



AiP706 Microprocessor Reset Circuit with Watchdog Controller

Product Specification

Specification Revision History:

| Version | Date | Description |
|------------|---------|---|
| 2020-07-A1 | 2020-07 | New |
| 2021-09-A2 | 2021-09 | Add Selection Table and Modify Ordering Information |
| 2022-01-A3 | 2022-01 | Modify Ordering Information |
| | | |



1、 General Description

The AiP706 microprocessor (μ P) supervisory circuit reduce the complexity and number of components required to monitor power-supply and battery functions in μ P systems. The device significantly improves system reliability and accuracy compared to separate ICs or discrete components.

The AiP706 provides four functions:

- 1) A reset output during power-up, power-down, and brownout conditions.
- 2) An independent watchdog output that goes low if the watchdog input has not been toggled within 1.6 seconds.
- 3) A 1.25V threshold detector for power-fail warning, low-battery detection, or for monitoring a power supply other than +5V.
- 4) An active-low manual-reset input.

The AiP706, except an active-high reset is substituted for the watchdog timer.

Two supply-voltage monitor levels are available: The AiP706 generates a reset pulse below 4.40V.

Features:

- Guaranteed RESET Valid at $V_{CC}=1V$
- Precision Supply-Voltage Monitor
4.40V in AiP706
- 200ms Reset Pulse Width
- Debounced TTL/CMOS-Compatible Manual-Reset Input
- Independent Watchdog Timer—1.6s Timeout
- Voltage Monitor for Power-Fail or Low-Battery Warning
- Packaging information: DIP8/SOP8

Selection Table:

| Name | Model Number | Reset Threshold |
|--------|--------------|-----------------|
| AiP706 | AiP706L | 4.65V |
| | AiP706M | 4.40V |
| | AiP706J | 4.00V |
| | AiP706T | 3.08V |
| | AiP706S | 2.93V |
| | AiP706R | 2.63V |

**Ordering Information:****Tube packing specifications:**

| Part number | Packaging form | Marking code | Tube quantity | Boxed tube quantity | Boxed quantity | Notes |
|---------------|----------------|--------------|-----------------|---------------------|------------------|---|
| AiP706LDA8.TB | DIP8 | AiP706L | 50 PCS/tube | 40 tube/box | 2000 PCS/box | Dimensions of plastic enclosure: 9.2mm×6.4mm Pin spacing: 2.54mm |
| AiP706MDA8.TB | DIP8 | AiP706M | 50 PCS/tube | 40 tube/box | 2000 PCS/box | Dimensions of plastic enclosure: 9.2mm×6.4mm Pin spacing: 2.54mm |
| AiP706JDA8.TB | DIP8 | AiP706J | 50 PCS/tube | 40 tube/box | 2000 PCS/box | Dimensions of plastic enclosure: 9.2mm×6.4mm Pin spacing: 2.54mm |
| AiP706TDA8.TB | DIP8 | AiP706T | 50 PCS/tube | 40 tube/box | 2000 PCS/box | Dimensions of plastic enclosure: 9.2mm×6.4mm Pin spacing: 2.54mm |
| AiP706SDA8.TB | DIP8 | AiP706S | 50 PCS/tube | 40 tube/box | 2000 PCS/box | Dimensions of plastic enclosure: 9.2mm×6.4mm Pin spacing: 2.54mm |
| AiP706RDA8.TB | DIP8 | AiP706R | 50 PCS/tube | 40 tube/box | 2000 PCS/box | Dimensions of plastic enclosure: 9.2mm×6.4mm Pin spacing: 2.54mm |
| AiP706LSA8.TB | SOP8 | AiP706L | 100 PCS/tube | 100 tube/box | 10000 PCS/box | Dimensions of plastic enclosure: 4.9mm×3.9mm Pin spacing: 1.27mm |
| AiP706MSA8.TB | SOP8 | AiP706M | 100 PCS/tube | 100 tube/box | 10000 PCS/box | Dimensions of plastic enclosure: 4.9mm×3.9mm Pin spacing: 1.27mm |



| | | | | | | |
|---------------|------|---------|-----------------|-----------------|------------------|---|
| AiP706JSA8.TB | SOP8 | AiP706J | 100 PCS/tube | 100 tube/box | 10000 PCS/box | Dimensions of plastic enclosure: 4.9mm×3.9mm Pin spacing: 1.27mm |
| AiP706TSA8.TB | SOP8 | AiP706T | 100 PCS/tube | 100 tube/box | 10000 PCS/box | Dimensions of plastic enclosure: 4.9mm×3.9mm Pin spacing: 1.27mm |
| AiP706SSA8.TB | SOP8 | AiP706S | 100 PCS/tube | 100 tube/box | 10000 PCS/box | Dimensions of plastic enclosure: 4.9mm×3.9mm Pin spacing: 1.27mm |
| AiP706RSA8.TB | SOP8 | AiP706R | 100 PCS/tube | 100 tube/box | 10000 PCS/box | Dimensions of plastic enclosure: 4.9mm×3.9mm Pin spacing: 1.27mm |

