

# KA75XXX

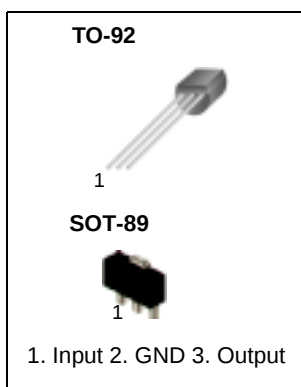
## Voltage Detector

### Features

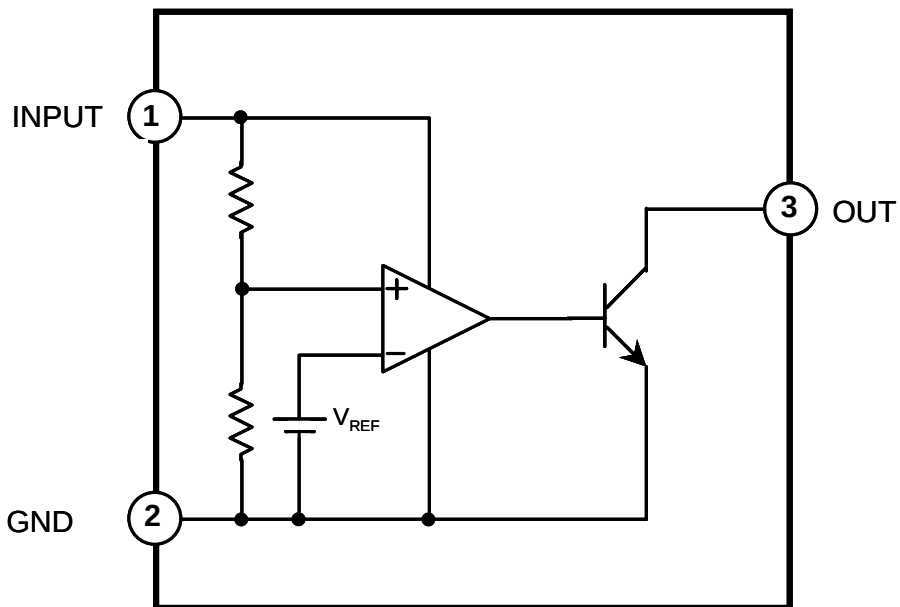
- Detecting Against Error Operations At The Power On/off.
- Resetting Function For The Low Voltage Microprocessor.
- Checking Low Battery

### Description

The KA75250/KA75270/KA75290/KA75310/KA75330/KA75360/KA75390/KA75420/KA75450 prevents the error of system from supply voltage below normal voltage level at the time the power on and instantaneous power off in systems.



