

ADP3302

FEATURES

- High Accuracy: 0.5%
- Low Ground Current
- Extreme Low Dropout Voltage: 100 mV Typical
- Requires Only $C_O = 0.47 \mu\text{F}$ for Stability
- Current and Thermal Limiting
- Low Noise
- Dropout Detector
- 3.0 V to 22 V Supply Range
- 40°C to +125°C Junction Temperature Range
- Low Current Shutdown: 2 μA
- Several Fixed Voltage Options
- Thermally Enhanced SO-8 Package

APPLICATIONS

- Cellular Telephones
- Notebook and Palmtop Computers
- Battery Powered Systems
- Portable Instruments
- High Efficiency Linear Regulators

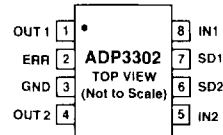
GENERAL DESCRIPTION

The ADP3302 is a member of the ADP330x family of precision micropower, low dropout regulators. The ADP3302 contains two fully independent 100 mA regulators with separate shutdown and merged error outputs. It features 1% overall output accuracy and very low 100 mV typical dropout voltage.

The ADP3302 has a wide input voltage range from 3 V to 22 V. It features an error flag that signals when either of the two regulators is about to lose regulation. It has short circuit current protection as well as thermal shutdown.

The ADP3302 enhanced lead frame design allows for a maximum power dissipation of 630 mW at 70°C ambient temperature and 1.15 W at room temperature without any external heat sink.

PIN CONFIGURATION

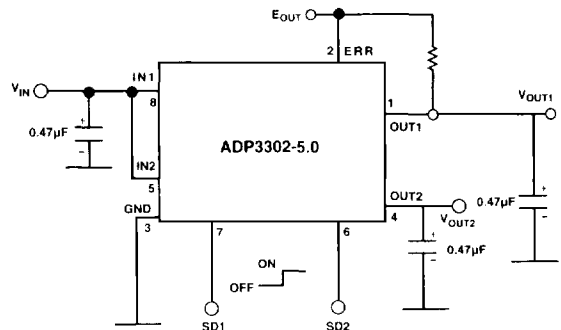


ORDERING INFORMATION

Model	Temperature Range	Package Option*
ADP3302AR-2.7	40°C to +125°C	SO-8
ADP3302AR-5.0	40°C to +125°C	SO-8
ADP3302AR-3.0	40°C to +125°C	SO-8
ADP3302AR-5.0	40°C to +125°C	SO-8
ADP3302AR-3.2	40°C to +125°C	SO-8
ADP3302AR-3.2	40°C to +125°C	SO-8
ADP3302AR-2.7	40°C to +125°C	SO-8
ADP3302AR-3.3	-40°C to +125°C	SO-8
ADP3302AR-3.3	40°C to +125°C	SO-8
ADP3302AR-5.0	-40°C to +125°C	SO-8

*SO = Small Outline Package. For outline information see Package Information section.

Customized options are also available with mixed output voltages.



ADP3302 Application Circuit

This information applies to a product under development. Its characteristics and specifications are subject to change without notice. Analog Devices assumes no obligation regarding future manufacture unless otherwise agreed to in writing.

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ADP3302—SPECIFICATIONS

ELECTRICAL CHARACTERISTICS (@T_J = -40°C to +125°C, V_{IN} = 7 V, C_{IN} = 0.47 μF, C_{OUT} = 0.47 μF, unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
GROUND CURRENT	I _{GND}	I _{F1} = I _{F2} = 100 mA		4	8	mA
		I _{F1} = I _{F2} = 0.1 mA		0.5	1.0	mA
GROUND CURRENT IN DROPOUT	I _{GND}	V _{IN} = 4.5 V I _F = 0.1 mA		0.4	0.8	mA
DROPOUT VOLTAGE	V _{DROP}	I _F = 100 mA		0.1	0.2	V
		I _F = 10 mA		0.05	0.1	V
		I _F = 1 mA		0.02	0.05	V
SHUTDOWN THRESHOLD	V _{THSD}	ON	1.5	0.9		V
		OFF		0.9	0.3	V
SHUTDOWN PIN INPUT CURRENT	I _{SDIN}	0 < V _{SD1} < 5 V 5 < V _{SD1} < 22 V		0	1 100	μA μA
GROUND CURRENT IN SHUTDOWN MODE	I _Q	V _{SD1} = V _{SD2} = 0		0	2	μA
OUTPUT CURRENT IN SHUTDOWN MODE	I _{OSD}				10	μA
ERROR PIN OUTPUT LEAKAGE	I _{EL}	V _{FO} = 5 V			1	μA
ERROR PIN OUTPUT "LOW" VOLTAGE	V _{LOL}	I _{SINK} = 400 μA		0.15	0.3	V
SHORT CIRCUIT OUTPUT CURRENT	I _{OISC}		120		250	mA
THERMAL REGULATION	$\frac{\Delta V_0}{V_0}$	V _{IN} = 22 V, I _L = 100 mA T = 10 ms		0.05	0.2	%/W
OUTPUT NOISE	V _{NOISE}	f = 10 Hz–100 kHz, C _{NR} = 0 C _{NR} = 0.01 μF		200		μV rms
				50		V rms
OUTPUT IMPEDANCE	Z _{OUT}	f = 10 Hz to 1 MHz		0.1		Ω

Specifications subject to change without notice.

ABSOLUTE MAXIMUM RATINGS*

Input Supply Voltage	0.3 V to +25 V
Shutdown Input Voltage	0.3 V to +25 V
Error Flag Output Voltage	0.3 V to +25 V
Noise Bypass Pin Voltage	0.3 V to +25 V
Thermal Protection	165°C
Output Short Circuit	Protected
Power Dissipation	Internally Limited
θ _{JA}	87°C/W
θ _{JC}	41°C/W
Operating Junction Temperature Range	-40°C to +125°C
Storage Temperature Range	-65°C to +150°C

Lead Temperature Range (Soldering 10 sec)	+300°C
Vapor Phase (60 sec)	+215°C
Infrared (15 sec)	+220°C

*This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operation section of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

θ_{JA} is specified for worst case conditions with devices soldered on a circuit board.

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