Reel packing specifications:

| Part number | Packaging form | Marking code | Reel quantity | Boxed reel quantity | Notes |
|---------------|----------------|--------------|---------------|---------------------|---|
| AiP706LSA8.TR | SOP8(1) | AiP706L | 4000PCS/reel | 8000PCS/box | Dimensions of plastic enclosure: 4.9mm×3.9mm Pin spacing:1.27mm |
| AiP706MSA8.TR | SOP8(1) | AiP706M | 4000PCS/reel | 8000PCS/box | Dimensions of plastic enclosure: 4.9mm×3.9mm Pin spacing:1.27mm |
| AiP706JSA8.TR | SOP8(1) | AiP706J | 4000PCS/reel | 8000PCS/box | Dimensions of plastic enclosure: 4.9mm×3.9mm Pin spacing:1.27mm |
| AiP706TSA8.TR | SOP8(1) | AiP706T | 4000PCS/reel | 8000PCS/box | Dimensions of plastic enclosure: 4.9mm×3.9mm Pin spacing:1.27mm |
| AiP706SSA8.TR | SOP8(1) | AiP706S | 4000PCS/reel | 8000PCS/box | Dimensions of plastic enclosure: 4.9mm×3.9mm Pin spacing:1.27mm |
| AiP706RSA8.TR | SOP8(1) | AiP706R | 4000PCS/reel | 8000PCS/box | Dimensions of plastic enclosure: 4.9mm×3.9mm Pin spacing:1.27mm |



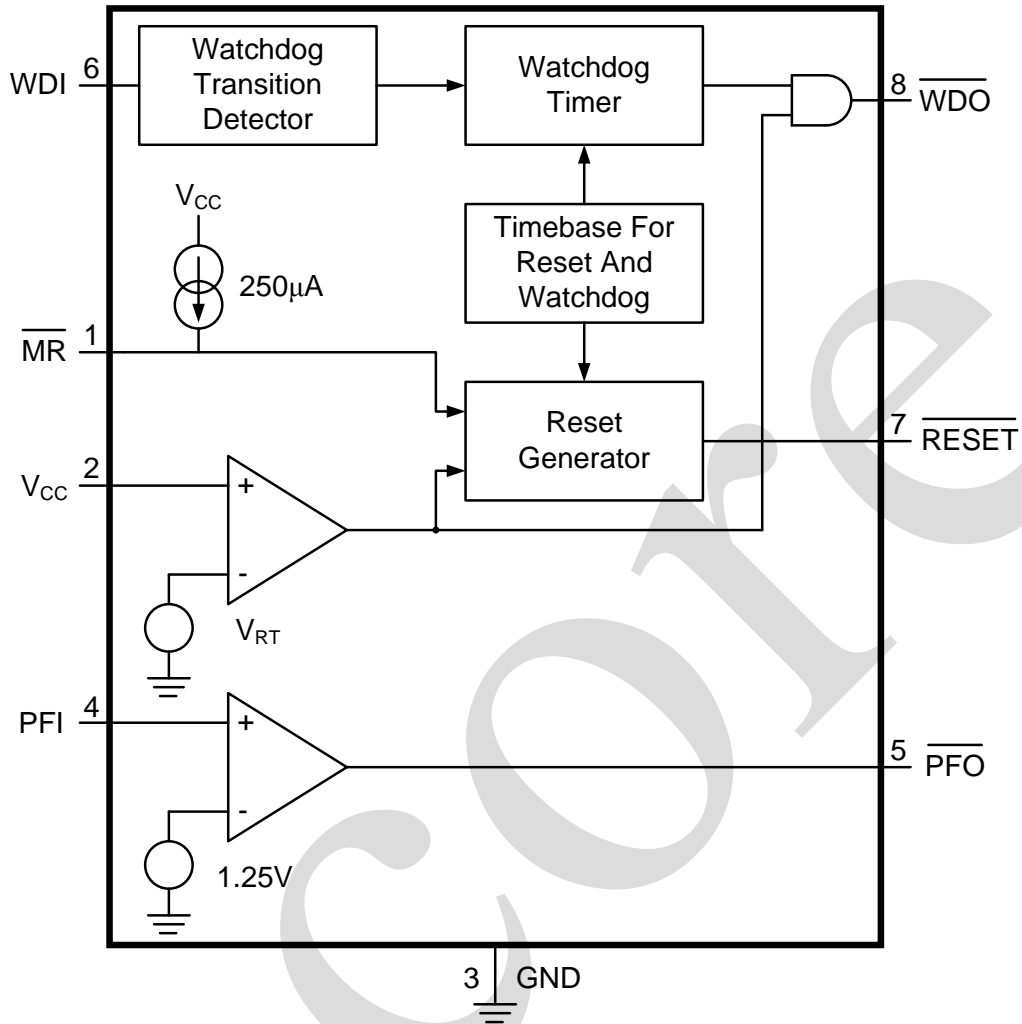
| | | | | | |
|---------------|---------|---------|--------------|-------------|---|
| AiP706LSA8.TR | SOP8(2) | AiP706L | 2500PCS/reel | 5000PCS/box | Dimensions of plastic enclosure: 4.9mm×3.9mm Pin spacing:1.27mm |
| AiP706MSA8.TR | SOP8(2) | AiP706M | 2500PCS/reel | 5000PCS/box | Dimensions of plastic enclosure: 4.9mm×3.9mm Pin spacing:1.27mm |
| AiP706JSA8.TR | SOP8(2) | AiP706J | 2500PCS/reel | 5000PCS/box | Dimensions of plastic enclosure: 4.9mm×3.9mm Pin spacing:1.27mm |
| AiP706TSA8.TR | SOP8(2) | AiP706T | 2500PCS/reel | 5000PCS/box | Dimensions of plastic enclosure: 4.9mm×3.9mm Pin spacing:1.27mm |
| AiP706SSA8.TR | SOP8(2) | AiP706S | 2500PCS/reel | 5000PCS/box | Dimensions of plastic enclosure: 4.9mm×3.9mm Pin spacing:1.27mm |
| AiP706RSA8.TR | SOP8(2) | AiP706R | 2500PCS/reel | 5000PCS/box | Dimensions of plastic enclosure: 4.9mm×3.9mm Pin spacing:1.27mm |

Note: If the physical information is inconsistent with the ordering information, please refer to the actual product.

