

5 DOT LED LEVEL METER

The KIA6966S 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 : 5dB, 5dB, 3dB, 3dB
- 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)

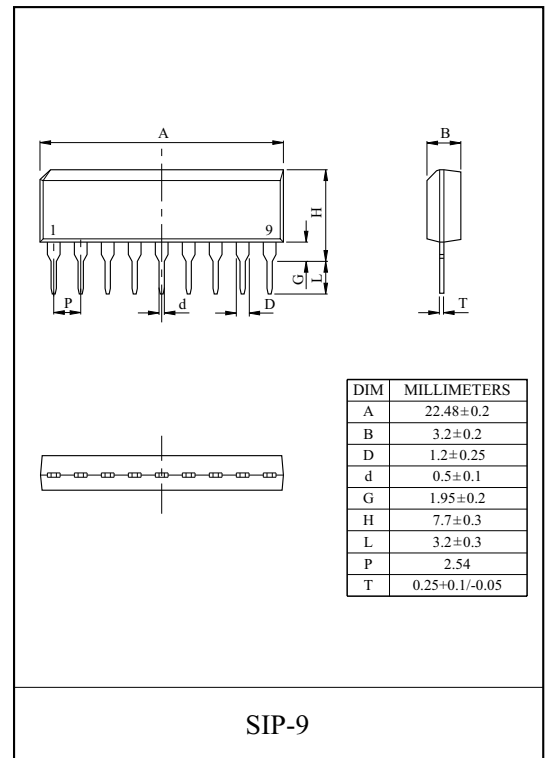
CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	14	V
LED Driving Terminal Voltage (Note 1)	V_L	15	V
Power Dissipation (Note 2)	P_D	600	mW
Operating Temperature	T_{opr}	-25 ~ 75	°C
Storage Temperature	T_{stg}	-55 ~ 150	°C

Note 1) For Pin ① ~ ④ and ⑥

Note 2) Derated above Ta=25 °C in the proportion of 4.8mW/°C for KIA6966S.

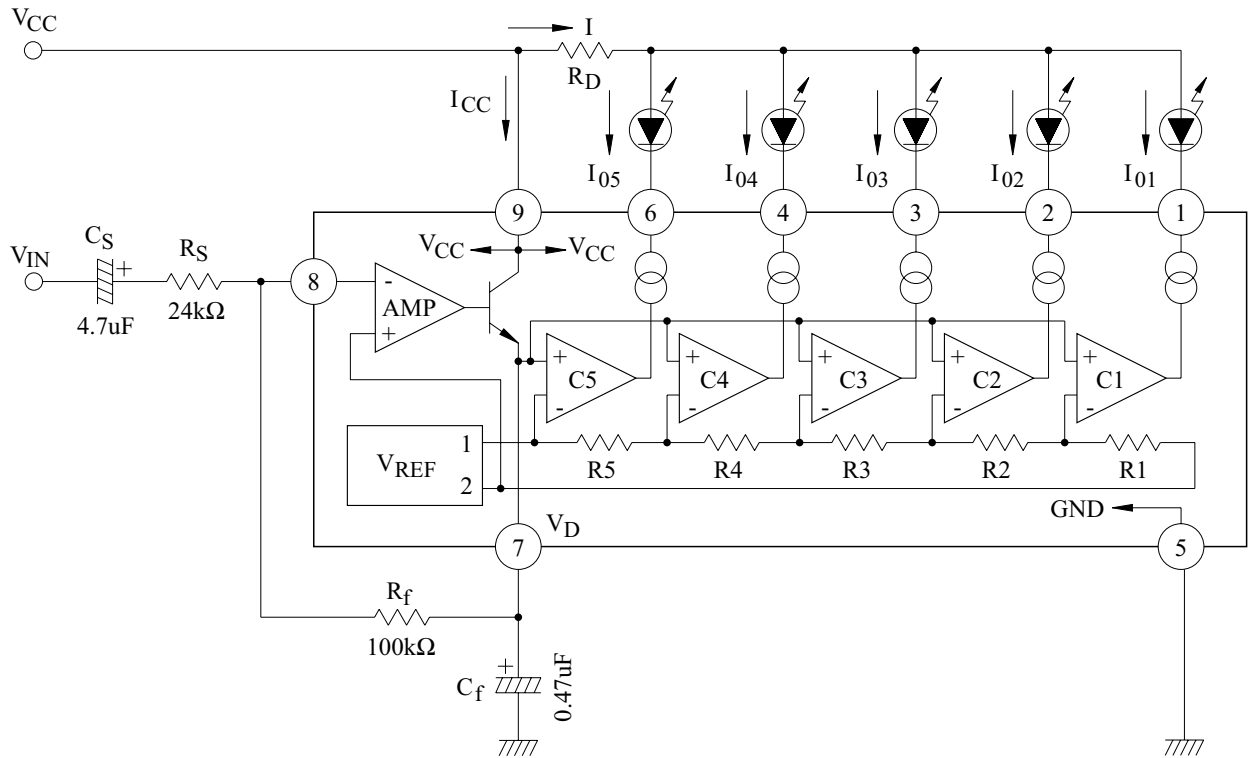
ELECTRICAL CHARACTERISTICS (Unless otherwise specified, $V_{CC}=9\text{V}$, $f=1\text{kHz}$, $T_a=25\text{°C}$)

