

### VOLTAGE DETECTOR

This IC series is usable for the CPU system of all types and wired logic system as it has the function of detecting the power supply voltage at the time of initial resetting after switching the power supply on and after instantaneous break in power supply voltage there-by accurately resetting the system this particular series has especially been designed as the high resetting output type.

### FEATURES

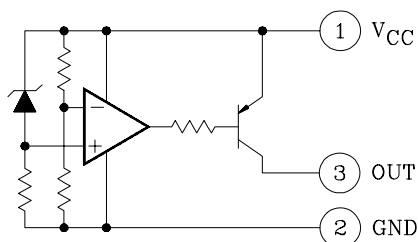
- Current Consumption is Low.  $I_{CCL}=30\mu A$  Typ.  
 $I_{CCH}=300\mu A$  Typ.
- Resetting Output Minimum Guarantee Voltage is Low 0.8V Typ.
- Hysteresis Voltage is Provided 50mV Typ.
- Reset Signal Generation Starting Voltages:  

|            |           |            |           |
|------------|-----------|------------|-----------|
| KIA7419P/F | 1.9V Typ. | KIA7433P/F | 3.3V Typ. |
| KIA7421P/F | 2.1V Typ. | KIA7434P/F | 3.4V Typ. |
| KIA7423P/F | 2.3V Typ. | KIA7435P/F | 3.5V Typ. |
| KIA7425P/F | 2.5V Typ. | KIA7436P/F | 3.6V Typ. |
| KIA7427P/F | 2.7V Typ. | KIA7439P/F | 3.9V Typ. |
| KIA7429P/F | 2.9V Typ. | KIA7442P/F | 4.2V Typ. |
| KIA7431P/F | 3.1V Typ. | KIA7445P/F | 4.5V Typ. |
| KIA7432P/F | 3.2V Typ. |            |           |
- Taping Type is also Available.

### APPLICATIONS

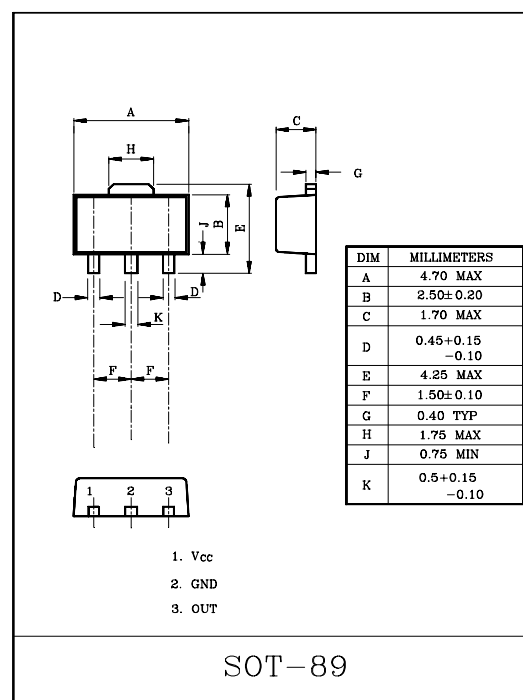
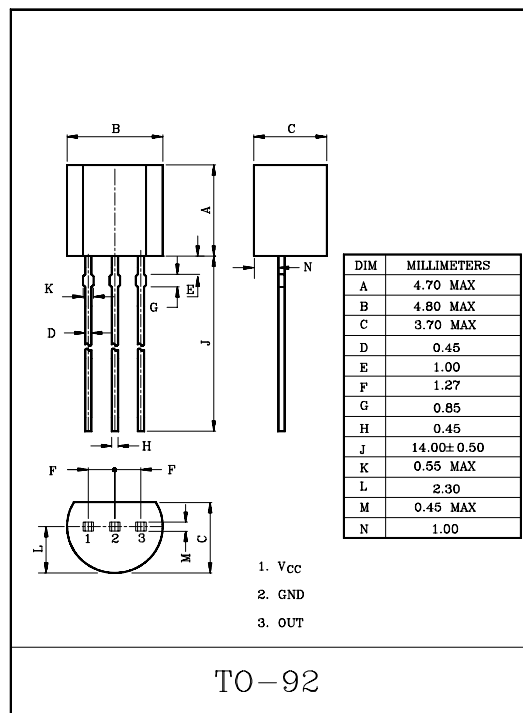
- As Control Circuit of Battery-Backed Memory Units.
- As Measure Against Erroneous Operations at Power Supply ON-OFF Time.
- As Measure Against System Runaway at Instantaneous Break of Power Supply etc.
- As Resetting Function for the CPU-Mounted Equipment, such as Personal Computers, Printers, VTRs and so forth.