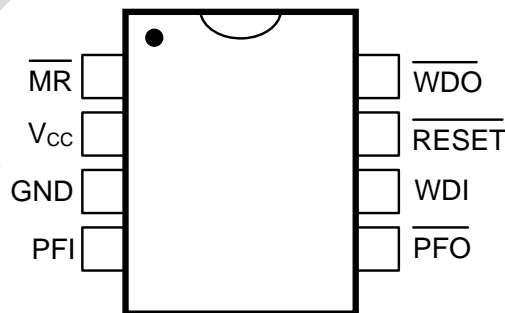


2、Block Diagram And Pin Description

2.1、Block Diagram



2.1、Pin Configurations





2.2、Pin Description

| Pin No. | Pin Name | Description |
|---------|---------------------------|--|
| 1 | $\overline{\text{MR}}$ | Manual-Reset Input triggers a reset pulse when pulled below 0.8V. This active-low input has an internal 250 μ A pull-up current. It can be driven from a TTL or CMOS logic line as well as shorted to ground with a switch. |
| 2 | V_{CC} | +5V Supply Input |
| 3 | GND | 0V Ground Reference for all signals |
| 4 | PFI | Power-Fail Voltage Monitor Input. When PFI is less than 1.25V, $\overline{\text{PFO}}$ goes low. Connect PFI to GND or V_{CC} when not used. |
| 5 | $\overline{\text{PFO}}$ | Power-Fail Output goes low and sinks current when PFI is less than 1.25V; otherwise $\overline{\text{PFO}}$ stays high. |
| 6 | WDI | Watchdog Input. If WDI remains high or low for 1.6sec, the internal watchdog timer runs out and $\overline{\text{WDO}}$ goes low. Floating WDI or connecting WDI to a high-impedance three-state buffer disables the watchdog feature. The internal watchdog timer clears whenever reset is asserted, WDI is three-stated, or WDI sees a rising or falling edge. |
| 7 | $\overline{\text{RESET}}$ | Active-Low Reset Output pulses low for 200ms when triggered, and stays low whenever V_{CC} is below the reset threshold. It remains low for 200ms after V_{CC} rises above the reset threshold or $\overline{\text{MR}}$ goes from low to high (Figure 1). A watchdog timeout will not trigger $\overline{\text{RESET}}$ unless $\overline{\text{WDO}}$ is connected to $\overline{\text{MR}}$. |
| 8 | $\overline{\text{WDO}}$ | Watchdog Output pulls low when the internal watchdog timer finishes its 1.6sec count and does not go high again until the watchdog is cleared. $\overline{\text{WDO}}$ also goes low during low-line conditions. Whenever V_{CC} is below the reset threshold, $\overline{\text{WDO}}$ stays low; however, unlike $\overline{\text{RESET}}$, $\overline{\text{WDO}}$ does not have a minimum pulse width. As soon as V_{CC} rises above the reset threshold, $\overline{\text{WDO}}$ goes high with no delay. |

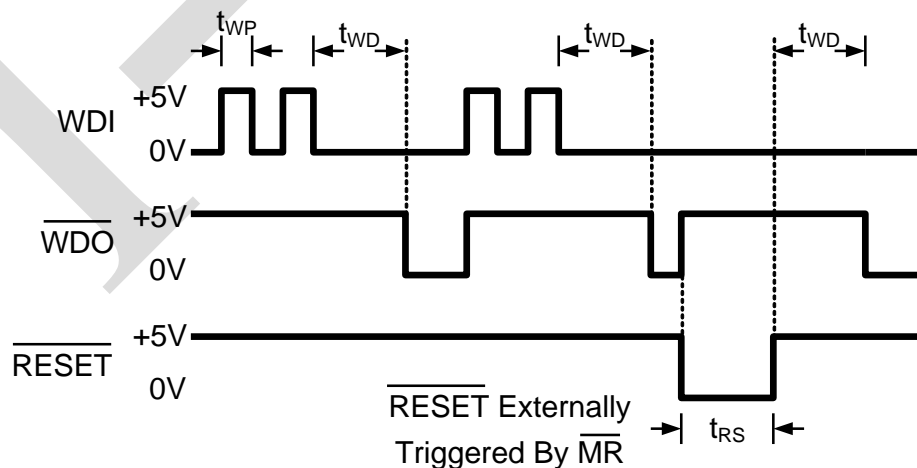


Figure 1. AiP706 Watchdog Timing



3、Electrical Parameter

3.1、Absolute Maximum Ratings

($T_{amb}=25^{\circ}C$, unless otherwise specified)

| Characteristic | Symbol | Conditions | Value | Unit | |
|-----------------------|-----------|------------|----------------------|-------------|-------------|
| supply voltage | V_{CC} | - | -0.3 to 6.0 | V | |
| input voltage | V_I | [1] | -0.3 to $V_{CC}+0.3$ | V | |
| supply current | I_{CC} | - | 20 | mA | |
| ground current | I_{GND} | - | 20 | mA | |
| output current | I_O | - | 20 | mA | |
| operating temperature | T_{amb} | - | -40 to +85 | $^{\circ}C$ | |
| storage temperature | T_{stg} | - | -65 to +150 | $^{\circ}C$ | |
| power Dissipation | P_D | DIP | 727 | mW | |
| | | SOP | 471 | mW | |
| soldering temperature | T_L | 10s | DIP | 245 | $^{\circ}C$ |
| | | | SOP | 250 | $^{\circ}C$ |

Note: [1] The input voltage limits on PFI and MR can be exceeded if the input current is less than 10mA.

