

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

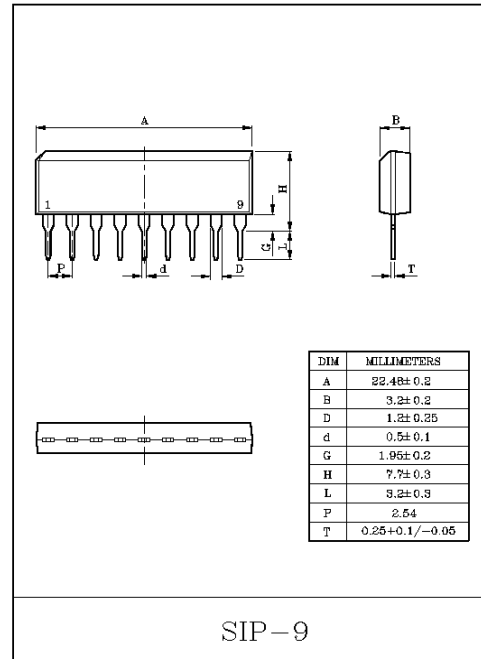
- Low Spurious Noise Operation.
- Constant Driving Current : $I_o=8mA(Typ.)$
- Indication Level Steps : 5dB, 5dB, 3dB, 3dB
- Wide Operating Supply Voltage Range
: $V_{cc}=4\sim 12V$
- Variable Input Amplifier Gain : $G_v=0\sim 20dB$

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 Pin ①~④ and ⑥

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



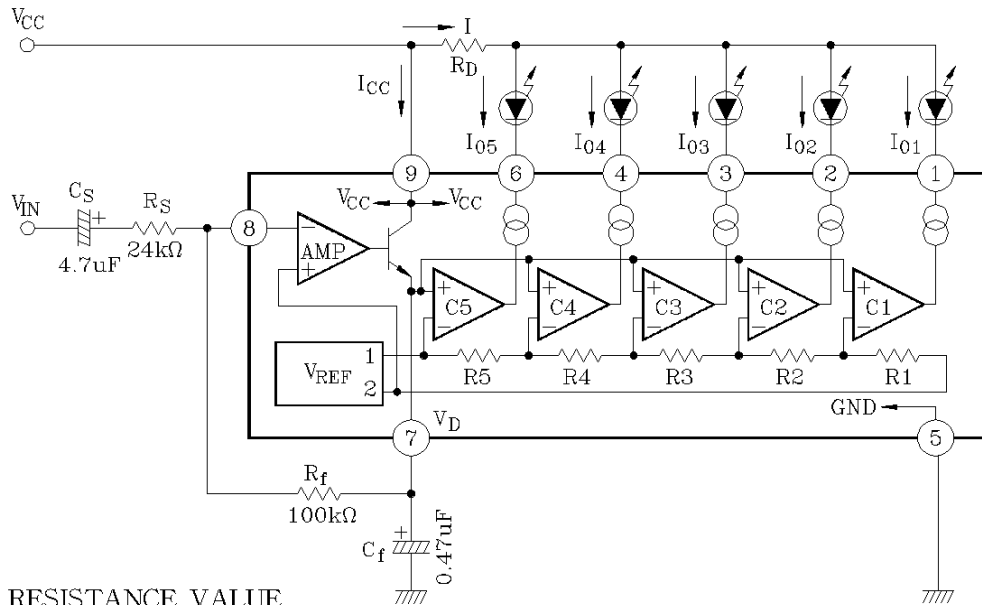
KIA6966S

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	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	-		-4	-3	-2	
	LD3	-		-7.5	-6	-4.5	
	LD2	-		-13	-11	-9	
	LD1	-		-19	-16	-13	

TEST CIRCUIT / BLOCK DIAGRAM

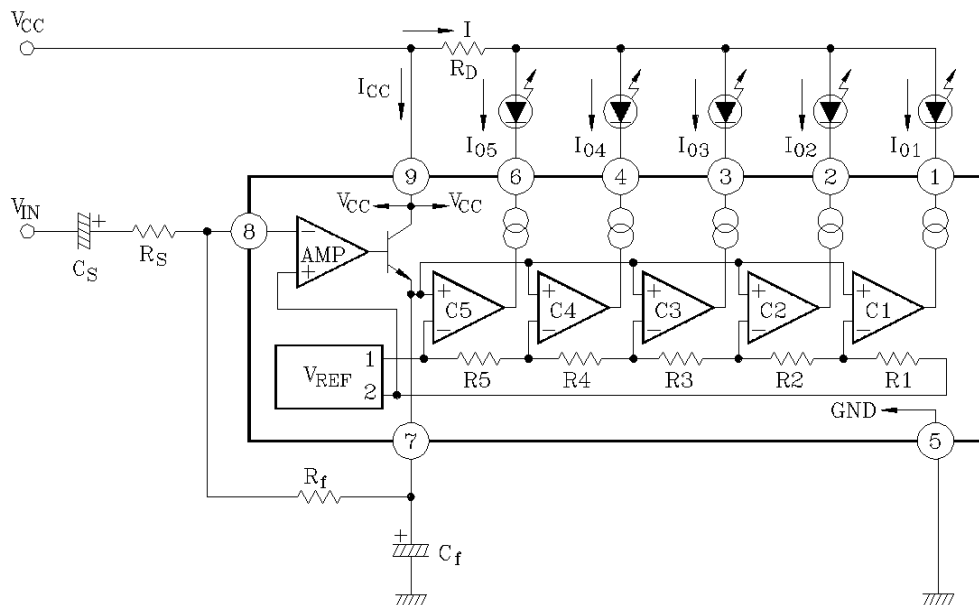


INTERNAL RESISTANCE VALUE

	KIA6966S	UNIT
R1	1.36	k 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.

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

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

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