### Internal Block Diagram

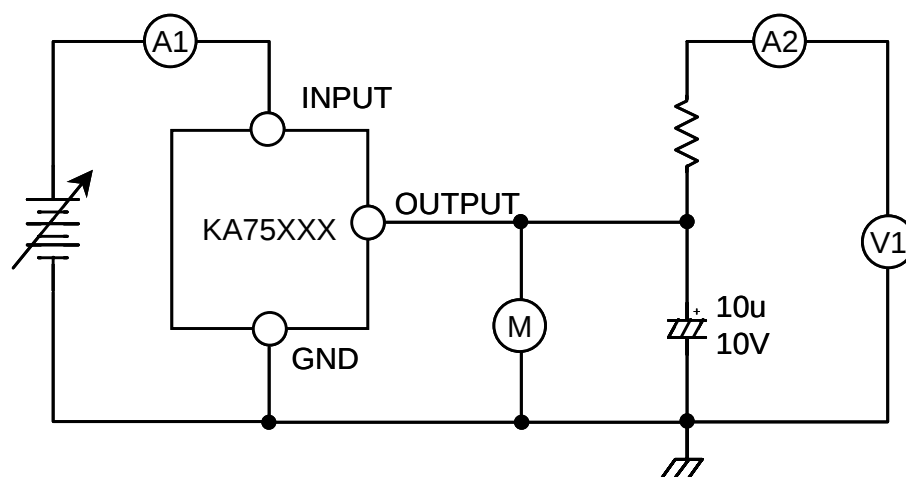
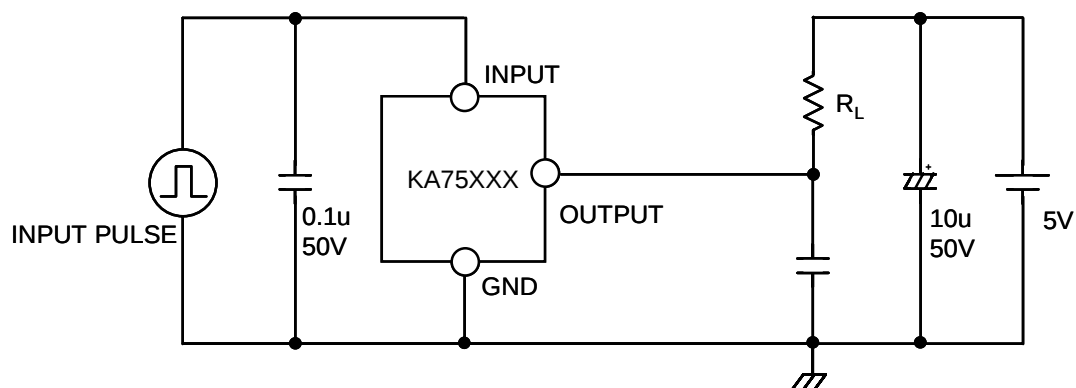
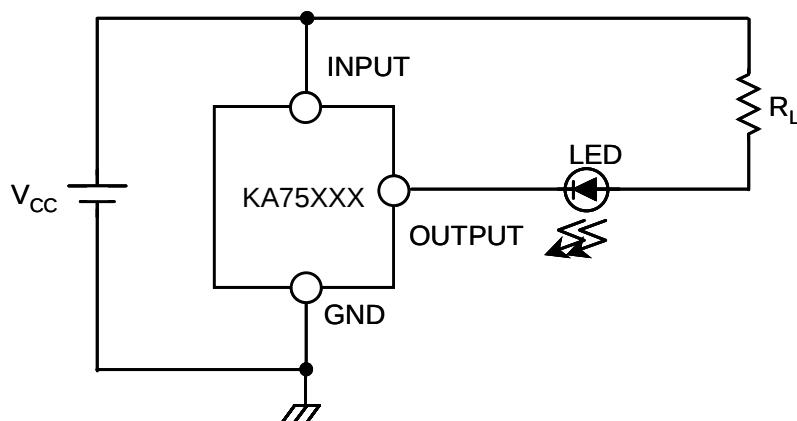


**Absolute Maximum Rating (TA=25°C)**

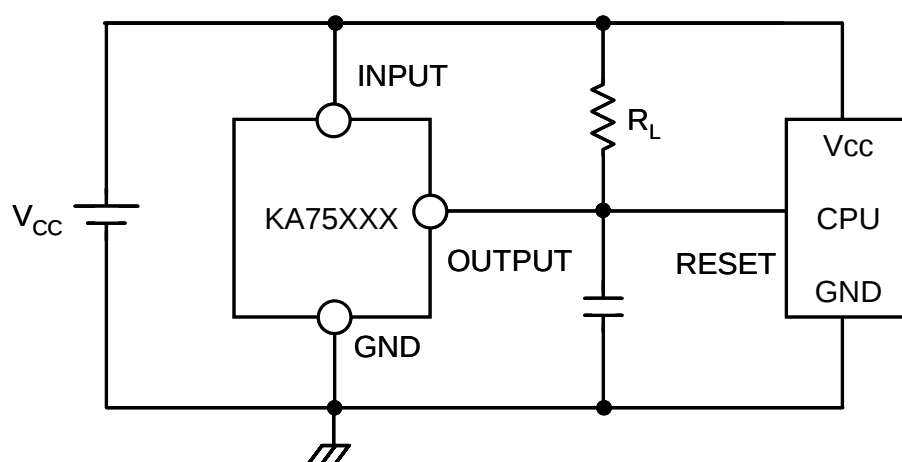
| Characteristic                            | Symbol                    | Value                                  | Unit |
|-------------------------------------------|---------------------------|----------------------------------------|------|
| Supply Voltage                            | V <sub>CC</sub>           | 0.3 ~ +15.0                            | V    |
| Detecting Voltage                         | V <sub>DET</sub>          | 2.5/2.7/2.9/3.1<br>3.3/3.6/3.9/4.2/4.5 | V    |
| Hysteresis Voltage                        | V <sub>HYS</sub>          | 50                                     | mV   |
| Operating Temperature                     | T <sub>OPR</sub>          | -25 ~ +85                              | °C   |
| Storage Temperature                       | T <sub>STG</sub>          | -50 ~ +150                             | °C   |
| Power Dissipation<br>TO-92<br>SOT-89      | P <sub>D</sub>            | 200<br>500                             | mW   |
| Detecting Voltage Temperature Coefficient | $\Delta V_{DET}/\Delta T$ | R <sub>L</sub> = 200Ω, +0.01           | %/°C |

