

ILC7362

SOT-23 CMOS Negative LDO



General Description

100mA negative LDO in SOT-23 package.

This CMOS device regulates a negative supply down to a fixed voltage level at $\pm 2\%$ accuracy.

It offers exceptional LDO performance of 120mV dropout at 50mA current levels.

The device also comes in a 3-lead SOT-89 package, for a number of voltage and current offerings.

Features

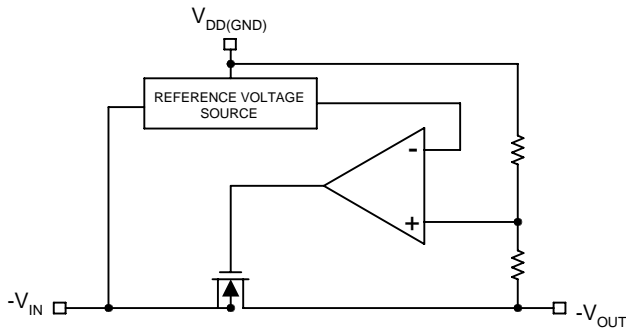
- All-CMOS design in SOT-23 and SOT-89 packages gives optimal size and power performance
- $\pm 2\%$ precision outputs
- 3 μ A of Iq
- Package and Voltage options allow:

100mA-5V Regulator
 50mA-3V Regulator
 100mA-5V to -3V Converter
 50mA-5V to -3V Converter

Applications

- Battery-powered Equipment
- Reference voltage sources
- Portable Cameras and Video Recorders
- Power Failure Detection
- PDAs

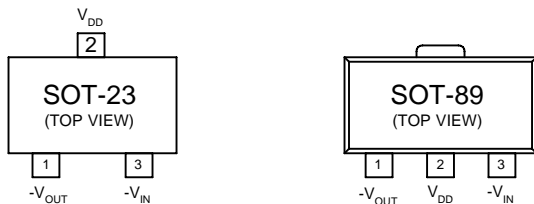
Block Diagram



Ordering Information

| | |
|--------------|--|
| ILC7362CP-50 | 100mA-5V Regulator SOT-89 Package |
| ILC7362CP-30 | 100mA-5V to -3V Converter, or 50mA-5V Regulator SOT-89 Package |
| ILC7362CM-30 | 50mA-5V to -3V Converter SOT-23 Package |

Pin-Package Configurations



*Standard product offering comes in tape & reel, quantity 3000 per reel, orientation right for SOT-23, quantity 1000 per reel, orientation right for SOT-89.

Absolute Maximum Ratings (T_A = 25°C)

| Parameter | | Symbol | Ratings | Units |
|------------------------------------|--------|------------------|--|-------|
| Input Voltage | | V _{IN} | -12 | V |
| Output Current | | I _{OUT} | 200 | mA |
| Output Voltage | | V _{OUT} | -V _{DD} -0.3~V _{IN} +0.3 | V |
| Continuous Total Power Dissipation | SOT-23 | P _D | 150 | mW |
| | SOT-89 | | 500 | |
| Operating Ambient Temperature | | T _{opr} | -30~+85 | °C |
| Storage Temperature | | T _{stg} | -40~+125 | °C |

Electrical Characteristics ILC7362CP-50

| Parameter | Symbol | Conditions | Min | Typ | Max | Units |
|--|---|--|-------|------------|------------|--------|
| Output Voltage | V _{OUT} | I _{OUT} = 20mA, V _{IN} = -7.0V | -4.90 | -5.0 | -5.10 | V |
| Maximum Output Current | I _{OUTmax} | V _{IN} = -7.0V, V _{OUT} ≥ -4.5V | 100 | | | mA |
| Load Stability | ΔV _{OUT} | V _{IN} = -7.0V, 1mA ≤ I _{OUT} ≤ 50mA | | 40 | 80 | mV |
| Input/Output Voltage Differential | V _{dif} | I _{OUT} = 50mA I _{OUT} = 100mA | | 120 380 | 300 600 | mV |
| Supply Current | I _{SS} | V _{IN} = 7.0V | | 3.0 | 7.0 | μA |
| Input Stability | $\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$ | I _{OUT} = 20mA -7.0 ≤ V _{IN} ≤ -10.0V | | 0.1 | 0.3 | %/V |
| Input Voltage | V _{IN} | | | | 10.0 | V |
| Output Voltage Temperature Characteristics | $\frac{\Delta V_{OUT}}{\Delta T_{opr} \cdot V_{OUT}}$ | I _{OUT} = 20mA -30°C ≤ T _{opr} ≤ 80°C | | ±100 | | ppm/°C |