### EQUIVALENT CIRCUIT



### MAXIMUM RATINGS (Ta=25°C)

| CHARACTERISTIC                            |              | SYMBOL    | RATING      | UNIT |
|---|--------------|-----------|-------------|------|
| Supply Voltage                            |              | $V_{CC}$  | -0.3 ~ +7.5 | V    |
| Power Dissipation<br>(Package Limitation) | KIA7419P~45P | $P_D$     | 400         | mW   |
|   | KIA7419P~45F |           | 500         |      |
| Operating Temperature                     |              | $T_{opr}$ | -30 ~ +75   | °C   |
| Storage Temperature                       |              | $T_{stg}$ | -55 ~ 150   | °C   |



### MARKING

| Type No. | Marking | Type No. | Marking |
|----------|---------|----------|---------|
| KIA7419F | 4A      | KIA7433F | 4J      |
| KIA7421F | 4B      | KIA7434F | 4K      |
| KIA7423F | 4C      | KIA7435F | 4L      |
| KIA7425F | 4D      | KIA7436F | 4M      |
| KIA7427F | 4E      | KIA7439F | 4N      |
| KIA7429F | 4F      | KIA7442F | 4P      |
| KIA7431F | 4G      | KIA7445F | 4R      |
| KIA7432F | 4H      |          |         |

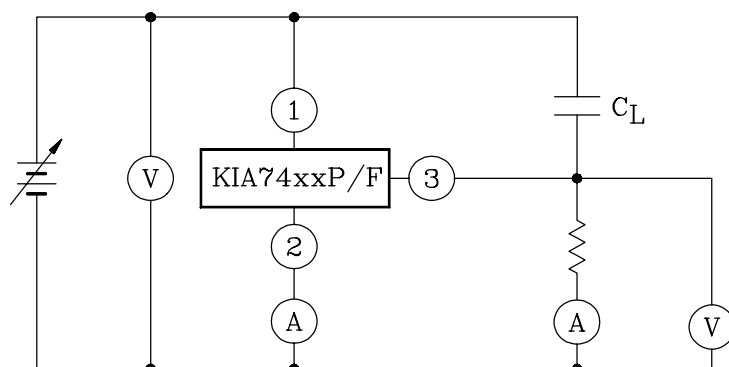
# KIA7419P/F ~ KIA7445P/F

## ELECTRICAL CHARACTERISTICS

| CHARACTERISTIC                            | SYMBOL         | TEST CIR. | TEST CONDITION   |  | MIN.   | TYP.  | MAX.   | UNIT    |
|---|----------------|-----------|--|--|--|---|--|---------|
| Detecting Voltage                         | $V_S$          | 1         | $R_L=4.7k\Omega$<br>$V_{OH} \geq$<br>$V_{OL}-0.4$            | KIA7419P/F<br>KIA7421P/F<br>KIA7423P/F<br>KIA7425P/F<br>KIA7427P/F<br>KIA7429P/F<br>KIA7431P/F<br>KIA7432P/F<br>KIA7433P/F<br>KIA7434P/F<br>KIA7435P/F<br>KIA7436P/F<br>KIA7439P/F<br>KIA7442P/F<br>KIA7445P/F | 1.75<br>1.95<br>2.15<br>2.35<br>2.55<br>2.75<br>2.95<br>3.05<br>3.15<br>3.25<br>3.35<br>3.45<br>3.70<br>4.00<br>4.30 | 1.9<br>2.1<br>2.3<br>2.5<br>2.7<br>2.9<br>3.1<br>3.2<br>3.3<br>3.4<br>3.5<br>3.6<br>3.9<br>4.2<br>4.5 | 2.05<br>2.25<br>2.45<br>2.65<br>2.85<br>3.05<br>3.25<br>3.35<br>3.45<br>3.55<br>3.65<br>3.75<br>4.10<br>4.40<br>4.70 | V       |
| Low-Level Output Voltage                  | $V_{OL}$       | 1         | $R_L=4.7k\Omega$   |  | $V_{CC}$<br>-0.4   | -   | -  | V       |
| Output Leakage Current                    | $I_{OL}$       | 1         | $V_{CC}=7.5V$  |  | -  | -   | 0.1  | $\mu A$ |
| Hysteresis Voltage                        | $V_S$          | 1         | $R_L=4.7k\Omega$   | KIA7419P/F   | 20   | 50  | 100  | mV      |
|   |                |           |  | KIA7421P/F   |  |   |  |         |
|   |                |           |  | KIA7423P/F   |  |   |  |         |
|   |                |           |  |  | 30   | 50  | 100  |         |
| Detecting Voltage Temperature Coefficient | $V_S/\Delta T$ | 1         | $R_L=4.7k\Omega$   |  | -  | $\pm 0.01$  | -  | %/°C    |
| Circuit Current at on Time                | $I_{ccH}$      | 1         | $V_{CC}=V_{Smin} -0.05V$                                     |  | -  | 300   | 500  | $\mu A$ |
| Circuit Current at off Time               | $I_{ccL}$      | 1         | $V_{CC}=5.25V$   | KIA7419P/F   | -  | 30  | 70   | $\mu A$ |
|   |                |           |  | KIA7421P/F   |  |   |  |         |
|   |                |           |  | KIA7423P/F   |  |   |  |         |
|   |                |           |  |  | -  | 30  | 50   |         |
| Threshold Operating Voltage               | $V_{opr}$      | 1         | $R_L=4.7k\Omega$<br>$V_{OH} \geq V_{CC}-0.4$                 |  | -  | 0.8   | -  | V       |
| "L" Transmission DELAY Time               | $t_{pHL}$      | 2         | $R_L=4.7k\Omega$<br>$C_L=100pF$                              |  | -  | 10  | -  | $\mu S$ |
| "H" Transmission DELAY Time               | $t_{pLH}$      | 2         | $R_L=4.7k\Omega$<br>$C_L=100pF$                              |  | -  | 10  | -  | $\mu S$ |
| Output Current                            | $I_{OH}$       | 1         | $V_{CC}=V_{Smin} -0.05V$<br>$R_L=0\Omega$ , $T_c=25^\circ C$ |  | -2.0   | -5.0  | -  | mA      |

