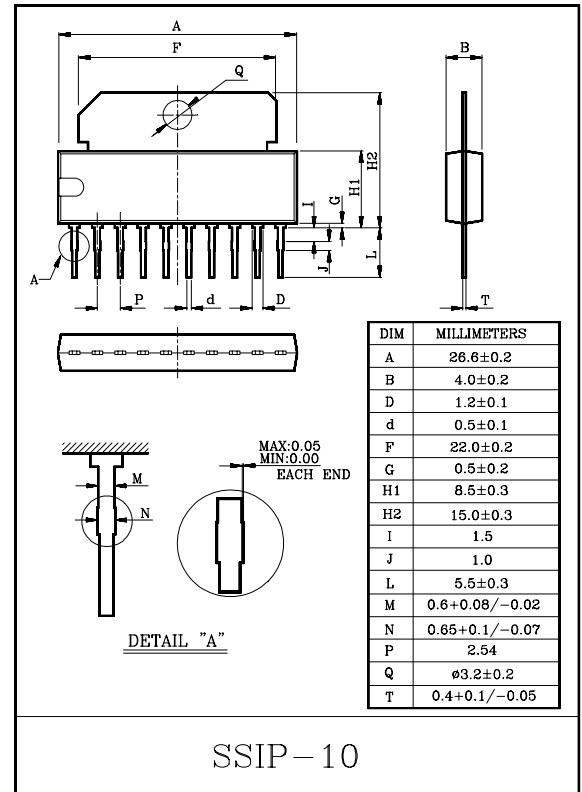


### DUAL AUDIO POWER AMPLIFIER

The KIA6240K is dual power amplifier for consumer application. This IC provides an output power of 6 watts per channel (at  $V_{CC}=22V$ ,  $f=1kHz$ ,  $R_L=8\Omega$ ,  $THD=0.5\%$ ) It is suitable for power amplifier of TV and home stereo.

### FEATURES

- High output power :  $P_{OUT}=6W(Typ.)$   
( $V_{CC}=22V$ ,  $R_L=8\Omega$ ,  $f=1kHz$ ,  $THD=0.5\%$ )
- High current capability.
- AC short circuit protection.
- Thermal overload protection.
- Operation supply voltage range :  $V_{CC(opr)}=8\sim 26V$ .