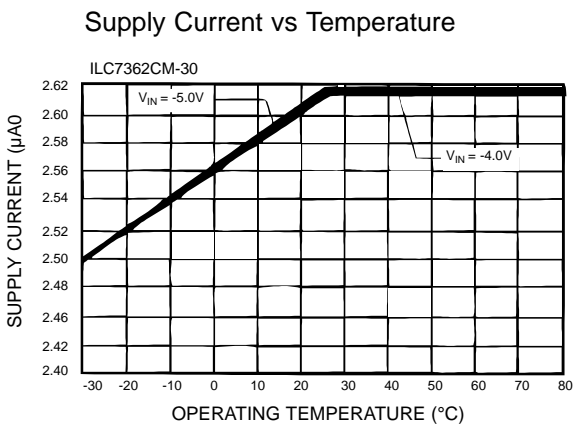
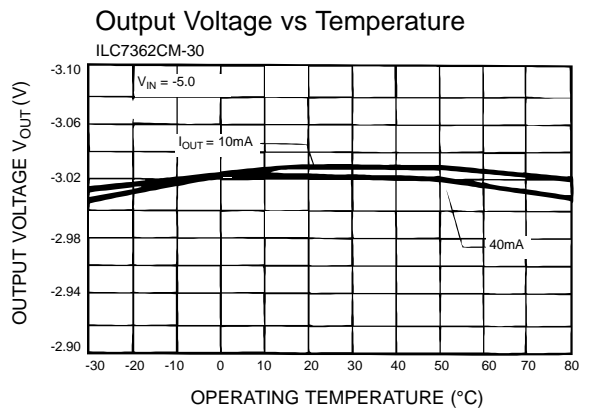
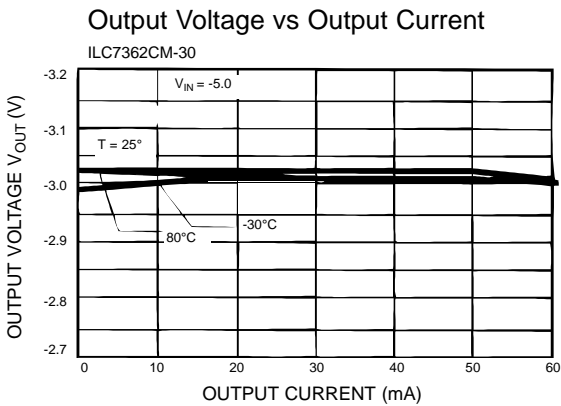
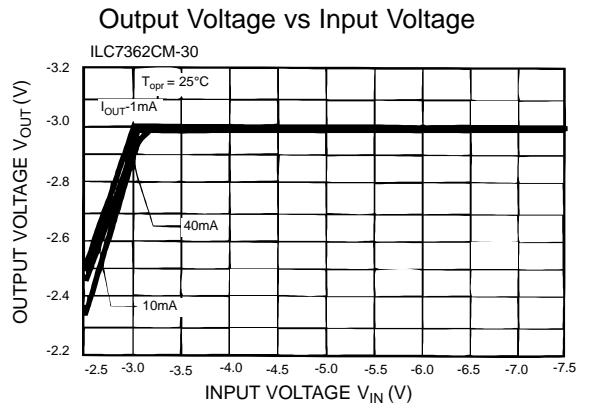
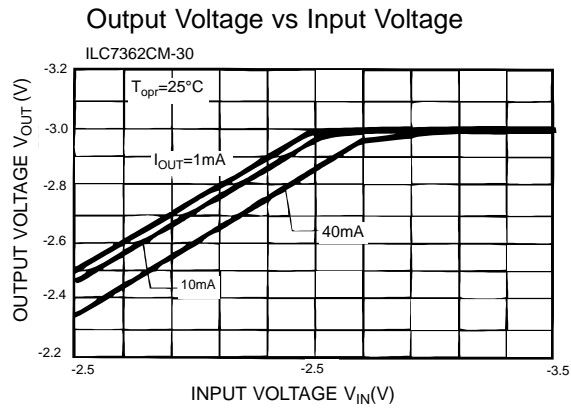
Note:

1. V_{OUT} means the output voltage when “V_{OUT}-2.0V” is provided at the V_{IN} pin while maintaining a certain I_{OUT} value.
2. V_{dif} is defined as “|V_{IN}| - |V_{OUT}| .”
3. I_{OUTmax} = This is specified for SOT-89 package. For SOT-23, it is limited by continuous total power dissipation.

