

### 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

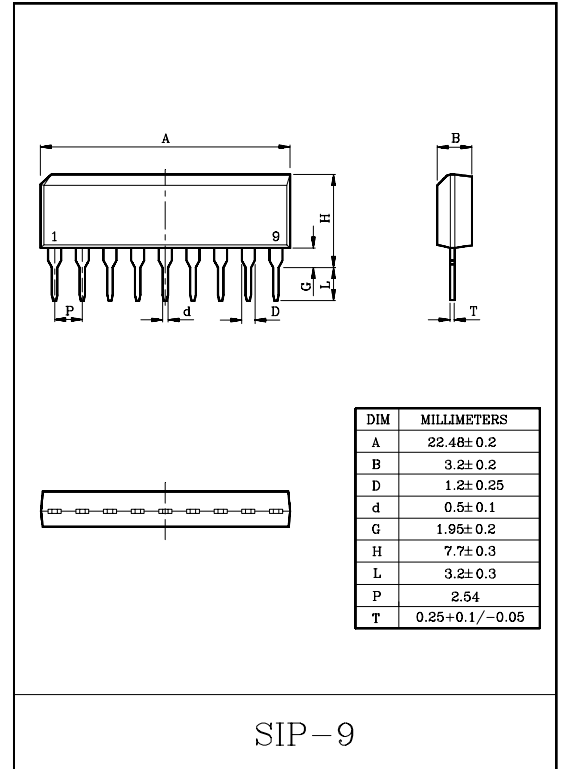
- Low Spurious Noise Operation.
- Constant Driving Current :  $I_o=8mA(Typ.)$
- Indication Level Steps : 5dB, 5dB, 3dB, 3dB
- Wide Operating Supply Voltage Range :  $V_{cc}=4\sim 12V$
- Variable Input Amplifier Gain :  $G_v=0\sim 20dB$

#### MAXIMUM RATINGS ( $T_a=25^\circ C$ )

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	$^\circ C$
Storage Temperature	$T_{stg}$	-55~150	$^\circ C$

Note 1 : For Pin①~④ and ⑥

Note 2 : Derated above  $T_a=25^\circ C$  in the proportion of  $4.8mW/^\circ C$  for KIA6966S.



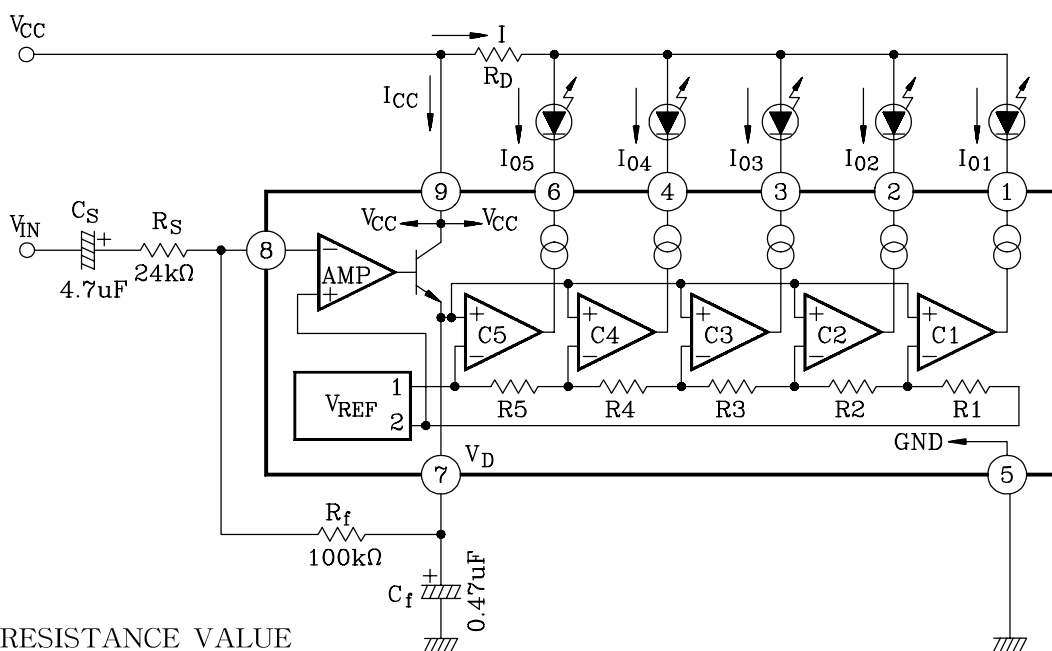
# KIA6966S

## 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	$I_o(1\sim5)$	-		5	8	10	mA
Output Leak Current	$I_o(OFF)$	-		-	-	50	$\mu A$
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	-		-4	-3	-2	
	LD3	-		-7.5	-6	-4.5	
	LD2	-		-13	-11	-9	
	LD1	-		-19	-16	-13	