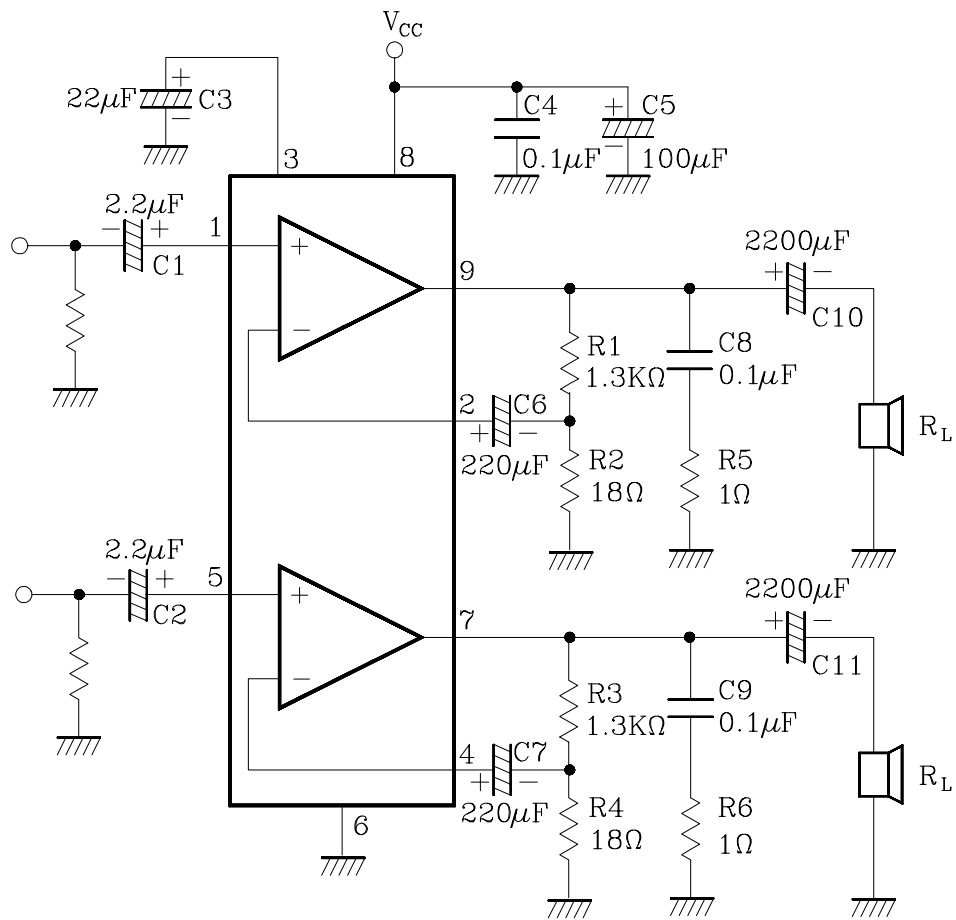


### MAXIMUM RATINGS ( $T_a=25^\circ C$ )

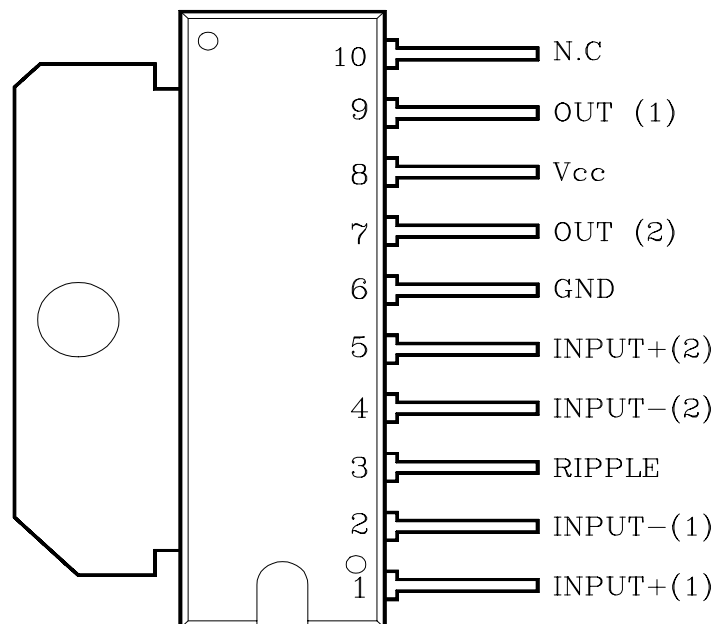
| CHARACTERISTIC                                   | SYMBOL        | RATING  | UNIT       |
|--------------------------------------------------|---------------|---------|------------|
| Supply Voltage                                   | $V_{CC}$      | 28      | V          |
| Output Current<br>(repetitive $f \geq 20Hz$ )    | $I_{O(peak)}$ | 3       | A          |
| Output Current<br>(non repetitive $t=100\mu S$ ) | $I_{O(peak)}$ | 3.5     | A          |
| Power Dissipation ( $T_{case}=70^\circ C$ )      | $P_D$         | 10      | W          |
| Operating Temperature                            | $T_{opr}$     | -20~75  | $^\circ C$ |
| Storage Temperature                              | $T_{stg}$     | -55~150 | $^\circ C$ |

