ILC7062

SOT-23 CMOS LDO

POWER POWERED BY IMPALA ON THE GO

General Description

250mA CMOS LDO in a SOT-23 package, featuring 120mV of dropout voltage at 100mA and 380mV at 200mA current levels

The part offers ±2% accuracy on outputs, yet draws only 2µA of current. Short-circuit protection is standard.

The part comes in both 3-lead SOT-23 (150mW) and 3-lead SOT-89 (500mW) to handle a variety of voltage and current levels.

Transient response to load variations have improved in comparison to the existing series.

Low Power consumption and high accuracy is achieved through CMOS and laser trimming technologies.

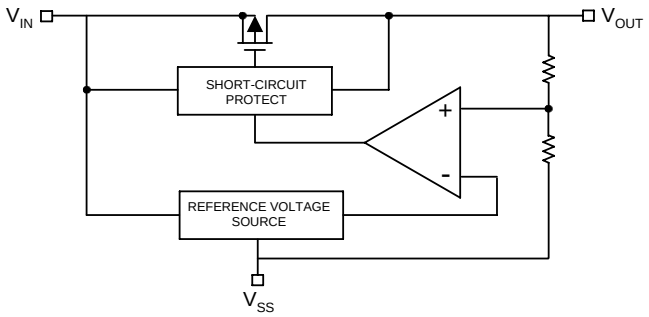
Features

- Low Power Consumption: typ 2.0µA at V_{OUT} = 5V
- All-CMOS design in SOT-23 and SOT-89 packages gives optimal size and power performances.
- Highly accurate output ±2% (±1%)
- Maximum output current: 250mA (Limited to 150mW power dissipation SOT-23, 500mW SOT-89)
- Output Voltage Range: 2.0V to 6.0V

Applications

- Battery-powered Equipment
- Reference voltage sources
- Palmtops
- Portable cameras and video recorders

Block Diagram

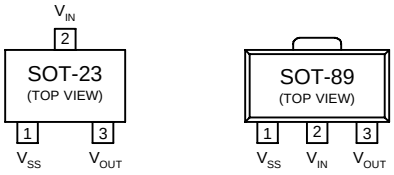


Ordering Information*

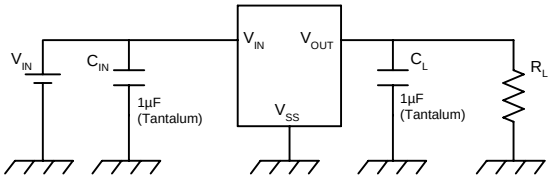
ILC7062CP-50	5.0V output, SOT-89*
ILC7062CM-50	5.0V output, SOT-23-3**
ILC7062CP-46	4.6V output, SOT-89*
ILC7062CP-33	3.3V output, SOT-89*
ILC7062CP-30	3.0V output, SOT-89*
ILC7062CP-25	2.5V output, SOT-89*
ILC7062CM-25	2.5V output, SOT-23-3**
	* Max power dissipation of 500mW ** Max power dissipation of 150mW

*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.

Pin-Package Configurations



Standard Circuit



Absolute Maximum Ratings (T_A = 25°C)

Parameter		Symbol	Ratings	Units
Input Voltage		V_{IN}	12	V
Output Current **(Note 3)**		$I_{OUT\ MAX}$	500	mA
Output Voltage **(Note 1)**		V_{OUT}	V_{SS}-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}	-40~+85	°C
Storage Temperature		T_{stg}	-40~+125	°C

Electrical Characteristics ILC7062CP-50

T_A = 25°C

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Output Voltage	V_{OUT}	I_{OUT} = 40mA, V_{IN} = 6.0V	4.90	5.0	5.10	V
Maximum Output Current	I_{OUT}max	V_{IN} =6.0V, $V_{OUT} \geq$ 4.5V	250			mA
Load Stability	ΔV_{OUT}	V_{IN} = 6.0V, 1mA $\leq I_{OUT} \leq$ 100mA		40	80	mV
Input/Output Voltage Differential **(Note 2)**	V_{dif}	I_{OUT} = 100mA I_{OUT} = 200mA		120 380	300 600	mV
Supply Current	I_{SS}	V_{IN} = 6.0V		2	4.5	µA
Input Stability	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \bullet V_{OUT}}$	I_{OUT} = 40mA 6.0V$\leq V_{IN} \leq$ 10.0V		0.2	0.3	%/V
Input Voltage	V_{IN}				10.0	V
Output Voltage Temperature Characteristics	$\frac{\Delta V_{OUT}}{\Delta T_{opr} \bullet V_{OUT}}$	I_{OUT} = 40mA -40°C $\leq T_{opr} \leq$ 85°C		±100		ppm/°C

Notes:

1. V_{OUT} means the output voltage when "V_{OUT} + 1.0V" is provided at the V_{IN} pin while maintaining a certain I_{OUT} value.
2. V_{dif} is defined as "V_{IN}-V_{OUT}" where V_{OUT} = V_{SET} X 0.98.
3. I_{OUT} max = This is specified for SOT-89 package. For SOT-23, it is limited by continuous total power dissipation.

