



809 series Power Supply Supervisor

Features

- Low power consumption
- Low temperature coefficient
- Built-in delay circuit: 200ms
- High input voltage (up to 8V)
- Output voltage accuracy: tolerance $\pm 2\%$
- SOT23 ,SOT23-3 and SOT89 package

Applications

- Microprocessor reset circuitry
- Memory battery back-up circuits
- Power on reset circuits
- System battery life and charge voltage monitors
- Delay circuitry
- Power failure detection

General Description

The 809 series are highly accurate, low power consumption voltage detectors, manufactured using CMOS and laser trimming technologies. A delay circuit is built-in to each detectors. Detect voltage is extremely accurate with minimal temperature drift. Both CMOS and N-ch open drain output configurations are available. Since the delay circuit is built-in, peripherals are unnecessary and high density mounting is possible.

Selection Table

| Part No | Detectable Voltage | Delay Time | Tolerance | Package |
|------------|--------------------|------------|-----------|---------------------------|
| 809Y-xxxXX | 4.63V | 200ms | $\pm 2\%$ | SOT23 SOT23-3 SOT89 |
| 809Y-xxxXX | 4.38V | | $\pm 2\%$ | |
| 809Y-xxxXX | 4.00V | | $\pm 2\%$ | |
| 809Y-xxxXX | 3.08V | | $\pm 2\%$ | |
| 809Y-xxxXX | 2.93V | | $\pm 2\%$ | |
| 809Y-xxxXX | 2.63V | | $\pm 2\%$ | |

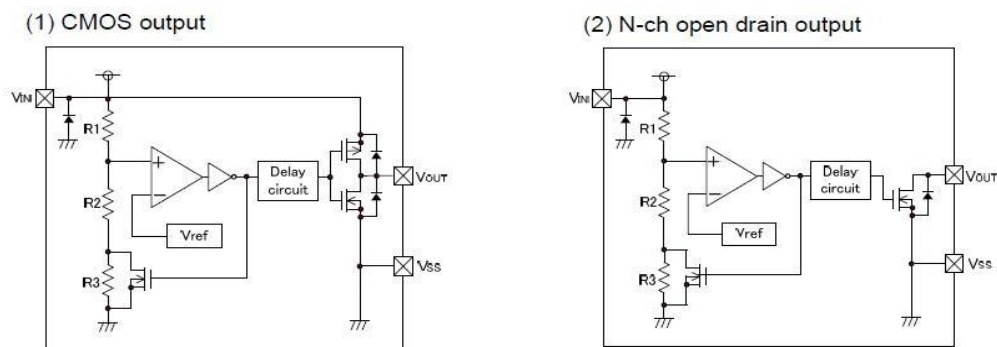
Note: "Y" is CMOS or NMOS output. "xxx" stands for detectable voltages. "XX" stands for package.

Order Information

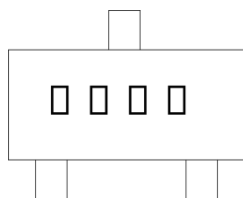
TX809①-②③④⑤⑥

| Designator | Symbol | Description |
|------------|--------|-----------------|
| ① | C | CMOS output |
| | N | NMOS output |
| ②③④ | xxx | Detect voltage |
| ⑤ | N | Package:SOT23 |
| | M | Package:SOT23-3 |
| | P | Package:SOT89 |
| ⑥ | R | RoHS / Pb Free |
| | G | Halogen Free |

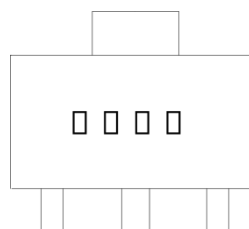
Block Diagram



Marking Rule



SOT23/SOT23-3(TOP VIEW)



SOT89 (TOP VIEW)

| Product | Mark | Product | Mark |
|----------|------|----------|------|
| 809C-263 | AFAA | 809N-263 | BFAA |
| 809C-293 | ADAA | 809N-293 | BDAA |
| 809C-308 | ACAA | 809N-308 | BCAA |
| 809C-400 | CWAA | 809N-400 | BWAA |
| 809C-438 | ABAA | 809N-438 | BBAA |

Product Information

| Product | Package | MOQ |
|------------|---------|---------|
| 809C/ 809N | SOT23 | 3000PCS |
| 809C/ 809N | SOT23-3 | 3000PCS |
| 809C/ 809N | SOT89 | 1000PCS |