# KIA6240K

## BLOCK DIAGRAM / APPLICATION CIRCUIT



## PIN CONFIGURATION (TOP VIEW)



# KIA6240K

## ELECTRICAL CHARACTERISTICS

(Unless otherwise specified,  $V_{CC}=18V$ ,  $f=1kHz$ ,  $R_g=600\Omega$ ,  $R_L=8\Omega$ ,  $T_a=25^\circ C$ )

| CHARACTERISTIC                         | SYMBOL        | TEST CIRCUIT | TEST CONDITION                                                      |           | MIN. | TYP. | MAX. | UNIT          |
|----------------------------------------|---------------|--------------|---------------------------------------------------------------------|-----------|------|------|------|---------------|
| Quiescent Current                      | $I_{CCQ}$     | -            | $V_{IN}=0$                                                          |           | -    | 50   | 90   | mA            |
| Quiescent Output Voltage               | $V_O$         | -            |                                                                     |           | -    | 8.5  | -    | V             |
| Output Power                           | $P_{OUT} (1)$ | -            | $f=100Hz \sim 6kHz$ , $V_{CC}=18V$ ,<br>$R_L=4\Omega$ , $THD=0.5\%$ |           | 5.0  | 6    | -    | W             |
|                                        | $P_{OUT} (2)$ | -            | $f=100Hz \sim 6kHz$ , $V_{CC}=22V$ ,<br>$R_L=8\Omega$ , $THD=0.5\%$ |           | 5.0  | 6    | -    |               |
| Total Harmonic Distortion              | THD(1)        | -            | $V_{CC}=18V$ , $R_L=4\Omega$<br>$P_{OUT}=100mW$ to $3W$             |           | -    | 0.1  | -    | %             |
|                                        | THD(2)        | -            | $V_{CC}=22V$ , $R_L=8\Omega$<br>$P_{OUT}=100mW$ to $3W$             |           | -    | 0.05 | -    |               |
| Cross Talk                             | C.T           | -            | $R_g=10k\Omega$ ,<br>$V_{OUT}=0.775V_{rms}$                         | $f=1kHz$  | 50   | 60   | -    | dB            |
|                                        |               |              |                                                                     | $f=10kHz$ | 40   | 50   | -    |               |
| Input Saturation Voltage               | $V_{IN}$      | -            |                                                                     |           | 300  | -    | -    | $mV_{rms}$    |
| Input Resistance                       | $R_{IN}$      | -            |                                                                     |           | 70   | 200  | -    | $k\Omega$     |
| Voltage Gain                           | $G_V$         | -            | $V_{OUT}=0.775V_{rms}$                                              |           | 35.5 | 36   | 36.5 | dB            |
| Input Noise voltage                    | $V_{NI}$      | -            | $R_g=10k\Omega$ , $BW=20Hz \sim 20kHz$                              |           | -    | 2.5  | 8.0  | $\mu V_{rms}$ |
| Ripple Rejection Ratio                 | R.R           | -            | $R_g=10k\Omega$ , $V_{ripple}=0.5V$ ,<br>$f=100Hz$                  |           | -    | -55  | -    | dB            |
| Thermal Shut-down Junction Temperature | $T_j$         | -            |                                                                     |           | -    | 145  | -    | $^\circ C$    |