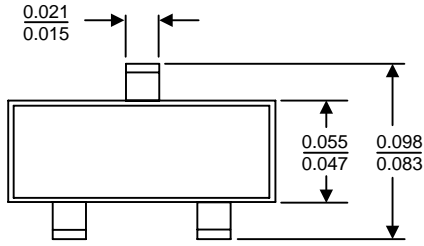
Electrical Characteristics ILC7362CP-30

| Parameter | Symbol | Conditions | Min | Typ | Max | Units |
|--|---|---|-------|------------|------------|-------------------------|
| Output Voltage | V_{OUT} | $I_{OUT} = 20\text{mA}$, $V_{IN} = -5.0\text{V}$ | -2.92 | -3.0 | -3.06 | V |
| Maximum Output Current | $I_{OUT (MAX)}$ | $V_{IN} = -5.0\text{V}$, $V_{OUT} \geq -2.7\text{V}$ | 100 | | | mA |
| Load Stability | ΔV_{OUT} | $V_{IN} = -5.0\text{V}$, $1\text{mA} \leq I_{OUT} \leq 40\text{mA}$ | | 40 | 80 | mV |
| Input/Output Voltage Differential | V_{dif} | $I_{OUT} = 40\text{mA}$ $I_{OUT} = 80\text{mA}$ | | 120 380 | 300 600 | mV |
| Supply Current | I_{SS} | $V_{IN} = -5.0\text{V}$ | | 2.5 | 6.0 | μA |
| Input Stability | $\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$ | $I_{OUT} = 20\text{mA}$ $-5.0\text{V} \leq V_{IN} \leq -10.0\text{V}$ | | 0.1 | 0.3 | %/V |
| Input Voltage | V_{IN} | | | | -10.0 | V |
| Output Voltage Temperature Characteristics | $\frac{\Delta V_{OUT}}{\Delta T_{opr} \cdot V_{OUT}}$ | $I_{OUT} = 20\text{mA}$ $-30^{\circ}\text{C} \leq T_{opr} \leq 80^{\circ}\text{C}$ | | ± 100 | | ppm/ $^{\circ}\text{C}$ |

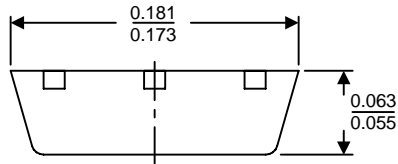
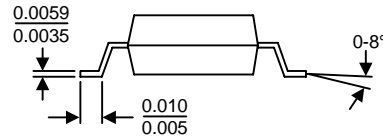
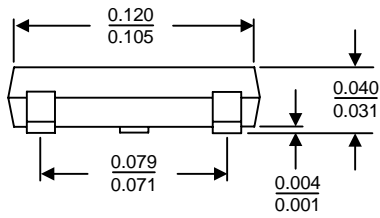
Typical Performance Characteristics *General conditions for all curves; 4.7µF on output*



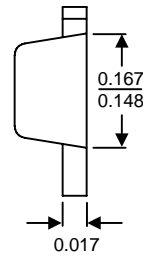
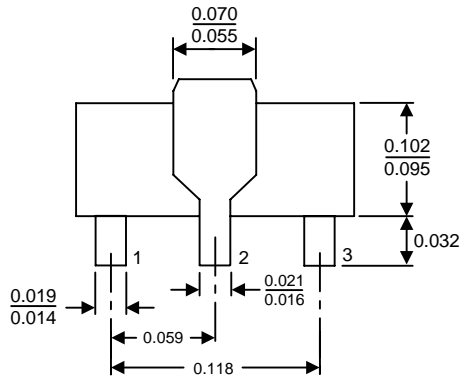
Packaging Information



SOT-23
All dimensions in inches



SOT-89
All dimensions in inches



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