3.2、Electrical Characteristics

($T_{amb}=-40^{\circ}C$ to $+85^{\circ}C$, $V_{CC}=4.75V$ to $5.5V$ for AiP706L; $V_{CC}=4.5V$ to $5.5V$ for AiP706M; $V_{CC}=4.07V$ to $5.5V$ for AiP706J; $V_{CC}=3.14V$ to $5.5V$ for AiP706T; $V_{CC}=2.95V$ to $5.5V$ for AiP706S; $V_{CC}=2.68V$ to $5.5V$ for AiP706R, unless otherwise noted.)

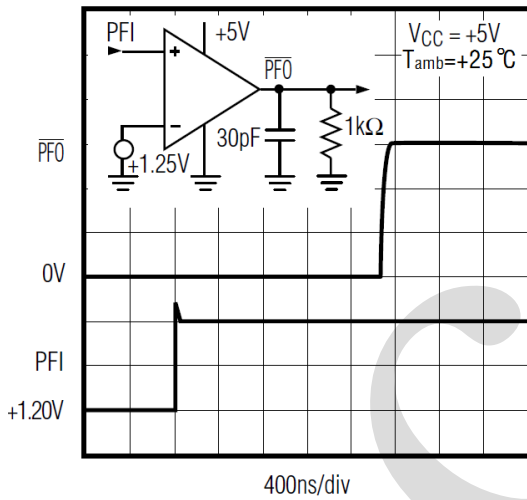
| Parameter | Symbo | Conditions | Min. | Typ. | Max. | Unit |
|----------------------------|----------------------------|-------------------------------|--------------|------|------|---------|
| supply voltage | V_{CC} | - | 1.0 | - | 5.5 | V |
| supply current | I_{SUPPLY} | - | - | 50 | 150 | μA |
| reset threshold | V_{RT} | AiP706L | 4.50 | 4.65 | 4.75 | V |
| | | AiP706M | 4.25 | 4.40 | 4.50 | V |
| | | AiP706J | 3.91 | 4.00 | 4.07 | V |
| | | AiP706T | 3.02 | 3.08 | 3.14 | V |
| | | AiP706S | 2.85 | 2.93 | 2.95 | V |
| | | AiP706R | 2.56 | 2.63 | 2.68 | V |
| reset threshold hysteresis | - | AiP706L, M | - | 40 | - | mV |
| | | AiP706J | - | 34 | - | mV |
| | | AiP706T, S | - | 25 | - | mV |
| | | AiP706R | - | 22 | - | mV |
| reset pulse width | t_{RS} | - | 120 | 200 | 280 | ms |
| RESET output voltage | - | $I_{SOURCE}=800\mu A$ | $V_{CC}-1.5$ | - | - | V |
| | | $I_{SINK}=3.2mA$ | - | - | 0.4 | V |
| | | $V_{CC}=1V, I_{SINK}=50\mu A$ | - | - | 0.3 | V |
| watchdog timeout period | t_{WD} | - | 1.00 | 1.60 | 2.25 | s |
| WDI pulse width | t_{WP} | $V_{IL}=0.4V, V_{IH}=V_{CC}$ | 70 | - | - | ns |
| WDI input threshold | Low High Low High | $V_{CC}=5V$ | - | - | 0.8 | V |
| | | | 3.5 | - | - | V |
| | | $V_{RST(MAX)}<V_{CC}<3.6V$ | - | - | 0.8 | V |
| | | | $0.7V_{CC}$ | - | - | V |
| WDI input current | - | $WDI=V_{CC}$ | - | 50 | 150 | μA |



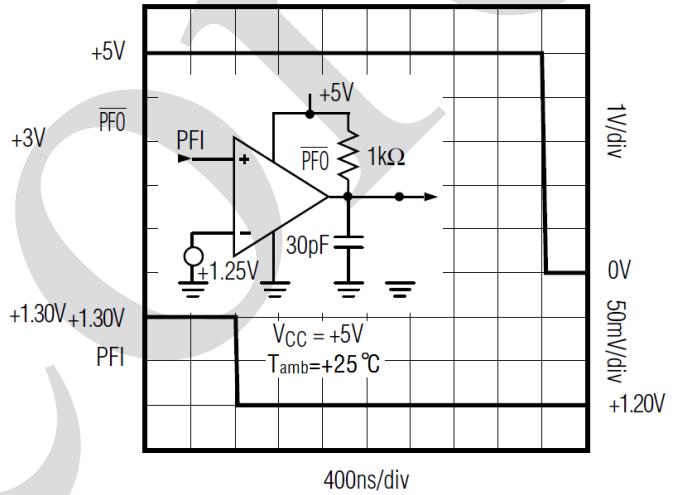
| | | | | | | |
|-----------------------|-----------------|----------------------------|----------------------|------|------|----|
| | | WDI=0V | -150 | -50 | - | μA |
| WDO output voltage | - | I _{SOURCE} =800μA | V _{CC} -1.5 | - | - | V |
| | | I _{SINK} =1.2mA | - | - | 0.4 | V |
| MR pull-up current | - | MR =0V | 100 | - | 600 | μA |
| MR pulse width | t _{MR} | - | 250 | - | - | ns |
| MR input threshold | Low | T _{amb} =25°C | - | - | 0.8 | V |
| | High | | 2.0 | - | - | V |
| MR to reset out delay | t _{MD} | - | - | - | 350 | ns |
| PFI input threshold | - | V _{CC} =5V | 1.18 | 1.25 | 1.30 | V |
| PFI input current | - | - | - | 0.20 | - | nA |
| PFO output voltage | - | I _{SOURCE} =800μA | V _{CC} -1.5 | - | - | V |
| | | I _{SINK} =3.2mA | - | - | 0.4 | V |

4. Characteristic Curve

POWER-FAIL COMPARATOR DE-ASSERTION RESPONSE TIME



POWER-FAIL COMPARATOR ASSERTION RESPONSE TIME





5、Function Description

5.1、Reset Output

A microprocessor's (μP 's) reset input starts the μP in a known state. Whenever the μP is in an unknown state, it should be held in reset. The AiP706 asserts reset during power-up and prevent code execution errors during power-down or brownout conditions.

