



Features

- Low power consumption
- Low voltage drop
- Low temperature coefficient
- High input voltage (up to 24V)

Applications

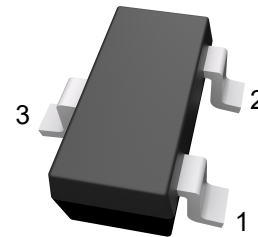
- Battery-powered equipment
- Communication equipment
- Audio/Video equipment

General Description

The PJ71KXXSC series is a set of three-terminal low power high voltage regulators implemented in CMOS technology. They allow input voltages as high as 24V. They are available with several fixed output voltages ranging from 3.0V to 5.0V. CMOS technology ensures low voltage drop and low quiescent current.

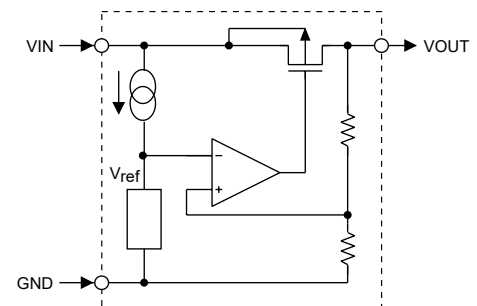
Although designed primarily as fixed voltage regulators, these devices can be used with external components to obtain variable voltages and currents.

SOT-23-3



1.GND 2.VOUT 3.VIN

Block Diagram



Selection Table

| Part No. | Output Voltage | Tolerance |
|-----------|----------------|-----------|
| PJ71K30SC | 3.0V | ±5% |
| PJ71K33SC | 3.3V | ±5% |
| PJ71K36SC | 3.6V | ±5% |
| PJ71K44SC | 4.4V | ±5% |
| PJ71K50SC | 5.0V | ±5% |



Absolute Maximum Ratings (Ta=25°C unless otherwise specified)

| Symbol | Parameter | Rating | Units |
|------------------|---------------------|--------------|-------|
| V _{IN} | Supply Voltage | -0.3V to 28V | V |
| P _D | Power Dissipation | 200 | mW |
| T _{OPR} | Operating Ambient | -40 ~ +85 | °C |
| T _{STG} | Storage Temperature | -65 ~ +125 | °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.

Electrical Characteristics

PJ71K30SC (Ta=25°C)

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Units |
|---|-------------------------|-----------------|---|------|-------|------|-------|
| | | V _{IN} | Conditions | | | | |
| V _{OUT} | Output Voltage | 5V | I _{OUT} =10mA | 2.85 | 3.0 | 3.15 | V |
| I _{OUT} | Output Current | 5V | | 20 | 30 | | mA |
| ΔV _{OUT} | Load Regulation | 5V | 1mA ≤ I _{OUT} ≤ 20mA | | 60 | 100 | mV |
| V _D | Voltage Drop | | I _{OUT} =1mA | | 100 | | mV |
| I _{SS} | Current Consumption | 5V | No load | | 4 | 6.0 | uA |
| $\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$ | Line Regulation | | 4V ≤ V _{IN} ≤ 24V I _{OUT} =1mA | | 0.2 | | %/V |
| V _{IN} | Input Voltage | | | | | 24 | V |
| $\frac{\Delta V_{OUT}}{\Delta T_a}$ | Temperature Coefficient | 5V | I _{OUT} =10mA 0°C < T _a < 70°C | | ±0.45 | | mV/°C |

PJ71K33SC (Ta=25°C)