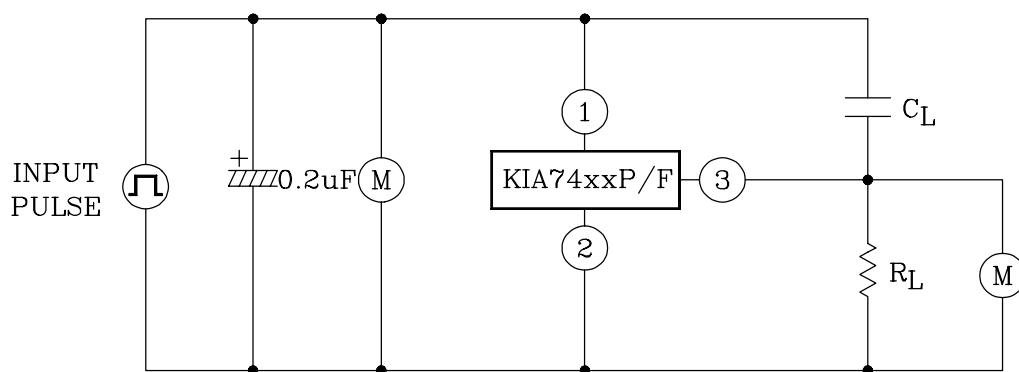
# KIA7419P/F ~ KIA7445P/F

TEST CIRCUIT 1.



Ⓐ is DC AMPEREMETER  
Ⓥ is DC VOLTMETER

TEST CIRCUIT 2.



Ⓜ is OSCILLOSCOPE MONITOR

## PRECAUTION FOR USE

### SOLDERING

#### Flat Package (SOT-89 Package)

Elements mounting styles of electronic devices are gaining in further diversification over recent years, and needs for components are all the more expanding in varieties. Especially, surface mounting is steadily penetrating into industrial segments as a world-wide popular technical trend. Although exposure to high temperature is inevitable during soldering we recommend limiting the soldering temperature to low levels as shown in figure for the sake of retaining inherent excellent reliability.

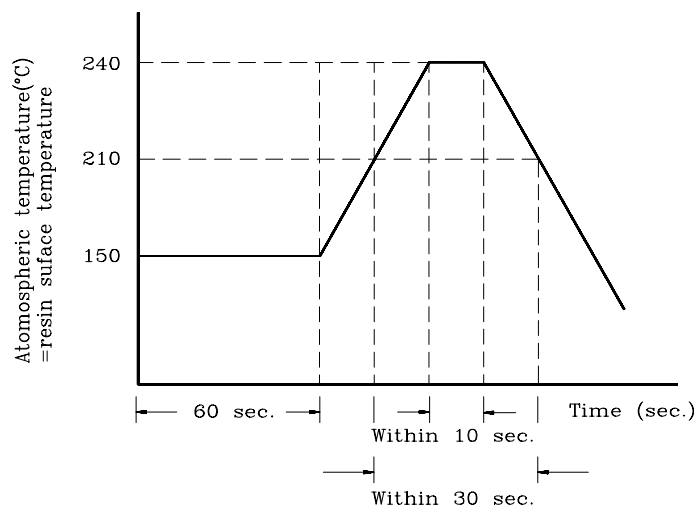


Fig 6

(a) When employing solder reflow method

- ① Atmospheric temperature around resin surfaces must be less than 240°C, not exceeding the time length of 10 sec.
- ② Recommend temperature profile
- ③ Precautions on heating method

When resin is kept exposed to high temperature for a long time, device reliability may be marred. Therefore, it is essential to complete soldering in the shortest time possible to prevent temperature of resin from rising.

(b) When employing halogen lamps or infrared-ray heaters

When halogen lamps or infrared-ray heaters are used, avoid direct irradiation onto resin surfaces; such devices cause extensive localized temperature rise.

※ Please keep a reflow solder operating when SOT-89 package's soldering.