On power-up, once V_{CC} reaches 1V, $\overline{\text{RESET}}$ is a guaranteed logic low of 0.4V or less. As V_{CC} rises, $\overline{\text{RESET}}$ stays low. When V_{CC} rises above the reset threshold, an internal timer releases $\overline{\text{RESET}}$ after about 200ms. $\overline{\text{RESET}}$ pulses low whenever V_{CC} dips below the reset threshold, i.e. brownout condition. If brownout occurs in the middle of a previously initiated reset pulse, the pulse continues for at least another 140ms. On power-down, once V_{CC} falls below the reset threshold, $\overline{\text{RESET}}$ stays low and is guaranteed to be 0.4V or less until V_{CC} drops below 1V.

5.2、Watchdog Timer

The AiP706 watchdog circuit monitors the μP 's activity. If the μP does not toggle the watchdog input (WDI) within 1.6sec and WDI is not three-stated, $\overline{\text{WDO}}$ goes low. As long as $\overline{\text{RESET}}$ is asserted or the WDI input is three-stated, the watchdog timer will stay cleared and will not count. As soon as reset is released and WDI is driven high or low, the timer will start counting. Pulses as short as 50ns can be detected.

Typically, $\overline{\text{WDO}}$ will be connected to the non-maskable interrupt input (NMI) of a μP . When V_{CC} drops below the reset threshold, $\overline{\text{WDO}}$ will go low whether or not the watchdog timer has timed out yet. Normally this would trigger an NMI interrupt, but $\overline{\text{RESET}}$ goes low simultaneously, and thus overrides the NMI interrupt.

If WDI is left unconnected, $\overline{\text{WDO}}$ can be used as a low-line output. Since floating WDI disables the internal timer, $\overline{\text{WDO}}$ goes low only when V_{CC} falls below the reset threshold, thus functioning as a low-line output.

The AiP706 has a watchdog timer and a $\overline{\text{RESET}}$ output.

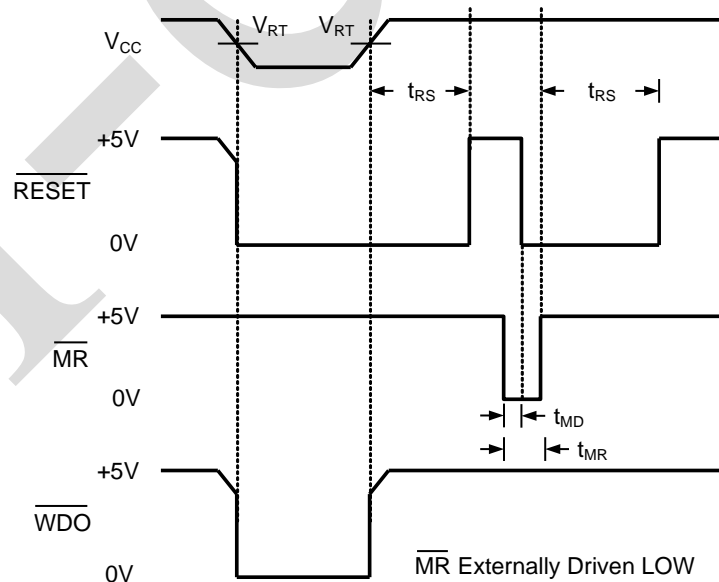


Figure 2. AiP706 $\overline{\text{RESET}}$, $\overline{\text{MR}}$, and $\overline{\text{WDO}}$ Timing with WDI Three-Styled.



5.3、 Manual Reset

The manual-reset input ($\overline{\text{MR}}$) allows reset to be triggered by a pushbutton switch. The switch is effectively debounced by the 140ms minimum reset pulse width. $\overline{\text{MR}}$ is TTL/CMOS logic compatible, so it can be driven by an external logic line. $\overline{\text{MR}}$ can be used to force a watchdog timeout to generate a reset pulse in the AiP706. Simply connect $\overline{\text{WDO}}$ to $\overline{\text{MR}}$.

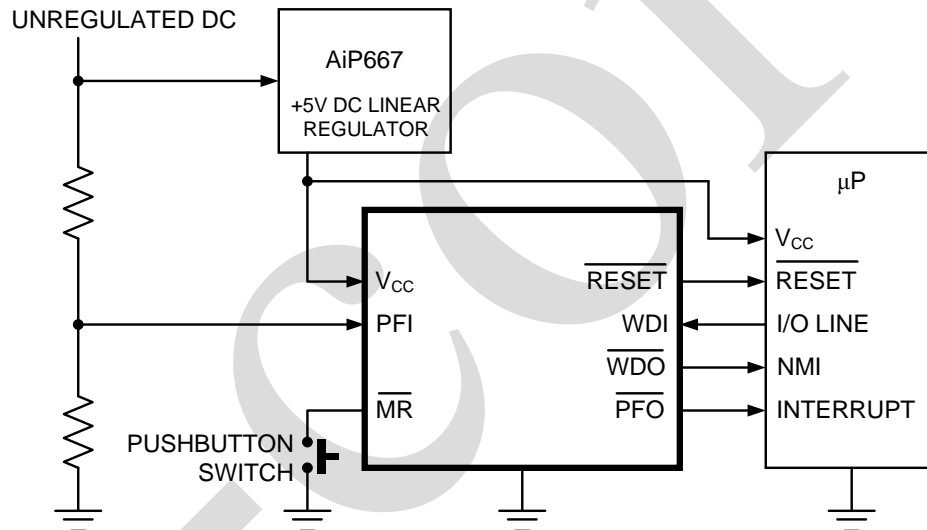
5.4、 Power-Fail Comparator

The power-fail comparator can be used for various purposes because its output and non-inverting input are not internally connected. The inverting input is internally connected to a 1.25V reference.

