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.

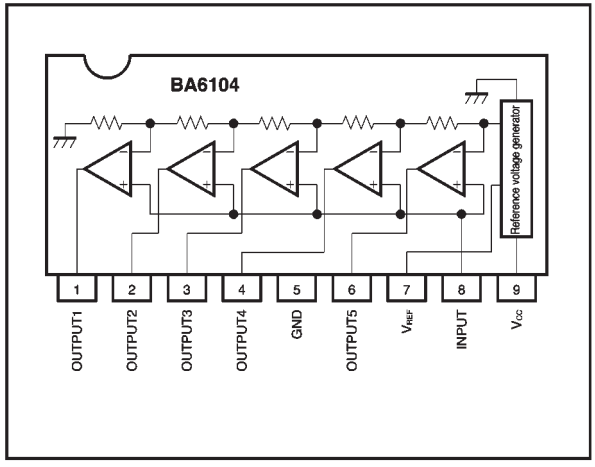
●Applications

Signal meters, tuning meters and voltage checkers.

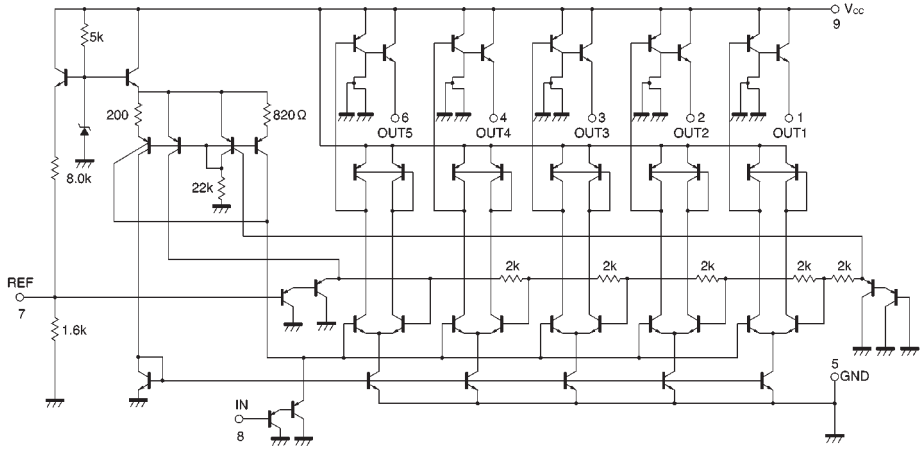
●Features

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 (Ta = 25°C)

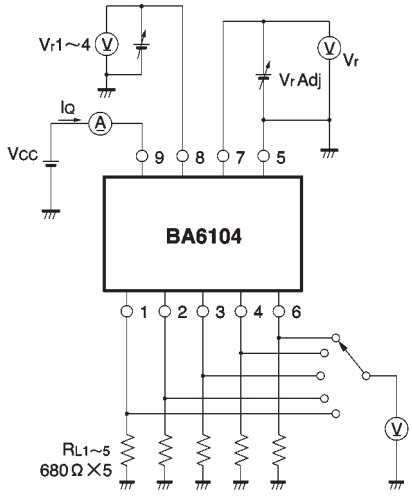
Parameter	Symbol	Limits	Unit
Power supply voltage	V_{CC}	18	V
Power dissipation	Pd	500 *	mW
Operating temperature	Topr	−20～+75	℃
Storage temperature	Tstg	−55～+125	℃
Maximum input voltage	V_{IN}	4.5	V
Maximum LED drive current	I_{DL}	20	mA

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

●Electrical characteristics (unless otherwise noted, Ta = 25°C and V_{CC} = 12V)

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} = 0V
Comparator level 1	V_{r1}	130	200	270	mV	After setting V_r = 1.0V
Comparator level 2	V_{r2}	330	400	470	mV	After setting V_r = 1.0V
Comparator level 3	V_{r3}	530	600	670	mV	After setting V_r = 1.0V
Comparator level 4	V_{r4}	730	800	870	mV	After setting V_r = 1.0V
Setting range to light all LEDs	V_r	0.93	1.0	1.07	V	After setting V_r = 1.0V Decision at V_{TL} > 8.0V
LED drive current	I_{DL}	—	—	15	mA	—

●Measurement circuit



●External dimensions (Units: mm)