CHARACTERISTICS	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I_{CCQ}	-	$V_{IN}=0\text{V}$	-	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)	-	$R_s=24\text{k}\Omega$, $R_f=100\text{k}\Omega$	-	230	-	mV_{rms}
LED Turn-on Input Level	LD5	-	$R_s=24\text{k}\Omega$, $R_f=100\text{k}\Omega$ $I_o=1\text{mA}$	-1	0	1	dB
	LD4	-		-4	-3	-2	
	LD3	-		-7.5	-6	-4.5	
	LD2	-		-13	-11	-9	
	LD1	-		-19	-16	-13	



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TEST CIRCUIT / BLOCK DIAGRAM

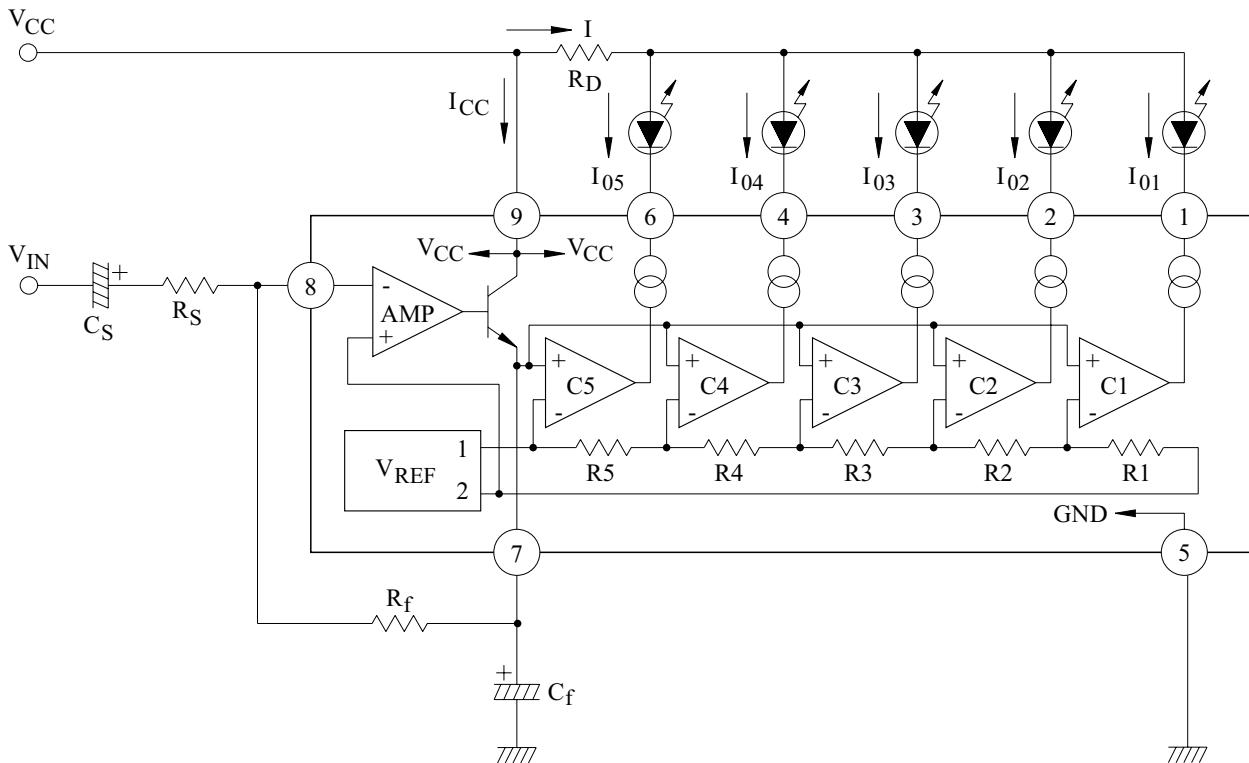


INTERNAL RESISTANCE VALUE

	KIA6966S	UNIT
R1	1.36	k Ω
R2	1.08	k Ω
R3	1.89	k Ω
R4	1.78	k Ω
R5	2.50	k Ω

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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 ($I_{O1} \sim I_{O5}$) 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.

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

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

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