Pin Assignment

SOT23/SOT23-3(TOP VIEW)

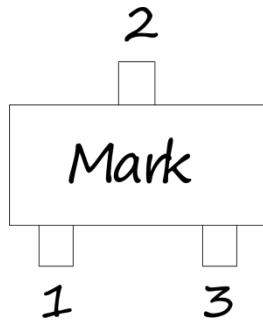


Table1 TX809C/TX809N series (SOT23/SOT23-3 PKG)

| PIN NO. | PIN NAME | FUNCTION |
|---------|----------|-------------------|
| 1 | GND | GND pin |
| 2 | VIN | Input voltage pin |
| 3 | Reset | Reset pin |

SOT89 (TOP VIEW)

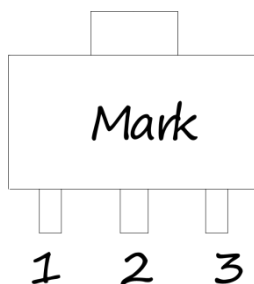


Table2 TX809C/TX809N series (SOT89 PKG)

| PIN NO. | PIN NAME | FUNCTION |
|---------|----------|-------------------|
| 1 | GND | GND pin |
| 2 | VIN | Input voltage pin |
| 3 | Reset | Reset pin |

Absolute Maximum Ratings

Input Voltage..... V to 8.0V Storage Temperature-40°C to 125°C

Operating Temperature-30°C to 80°C

Note: These are stress ratings only. Stresses exceeding the range specified under “Absolute Maximum Ratings” may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in the specification is not implied and prolonged exposure to extreme conditions may affect device reliability.

Thermal Information

| Symbol | Parameter | Package | Max. | Unit |
|---------------|--|---------|------|------|
| θ_{JA} | Thermal Resistance (Junction to Ambient) (Assume no ambient airflow, no heat sink) | SOT23-3 | 250 | °C/W |
| | | SOT89 | 500 | °C/W |
| P_D | Power Dissipation | SOT23-3 | 0.20 | W |
| | | SOT89 | 0.50 | W |