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Units |
|---|-------------------------|-----------------|---|-------|------|-------|-------|
| | | V _{IN} | Conditions | | | | |
| V _{OUT} | Output Voltage | 5.5V | I _{OUT} =10mA | 3.135 | 3.3 | 3.465 | V |
| I _{OUT} | Output Current | 5.5V | | 20 | 30 | | mA |
| ΔV _{OUT} | Load Regulation | 5.5V | 1mA ≤ I _{OUT} ≤ 30mA | | 60 | 100 | mV |
| V _D | Voltage Drop | | I _{OUT} =1mA | | 100 | | mV |
| I _{SS} | Current Consumption | 5.5V | No load | | 4 | 6 | uA |
| $\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$ | Line Regulation | | 4.5V ≤ V _{IN} ≤ 24V I _{OUT} =1mA | | 0.2 | | %/V |
| V _{IN} | Input Voltage | | | | | 24 | V |
| $\frac{\Delta V_{OUT}}{\Delta T_a}$ | Temperature Coefficient | 5.5V | I _{OUT} =10mA 0°C < T _a < 70°C | | ±0.5 | | mV/°C |



PJ71KXXSC Series

Low Dropout Regulators

PJ71K36SC (Ta=25°C)

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Units |
|---|-------------------------|-----------------|---|------|------|------|-------|
| | | V _{IN} | Conditions | | | | |
| V _{OUT} | Output Voltage | 5.6V | I _{OUT} =10mA | 3.42 | 3.6 | 3.78 | V |
| I _{OUT} | Output Current | 5.6V | | 20 | 30 | | mA |
| ΔV _{OUT} | Load Regulation | 5.6V | 1mA ≤ I _{OUT} ≤ 30mA | | 60 | 100 | mV |
| V _D | Voltage Drop | | I _{OUT} =1mA | | 60 | | mV |
| I _{SS} | Current Consumption | 5.6V | No load | | 3.0 | 7.0 | uA |
| $\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$ | Line Regulation | | 4.6V ≤ V _{IN} ≤ 24V I _{OUT} =1mA | | 0.2 | | %/V |
| V _{IN} | Input Voltage | | | | | 24 | V |
| $\frac{\Delta V_{OUT}}{\Delta T_a}$ | Temperature Coefficient | 5.6V | I _{OUT} =10mA 0°C < T _a < 70°C | | ±0.6 | | mV/°C |

PJ71K44SC (Ta=25°C)

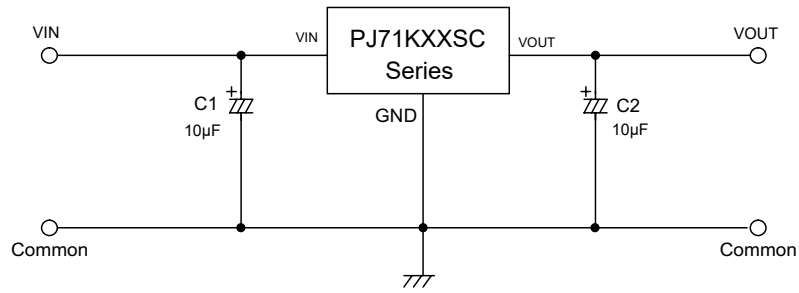
| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Units |
|---|-------------------------|-----------------|---|------|------|------|-------|
| | | V _{IN} | Conditions | | | | |
| V _{OUT} | Output Voltage | 6.4V | I _{OUT} =10mA | 4.18 | 4.4 | 4.62 | V |
| I _{OUT} | Output Current | 6.4V | | 20 | 30 | | mA |
| ΔV _{OUT} | Load Regulation | 6.4V | 1mA ≤ I _{OUT} ≤ 30mA | | 60 | 100 | mV |
| V _D | Voltage Drop | | I _{OUT} =1mA | | 100 | | mV |
| I _{SS} | Current Consumption | 6.4V | No load | | 4 | 7.5 | uA |
| $\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$ | Line Regulation | | 5.4V ≤ V _{IN} ≤ 24V I _{OUT} =1mA | | 0.2 | | %/V |
| V _{IN} | Input Voltage | | | | | 24 | V |
| $\frac{\Delta V_{OUT}}{\Delta T_a}$ | Temperature Coefficient | 6.4V | I _{OUT} =10mA 0°C < T _a < 70°C | | ±0.7 | | mV/°C |

