

# ILC7362

## SOT-23 CMOS Negative LDO

### Features

- All-CMOS design in SOT-23 and SOT-89 packages gives optimal size and power performance
- $\pm 2\%$  precision outputs
- $3\mu\text{A}$  of  $I_q$
- 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

### Description

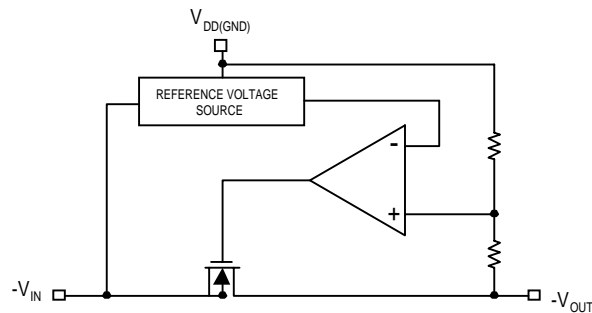
100mA negative LDO in SOT-23 package.

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

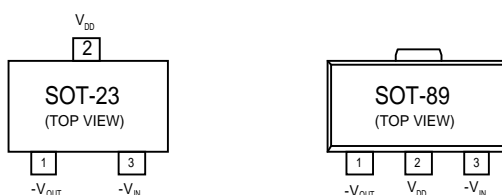
It offers exceptional LDO performance of 120mV dropout at 50mA current levels.

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

### Block Diagram



## Pin Assignments



## Absolute Maximum Ratings (T<sub>A</sub> = 25°C)

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

## Electrical Characteristics ILC7362CP-50

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

**Note:**

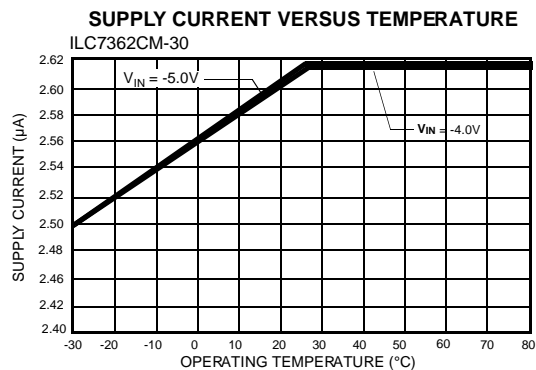
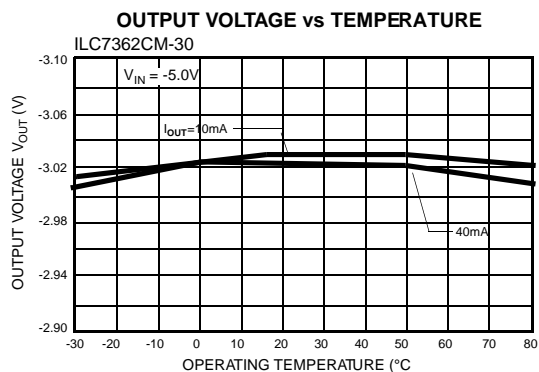
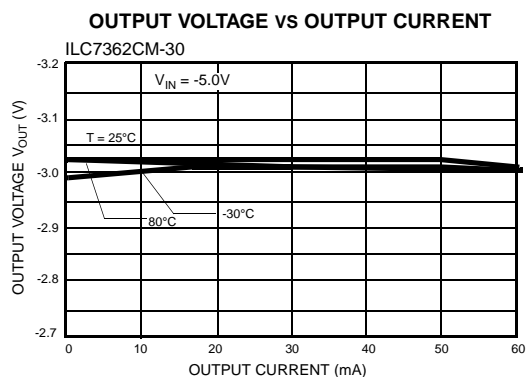
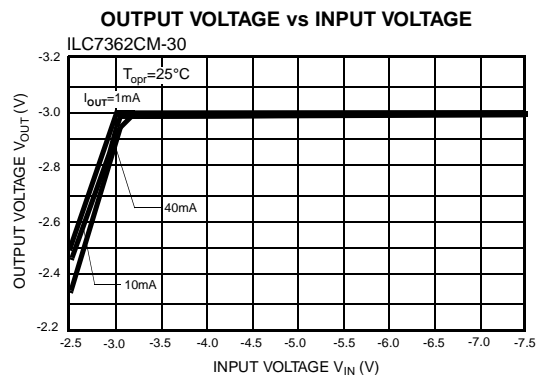
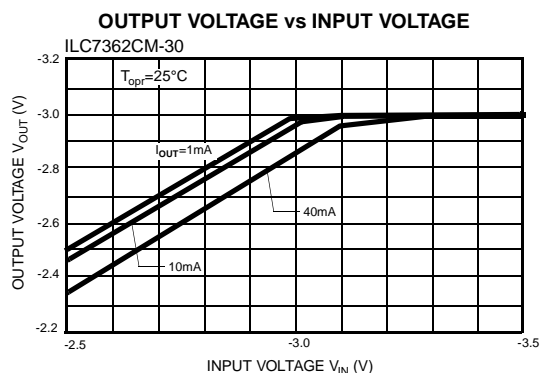
- V<sub>OUT</sub> means the output voltage when “V<sub>OUT</sub>-2.0V” is provided at the V<sub>IN</sub> pin while maintaining a certain I<sub>OUT</sub> value.
- V<sub>dif</sub> is defined as “V<sub>IN</sub> - V<sub>OUT</sub>.”
- I<sub>OUTmax</sub> = This is specified for SOT-89 package. For SOT-23, 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                        | $I_{OUTmax}$  | $V_{IN} = -5.0\text{V}$ , $V_{OUT} \geq -2.7\text{V}$                                 | 100   |            |            | mA                      |
| Load Stability                                | $\Delta V_{OUT}$                                      | $V_{IN} = -5.0\text{V}$ , $1\text{mA} \leq I_{OUT} \leq 40\text{mA}$                  |       | 40         | 80         | mV                      |
| Input/Output<br>Voltage Differential          | $V_{dif}$   | $I_{OUT} = 40\text{mA}$<br>$I_{OUT} = 80\text{mA}$                                    |       | 120<br>380 | 300<br>600 | mV                      |
| Supply Current                                | $I_{SS}$  | $V_{IN} = -5.0\text{V}$   |       | 2.5        | 6.0        | $\mu\text{A}$           |
| Input Stability                               | $\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$  | $I_{OUT} = 20\text{mA}$<br>$-5.0 \leq V_{IN} \leq -10.0\text{V}$                      |       | 0.1        | 0.3        | %/V                     |
| Input Voltage                                 | $V_{IN}$  |   |       |            | -10.0      | V                       |
| Output Voltage<br>Temperature Characteristics | $\frac{\Delta V_{OUT}}{\Delta T_{opr} \cdot V_{OUT}}$ | $I_{OUT} = 20\text{mA}$<br>$-30^{\circ}\text{C} \leq T_{opr} \leq 80^{\circ}\text{C}$ |       | $\pm 100$  |            | ppm/ $^{\circ}\text{C}$ |