Electrical Characteristics ILC7062CM-33

T_A = 25°C

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Output Voltage	V_{OUT}	I_{OUT} = 40mA, V_{IN} = 4.3V	3.234	3.300	3.366	V
Maximum Output Current	I_{OUT}max	V_{IN} = 4.3V, $V_{OUT} \geq$ 2.97V	50			mA
Load Stability	ΔV_{OUT}	V_{IN} = 4.3V, 1mA $\leq I_{OUT} \leq$ 80mA		45	90	mV
Input/Output Voltage Differential **(Note 2)**	V_{dif}	I_{OUT} = 80mA I_{OUT} = 160mA		180 400	360 700	mV
Supply Current	I_{SS}	V_{IN} = 4.0V		2	4.5	µA
Input Stability	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \bullet V_{OUT}}$	I_{OUT} = 40mA 4.3V$\leq V_{IN} \leq$ 10.0V		0.2	0.3	%/V
Input Voltage	V_{IN}				10.0	V
Output Voltage Temperature Characteristics	$\frac{\Delta V_{OUT}}{\Delta T_{opr} \bullet V_{OUT}}$	I_{OUT} = 40mA -30°C $\leq T_{opr} \leq$ 80°C		±100		ppm/°C

Electrical Characteristics ILC7062CP-30

T_A = 25°C

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Output Voltage	V_{OUT}	I_{OUT} = 40mA, V_{IN} = 4.0V	2.94	3.0	3.06	V
Maximum Output Current	I_{OUT}max	V_{IN} = 4.0V, $V_{OUT} \geq$ 2.7V	150			mA
Load Stability	ΔV_{OUT}	V_{IN} = 4.0V, 1mA $\leq I_{OUT} \leq$ 80mA		45	90	mV
Input/Output Voltage Differential **(Note 2)**	V_{dif}	I_{OUT} = 80mA I_{OUT} = 160mA		180 400	360 700	mV
Supply Current	I_{SS}	V_{IN} = 4.0V		2	4.5	µA
Input Stability	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \bullet V_{OUT}}$	I_{OUT} = 40mA 4.0V$\leq V_{IN} \leq$ 10.0V		0.2	0.3	%/V
Input Voltage	V_{IN}				10.0	V
Output Voltage Temperature Characteristics	$\frac{\Delta V_{OUT}}{\Delta T_{opr} \bullet V_{OUT}}$	I_{OUT} = 40mA -30°C $\leq T_{opr} \leq$ 80°C		±100		ppm/°C

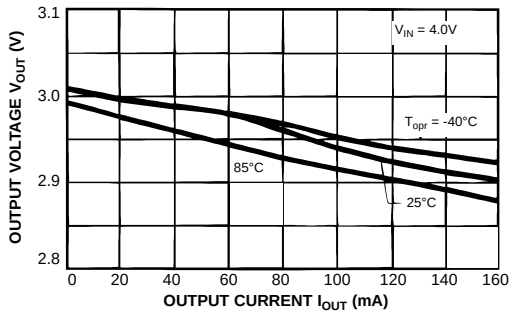
Notes:

1. V_{OUT} means the output voltage when "V_{OUT} + 1.0V" is provided at the V_{IN} pin while maintaing a certain I_{OUT} value.
2. V_{dif} is defined as "V_{IN}-V_{OUT}" where V_{OUT} = V_{SET} X 0.98.
3. I_{OUT} max = This is specified for SOT-89 package. For SOT-23, it is limited by continuous total power dissipation.

