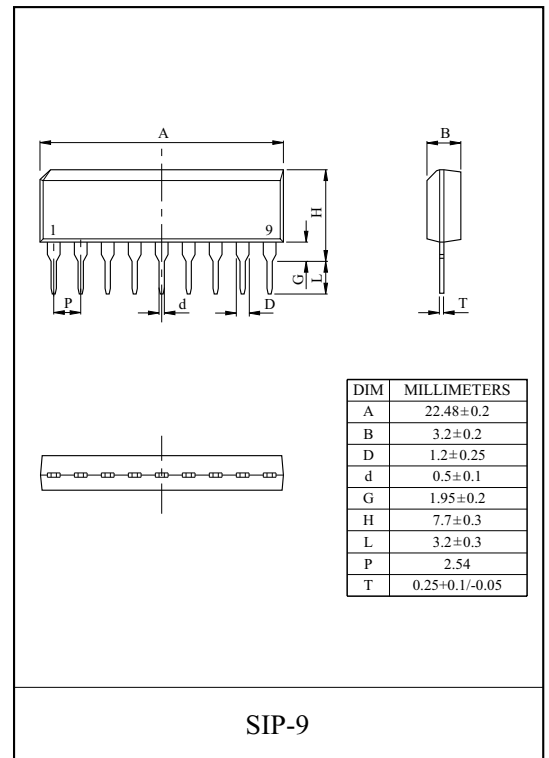


5 DOT LED LEVEL METER

The KIA6967S is designed for 5 LED level meter driver. Which is consist of one input amplifier and five comparators for LED level indication.

FEATURES

- Low Spurious Noise Operation.
- Constant Driving Current : $I_o=8\text{mA(Typ.)}$
- Indication Level Steps : 2dB, 2dB, 2dB, 2dB
- Wide Operating Supply Voltage Range
: $V_{cc}=4 \sim 12\text{V}$
- Variable Input Amplifier Gain : $G_v=0 \sim 20\text{dB}$



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 | T_{opr} | -25~75 | °C |
| Storage Temperature | T_{stg} | -55~150 | °C |

Note 1) For Pin①~④ and ⑥

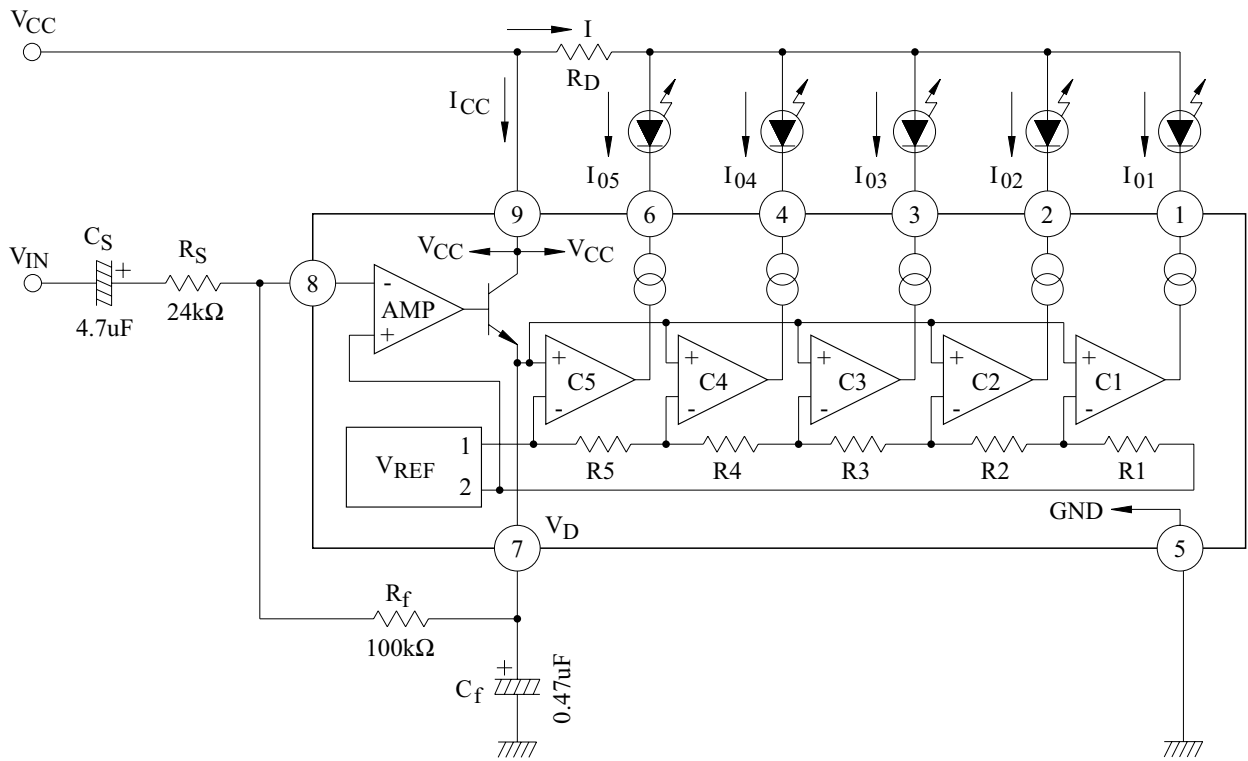
Note 2) Derated above Ta=25 °C in the proportion of 4.8mW/°C for KIA6967S.