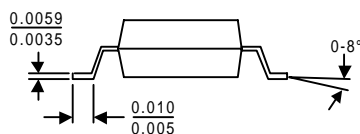
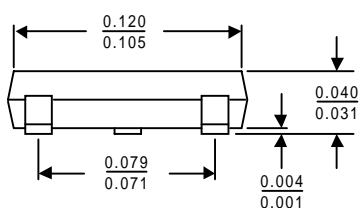
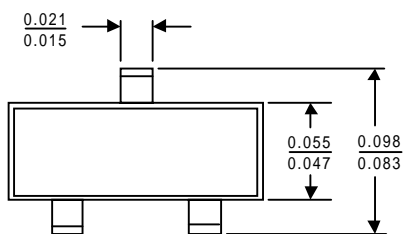
# Typical Performance Characteristics

General conditions for all curves; 4.7mF on output

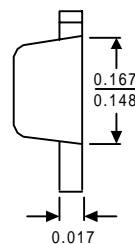
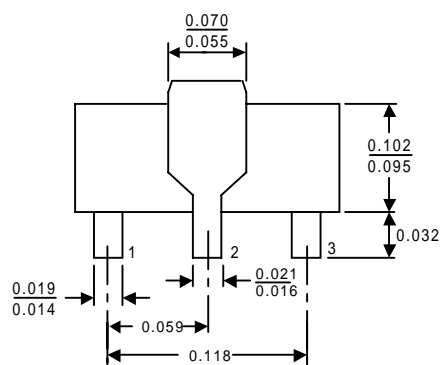
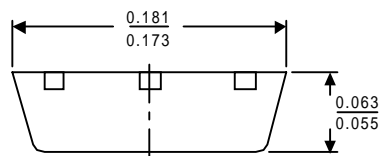


# Packaging Information

## SOT-23



## SOT-89



## Ordering Information

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

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