Typical Performance Characteristics *General conditions for all curves*

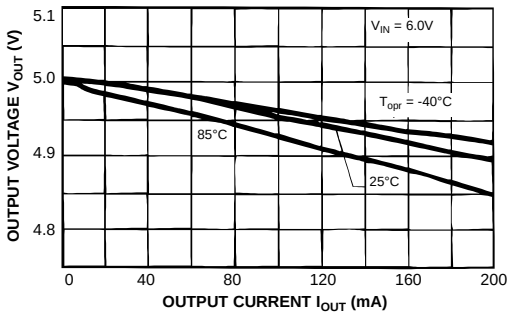
OUTPUT VOLTAGE vs OUTPUT CURRENT

ILC7062CP-30



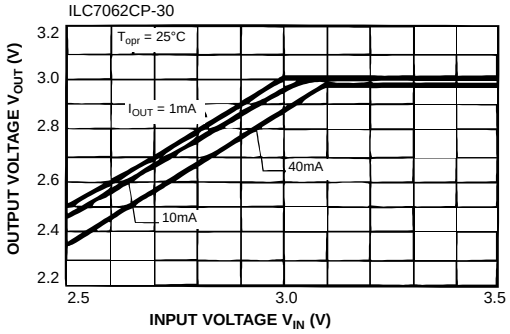
OUTPUT VOLTAGE vs OUTPUT CURRENT

ILC7062CP-50



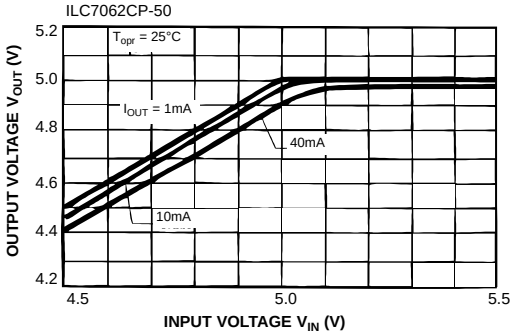
OUTPUT VOLTAGE vs INPUT VOLTAGE

ILC7062CP-30



OUTPUT VOLTAGE vs INPUT VOLTAGE

ILC7062CP-50



OUTPUT VOLTAGE vs INPUT VOLTAGE

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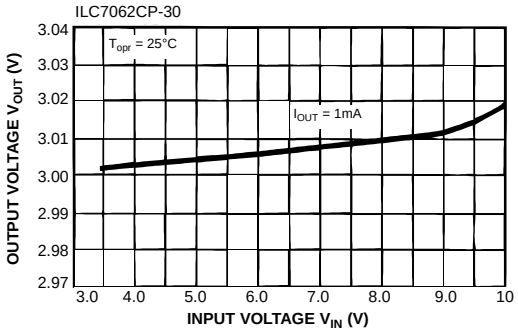

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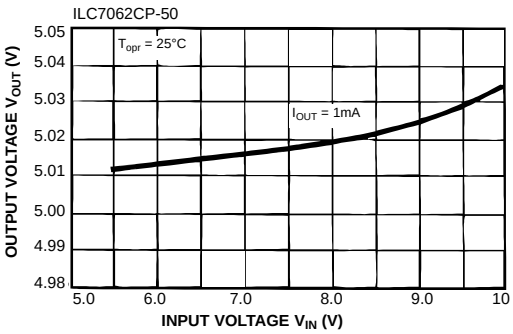
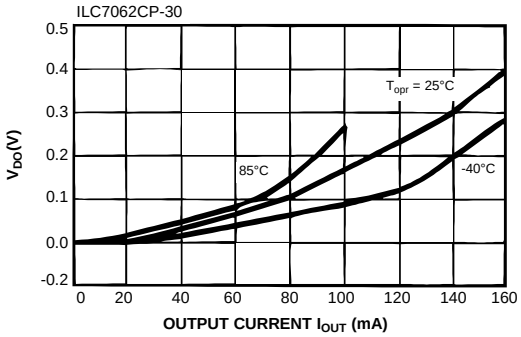


