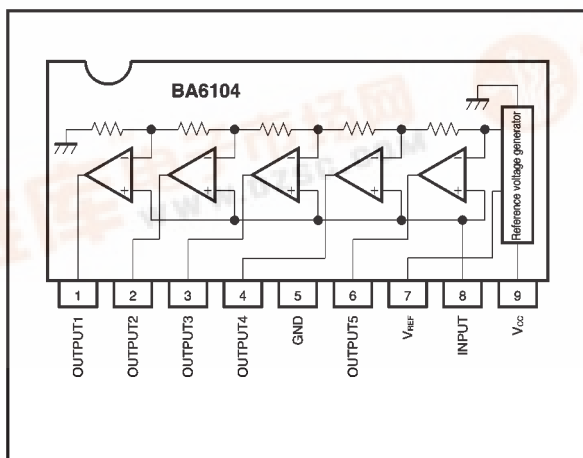
●Applications

Signal meters, tuning meters and voltage checkers.

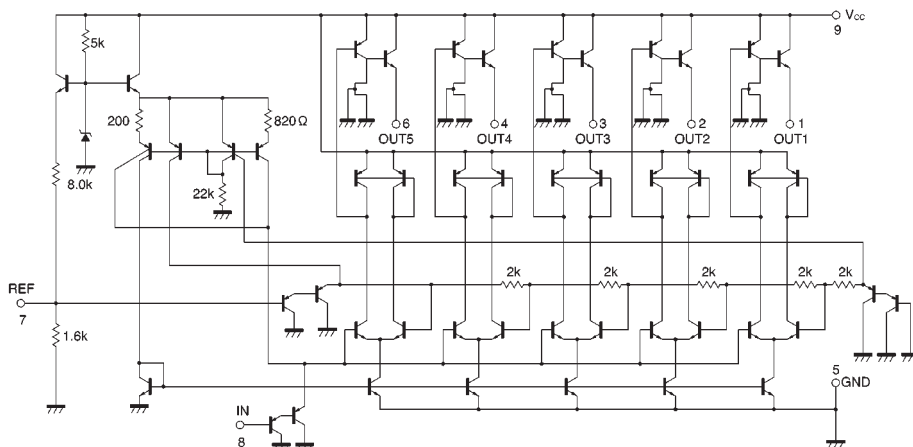
●Features

- 1) Drives an LED bar display in proportion to the input level.
- 2) The output current can be set to a maximum of 15mA using external resistors, allowing free selection of the type and color of the LEDs.
- 3) The input level at which all LEDs light can be set in the range 0.5V to 3.0V using external resistors.
- 4) High input impedance.
- 5) Easy-to-handle 9-pin SIP package.

●Block diagram



● Internal circuit configuration



● Absolute maximum ratings ($T_a = 25^\circ\text{C}$)

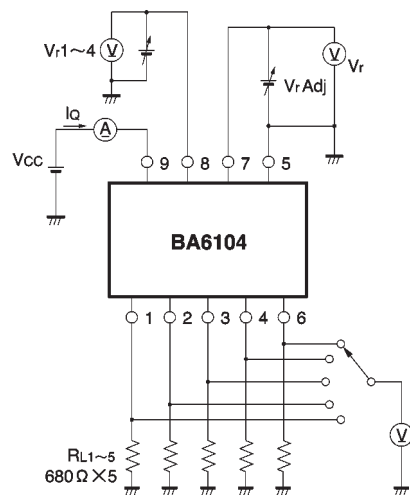
Parameter	Symbol	Limits	Unit
Power supply voltage	V_{CC}	18	V
Power dissipation	P_d	500 *	mW
Operating temperature	T_{opr}	$-20 \sim +75$	$^\circ\text{C}$
Storage temperature	T_{stg}	$-55 \sim +125$	$^\circ\text{C}$
Maximum input voltage	V_{IN}	4.5	V
Maximum LED drive current	I_{DL}	20	mA

* Reduced by 5mW for each increase in T_a of 1°C over 25°C .

● Electrical characteristics (unless otherwise noted, $T_a = 25^\circ\text{C}$ and $V_{CC} = 12\text{V}$)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Power supply voltage	V_{CC}	9	12	15	V	—
Quiescent current	I_Q	—	3	6	mA	LED current not included, $R_L = \infty$, $V_{IN} = 0\text{V}$
Comparator level 1	V_{r1}	130	200	270	mV	After setting $V_r = 1.0\text{V}$
Comparator level 2	V_{r2}	330	400	470	mV	After setting $V_r = 1.0\text{V}$
Comparator level 3	V_{r3}	530	600	670	mV	After setting $V_r = 1.0\text{V}$
Comparator level 4	V_{r4}	730	800	870	mV	After setting $V_r = 1.0\text{V}$
Setting range to light all LEDs	V_r	0.93	1.0	1.07	V	After setting $V_r = 1.0\text{V}$ Decision at $V_{TL} > 8.0\text{V}$
LED drive current	I_{DL}	—	—	15	mA	—

●Measurement circuit



●External dimensions (Units: mm)