## TEST CIRCUIT / BLOCK DIAGRAM

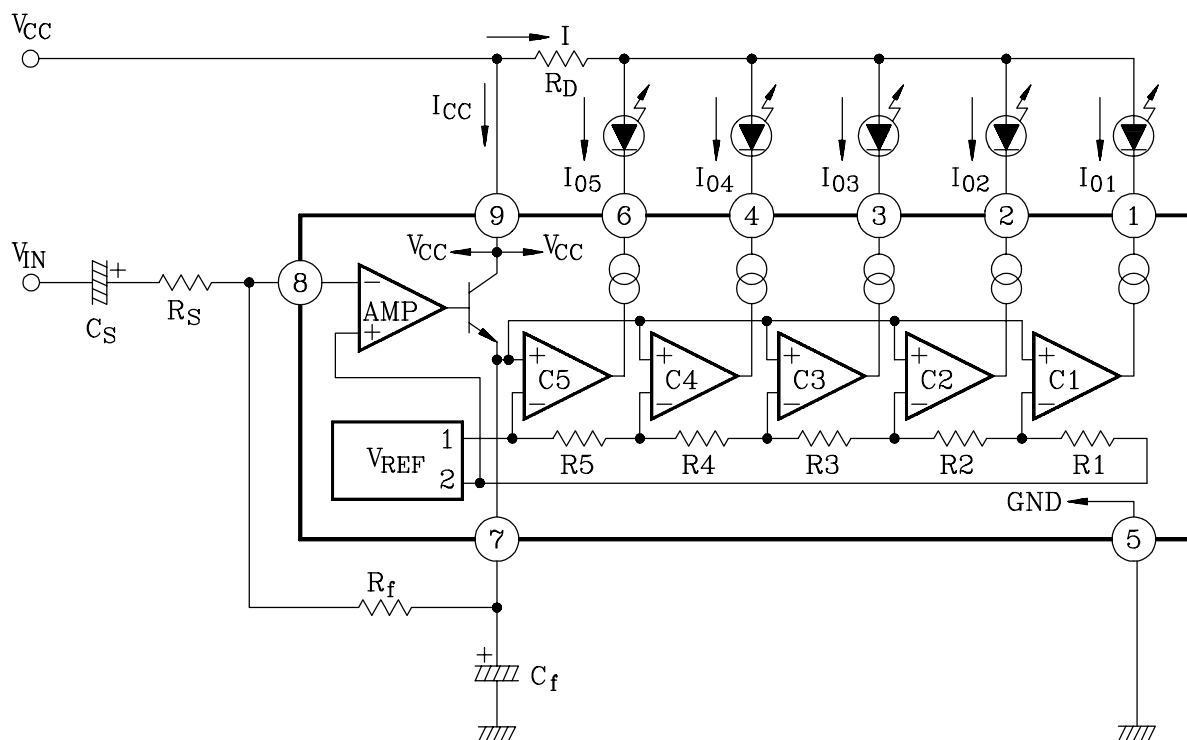


## INTERNAL RESISTANCE VALUE

	KIA6966S	UNIT
R1	1.36	$k\Omega$
R2	1.08	$k\Omega$
R3	1.89	$k\Omega$
R4	1.78	$k\Omega$
R5	2.50	$k\Omega$

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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 ( $V_{\text{IN}}$ ), 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 ( $I_{01} \sim I_{05}$ ) 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.

$$P_D = V_{CC} \cdot I_{CC} + (V_{CC} - R_D \cdot I - V_F) I_{01} + \dots + (V_{CC} - R_D \cdot I - V_F) I_{05}$$

$$\text{Total output current : } I = I_{01} + I_{02} + I_{03} + I_{04} + I_{05}$$

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