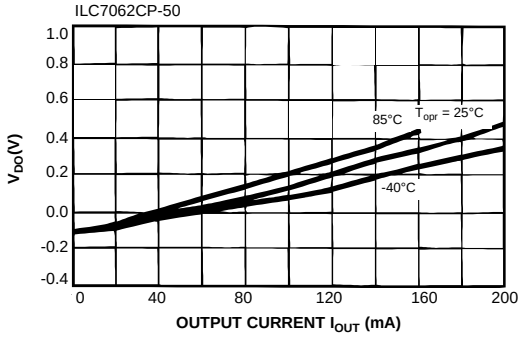
V_{DO} vs OUTPUT CURRENT

ILC7062CP-30



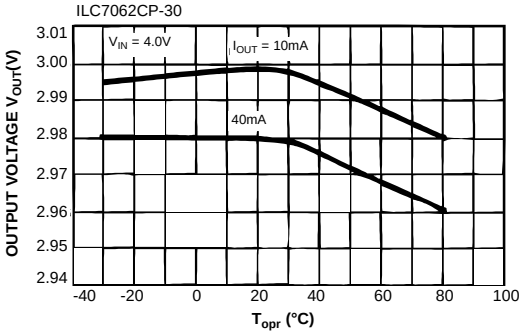
V_{DO} vs OUTPUT CURRENT

ILC7062CP-50

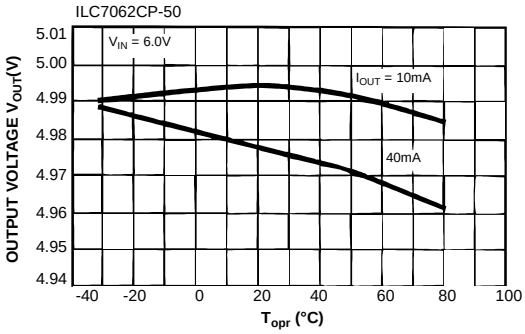


Typical Performance Characteristics *General conditions for all curves*

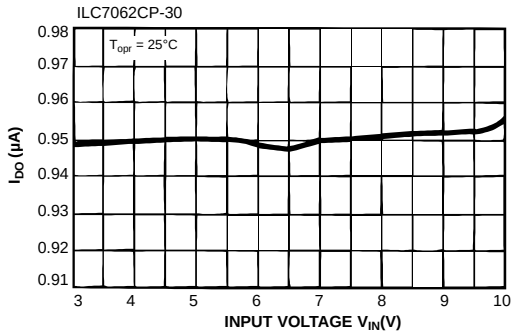
OUTPUT VOLTAGE vs TEMPERATURE



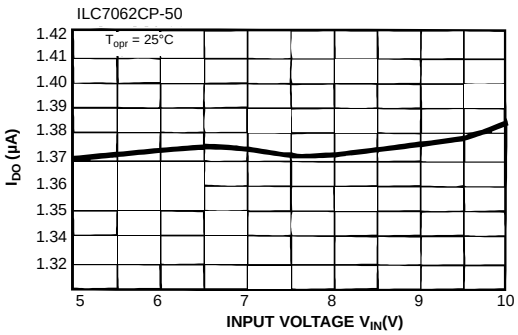
OUTPUT VOLTAGE vs TEMPERATURE



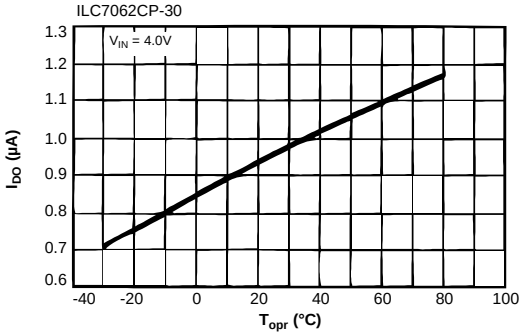
I_{DD} vs INPUT VOLTAGE



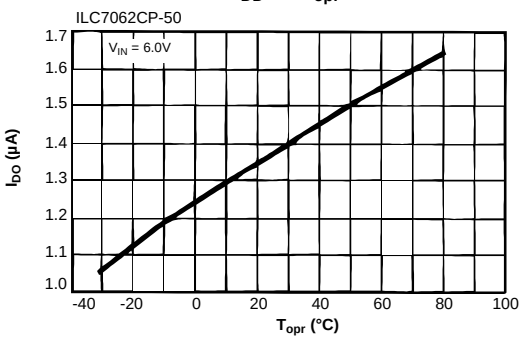
I_{DD} vs INPUT VOLTAGE



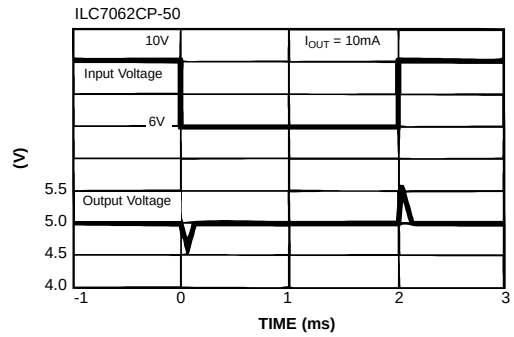
I_{DD} vs T_{opr}



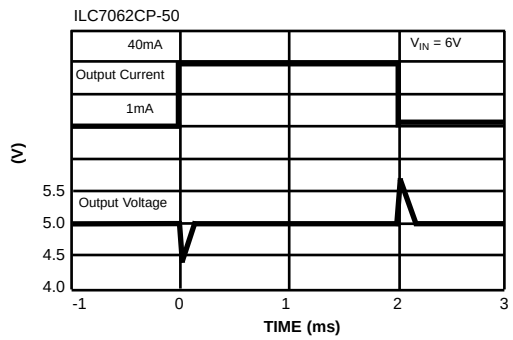
I_{DD} vs T_{opr}



LINE TRANSIENT RESPONSE



LOAD TRANSIENT RESPONSE



Typical Performance Characteristics *General conditions for all curves*