To build an early-warning circuit for power failure, connect the PFI pin to a voltage divider (see Typical Operating Circuit). Choose the voltage divider ratio so that the voltage at PFI falls below 1.25V just before the +5V regulator drops out. Use $\overline{\text{PFO}}$ to interrupt the μP so it can prepare for an orderly power-down.

6、 Typical Application Circuit And Application Note

6.1、 Typical Operating Circuit





6.2、 Ensuring a Valid RESET Output Down to $V_{CC}=0V$

When V_{CC} falls below 1V, the AiP706 \overline{RESET} output no longer sinks current—it becomes an open circuit. High-impedance CMOS logic inputs can drift to undetermined voltages if left undriven. If a pull-down resistor is added to the \overline{RESET} pin as shown in Figure 3, any stray charge or leakage currents will be drained to ground, holding \overline{RESET} low. Resistor value (R1) is not critical. It should be about 100k Ω , large enough not to load \overline{RESET} and small enough to pull \overline{RESET} to ground.

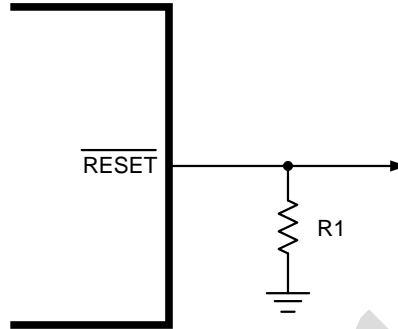
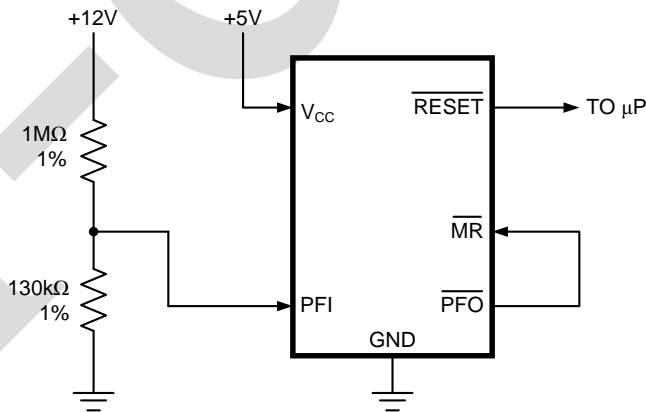


Figure 3. RESET Valid to Ground Circuit

6.3、 Monitoring Voltages Other Than the Unregulated DC Input

Monitor voltages other than the unregulated DC by connecting a voltage divider to PFI and adjusting the ratio appropriately. If required, add hysteresis by connecting a resistor (with a value approximately 10 times the sum of the two resistors in the potential divider network) between PFI and \overline{PFO} . A capacitor between PFI and GND will reduce the power-fail circuit’s sensitivity to high-frequency noise on the line being monitored. \overline{RESET} can be asserted on other voltages in addition to the +5V V_{CC} line. Connect \overline{PFO} to \overline{MR} to initiate a \overline{RESET} pulse when PFI drops below 1.25V. Figure 4 shows the AiP706 configured to assert \overline{RESET} when the +5V supply falls below the reset threshold, or when the +12V supply falls below approximately 11V.



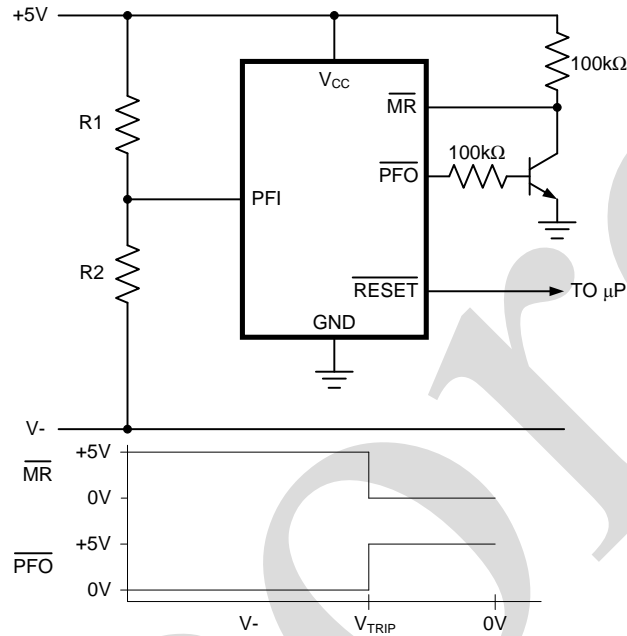
| Parameter | Min | Typ | Max | Unit |
|-------------------------------|-------|-------|-------|------|
| +12V Reset Threshold at +25°C | 10.67 | 10.87 | 11.50 | V |