PJ71K50SC (Ta=25°C)

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Units |
|---|-------------------------|-----------------|---|------|-------|------|-------|
| | | V _{IN} | Conditions | | | | |
| V _{OUT} | Output Voltage | 7V | I _{OUT} =10mA | 4.75 | 5.0 | 5.25 | V |
| I _{OUT} | Output Current | 7V | | 20 | 30 | | mA |
| ΔV _{OUT} | Load Regulation | 7V | 1mA ≤ I _{OUT} ≤ 30mA | | 60 | 100 | mV |
| V _D | Voltage Drop | | I _{OUT} =1mA | | 100 | | mV |
| I _{SS} | Current Consumption | 7V | No load | | 5 | 9 | uA |
| $\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$ | Line Regulation | | 6V ≤ V _{IN} ≤ 24V I _{OUT} =1mA | | 0.2 | | %/V |
| V _{IN} | Input Voltage | | | | | 24 | V |
| $\frac{\Delta V_{OUT}}{\Delta T_a}$ | Temperature Coefficient | 7V | I _{OUT} =10mA 0°C < T _a < 70°C | | ±0.75 | | mV/°C |



Basic Circuits

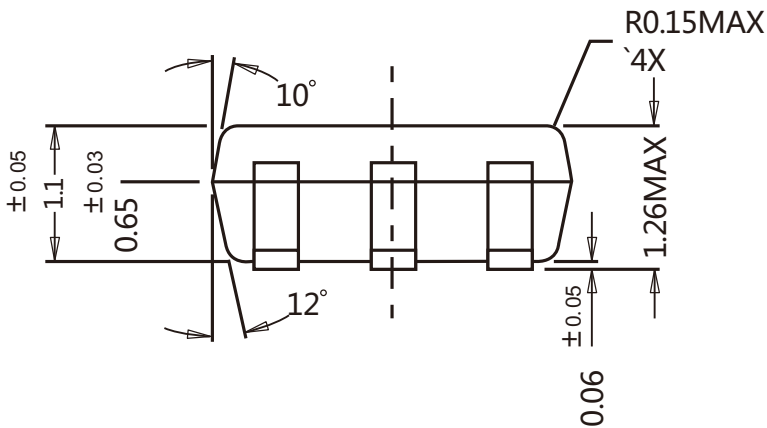
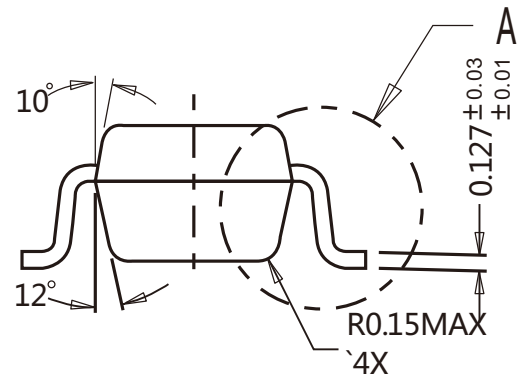
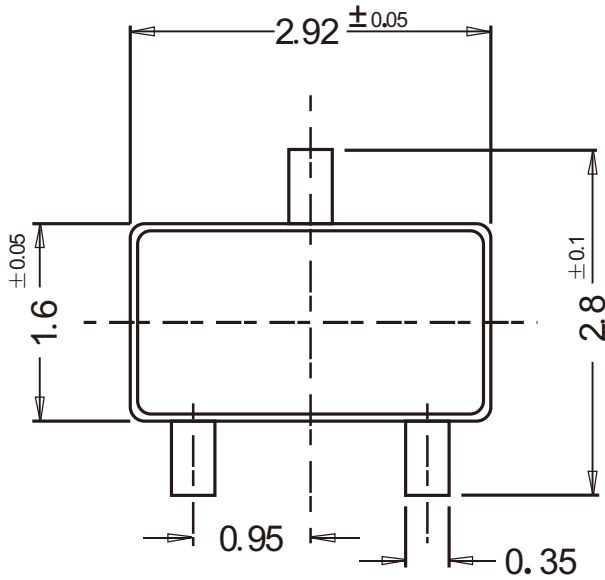