Note: P_D is measured at $T_a = 25^\circ\text{C}$

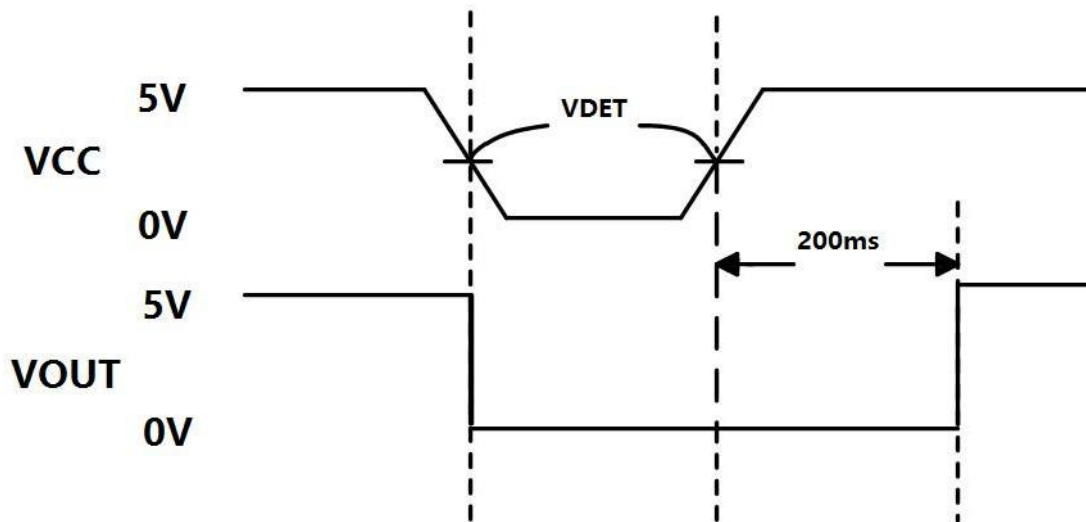


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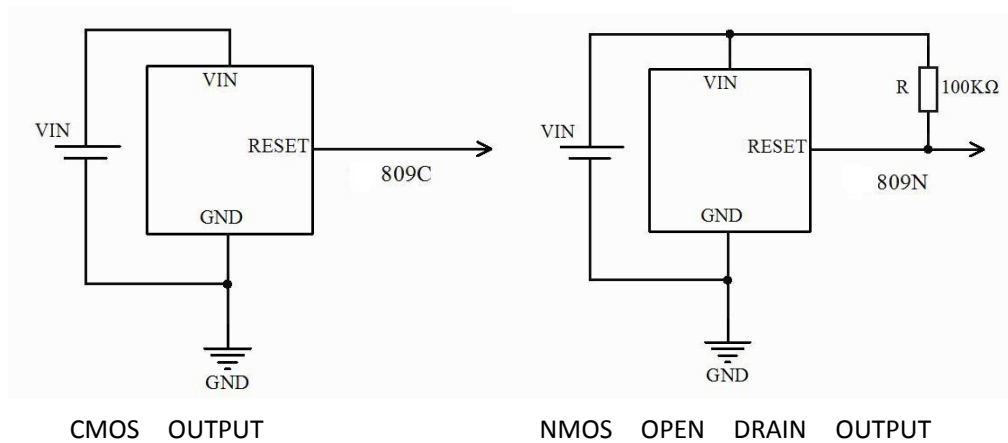
Electrical Characteristics

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|-----------|----------------------------------|-----------------------------------|------|------|------|------------|
| V_{CC} | Input Voltage (V_{CC}) Range | 25°C | 1.2 | | 7.5 | V |
| I_{SS} | Supply Current | $V_{IN}=6V$, $V_{det}=2.63V$ | 1 | 1.8 | 2.5 | μA |
| V_{DET} | Reset Threshold | TA=25°C | 4.56 | 4.63 | 4.70 | V |
| | | TA=25°C | 4.31 | 4.38 | 4.45 | |
| | | TA=25°C | 3.93 | 4.00 | 4.06 | |
| | | TA=25°C | 3.04 | 3.08 | 3.11 | |
| | | TA=25°C | 2.89 | 2.93 | 2.96 | |
| | | TA=25°C | 2.59 | 2.63 | 2.66 | |
| | Reset Threshold Stability | | | 30 | | Ppm/ °C |
| | V_{CC} to Reset Delay | $V_{CC}=V_{TH}$ to $V_{TH}-100mV$ | | 20 | | us |
| V_{OL} | Reset Active Timeout Period | | 150 | 200 | 250 | ms |