Figure 4. Monitoring Both +5V and +12V



6.4. Monitoring a Negative Voltage

The power-fail comparator can also monitor a negative supply rail (Figure 5). When the negative rail is good (a negative voltage of large magnitude), $\overline{\text{PFO}}$ is low, and when the negative rail is degraded (a negative voltage of lesser magnitude), $\overline{\text{PFO}}$ is high. By adding the resistors and transistor as shown, a high $\overline{\text{PFO}}$ triggers reset. As long as $\overline{\text{PFO}}$ remains high, the AiP706 will keep reset asserted ($\overline{\text{RESET}} = \text{low}$). Note that this circuit's accuracy depends on the PFI threshold tolerance, the V_{CC} line, and the resistors.



$$\frac{5-1.25}{R1} = \frac{1.25-V_{\text{TRIP}}}{R2}, V_{\text{TRIP}} < 0$$

Figure 5. Monitoring a Negative Voltage



6.5、 Interfacing to μ Ps with Bidirectional Reset Pins

μ Ps with bidirectional reset pins can contend with the AiP706 $\overline{\text{RESET}}$ output. If, for example, the $\overline{\text{RESET}}$ output is driven high and the μ P wants to pull it low, indeterminate logic levels may result. To correct this, connect a $4.7\text{k}\Omega$ resistor between the $\overline{\text{RESET}}$ output and the μ P reset I/O, as in Figure 6. Buffer the $\overline{\text{RESET}}$ output to other system components.

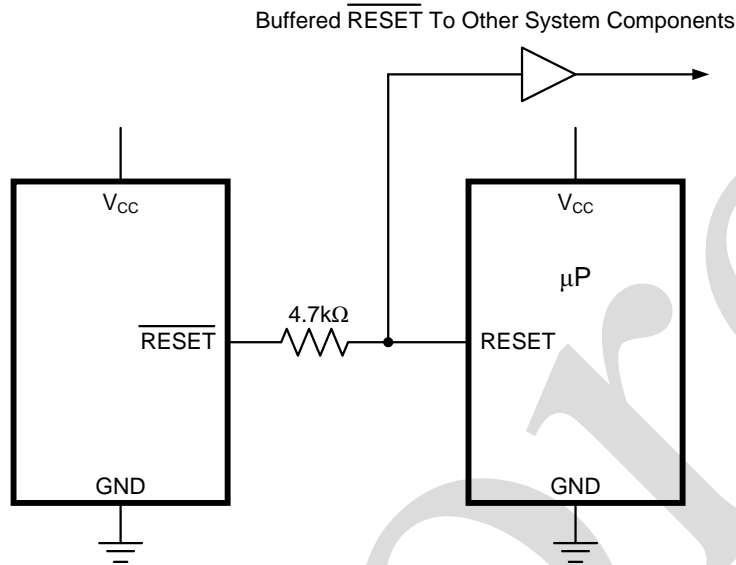
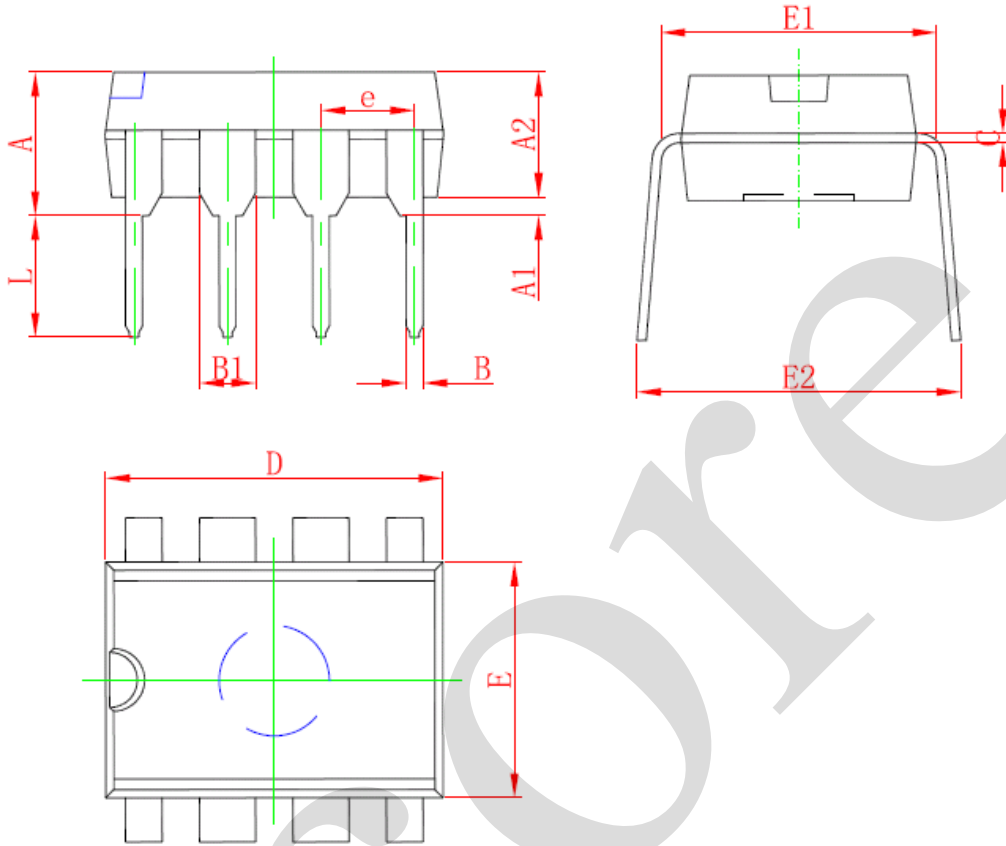