Package Outline

SOT-23-3

Dimensions in mm



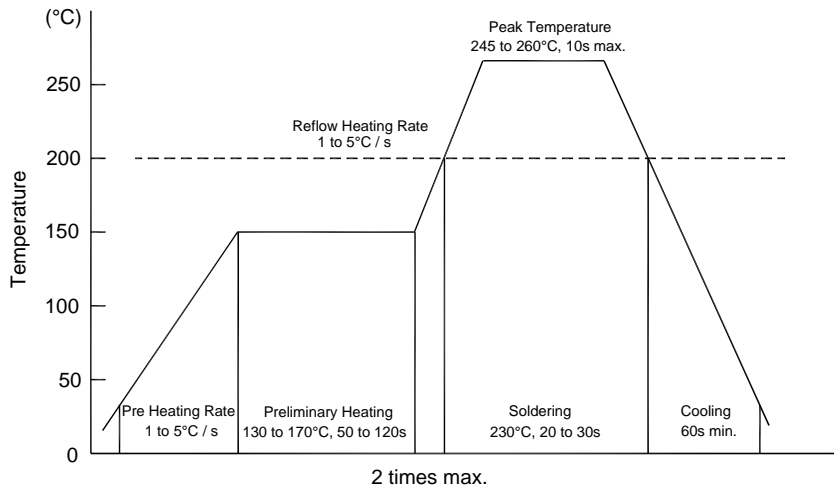
Ordering Information

| Device | Package | Shipping |
|------------------|----------|-----------------------|
| PJ71KXXSC Series | SOT-23-3 | 3000/Reel&Tape(7inch) |



Conditions of Soldering and Storage

◆ Recommended condition of reflow soldering



Recommended peak temperature is over 245 °C. If peak temperature is below 245 °C, you may adjust the following parameters:

- Time length of peak temperature (longer)
- Time length of soldering (longer)
- Thickness of solder paste (thicker)

◆ Conditions of hand soldering

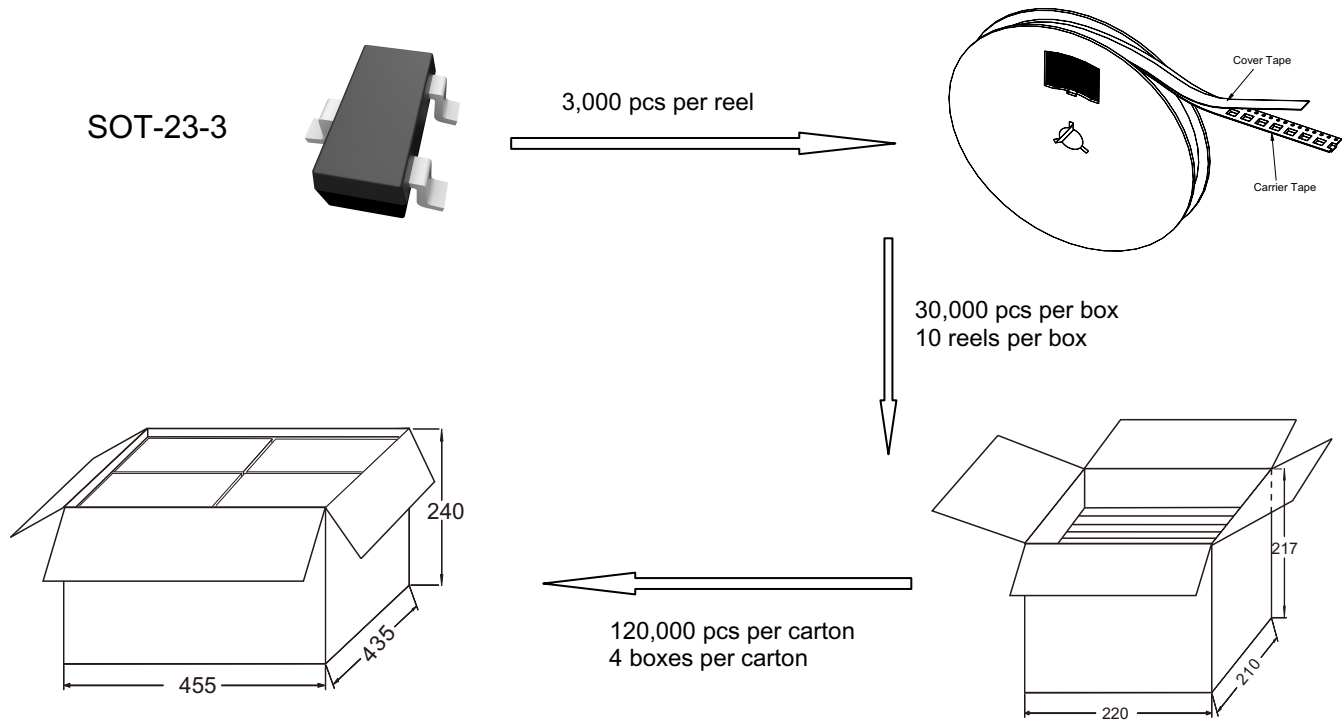
- Temperature: 370 °C
- Time: 3s max.
- Times: one time