**Electrical Characteristics (TA=25°C)**

| Characteristic                            | Symbol                    | Test Conditions                                                                                                                                    | Min                                                                  | Typ                                                         | Max                                                                  | Unit |
|-------------------------------------------|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------------------|------|
| Detecting Voltage                         | V <sub>DET</sub>          | R <sub>L</sub> = 200Ω<br>V <sub>OL</sub> ≤ 0.4V<br>KA75250<br>KA75270<br>KA75290<br>KA75310<br>KA75330<br>KA75360<br>KA75390<br>KA75420<br>KA75450 | 2.35<br>2.55<br>2.75<br>2.95<br>3.15<br>3.45<br>3.75<br>4.05<br>4.35 | 2.5<br>2.7<br>2.9<br>3.1<br>3.3<br>3.6<br>3.9<br>4.2<br>4.5 | 2.65<br>2.85<br>3.05<br>3.25<br>3.45<br>3.75<br>4.05<br>4.35<br>4.65 | V    |
| Low Output Voltage                        | V <sub>OL</sub>           | R <sub>L</sub> = 200Ω                                                                                                                              | -                                                                    | -                                                           | 0.4                                                                  | V    |
| Output Leakage Current                    | I <sub>LKG</sub>          | V <sub>CC</sub> = 15V                                                                                                                              | -                                                                    | -                                                           | 0.1                                                                  | μA   |
| Hysteresis Voltage                        | V <sub>HYS</sub>          | R <sub>L</sub> = 200Ω                                                                                                                              | 30                                                                   | 50                                                          | 100                                                                  | mV   |
| Detecting Voltage Temperature Coefficient | $\Delta V_{DET}/\Delta T$ | R <sub>L</sub> = 200Ω                                                                                                                              | -                                                                    | ±0.01                                                       | -                                                                    | %/°C |
| Circuit Current(At On Time)               | I <sub>CCL</sub>          | V <sub>CC</sub> = V <sub>DET(MIN)</sub> - 0.05V                                                                                                    | -                                                                    | 300                                                         | 500                                                                  | μA   |
| Circuit Current(At Off Time)              | I <sub>CCH</sub>          | V <sub>CC</sub> = 5.25V                                                                                                                            | -                                                                    | 30                                                          | 50                                                                   | μA   |
| Threshold Operating Voltage               | V <sub>TH(OPR)</sub>      | R <sub>L</sub> = 200Ω, V <sub>OL</sub> ≤ 0.4V                                                                                                      | -                                                                    | 0.8                                                         | 1.0                                                                  | V    |
| " L"± Transmission Delay Time             | T <sub>OL</sub>           | R <sub>L</sub> = 1.0kΩ, C <sub>L</sub> = 100pF                                                                                                     | 0.6                                                                  | 10                                                          | -                                                                    | μs   |
| " H"± Transmission Delay Time             | T <sub>OH</sub>           | R <sub>L</sub> = 1.0kΩ, C <sub>L</sub> = 100pF                                                                                                     | -                                                                    | 15                                                          | 20                                                                   | μs   |
| Output Current (At On Time)               | I <sub>OLI</sub>          | V <sub>CC</sub> = V <sub>DET(MIN)</sub> - 0.05V,<br>T <sub>A</sub> = 25°C                                                                          | 10                                                                   | 20                                                          | 30                                                                   | mA   |
| Output Current (At On Time)               | I <sub>OLII</sub>         | V <sub>CC</sub> = V <sub>DET(MIN)</sub> - 0.05V<br>T <sub>A</sub> = -25 ~ +85°C                                                                    | 8                                                                    | 16                                                          | 30                                                                   | mA   |