Figure 6. Interfacing to μ Ps with Bidirectional Reset I/O



7、Package Information

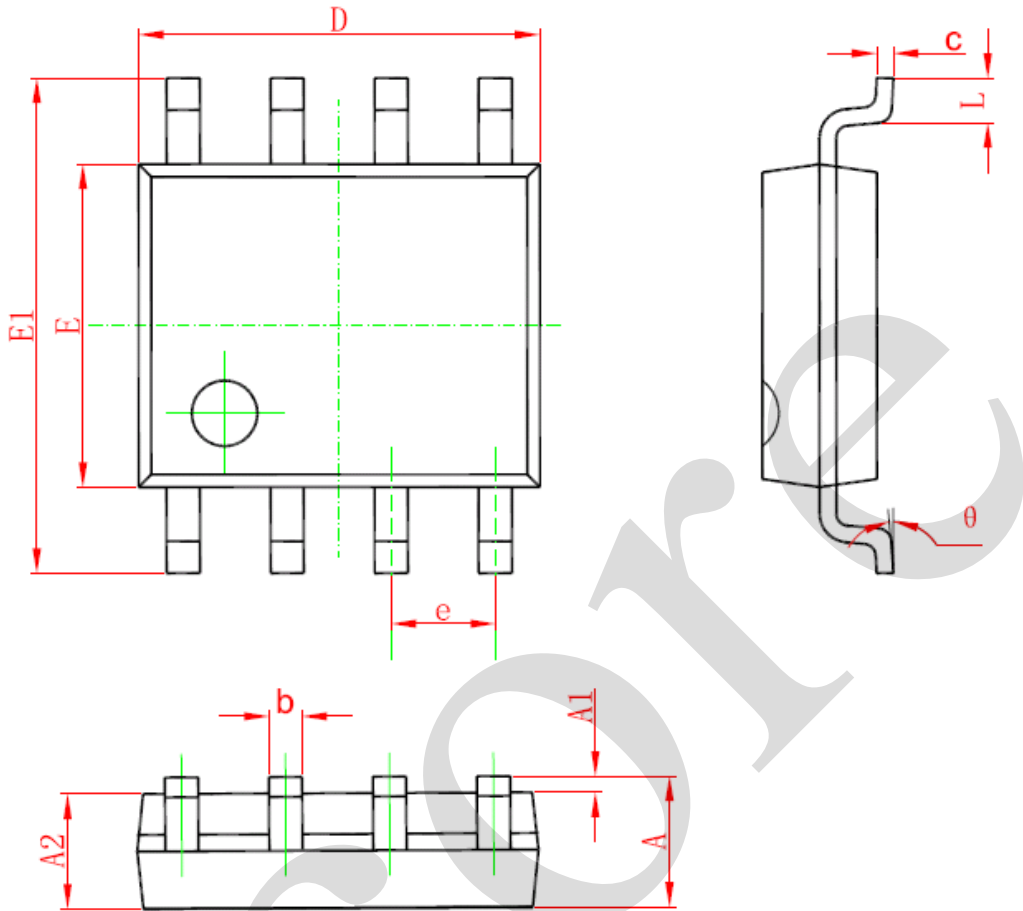
7.1、DIP8



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 3.710 | 4.310 | 0.146 | 0.170 |
| A1 | 0.510 | | 0.020 | |
| A2 | 3.200 | 3.600 | 0.126 | 0.142 |
| B | 0.380 | 0.570 | 0.015 | 0.022 |
| B1 | 1.524 (BSC) | | 0.060 (BSC) | |
| C | 0.204 | 0.360 | 0.008 | 0.014 |
| D | 9.000 | 9.400 | 0.354 | 0.370 |
| E | 6.200 | 6.600 | 0.244 | 0.260 |
| E1 | 7.320 | 7.920 | 0.288 | 0.312 |
| e | 2.540 (BSC) | | 0.100 (BSC) | |
| L | 3.000 | 3.600 | 0.118 | 0.142 |
| E2 | 8.400 | 9.000 | 0.331 | 0.354 |



7.2、SOP8



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 1.350 | 1.750 | 0.053 | 0.069 |
| A1 | 0.100 | 0.250 | 0.004 | 0.010 |
| A2 | 1.350 | 1.550 | 0.053 | 0.061 |
| b | 0.330 | 0.510 | 0.013 | 0.020 |
| c | 0.170 | 0.250 | 0.006 | 0.010 |
| D | 4.700 | 5.100 | 0.185 | 0.200 |
| E | 3.800 | 4.000 | 0.150 | 0.157 |
| E1 | 5.800 | 6.200 | 0.228 | 0.244 |
| e | 1.270 (BSC) | | 0.050 (BSC) | |
| L | 0.400 | 1.270 | 0.016 | 0.050 |
| θ | 0° | 8° | 0° | 8° |



8、 Statements And Notes

8.1、 The name and content of Hazardous substances or Elements in the product

| Part name | Hazardous substances or Elements | | | | | | | | | |
|-------------------------|---|-------------------------------|-------------------------------|-------------------------------|--------------------------|--------------------------------|-------------------|-----------------------|---------------------------|----------------------|
| | Lead and lead compounds | Mercury and mercury compounds | Cadmium and cadmium compounds | Hexavalent chromium compounds | Polybrominated biphenyls | Polybrominated biphenyl ethers | Dibutyl phthalate | Butylbenzyl phthalate | Di-2-ethylhexyl phthalate | Diisobutyl phthalate |
| Lead frame | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Plastic resin | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Chip | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| The lead | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Plastic sheet installed | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| explanation | ○: Indicates that the content of hazardous substances or elements in the detection limit of the following the SJ/T11363-2006 standard. ×: Indicates that the content of hazardous substances or elements exceeding the SJ/T11363-2006 Standard limit requirements. | | | | | | | | | |

8.2、 Notion

Recommended carefully reading this information before the use of this product;

The information in this document are subject to change without notice;

This information is using to the reference only, the company is not responsible for any loss;

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