◆ Storage conditions

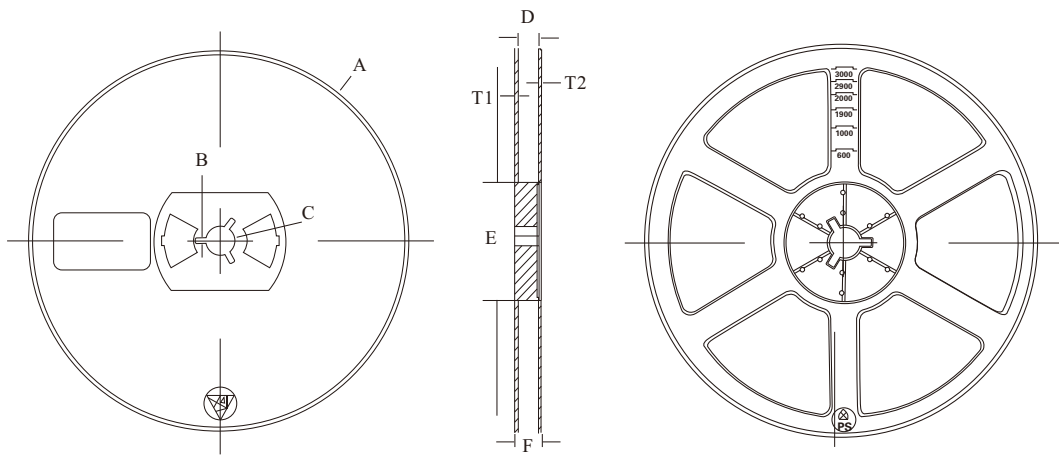
- **Temperature**
5 to 40 °C
- **Humidity**
30 to 80% RH
- **Recommended period**
One year after manufacturing



Package Specifications



2. Tape and reel data(7inch Units:mm)



| Symbol | Value (unit: mm) |
|--------|------------------|
| A | Ø 177.8±1 |
| B | 2.7±0.2 |
| C | Ø 13.5±0.2 |
| E | Ø 54.5±0.2 |
| F | 12.3±0.3 |
| D | 9.6+2/-0.3 |
| T1 | 1.0±0.2 |
| T2 | 1.2±0.2 |
| N | 3.15±0.1 |
| G | 1.22±0.1 |

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