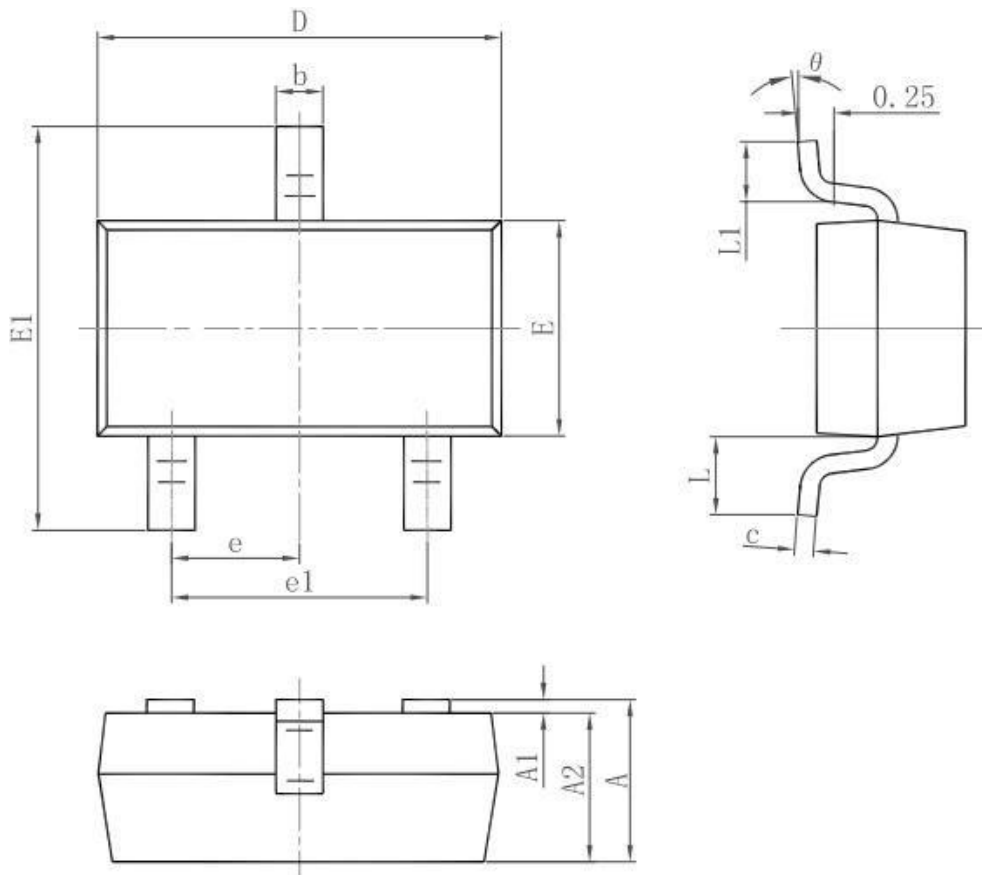
Timing Chart



Application Circuits

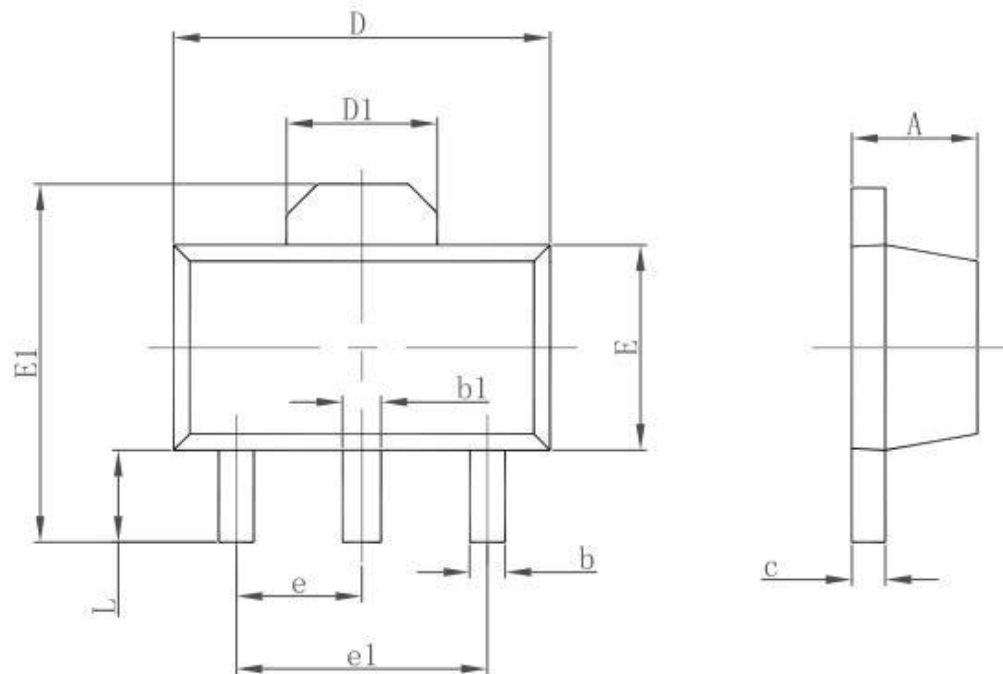


Package Information
3-pin SOT23 Outline Dimensions



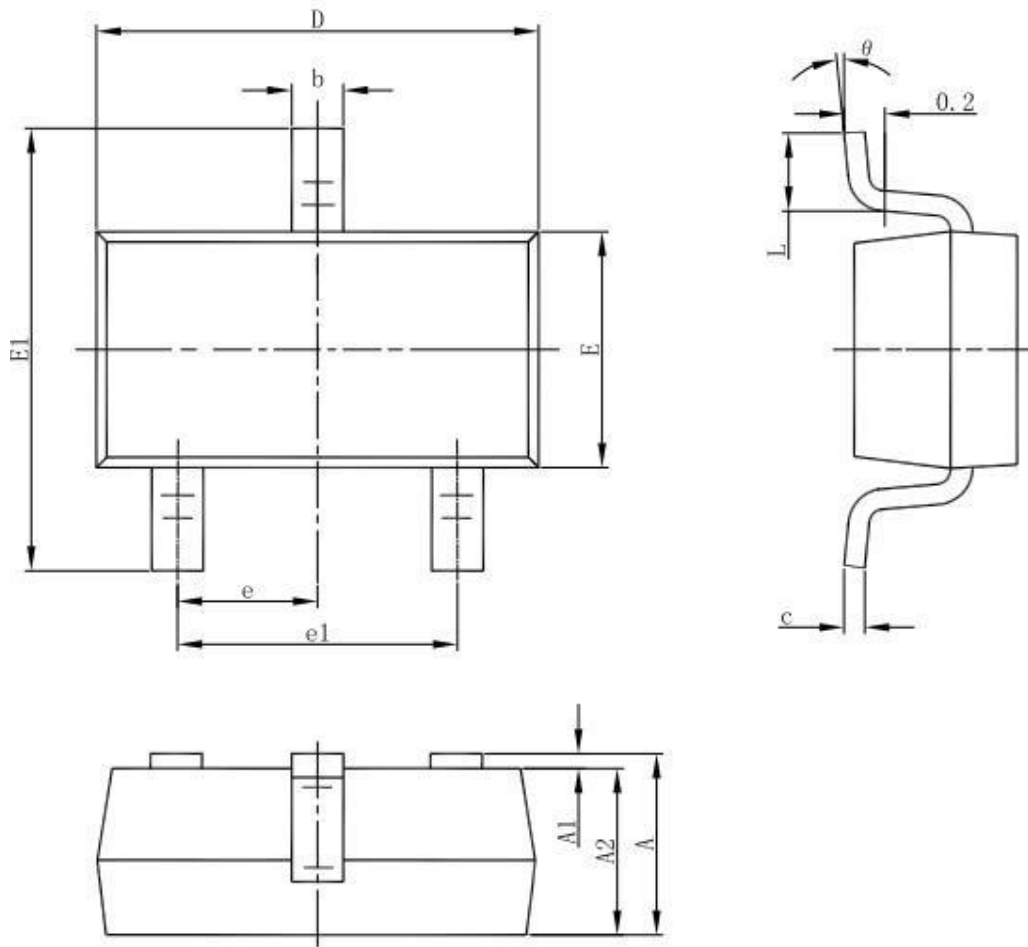
| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 0.900 | 1.150 | 0.035 | 0.045 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.050 | 0.035 | 0.041 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 2.800 | 3.000 | 0.110 | 0.118 |
| E | 1.200 | 1.400 | 0.047 | 0.055 |
| E1 | 2.250 | 2.550 | 0.089 | 0.100 |
| e | 0.950 TYP. | | 0.037 TYP. | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.550 REF. | | 0.022 REF. | |
| L1 | 0.300 | 0.500 | 0.012 | 0.020 |
| θ | 0° | 8° | 0° | 8° |

3-pin SOT89 Outline Dimensions



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 1.400 | 1.600 | 0.055 | 0.063 |
| b | 0.320 | 0.520 | 0.013 | 0.020 |
| b1 | 0.400 | 0.580 | 0.016 | 0.023 |
| c | 0.350 | 0.440 | 0.014 | 0.017 |
| D | 4.400 | 4.600 | 0.173 | 0.181 |
| D1 | 1.550 REF. | | 0.061 REF. | |
| E | 2.300 | 2.600 | 0.091 | 0.102 |
| E1 | 3.940 | 4.250 | 0.155 | 0.167 |
| e | 1.500 TYP. | | 0.060 TYP. | |
| e1 | 3.000 TYP. | | 0.118 TYP. | |
| L | 0.900 | 1.200 | 0.035 | 0.047 |

3-pin SOT23-3 Outline Dimensions



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 1.050 | 1.250 | 0.041 | 0.049 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 1.050 | 1.150 | 0.041 | 0.045 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| c | 0.100 | 0.200 | 0.004 | 0.008 |
| D | 2.820 | 3.020 | 0.111 | 0.119 |
| E | 1.500 | 1.700 | 0.059 | 0.067 |
| E1 | 2.650 | 2.950 | 0.104 | 0.116 |
| e | 0.950(BSC) | | 0.037(BSC) | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.300 | 0.600 | 0.012 | 0.024 |
| theta | 0° | 8° | 0° | 8° |