**Test Circuit 1.****Test Circuit 2.****Test Circuit 3.**

## Application Circuit

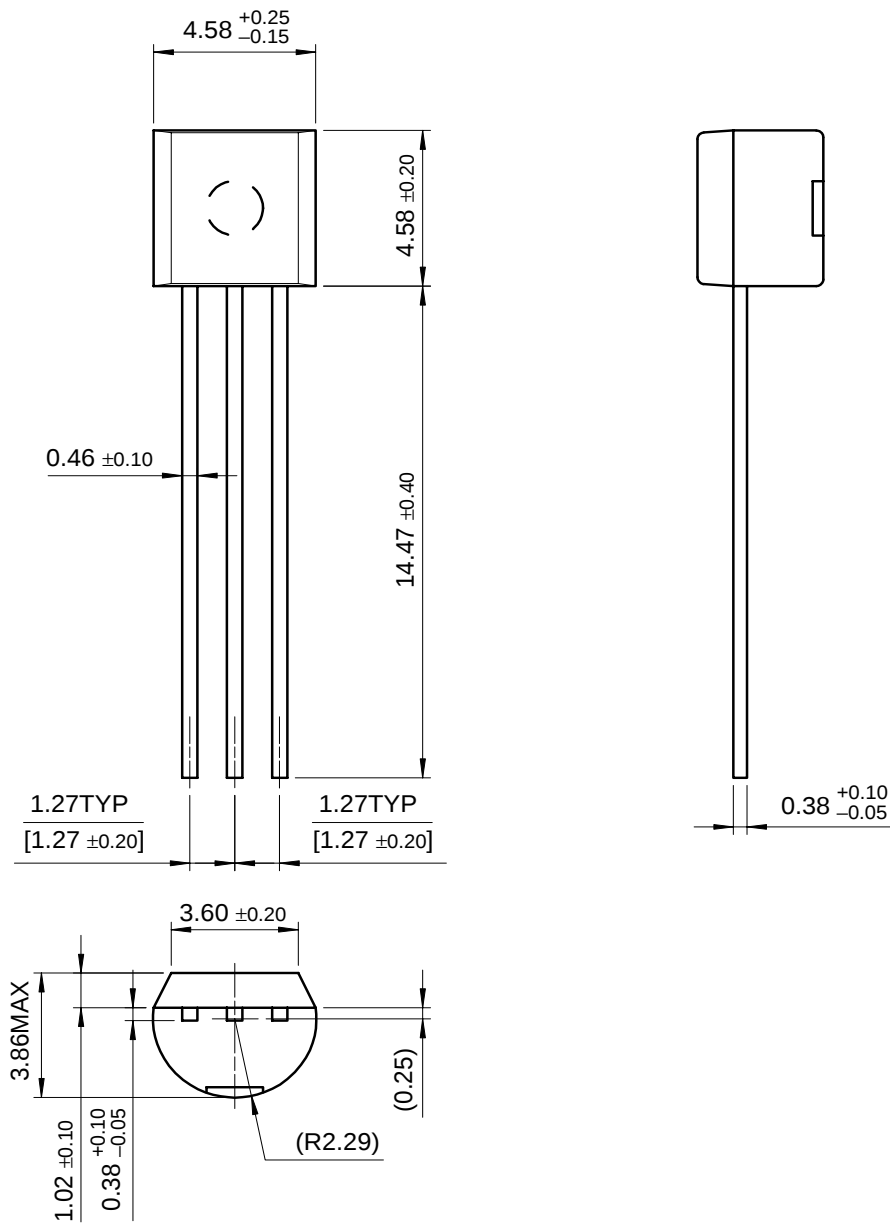


Mechanical Dimensions

Package

Dimensions in millimeters

TO-92

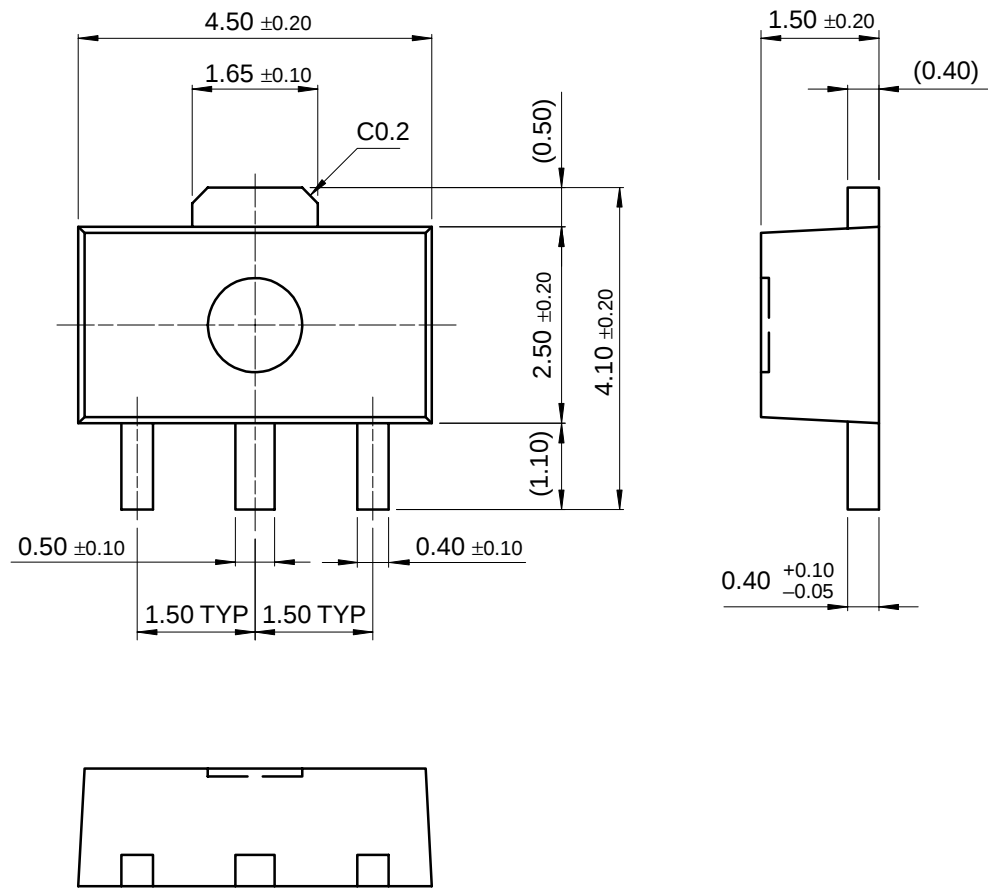


Mechanical Dimensions (Continued)

Package

Dimensions in millimeters

SOT-89



## Ordering Information

| Product Number | Package | Operating Temperature |
|----------------|---------|-----------------------|
| KA75250Z       | TO-92   | -25 ~ +85°C           |
| KA75270Z       |         |                       |
| KA75290Z       |         |                       |
| KA75310Z       |         |                       |
| KA75330Z       |         |                       |
| KA75360Z       |         |                       |
| KA75390Z       |         |                       |
| KA75420Z       |         |                       |
| KA75450Z       |         |                       |
| KA75250M       | SOT-89  |                       |
| KA75270M       |         |                       |
| KA75310M       |         |                       |
| KA75330M       |         |                       |
| KA75360M       |         |                       |
| KA75390M       |         |                       |
| KA75420M       |         |                       |
| KA75450M       |         |                       |

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