KIA6967S

ELECTRICAL CHARACTERISTICS (Unless otherwise specified, $V_{CC}=9V$, $f=1kHz$, $T_a=25^\circ C$)

| CHARACTERISTICS | SYMBOL | TEST CIRCUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|-------------------------|----------------|--------------|---|------|------|------|------------|
| Quiescent Current | I_{CCQ} | - | $V_{IN}=0V$ | - | 3 | 5 | mA |
| Output Current | I_o (1~5) | - | | 5 | 8 | 10 | mA |
| Output Leak Current | I_o (OFF) | - | | - | - | 50 | μA |
| Sensitivity | V_{LD5} (ON) | - | $R_s=24k\ \Omega$, $R_f=100k\ \Omega$ | - | 230 | - | mV_{rms} |
| LED Turn-on Input Level | LD5 | - | $R_s=24k\ \Omega$, $R_f=100k\ \Omega$ $I_o=1mA$ | -1 | 0 | 1 | dB |
| | LD4 | - | | -3 | -2 | -1 | |
| | LD3 | - | | -5 | -4 | -3 | |
| | LD2 | - | | -7 | -6 | -5 | |
| | LD1 | - | | -9 | -8 | -7 | |

TEST CIRCUIT / BLOCK DIAGRAM

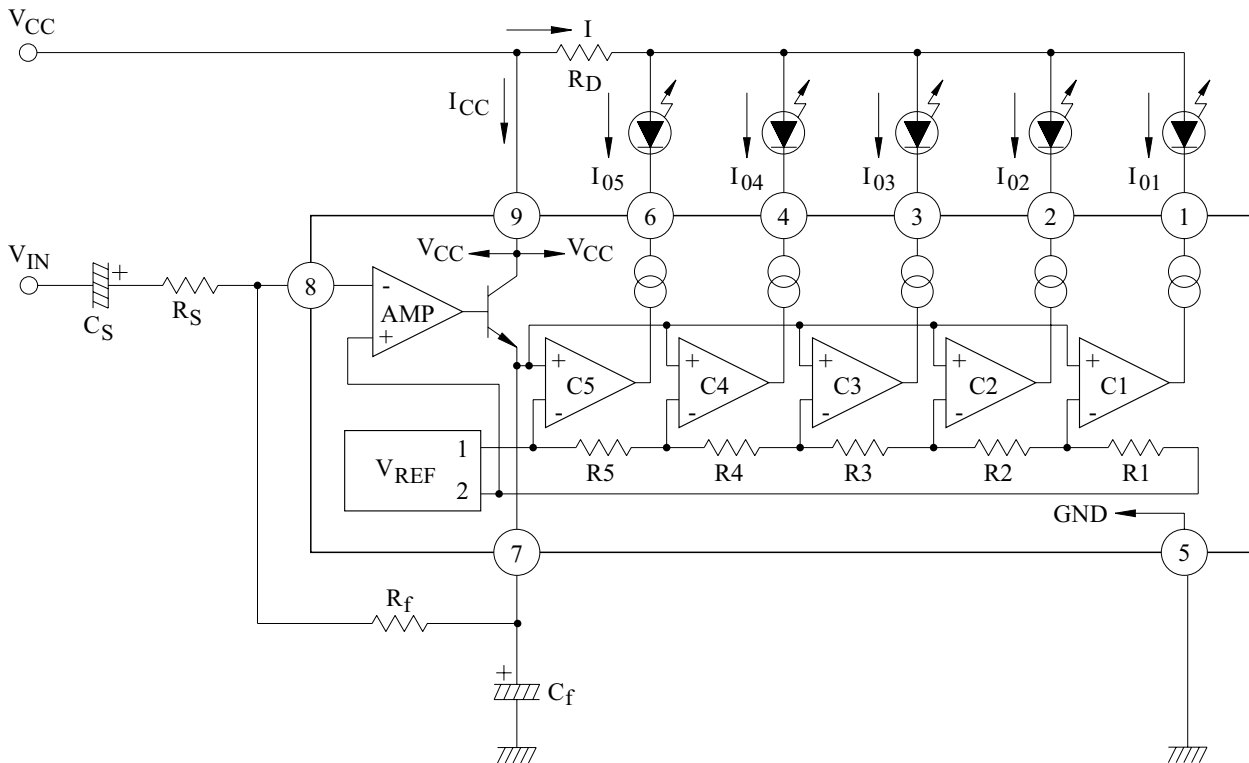


INTERNAL RESISTANCE VALUE

| | KIA6967S | UNIT |
|----|----------|------------|
| R1 | 3.66 | k Ω |
| R2 | 0.948 | k Ω |
| R3 | 1.19 | k Ω |
| R4 | 1.5 | k Ω |
| R5 | 1.89 | k Ω |

KIA6967S

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.

$$G_V = 20 \log \frac{R_f}{R_S} \quad (\text{use in the range of } G_V = 0 \sim 20 \text{ dB})$$

When $G_V = 0 \text{ dB}$ ($R_S = R_f = 100 \text{ k } \Omega$), the turn-on level at fifth LED is $958.3 \text{ mV}_{\text{rms}}$ (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 .

$$\frac{R_f}{R_S} = \frac{958.3 \text{ mV}_{\text{rms}}}{V_{\text{IN}}} \quad (\text{Use the resistor of } R_f = 56 \text{ k } \Omega \text{ or over})$$

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.

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

$$\text{Total output current : } I = I_{O1} + I_{O2} + I_{O3} + I_{O4} + I_{O5}$$

$$\text{LED forward voltage : } V_F = 1.5 \text{ V}$$