# KIA6240K

## EXTERNAL PARTS TABLE

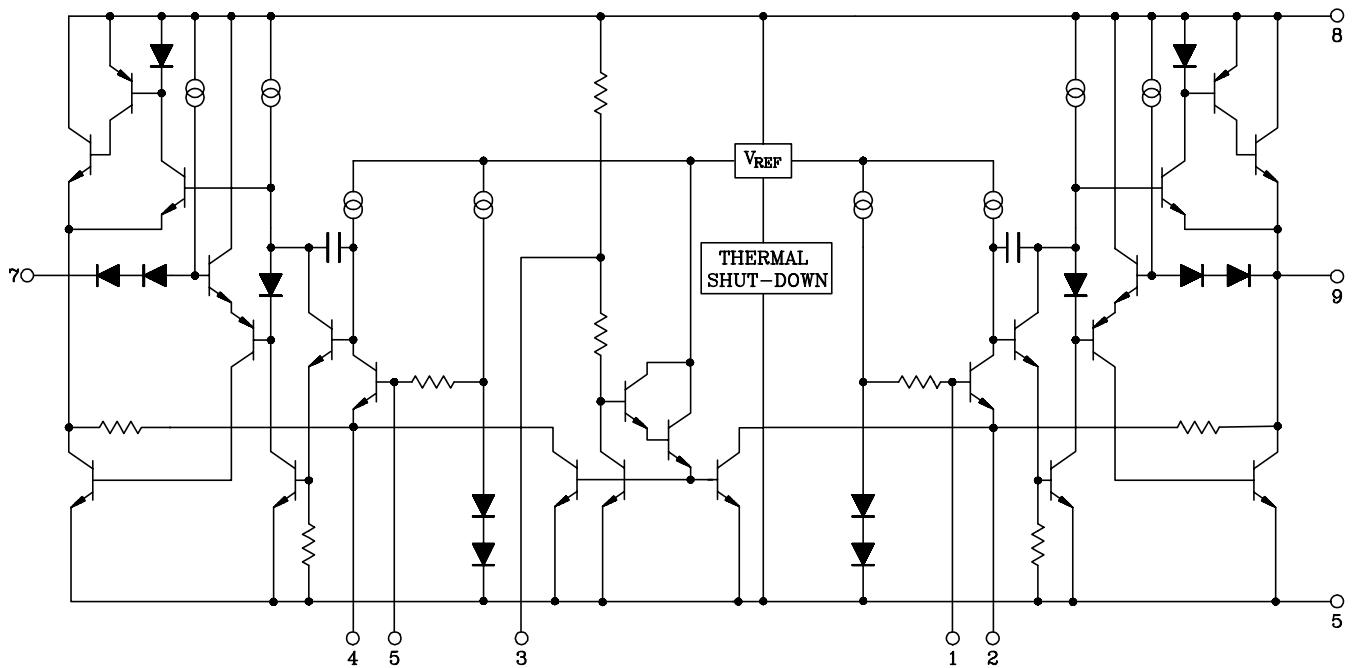
The recommended values of the components are those shown on application circuit.  
Different values can be used; the following table can help the designer.

| Parts Number                    | Typical       | Purpose                       | Influence                                                         |                                                              | Note |
|---------------------------------|---------------|-------------------------------|-------------------------------------------------------------------|--------------------------------------------------------------|------|
|                                 |               |                               | Smaller Than Typ.                                                 | Larger Than Typ.                                             |      |
| R <sub>1</sub> , R <sub>3</sub> | 1.3k $\Omega$ | Close Loop Gain Setting *     | Decrease of Gain                                                  | Increase of Gain                                             |      |
| R <sub>2</sub> , R <sub>4</sub> | 18 $\Omega$   |                               | Increase of Gain                                                  | Decrease of Gain                                             |      |
| R <sub>5</sub> , R <sub>6</sub> | 1 $\Omega$    | Frequency Stability           |                                                                   | Danger of Oscillation at High Frequency with inductive load  |      |
| C <sub>1</sub> , C <sub>2</sub> | 2.2 $\mu$ F   | Input D.C Decoupling          | High Turn-on Pop<br>Higher Low Frequency Cutoff Increase of Noise | High Turn-on Delay                                           |      |
| C <sub>3</sub>                  | 22 $\mu$ F    | Ripple Rejection              | Degradation of Ripple Rejection                                   | Better Ripple Rejection Ratio increase of the Switch-on time |      |
| C <sub>6</sub> , C <sub>7</sub> | 220 $\mu$ F   | Feedback Input D.C Decoupling |                                                                   |                                                              |      |
| C <sub>8</sub> , C <sub>9</sub> | 0.1 $\mu$ F   | Frequency Stability           | Danger of Oscillation                                             |                                                              |      |

\* : The closed loop gain must be higher than 26dB.

# KIA6240K

## SCHEMATIC DIAGRAM



## APPLICATION INFORMATION

12W Bridge Amplifier (THD=0.5%,  $G_V=40dB$ )

